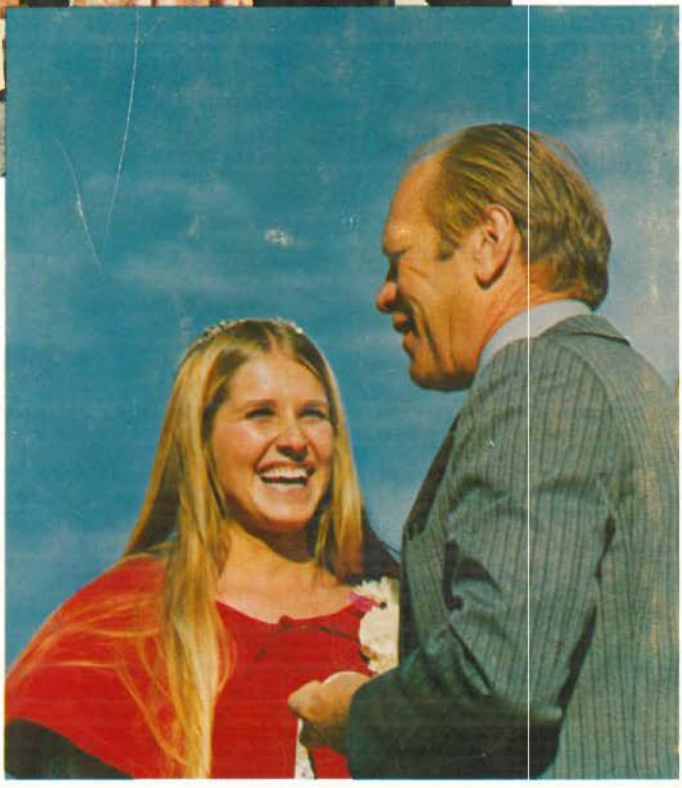
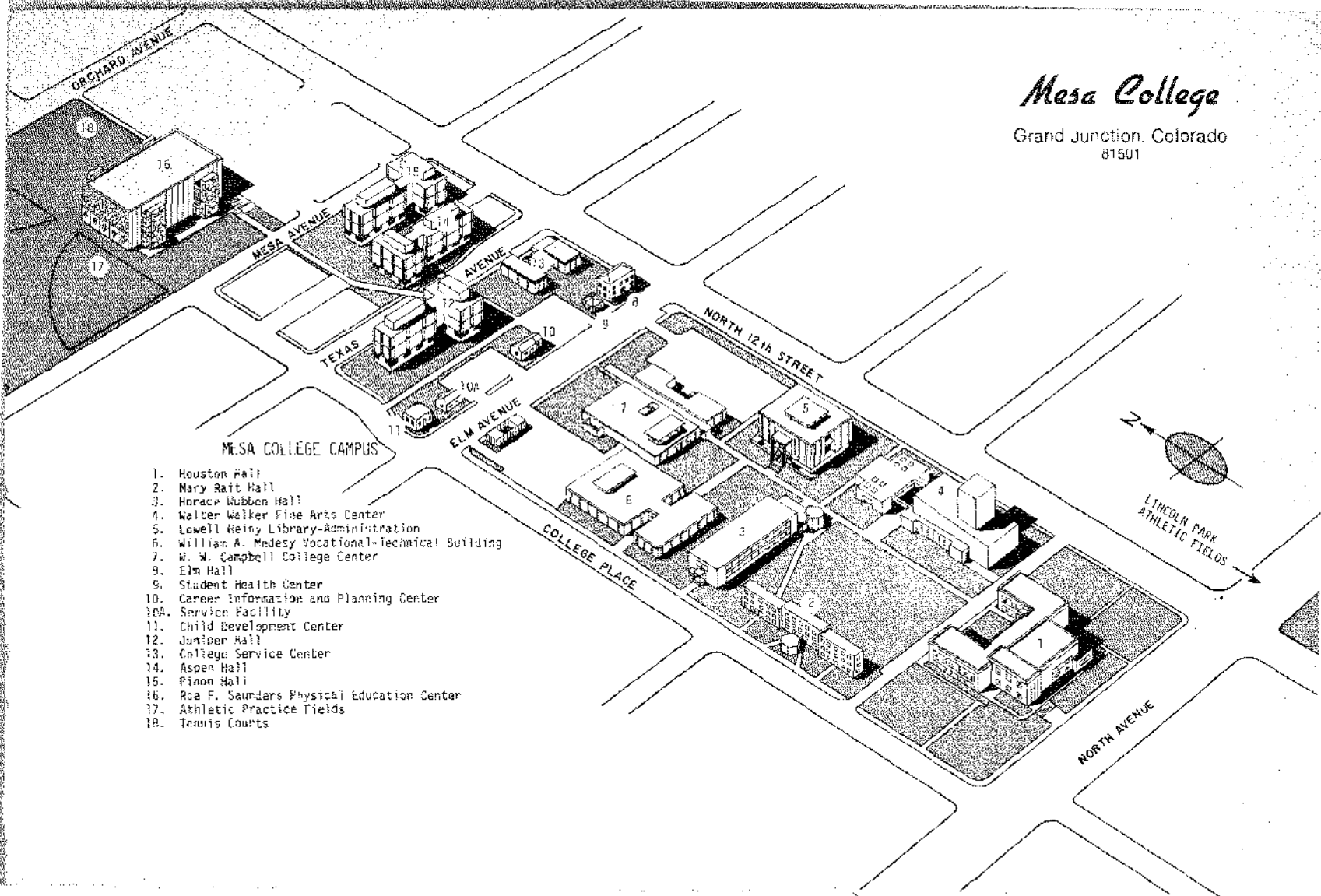


MESA COLLEGE
GRAND JUNCTION 1925

CATALOG
1975 • 76

MESA COLLEGE

GRAND JUNCTION, COLORADO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Grand Junction, Colorado
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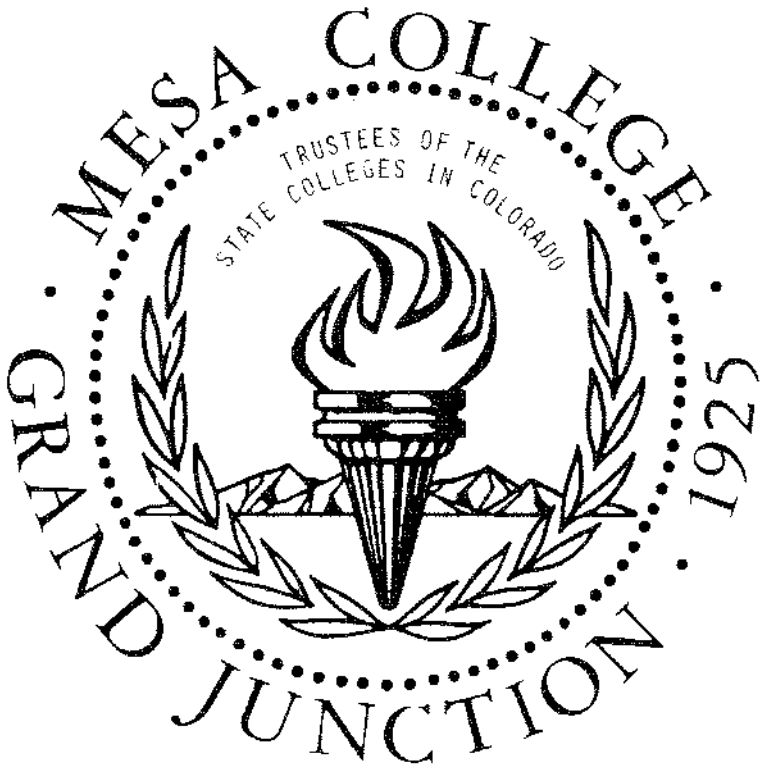
MESA AVENUE
TEXAS AVENUE
NORTH 12th STREET
ELM AVENUE
COLLEGE PLACE
NORTH AVENUE
LINCOLN PARK ATHLETIC FIELDS
MESA COLLEGE CAMPUS
1. Houston Hall
2. Mary Rait Hall
3. Horace Nubbon Hall
4. Walter Walker Fine Arts Center
5. Lowell Heiny Library-Administration
6. William A. Medesy Vocational-Technical Building
7. W. W. Campbell College Center
9. Elm Hall
9. Student Health Center
10. Career Information and Planning Center
10A. Service Facility
11. Child Development Center
12. Juniper Hall
13. College Service Center
14. Aspen Hall
15. Pinon Hall
16. Rae F. Saunders Physical Education Center
17. Athletic Practice Fields
18. Tennis Courts



CATALOG

1975-76

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.

1975

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College Calendar

1975-76

SUMMER SESSION, 1975

June 23 ..... Registration for First Four-Week Term and Eight-Week Term
June 24 ..... Classes Begin
July 4 ..... Independence Day Holiday
July 18 ..... First Four-Week Term Ends
July 21 ..... Registration for Second Four-Week Term
August 15 ..... Summer Session Ends

FALL QUARTER, 1975

August 15 ..... New Student Credentials Due
September 4, 5 ..... Faculty Workshop
September 6, 8:00 a.m. ..... Residual ACT Testing
September 8 ..... Orientation and Group Meetings for New and Transfer Students
September 9 ..... Pre-Registration Counseling
September 10 ..... Registration
September 11 ..... Classes Begin
September 18 ..... Last Day to Change Schedule
October 13, 14, 15 ..... Midterm Examinations
November 20 ..... Finals Begin
November 26 ..... Fall Quarter Ends

MINI-QUARTER, 1975

December 1 ..... Mini-Quarter Begins
December 19 ..... Mini-Quarter Ends

WINTER QUARTER, 1976

January 3, 8:00 a.m. ..... Residual ACT Testing
January 5 ..... Registration
January 6 ..... Classes Begin
January 14 ..... Last Day to Change Schedule
February 9, 10, 11 ..... Midterm Examinations
March 15 ..... Final Examinations Begin
March 19 ..... Winter Quarter Ends

SPRING QUARTER, 1976

March 29, 8:00 a.m. ..... Residual ACT Testing
March 29 ..... Registration
March 30 ..... Classes Begin
April 7 ..... Last Day to Change Schedule
April 26, 27, 28 ..... Midterm Examinations
May 31 ..... Memorial Day Holiday
June 7 ..... Final Examinations Begin
June 10 ..... Commencement

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.
3. Upon receipt of your application and the $10 application fee the College will inform you of your admission status. (Admission status will be tentative until the record of the final semester of the senior year has been received.)
4. A completed Health Report form, signed by either the student or parent, must be on file in the Records Office before final acceptance is granted. (Form provided by Mesa College.)
5. A.C.T. scores must be in the Admissions and Records Office before final acceptance is granted. See your high school counselor for test dates.
6. Students who must live away from home must make arrangements for and secure approval of their housing through the office of the Director of Housing.
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.)
   b. An official transcript of all credits earned from each college or university previously attended. Failure to list all institutions previously attended may result in loss of credit and/or dismissal.
   c. An official report of A.C.T. scores. (Transfer students who have 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. A health report on a form provided by the College.

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 $7.00 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 $12.50 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.

Table of Contents

COVER: President Gerald Ford crowns Mesa College Homecoming Queen. Upper photo by Chip Ferron; lower photo by Grove Thomas.

Foreword

Mesa College began providing educational services in 1925 and has offered a wide range of lower-division college programs throughout the succeeding years. Now the College's services have been further expanded to include eleven baccalaureate-degree majors and some interesting new procedures and learning methods.

Mesa is continuing to offer the strong comprehensive lower-division programs that have attracted students in the past. In addition, the well-established occupational programs are being improved and strengthened to provide better opportunities for job entry after a program of study ranging from a few weeks to two years. The introduction of baccalaureate-degree areas of study gives patrons of Mesa College additional opportunities to prepare for a job or for further advanced study.

The new programs and procedures provide a wider range of choices for those seeking educational services; they also encourage progress toward educational goals in a minimum-time, maximum-flexibility context. In addition, challenging career-oriented opportunities result from the merging of traditional learning methods with a variety of newer kinds of learning experiences relating to work beyond the campus and to the issues, problems and needs facing our citizens today.

Mesa College exists primarily to provide environments for learning and service. College officials want these environments and services to be of the highest possible quality, to enable all individuals to recognize and develop their abilities and talents, and the citizens, generally, to be well-served.

General Information

HISTORY OF THE COLLEGE

Mesa College was organized as Grand Junction State Junior College in 1925 by authority of legislation that had been enacted on April 20 of that year. The College opened its doors on September 21 in a renovated former elementary school building at 5th and Main. Mesa's official beginning was the culmination of a quarter-century of planning by community leaders, and another twelve years passed before the College received state assistance. Until the Colorado General Assembly voted state support of $100 per student in 1937, local individuals, organizations and students paid for the College's operation. State and county aid began in 1938 after formation of the Mesa County Junior College District under terms of the 1937 legislation, and the name of the institution was changed to Mesa College. This basic support structure continued until 1974. Under terms of Senate Bill No. 16, enacted by the Colorado General Assembly of 1972, the electorate of the junior college district voted to dissolve the district and transfer the assets of Mesa College to the Trustees of State Colleges in Colorado, effective July 1, 1974.

The legislation authorized the enlargement and improvement of Mesa College to include the addition of baccaulaureate programs, along with other new services, in September 1974.

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

OBJECTIVES

Mesa College is a general purpose institution which seeks (1) to provide a broad range of educational services for the individual students who utilize them and for the citizens, collectively, who reside in the College's service area, (2) to offer flexibility in its programming so that people of differing circumstances from all of the post-high school age groups can easily take advantage of College services, and (3) to help people not only gain knowledge and skill but also experience how these tools can be used constructively for the solution of problems.

Within the above contexts Mesa College seeks to provide an appropriate variety of (1) vocational-technical programs leading directly to employment in a number of occupational areas, (2) two-year associate degree courses of study leading to either employment or more advanced study, (3) baccalaureate-degree majors leading to employment or to further study in the various professions, and (4) community services which lead to civic, cultural, ethnical, health, intellectual, moral, recreational and social improvements in communities in the College's service area.

ACCREDITATION

In 1957 Mesa College was fully accredited by the North Central Association of Colleges and Secondary Schools as a community junior college. Since March 1974 the College has also been accredited at the baccalaureate level by North Central. Accreditation by this agency places credits earned at Mesa College on a par with those earned at other similarly accredited institutions throughout the United States.

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.

Houston Hall, the first permanent building on the present campus, provides classrooms for business, data processing, home economics, humanities, and social science.

The Lowell Heiny Library, 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 50,000 volumes plus 500 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, built in 1948 and remodeled in 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 W. W. Campbell College Center, 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, constructed 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 Roe F. Saunders Physical Education Center 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. Physical education and practice athletic fields are located immediately west of the Physical Education Center. Tennis courts are just north of the facility.

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 William A. Medesy Vocational-Technical Center houses the Mesa College Area Vocational School. The building has 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 large shopping centers, are located along North Avenue.

Grand Junction's location in a scenic part of the Rocky Mountain West provides unlimited opportunity for the outdoorsman. Many Mesa College activities involve the physical advantages of the region. Among these activities is the College's physical education program in skiing, which is conducted at the Powderhorn-on-Grand Mesa Ski Area. Qualified instructors, a variety of lifts, and miles of excellent trails combine to make the ski area a valuable adjunct to the College's Winter 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 1974 was 2,242, including 1,417 freshmen, 566 sophomores, 166 juniors, 37 seniors, and 56 unclassified students. The freshman class consisted of 744 men and 673 women. The sophomore class included 337 men and 229 women. The junior class consisted of 94 men and 72 women, and there were 26 men and 11 women classified as seniors. Thirty-two men and 24 women were unclassified. The legal residences of the students were: Colorado 2,078; out-of-state 164, including 17 from foreign countries.

In addition, 1,232 students enrolled in one or more classes in the evening Community Services program, which offers degree and special credit courses designed primarily for adults.

In its role as a multipurpose institution, Mesa College served a total of 3,474 individuals in organized classwork during Fall Quarter 1974.

COLLEGE-COMMUNITY RELATIONS

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

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

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

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 counseling is encouraged to see the Director of Student Services, the Associate Directors, or any member of the professional counseling staff. These services are available during regular office hours at the Student Personnel Services Center located on the terrace level of the Lowell Heiny Library Building. In addition, a counselor is on duty from 6 to 10 p.m. at Houston Hall to assist students in the day-school or the evening Community Services program.

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.

CAREER INFORMATION AND PLANNING CENTER

Career counseling and vocational guidance services are available at the Career Center located at 1152 Elm Avenue. The Career Center is manned by professional personnel of the Area Vocational School and the Student Services staff. These services are designed to assist either students or prospective students in the development of realistic occupational goals and career plans.

JOB DEVELOPMENT AND PLACEMENT

The Job Development and Placement Office is also located in the Career Center. Each year a large number of students qualify for employment upon graduating from Mesa College or upon completion of a specific course of study in one of the College's many 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.

FINANCIAL AIDS

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

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

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

FEDERAL STUDENT-AID PROGRAMS

1. **B.E.O.G.**—Basic Educational Opportunity Grant Program is a grant program available to needy students enrolling in an institution of post-secondary education for the first time on or after April 1, 1973. Applications are available from high school counselors, U.S. post offices, employment offices or the office of financial aids at any accredited post-secondary institution. The student applies directly to the Basic Education Opportunity Grants analysis center and, in turn, submits his Student Eligibility Report (SER) to the financial aids officer of the college of his choice for the grant determination. Full-time and part-time students enrolling for the first time on or after April 1, 1973, in an institution of post-secondary education, who are high school graduates or equivalent, are eligible to apply. The BEOG Program is the base program for financial aids at Mesa College.
2. **College Base Programs**—Mesa College participates in many of the other federal student-aid programs. These include: (1) the National Direct Student Loan Program, (2) the Nursing Student Loan Program, (3) Supplemental Educational Opportunity Grants Programs, (4) the College Work-Study Program, and (5) the Law Enforcement Education Program (LEEP) for in-service law enforcement officers only.

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

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

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

There is no absolute deadline for submitting applications for any of the federal student-aid programs; however, students who have all application materials complete and on file with the Admissions Office and Financial Aids Office by March 15, and have demonstrated financial need, will receive consideration in the first screening of applications. In addition, any application other than BEOG received after July 1, 1975, may not be considered for Fall Quarter 1975.

Guaranteed Student Loans may be obtained up to a maximum of $2,000 but not to exceed the student need for an academic year. Applications are submitted to participating banks, savings and loans associations, and credit unions. These loans are available at seven per cent interest, repayable after the student completes his education. If the student is eligible for the federal interest benefits, the accruing interest, while the student is in school, is paid by the federal government. If the student does not qualify for the interest benefit as determined by a financial needs analysis, he may secure the loan but the interest accrues and is payable by the student while he is enrolled in post-secondary education.

MESA COLLEGE SCHOLARSHIP AND DEVELOPMENT FUND, INC.

The Mesa College Scholarship and Development Fund, Inc., is a non-profit agency comprised of prominent citizens of the area who are interested in aiding deserving students at Mesa College. This group, which functions independently of the College, conducts an annual drive to raise funds for scholarships and student loans. The organization also serves as a receiving and clearing agency for many of the established scholarships and for those received from clubs and organizations. All scholarships are designed to apply toward tuition and fees.

1. **Scholarships**—Each quarter a number of scholarships amounting to $75 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. Scholarships are awarded at the completion of the quarter, and the scholarship then becomes effective for the subsequent quarter.
2. **Community Clubs and Organizations Scholarships**—In addition to the institutional scholarships described above, many scholarships and awards have been established for students of the College by individuals and organizations of the Grand Junction area. The amounts of these awards vary but all are designed to apply toward tuition and fees.
3. **Student Loans**—The College provides short-term and intermediate-term loan funds from which students may borrow to help meet financial obligations temporary in nature. By definition, short-term loans are limited to a maximum of $50, repayable within 60 days or by the end of the 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 4 per cent finance charge for loans made from this fund.

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.

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 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, or who have had their college education at Mesa interrupted for a period of one calendar year or longer, are required to complete a special health report form. These forms are provided by the College Admissions Office and the completed certificate of health must be submitted to that office prior to registration.

STUDENT ACTIVITIES

Mesa College believes 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 students 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 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 educational opportunities and the counseling necessary to enable students to be effective in these roles;

(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 Forums Committee, in cooperation with Student Cabinet, brings 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 has a large number of service and special interest organizations which offer all students the opportunity to participate as members of a group or groups with common interests.

The W. W. Campbell College Center 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.

CAMPUS PARKING

All students and employees of the College who wish to park on the campus must register their motor vehicles and secure parking permits. Parking-permit stickers are issued at registration time or when a student acquires or changes a motor vehicle. College employees register vehicles with the College Business Office. Students register vehicles and secure parking permit stickers from the Admissions Office.

HOUSING

General Policy. Mesa College believes that resident students, i.e., those who must live away from home to attend the College, will have their best opportunity for a well-rounded educational experience while living in a supervised residence hall located on campus and designed for student living. Since there are not accommodations in college residence halls for all resident students, the College has adopted the following rules for regulating the housing of its resident students (those students who must secure housing in Grand Junction or vicinity away from their home residence):

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

(2) Sophomore resident students are encouraged to live in College residence halls, and must either do so or receive permission of the Director of Housing to live off campus.

(3) Upper division students (junior and senior) are encouraged to live in College residence halls but may live off campus if they prefer to do so.

(4) Freshmen who cannot be accommodated in the residence halls at the time of registration and who are not excepted by the Director of Student Services or the Director of Housing on one of the bases given below, are required to move into a residence hall the quarter immediately following the time notification by the College is given the student that space is available therein.

(5) Students who live with their wives or husbands, or with their parents in Grand Junction or vicinity, shall register their housing with the Office of Admissions and Records at the time of registration of each academic year and in the event of a change in address during the year.

(6) Students otherwise required to live on campus but whose health conditions demand special services and living conditions or whose relatives make available their homes at a considerable saving to the student on room and board, must secure permission from the Director of Housing to live off campus.

(7) Freshman resident students who are 21 years of age are not required to live in College residence halls and do not have to secure permission of the Director of Housing to live off campus.

General 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.

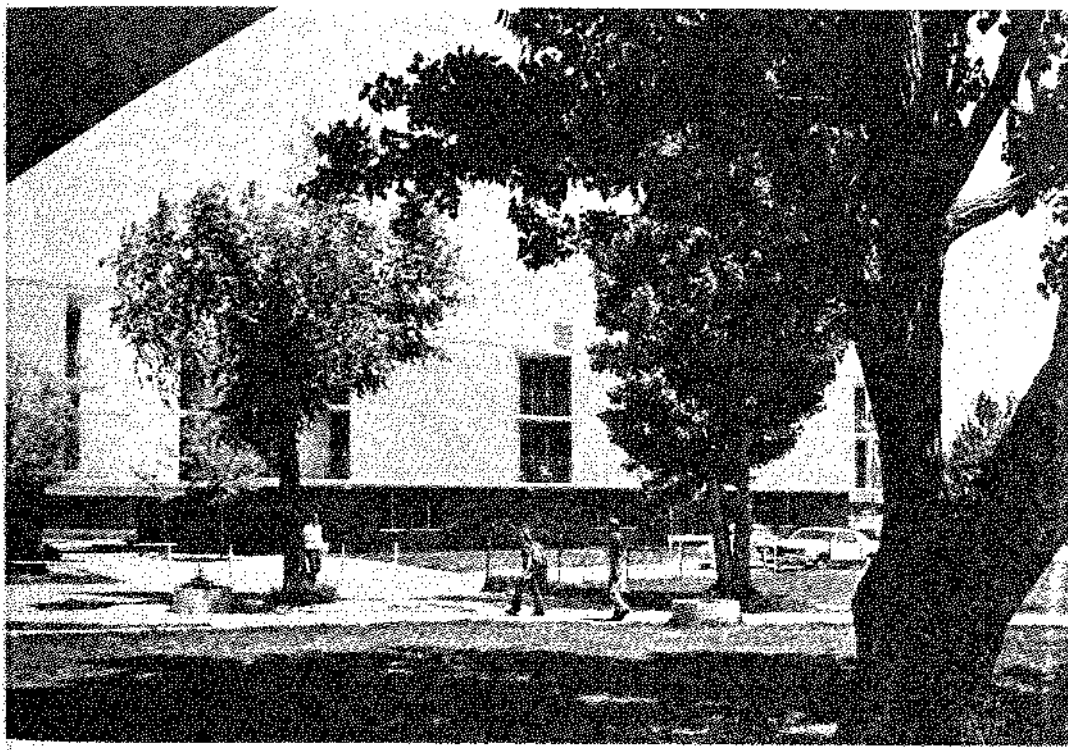
The College reserves the right to alter board and room charges upon thirty (30) days notice prior to the scheduled date of registration for any quarter.

Off-Campus Housing. Students who cannot be accommodated in college residence halls will be granted permission to live off campus.

Changes in the location (address) of a student's housing must be reported to the Office of Admissions and Records. 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 September 1 will result in forfeiture of the entire $50 deposit. If the reservation is cancelled prior to September 1, full refund of the $50 deposit will be made.

Normally, no refund on the housing (room rent) contract will be made to a student who voluntarily withdraws from the College during a quarter. Refund of board (meals) will be prorated on the number of weeks remaining in the quarter. The $25 room-damage deposit will be refunded only upon inspection and clearance of the room by the residence-hall supervisor and as may be adjusted for the assessment of damages.



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.**

TUITION AND FEE SCHEDULE (IN EFFECT DURING 1974-75)

For Regular Academic Year: Fall, Winter, Spring Quarters

Full-Time Students	**Per Quarter**	**Per Year**
COLORADO RESIDENTS		
Tuition	$115.00	$ 345.00
Student Services and Activity Fees	40.50	121.50
Total	$155.50*	$ 466.50*
NON-COLORADO RESIDENTS		
Tuition	$458.00	$1374.00
Student Services and Activity Fees	40.50	121.50
Total	$498.50*	$1495.50*

Part-Time Students

COLORADO RESIDENTS ..... $17.00 per credit hour*

NON-COLORADO RESIDENTS ..... $22.00 per credit hour*

*The above tuition and fee rates are those actually charged during the 1974-75 school year. At the time this catalog was printed, the 1975-76 tuition and fee rates had not been established. Some increase in both tuition and fees is anticipated for 1975-76.

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 FEES

Application and Evaluation Fee (non-refundable) $10

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

PRIVATE AND SPECIAL INSTRUCTIONAL FEES

When private and special instructional services are required, additional charges will be incurred by the student. These fees are payable in advance to the College Business Office and vary with the nature of the instruction. Private instruction in applied music is available through the College from instructors approved by the College. Cost of this instruction is $35 per quarter for one lesson each week. Other special instructional services available to students which require extra fees include bowling, skiing, golf, etc.

MISCELLANEOUS FEES

Late registration, $10 first day, $5 each additional day, maximum $30.00

Graduation (cap, gown, diploma) $10.00

Late petition for graduation ..... $ 2.00

Late credential fee ..... $ 3.00

Aquatics Fee (swimsuit and towel) ..... $ 2.00

PAYMENT OF FEES

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

BOARD AND ROOM

Board and room in College residence halls is contracted on a yearly basis but is payable each quarter during registration. At the time this catalog was printed, the exact cost of board and room for 1975-76 had not been established. It was estimated that these costs would be as follows:

Fall Quarter .....$ 388.00	Spring Quarter .....$ 345.00
Winter Quarter.....$ 345.00	**Total for Year $1078.00**

The above estimated charges are for the five-day boarding plan. This plan provides three meals per day, Monday through Friday, with second helpings permitted at any meal. In addition, the College offers to all students an optional weekend meal plan, which includes five meals. (Sunday breakfast is not served.) Estimated cost of this plan for 1975-76 is $45 per quarter.

For students who are permitted to reside off campus, room rental varies according to the type of accommodations and may range from $40 to $100 per month. Since meals are difficult to obtain in private homes and rooming houses and are generally more expensive at commercial eating establishments, the College Cafeteria offers a special quarterly meal plan for students who do not live in College residence halls.

REFUNDS ON BOARD AT COLLEGE CAFETERIA

Students who are requested by College officials to withdraw from the College, 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 should not exceed $160 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.

DETERMINATION OF RESIDENCE STATUS FOR TUITION PURPOSES

The classification of students as residents of Colorado for tuition purposes is determined under Colorado statute.

Any student who has been classified as Out-of-State who believes he can qualify as a State-of-Colorado 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.

Organization For Instruction

Mesa College has programs of three general types:
(1) Those offered by the General Studies divisions;
(2) Those offered by the Occupational Studies areas; and
(3) Those offered through the Office of Community Services.

The **General Studies** divisions of the College and the subject areas included in each are listed below:

Division of Biological Sciences and Home Economics (agriculture, biology, botany, forestry, home economics, zoology)

Division of Business (accounting, business management, general business, secretarial)

Division of Computer Science, Mathematics and Engineering (computer science, engineering, mathematics, statistics)

Division of Fine Arts (art, drama, music)

Division of Humanities (education, English, liberal studies, literature, philosophy, reading, speech, and foreign languages)

Division of Physical Education and Recreation (physical education activity and theory, leisure-time activities, recreation leadership)

Division of Physical Sciences (chemistry, geology, astronomy, archaeology, physical science, physics)

Division of Social Sciences (anthropology, economics, geography, human services, political science, psychology, and sociology).

The **Occupational Studies** areas offer programs in graphic communications, auto body and fender, auto mechanics, data processing, early childhood education, electric lineman, electronics, engineering technician, fire science technology, horticulture, job entry in business, law enforcement, medical office assistant, nursing (associate degree), nursing (practical), occupational guidance specialist, radiologic technology, secretary—legal or medical, travel and recreation management, welding, and training through Western Health Education Center.

Among the programs listed above are those included in the offerings of two formally organized Occupational Studies divisions, the Division of Health Programs (Department of Nursing) and the Division of Trade and Industrial Education.

The **Office of Community Services** offers numerous programs, mostly in evening classes, to meet a variety of interests and needs. These include both credit and non-credit courses with appeal to a wide range of interests and ages.

CERTIFICATES, DIPLOMAS, DEGREES

Mesa College grants one and two-year certificates in specified vocational-technical programs, the two-year (junior college) diploma, associate degrees in art, science, commerce, and applied science; a three-year certificate in certain professional fields, and the bachelor of arts (B.A.) and bachelor of science (B.S.) degrees.

A student may first receive a certificate, diploma, or associate degree before progressing on toward the baccalaureate degree, although such is not necessary.

PROGRAMS OF STUDY

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

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

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

Mesa College also offers an extensive program of Community Services to provide both academic and occupational education for adults of the area. These classes, offered mostly in the evening, include both credit and non-credit courses. Regular day students may enroll.

Some students may be capable of reducing the time necessary to complete the baccalaureate degree through: enrollment in college classes while in high school; taking extra hours with permission of their adviser; attending summer session and mini-quarter; challenging courses; earning credit through College-Level Examination Program (CLEP); or petitioning to receive college credit for work experience. Further information may be obtained from the counseling staff.

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

In some programs, certain courses may be offered on an alternate-year basis or as demand requires.

Admissions Information

ADMISSION TO MESA COLLEGE

Mesa College will admit high school graduates, non-graduates of high school who are 18 years of age or older (see **Admission of Special Students** below) 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.

ADMISSION OF FOREIGN STUDENTS

Mesa College does not have a special program or courses in the English language for foreign students. Students admitted must show evidence of some preliminary schooling in the English language from an American college or university. This requirement may be waived if a student achieves satisfactory scores on the English language examination provided by the United States Department of State and administered through the American Consular Office.

Before admission will be granted, a foreign student must provide assurance that he can be self-supporting without any financial assistance from the College for one academic year. Academic-year (fall, winter, and spring quarters) costs per student are approximately $3,500.

If admitted, all foreign students are required to have on deposit with the College Business Office $1,200. This money will be applied to the student's first-quarter expenses and is non-refundable.

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

Mesa College recognizes superior secondary-school achievement by means of advanced placement for those students who have taken especially enriched or accelerated courses before entering college. Usually, applicants qualify for such placement by satisfactory achievement on CLEP or special placement examinations prepared by the respective academic departments or divisions of the College. Detailed information concerning advanced placement 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 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

Completion of a health questionnaire is required of all students entering Mesa College for the first time.

Foreign students and those students entering the Associate-Degree Nursing or Licensed Practical Nursing programs, the Early Childhood Education program, or the Radiologic Technology program must submit a special health (medical) examination form completed and signed by a physician.

For all other students, the health report form consists of a simple card questionnaire which can be filled out and signed by either the student or the parent.

The completed health form is one of the requirements of admission and must be filed with the Office of Admissions and Records prior to registration.

SPECIAL ADMISSIONS INFORMATION FOR VETERANS

Mesa College is approved for almost all of its programs by the Veterans Administration for education and training of veterans under applicable public laws. There may be a few new programs in vocational-technical areas which have not been approved for veterans' benefits. Veterans planning a course of training in special programs not described in the college catalog or identified as approved for veterans' benefits should check with appropriate college officials before enrolling in such a program if veterans' benefits are desired.

Students who plan to qualify for Veterans Administration benefits must make special arrangements through the College Admissions Office at least six weeks prior to their first registration if they plan to have veterans' benefit checks on hand for payment of expenses at the time of registration. Otherwise, veterans should come prepared to finance their tuition and fees, books, supplies, and living expenses for at least two months. This is the normal length of time required to set up a veteran's file in the regional office of the V.A. and start issuing monthly checks.

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 Director of Admissions in advance of registration to make arrangements to take the tests, or to have an official report of the scores from previous testing 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 $7.00 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 used by the student and his counselor as a basis for planning a course of study and also as an aid in 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.

COURSE-OF-STUDY REQUIREMENTS

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

REGISTRATION

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

NO-CREDIT-DESIRED COURSES

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

Graduation Requirements

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

1. Have been regularly enrolled for at least three quarters, including the quarter during which graduation requirements are met, and must have earned a minimum of 42 credit hours at Mesa College.
2. File with the Director of Admissions and Records an application for graduation sometime during the quarter immediately preceding the quarter during which graduation requirements are to be met. A nominal graduation fee is charged for the diploma and all degrees.
3. Satisfy all general and specific requirements of the College including the fulfillment of all financial obligations.
4. Have removed from the official record all marks of deficiency in those subjects for which the student expects to receive credit toward graduation.

DEGREE REQUIREMENTS

To qualify for the two-year diploma, an associate degree, or the baccalaureate degree, in addition to the general graduation requirements stated above, a student must complete certain general-education requirements for the diploma and each of the specific degrees, as follows:

1. **Two-Year Diploma:**

Freshman English	*9 credit hours
Social Science or Literature	9 credit hours
Physical Education (3 quarters of activity courses)	3 credit hours
Electives	72 credit hours

2. **Associate in Arts Degree:**

Freshman English	*9 credit hours
Literature	9 credit hours
Social Science	9 credit hours
Physical Science	9 credit hours
Biology or Psychology	9 credit hours
Physical Education Activity	3 credit hours
Approved electives	45 credit hours

3. **Associate in Science Degree:**

Freshman English	*9 credit hours
Social Science or Literature	9 credit hours
Physical Education Activity	3 credit hours
Laboratory Science or Mathematics	39 credit hours
Approved electives	33 credit hours

4. **Associate in Commerce Degree**

See requirements in Division of Business section.

5. **Associate in Applied Science Degree**

Freshman English	*9 credit hours
Social Science (including Psychology) or Literature	9 credit hours
Physical Education Activity	3 credit hours

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

*NOTE: The freshman English requirement of 9 credit hours in all of the above degree programs and the two-year diploma may be met by completing English 111 and 112 (6 credit hours) plus either English 113 or 115 (3 credit hours) or a freshman literature class (3 credit hours).

To qualify for the two-year diploma a student must earn a minimum of a 2.0 grade-point average for 93 credit hours, including 3 hours of physical education activity courses. For any of the associate degrees, a student must earn a 2.0 grade-point average for all hours taken toward meeting the 93-hour requirement, including the 3 hours of physical education activity courses.

6. **Baccalaureate Degree Requirements**

Students who meet requirements for the baccalaureate degree must complete a minimum of 180 quarter hours, plus 3 quarters of varied physical education activity courses. A minimum of a 2.0 (C) overall grade-point average must be maintained; however, repeated courses will be counted only once. It is recommended that each baccalaureate-degree program include 45 hours of general education. The 45 hours should include, as a minimum, the following:

English 111 and 112 plus a 3-hour Literature course	9 hours
Humanities (including fine arts)	6 hours
Biological Sciences or Psychology	9 hours
Physical Sciences (including mathematics)	9 hours
Social Sciences	9 hours
	*42 hours

*The three hours required to meet the 45-hour requirement may be met by taking an additional 3-hour class in any of the above areas.

The requirements of the major in the baccalaureate-degree programs offered by Mesa College varies from a minimum of 45 hours for some programs to a maximum of 60 hours in others. Specific information on the requirements of each of the baccalaureate-degree programs is included in the section of the catalog dealing with courses and programs under each of the academic divisions.

CERTIFICATES

Mesa College offers one and two-year certificates in several vocational-technical fields. The specific requirements for certification in these programs are found elsewhere in this catalog under Occupational Education. Three-year specialist programs are also available in several areas in both General Studies (arts and sciences) and Occupational Studies areas.

TEACHER PREPARATION

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

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. 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 former school that the student is in "good standing."

General Regulations

LATE REGISTRATION

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

ATTENDANCE

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.

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 Director of Student Services. The coach, instructor or other official whose activities require students to be absent from classes shall file with the Director of Student Services 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 16 credit hours (18 for engineering students). The minimum load to be recognized as a full-time student is 12 credit hours. Students may register for less than 12 quarter hours, in which case they are classified as part-time students.

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 is 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 either at the end of the first quarter or at the end of any quarter of attendance. Students placed on academic probation may not be eligible to hold office in student organizations or participate in activities sponsored by the College.

EVALUATION

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

GRADE REPORTS

Individual grade reports are mailed to the permanent home address of every student at the end of each 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 at Mesa College are indicated as follows: A, excellent to superior; B, good to excellent; C, satisfactory; D, passing but not satisfactory; F, failure; I, incomplete; W, withdrawn; NC, no credit; WN, withdrawn from no-credit class; IP, in progress.

INCOMPLETES

A grade of I (incomplete) 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. The grade of I (incomplete) must be made up during the succeeding quarter; otherwise, it remains as an incomplete on the student's permanent record.

WITHDRAWAL FROM COLLEGE

A student who desires to withdraw from the college should notify his faculty adviser and report to the Director of Student Services. The necessary withdrawal papers will be filled out and officially signed by the Director or one of the Associate Directors. The student will receive a grade of W (withdrawn) for each course regardless of whether he was passing or failing at the time of withdrawal. Such withdrawal may be made at any time during the quarter prior to the sixth day after midterm grades are posted and available to students from their faculty advisers. No student may withdraw from the College after this date, except in case of extreme emergency.

Academic Divisions and General Studies Programs

Course Descriptions and Suggested Curriculums

The following sections of this catalog provide suggested curriculums and descriptions of courses available in the various divisions and subject-matter areas. The suggested curriculums, designed to assist students in planning their courses, include both general and special requirements for graduation with the appropriate certificate, diploma, or degree as indicated. Orientation or introductory courses are required of students majoring in certain subject-matter areas. Faculty advisers will assist students in selecting courses in fields for which no sample curriculum is listed.

Two types of general curriculums are suggested for students who wish to work toward an associate degree but who have not selected a definite major. For students who have selected majors, suggested curriculums will be found at the beginning of some of the catalog sections devoted to the various divisions or subject-matter fields.

Courses offered at Mesa College are grouped in numerous departments or fields of study within several major divisions. The course descriptions in this catalog indicate the content of the course and the prerequisites when applicable. Courses are numbered and given titles. For example, HIST 131 is a course number and **United States History** is the corresponding course title. **FWS** and **Smr** indicate fall, winter, spring and summer quarters.

Courses numbered **1 through 99** are preparatory in nature and **not** intended for transfer or for degree requirements; in some instances, however, they may be counted as electives. Courses numbered 100-199 are designed for freshmen, 200-299 for sophomores, 300-399 for junior-level students, and 400-499 for students in their final year of baccalaureate-degree work.

In some programs, certain courses may be offered on an alternate-year basis or subject to demand.

Selected Studies Program

BACHELOR OF ARTS DEGREE

The Bachelor of Arts program in Selected Studies permits the student to concentrate on those areas of study that are of greatest interest to him and makes available to the student a great degree of flexibility in planning schedules, utilizing both on-campus and off-campus resources, and engaging in meaningful educational experiences.

The Selected Studies major is a learning program initiated and structured principally by the student with the advice and assistance of designated staff members. Candidates for the Selected Studies degree must complete the general college requirement of 183 credit hours or equivalent. A minimum of 25 per cent of the course work must be of the upper-division level, and credits earned must embrace course work or practical experience representing at least four broad discipline areas.

Early consultation with faculty advisers and other instructors and staff officials is recommended in planning this program.

General Curriculums

FOR ASSOCIATE DEGREES

(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	Hrs.
English 111	3
Electives	5
Music	2
Psychology	3
Physical Education	1
	14

Winter Quarter	Hrs.
English 112	3
Electives	5
Psychology	3
Music	2
Art	2
Physical Education	1
	16

Spring Quarter	Hrs.
English 113	3
Electives	5
Music	2
Psychology	3
Speech	3
Physical Education	1
	17

SECOND YEAR

Fall Quarter	Hrs.
History	3
Science	5
Elective	5
Literature	3
	16

Winter Quarter	Hrs.
History	3
Science	5
Elective	5
Literature	3
	16

Spring Quarter	Hrs.
History	3
Psychology	3
Science	5
Elective	2
Literature	3
	16

GENERAL LIBERAL ARTS (Transfer)

ASSOCIATE IN ARTS

FIRST YEAR

Fall Quarter	Hrs.
English 111	3
Social Science or Literature	3
Chemistry or Geology	5
Mathematics	3-5
Physical Education	1
	15-17

Winter Quarter	Hrs.
English 112	3
Social Science or Literature	3
Chemistry or Geology	5
Mathematics	3-5
Elective	1
Physical Education	1
	16-18

Spring Quarter	Hrs.
English 113	3
Social Science or Literature	3
Chemistry or Geology	5
Mathematics	3-5
Elective	1
Physical Education	1
	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	Hrs.
Literature	3
Psychology	3
Foreign Language	5
Social Science	3
Elective	3
	17

Winter Quarter	Hrs.
Literature	3
Psychology	3
Foreign Language	5
Social Science	3
Elective	3
	17

Spring Quarter	Hrs.
Literature	3
Psychology	3
Foreign Language	5
Social Science	3
Elective	2
	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 students:

1. *The basic courses in pre-professional and transfer curriculums.*
2. *Courses for non-science majors for general education.*
3. *Vocational training for those students who will terminate their education at the lower division level.*
4. *Baccalaureate degrees in Animal-Plant Management.*

Instructional Staff: **Mr. Rice, Chairman**; Mr. Bauerle; Mrs. Leighton; Mr. Manuel; Mr. McCallister; Mr. McKee; Mrs. Sullivan; Mr. Yonker; Mrs. Young

AGRICULTURE SCIENCE

ASSOCIATE IN SCIENCE

Students entering Agriculture Science should have a good mathematical and science background and have an above-average record as a high school student. The following freshman curriculum is recommended.

FIRST YEAR

Fall Quarter	Hrs.	Winter Quarter	Hrs.	Spring Quarter	Hrs.
Attributes of Living Systems or General Botany	5	General Botany	5	Plant Classification	5
English Composition	3	English Composition	3	English Composition	3
General Chemistry or General Inorganic Chemistry	5	General Chemistry or General Inorganic Chemistry	5	General Chemistry or General Inorganic Chemistry	5
Agricultural Profession	1	Physical Education	1	*Mathematics for Biological Sciences	5
Elective	3	Elective	3		
	17		17		18

*Lower math will be required if student's high school background and A.C.T. score indicate.

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	Hrs.	Winter Quarter	Hrs.	Spring Quarter	Hrs.
Introductory Animal Science	5	Economic Organization of Agriculture	5	Crop Production	6
General Botany or Attributes of Living Systems	4-5	General Dairy Husbandry	3	Mammal Nutrition	5
English Composition	3	English Composition	3	English Composition	3
Agricultural Profession	1	General Botany or Principles of Animal Biology	5	Speech Making	3
Physical Education	1	Physical Education	1	Physical Education	1
	14-15		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: Farm Power, Soils, College Algebra I, College Algebra II, Trigonometry, American Government, World Civilizations, Literature, General Chemistry, Introduction to Organic Chemistry.

SUPPLEMENTAL AGRICULTURE

Students who plan to supplement their education with less than a baccalauerate degree in agriculture 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.

ANIMAL-PLANT MANAGEMENT

THREE-YEAR CERTIFICATE

General Education requirement including Physical Education ..... 48 hours

Basic Core program ..... 51 hours

Attributes of Living Systems	4	Mammal Nutrition	5
Principles of Animal Biology	5	Genetics	5
Principles of Plant Biology	5	Multiple Resource Management	3
Cell Biology	5	Multiple Water Use Management	4
Developmental Biology	5	Microbiology	5
Ecosystem Biology	5		
			51

Applied Activity Field Training ..... 15 hours

Emphasis (Student may select one of the following: Applied Biology, Professional Agriculture, Ecosystem Management, Animal Resources)* ..... 25 hours

TOTAL ..... 139 hours

BACHELOR OF SCIENCE

General Education requirement including Physical Education ..... 48 hours

Basic Core program ..... 51 hours

Attributes of Living Systems	4	Mammal Nutrition	5
Principles of Animal Biology	5	Genetics	5
Principles of Plant Biology	5	Multiple Resource Management	3
Cell Biology	5	Multiple Water Use Management	4
Developmental Biology	5	Microbiology	5
Ecosystem Biology	5		
			51

Applied Activity Field Training ..... 15 hours

Emphasis (Student may select one of the following: Applied Biology, Ecosystem Management, Professional Agriculture, Animal Resources)* ..... 25 hours

Electives ..... 50 hours

TOTAL ..... 189 hours

*See list of courses below.

EMPHASIS-AREA COURSE OPTIONS

The emphasis-area requirement may be met by selecting 25 hours from the courses listed in one of the following categories:

Applied Biology—Animal Hygiene, 4; Ornithology, 4; Animal Parasitology, 4; Vertebrate Biology, 10; Organic Chemistry, 10; Bio-Chemistry, 5; Statistics, 5; Human Anatomy and Physiology, 9; Histology, 4; Environmental Insects, 4; Animal Facility Management, 3; Survival, 2. Total 64 hours.

Ecosystem Management—Plant Classification, 5; Regional Natural Science, 3; Weed Control, 4; Plant Breeding, 4; Vertebrate Biology, 10; Organic Chemistry, 10; Statistics, 5; Environmental Insects, 4; Greenhouse Management, 4; Seminar and Research Planning, 3; Ornithology, 4; Animal Parasitology, 4; Survival, 2. Total 62 hours.

Professional Agriculture—Plant Classification, 5; Crop Science, 5; Animal Hygiene, 4; Plant Breeding, 4; Animal Breeding, 4; Animal Facility Management, 3; Business Law Survey, 3; Environmental Insects, 4; Fruit Production, 5; Vertebrate Biology, 10; Animal Parasitology, 4; Weed Control, 4; Accounting, 3; Agricultural Economics, 3; Greenhouse Management, 4. Total 65 hours.

Animal Resources—Crop Science, 5; Vertebrate Biology, 10; Organic Chemistry, 10; Bio-Chemistry, 5; Farm Management, 3; Human Relations in Business, 3; Animal Facilities Management, 3; Animal Parasitology, 4; Resource Planning, 2; Weed Control, 4; Environmental Insects, 4; Penned Animal Hygiene and Management, 4; Histology, 4. Total 61 hours.

BIOLOGICAL SCIENCES (Transfer)

ASSOCIATE IN SCIENCE

FIRST YEAR

Fall Quarter	Hrs.
General Inorganic Chemistry	5
General Botany or Attributes of Living Systems	4-5
College Algebra I or College Algebra and Trigonometry	3-5
English Composition	3
	16-18

Winter Quarter	Hrs.
General Inorganic Chemistry	5
General Botany, General Zoology or Principles of Animal Biology	3-5
College Algebra II or College Algebra and Trigonometry	3-5
English Composition	3
Physical Education	1
	15-19

Spring Quarter	Hrs.
Inorganic Chemistry and Qualitative Analysis	5
Plant Classification, General Zoology or Principles of of Plant Biology	3-5
English Composition	3
Physical Education	1
Mathematics for Biol. sciences	5
	17-19

SECOND YEAR

Fall Quarter	Hrs.
Soc. Sci. or Literature	3
Ecosystem Biology	5
Elective or General Inorganic Chemistry	5
Elective	2
Physical Education	1
	16

Winter Quarter	Hrs.
Soc. Sci. or Literature	3
Principles of Genetics or Cellular Biology	3-5
Elective or General Inorganic Chemistry	5
Elective	5
	16-18

Spring Quarter	Hrs.
Soc. Sci. or Literature	3
General Microbiology or Developmental Biology	5
Elective or Inorganic Chemistry and Qualitative Analysis	5
Elective	2
	15

HOME ECONOMICS (Transfer)

ASSOCIATE IN SCIENCE

The broad goal of Home Economics is to help the individual to function more effectively in society as a member of the family.

The specific objective for the transfer program is to help the student meet the lower-division requirements for transfer to a four-year institution offering a degree not available at Mesa College.

FIRST YEAR

Fall Quarter	Hrs.
English Composition	3
Textiles	5
General Chemistry	5
Intro. to Home Economics	2
Basic Clothing Construction	3
Physical Education	1
	19

Winter Quarter	Hrs.
English Composition	3
Intermediate Clothing Construction	3
Art in the Home	2
General Chemistry	5
Physical Education	1
Costume Selection	2
	16

Spring Quarter	Hrs.
English Composition	3
Home Management	3
Home Furnishing and House Planning	4
Intro. to Organic Chemistry	5
Art in the Home	2
	17

SECOND YEAR

Fall Quarter	Hrs.
Food Selection and Preparation	3
General Psychology	3
Human Anatomy and Physiology	5
Social Sci. or Literature	3
Physical Education	1
Speech Making	3
	18

Winter Quarter	Hrs.
Food Selection and Preparation	3
General Psychology	3
Human Anatomy and Physiology	5
Nutrition	3
Electives	3
	17

Spring Quarter	Hrs.
Preparation and Service of Meals	3
General Microbiology	5
Tailoring	3
Electives	6
	17

HOMEMAKING (Terminal)

MESA COLLEGE DIPLOMA

This program is designed for students who plan to be in college for one or two years. The instruction focuses on the responsibilities and behavior patterns of the homemaker. The program allows the students to elect courses which they feel will meet their needs.

FIRST YEAR

Fall Quarter	Hrs.
English Composition	3
Textiles	5
Home Management	3
Intro. to Home Economics	2
Electives	2
Physical Education	1
Basic Clothing Construction	3
	19

Winter Quarter	Hrs.
English Composition	3
Nutrition	3
Intermediate Clothing Construction	3
Art in the Home	2
Physical Education	1
Electives	3
Costume Selection	2
	17

Spring Quarter	Hrs.
English Composition	3
Physical Education	1
Electives	5
Art in the Home	2
Tailoring	3
	14

SECOND YEAR

Fall Quarter	Hrs.
Introduction to Foods	3
Elective	3
General Psychology	3
Social Science or Literature	3
Physical Education	1
Intro. to Child Care	3
	16

Winter Quarter	Hrs.
Home Furnishing and House Planning	4
Introduction to Foods	3
Social Science or Literature	3
Electives	3
Speech Making	3
	16

Spring Quarter	Hrs.
Preparation and Service of Meals	3
Social Science or Literature	3
Marriage and the Family	3
Electives	8
	17

PRE-FORESTRY

FIRST YEAR

Fall Quarter	Hrs.
General Botany	5
General Chemistry	5
English Composition	3
*College Algebra I	5
Forestry Occupations	1
	19

Winter Quarter	Hrs.
General Botany	5
General Chemistry	5
English Composition	3
College Algebra II	5
	18

Spring Quarter	Hrs.
Plant Classification	5
Introduction to Organic Chemistry	5
English Composition	3
Trigonometry	5
	18

*Substitute approved elective if student can begin with MATH 138.

SECOND YEAR

Fall Quarter	Hrs.
General Geology	5
Principles of Economics	3
Speech Making	3
Humanities or Soc. Sci.	3
Physical Education	1
	15

Winter Quarter	Hrs.
Vertebrate Biology	5
General Geology	5
Principles of Economics	3
Humanities or Soc. Sci.	3
Physical Education	1
	17

Spring Quarter	Hrs.
Vertebrate Biology	5
Soils	5
Introduction to Physics	5
Physical Education	1
	16

Agriculture–Natural Resources

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.

AGNR 101 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.

AGNR 112 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.

AGNR 113 INTRODUCTORY ANIMAL SCIENCE **F 5 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.

AGNR 121 LIVESTOCK SHOWMANSHIP—BEEF **W 2 hrs.**
AGNR 122 LIVESTOCK SHOWMANSHIP—HORSES **W 2 hrs.**
AGNR 123 LIVESTOCK SHOWMANSHIP—DAIRY **W 2 hrs.**
AGNR 124 LIVESTOCK SHOWMANSHIP—SWINE **W 2 hrs.**
AGNR 125 LIVESTOCK SHOWMANSHIP—SHEEP **W 2 hrs.**

Includes basics and fine points of grooming and showmanship for showing livestock of all types at fairs, stockshows, and other events.

AGNR 133 BEGINNING RODEO **S 1 hr.**

AGNR 142 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.

AGNR 201 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.

AGNR 202 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: CHEM 121 or CHEM 131 for Agriculture students; waived for Forestry.

AGNR 203 ARTIFICIAL INSEMINATION **F 1 hr.**

Principles and procedures for collecting and processing semen from farm animals. Planning and conducting successful artificial breeding programs.

AGNR 205 FARM AND RANCH MANAGEMENT W 4 hrs.

Economics as it applies to the management of a farm or ranch, emphasizing the keeping and interpreting of simple but adequate records for the management unit.

AGNR 211 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.

AGNR 212 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: AGNR 113. Open to sophomore students. Two class periods and one laboratory period per week.

AGNR 213 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.

AGNR 222 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: AGNR 113. Two laboratory periods per week.

AGNR 233 ADVANCED RODEO S 1 hr.

AGNR 252 MAMMAL NUTRITION 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.

AGNR 301 MULTIPLE RESOURCE MANAGEMENT F 5 hrs.

AGNR 302 RESOURCE PLANNING S 3 hrs.

Fundamental concepts, problems and practices concerning the use of natural resources in the United States and particularly Colorado.

AGNR 303 AGRICULTURE MARKETING S 3 hrs.

A study of agricultural markets and the various techniques which can be used in marketing agriculture products. Also includes a general insight into the commodity futures market and its use in agriculture.

AGNR 312 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.

AGNR 321 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: 5 hours of plant science, AGNR 201, or consent of instructor.

AGNR 322 GREENHOUSE MANAGEMENT AND LAB W or S 4 hrs.

Use of enclosed structures for manipulation of environment, effects on growth as applied to floricultural crops, methods of controls, production and marketing costs.

AGNR 323 PLANT BREEDING F or W 4 hrs.

Improvement of crops by hybridization and selection. Special breeding methods and techniques applicable to naturally self-pollinated, cross-pollinated, and asexually reproduced plants. Includes field training and lab.

AGNR 325 FIELD TRAINING IN EMPHASIS AREA Arr. 3 hrs.

AGNR 331 COMPARATIVE VERTEBRATE BIOLOGY F 5 hrs.

An exploration of the general characteristics and classification of fishes, amphibians, reptiles, birds, and mammals. Topics also include systematics, distribution, dormancy, reproduction, development, population movement, population dynamics, and territory.

AGNR 332 WEED CONTROL F or S 4 hrs.

Insect and weed control through predators, parasites, pathogens, attractants, irradiation, chemosterilants, and integrated control.

AGNR 333 ANIMAL BREEDING F or W 4 hrs.

Performance evaluation and prediction of genetic improvement in purebred and commercial livestock. Correlating conformation with performance. Breed, state, and national improvement programs. Includes field training and lab.

AGNR 341 HISTOLOGY F or W 4 hrs.

Microscopic study of tissues and organs.

AGNR 342 ANIMAL FACILITY MANAGEMENT W or S 3 hrs.

Business principles, management practices, economic factors involved in managing animal facilities.

AGNR 343 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.

AGNR 344 ANIMAL HYGIENE S 4 hrs.

Principles of animal sanitation in relation to disease prevention and control.

AGNR 401 MULTIPLE WATER USE MANAGEMENT AND LAB F 4 hrs.

The study of systems for optimum beneficial use and management of water resources. Technical, aesthetic, and social aspects of water quality control.

AGNR 402 WATERSHED MANAGEMENT W 3 hrs.

Elements of wildland phydrology and influence of forest and range vegetation on environment and water resources. Introduction to upstream management for water yield, timing and quality.

AGNR 411 ORNITHOLOGY AND LAB **S 4 hrs.**

The classification and life histories of birds, including identification in the field.

AGNR 412 MAMMALOGY AND LAB **W 5 hrs.**

The classification, life histories, and ecology of mammals together with practice in the preparation of skins for study.

AGNR 422, 423, 424 AGRICULTURE-NATURAL RESOURCES FIELD TRAINING **Arr. 10, 12, or 15 hrs.**

Student may enroll in only one of these courses, according to the number of hours desired.

AGNR 432 PENNED ANIMAL HYGIENE AND MANAGEMENT **S 4 hrs.**

A course designed to acquaint the student with laws and regulations concerning containment of animals for laboratory purposes and animal shelters. Also dietary needs, space requirements, structures, drain construction, water supplies, ventilation, disease prevention and handling procedures.

AGNR 433 ANIMAL PARASITOLOGY AND LAB **S 4 hrs.**

The study of the most common and important parasites of domestic animals and man: ecology, epidemiology, diagnosis, and control.

Biology

All of the junior (300-level) and senior (400-level) biology courses are listed with the AGNR prefix. Please refer to those pages.

BIOL 101, 102, 103 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 111, 112 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 121, 122 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 141 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 142 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: BIOL 141 or consent of instructor. Three lectures and two laboratories per week.

BIOL 143 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: BIOL 141 or consent of instructor. Three lectures and two laboratories per week.

BIOL 148 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 149 INDIVIDUAL PROBLEMS IN BIOLOGY **FWS 2 hrs.**

See BIOL 148 for course description.

BIOL 201 ECOSYSTEM 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 202 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 203 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 213 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 223 PLANT CLASSIFICATION **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: BIOL 122 or consent of the instructor.

BIOL 231, 232 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.

Forestry

FOR 111 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 112 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 101 ORIENTATION
(Introduction to Home Economics) **F 2 hrs.**

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 110 BASIC CLOTHING CONSTRUCTION **FW 3 hrs.**

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

HEC 111 COSTUME SELECTION **W 2 hrs.**

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

HEC 115 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 117 INTERMEDIATE CLOTHING CONSTRUCTION **WS 3 hrs.**

Construction processes are studied and developed through the making of garments to meet individual needs.

HEC 133 HOME MANAGEMENT **WS 3 hrs.**

Study of family-living problems with emphasis on management of all resources. Three hours lecture.

HEC 134 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 136 HOME FURNISHING AND HOUSE PLANNING **S 4 hrs.**

A study of the decoration and furnishing of a home. Artistic appreciation and buying techniques for household furnishings are emphasized. Three hours lecture. Laboratory optional.

HEC 141 INTRODUCTION TO NUTRITION **F 3 hrs.**

A study of the functions of foods and their relation to health, with emphasis on nutrition for children. Designed primarily for students enrolled in the Early Childhood Education program.

HEC 142 INTRODUCTION TO FOODS **FW 3 hrs.**

For those students who are not Home Economics majors. Emphasis placed on the principles of food preparation.

HEC 143 INTRODUCTION TO MEAL MANAGEMENT **S 3 hrs.**

A course designed to provide students in the Early Childhood Education program with the needed training in meal preparation. Prerequisites: HEC 141 and 142.

HEC 160 BACHELOR'S SURVIVAL **S 3 hrs.**

A course designed for men who want help in selecting and caring for clothes, planning and preparing simple nutritious meals, using money wisely, and knowing basic social graces.

HEC 212 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 213 INFANT AND CHILD NUTRITION **Smr 3 hrs.**

Nutritional aspects during pregnancy, lactation, infancy, childhood and adolescence are emphasized. Prerequisite: HEC 212.

HEC 238 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. Prerequisite: HEC 134 or consent of instructor.

HEC 239 RECENT TRENDS IN CHILD DEVELOPMENT **S 2 hrs.**

Discussions from current research findings concerning the emotional, social, physical and intellectual development of children.

HEC 251, 252 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 253 PREPARATION AND SERVICE OF MEALS **S 3 hrs.**

Planning, preparing and serving family meals.

HEC 261 TAILORING **F 3 hrs.**

Planning and construction of a tailored garment such as a suit or coat. Prerequisite: HEC 110 and 117 or consent of instructor.

Division of Business

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

Instructional Staff: **Mr. Carstens, Chairman**; Mr. Alvillar; Mr. Buckley; Miss Capps; Mrs. Carmichael, Mr. Cassidy; Mr. Dickson; Mrs. Hansen; Mrs. Harper; Mr. Mourey; Mr. Rogers; Mrs. Uhrlaub; Mr. Youngquist, Mrs. Youngquist.

PROGRAMS

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

Certificates and Degrees

Students in the Division of Business may choose from programs leading to the following certificates or degrees:

One-year Certificate Programs:
- Accounting
- Data Processing
- Job-Entry Training in Business
- Medical Office Assistant
- Office Clerical-Secretarial

Associate in Applied Science—Data Processing
Associate in Applied Science—Legal Secretary
Associate in Applied Science—Medical Secretary
Associate in Applied Science—Travel and Recreation Management
Associate in Arts in Business Administration
Associate in Commerce in Accounting
Associate in Commerce in Office Administration (Secretarial)
Bachelor of Science in Accounting
Bachelor of Science in Management

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 office-clerical 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 in Commerce degree or the Mesa College Diploma.

ACCOUNTING (Nine Months)

CERTIFICATE

Fall Quarter	Hrs.
Principles of Accounting	5
Introduction to Business	3
English Composition	3
Business Mathematics	4
Word Study	2
	17

Winter Quarter	Hrs.
Principles of Accounting	5
English Composition	3
Speech	3
Business Data Processing	3
Elective	3
	17

Spring Quarter	Hrs.
Accounting or Tax	3-5
English Composition	3
Business Communications	3
Electives	6
	15-17

NINE-MONTH OFFICE CLERICAL-SECRETARIAL PROGRAM

This curriculum is designed to meet the needs of 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.

CERTIFICATE

Suggested Courses

Fall Quarter	Hrs.
English Grammar or Comp.	3
Shorthand Theory I or Beginning Dictation	4
Beginning Typing I	3
Business Mathematics	4
Filing	2
	16

Winter Quarter	Hrs.
Business Communications	3
Shorthand Theory II or Intermediate Dictation and Transcription	4
Beginning Typing II	3
Secretarial Accounting	3
Elective	3
	16

Spring Quarter	Hrs.
Secretarial Practice	3
Beginning Dictation	4
Intermediate Typing	3
Dictation and Transcription Machines	3
Elective	3
	16

Options or Electives

Speech Communications
Speech Making
Business Data Processing
Introduction to Business
Business Law I
Human Relations in Business
Keypunch and Verifier
Production Keypunch
Punch-Card Equipment
Medical or legal secretarial courses

BUSINESS OCCUPATIONAL PROGRAMS

See the Occupational Education (Vocational-Technical) section of this catalog for descriptions of Automated Data Processing; Job-Entry Training; Medical Office Assistant; Secretary—Legal or Medical; and Travel and Recreation Management.

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 minimum graduation requirements and Associate in Arts degree requirements in Graduation Requirements section. These 48 hours are combined with the recommendations of the Division of Business which follow:

Business Data Processing (Introduction)	3 hrs.
Introduction to Business	3 hrs.
Business Communications	3 hrs.
Principles of Accounting	10 hrs.
Business Mathematics or Mathematical Foundations of Business	4-5 hrs.
*English	9 hrs.
*Literature	9 hrs.
*Social Science or History	9 hrs.
*Biology or Psychology	9 hrs.
*Physical Science	9 hrs.
*Physical Education	3 hrs.
Electives	22 hrs.
TOTAL	93-94 hrs.

*Specific General Education requirements

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 21-hour minimum requirement for graduation as stated in the Graduation Requirements section of this catalog and in addition complete the following special course requirements: (Any deviation from this program must be approved by the student's adviser and the registrar).

	Secretarial	Accounting
Literature or Social Science including Psychology	18 hrs.	18 hrs.
Business Mathematics or Mathematical Foundations of Business	4-5 hrs.	4-5 hrs.
Introduction to Business	3 hrs.	3 hrs.
Accounting	3-5 hrs.	10 hrs.
Business Data Processing	3 hrs.	3 hrs.
Business Electives	14 hrs.	22-23 hrs.
Other Electives	20 hrs.	20 hrs.
English	9 hrs.	9 hrs.
Intermediate Typewriting	3 hrs.	
Beginning Dictation	4 hrs.	
Transcription Machines	3 hrs.	
Secretarial Practice	3 hrs.	
Business Communications	3 hrs.	
Physical Education	3 hrs.	3 hrs.
TOTAL	93-96 hrs.	92-94 hrs

ACCOUNTING

ASSOCIATE IN COMMERCE

Suggested Course Sequence

FIRST YEAR

Fall Quarter	Hrs.	Winter Quarter	Hrs.	Spring Quarter	Hrs.
English Composition	3	English Composition	3	English Composition	3
Business Math. or Math. Foundations of Business	4-5	Mathematics of Finance or Science	3-5	Principles of Accounting	5
College Algebra or Sci.	3-5	Introduction to Business	3	Statistics or Science	3-5
Physical Education	1	Physical Education	1	Business Communications	3
Business Data Processing	3	Speech	3	Physical Education	1
		Elective	2-3		
	14-17		15-18		15-17

SECOND YEAR

Fall Quarter	Hrs.	Winter Quarter	Hrs.	Spring Quarter	Hrs.
Principles of Accounting	5	Principles of Economics	3	Principles of Economics	3
Principles of Economics	3	Business Law II	3	Business Elective	3
Business Law I	3	Social Sci. or Literature	3	Social Sci. or Literature	3
Social Sci. or Literature	3	Intermediate Accounting	5	Cost Accounting	5
General Psychology	5	General Psychology	3	General Psychology	3
	17		17		17

BUSINESS ADMINISTRATION

ASSOCIATE IN ARTS

Suggested Course Sequence

FIRST YEAR

Fall Quarter	Hrs.	Winter Quarter	Hrs.	Spring Quarter	Hrs.
English Composition	3	English Composition	3	English Composition, Report Writing or Literature	3
Business Math. or Math. Foundations of Business	4-5	College Algebra II, Data Processing Math., or Mathematics of Finance	3-5	Trigonometry or Statistics	5
College Algebra I	3	Business Data Processing	3	Principles of Accounting	5
Introduction to Business	3	Physical Education	1	Speech Making	3
Physical Education	1	Elective	5		
	14-15		15-17		16

SECOND YEAR

Fall Quarter	Hrs.	Winter Quarter	Hrs.	Spring Quarter	Hrs.
Physical Science	3	Physical Science	3	Physical Science	3
Principles of Accounting	5	Biology or Psychology	3	Biology or Psychology	3
Biology or Psychology	3	Literature	3	Literature	3
Literature	3	Principles of Economics	3	Principles of Economics	3
Principles of Economics	3	Business Communications	3	Physical Education	1
				Elective	3
	17		15		16

SECRETARIAL

ASSOCIATE IN COMMERCE

Suggested Course Sequence

FIRST YEAR

Fall Quarter	Hrs.	Winter Quarter	Hrs.	Spring Quarter	Hrs.
English Composition	3	English Composition	3	English Composition	3
Shorthand Theory I	4	Shorthand Theory II	4	Social Science or Literature	3
Social Science or Literature	3	Social Science or Literature	3	Intermediate Typing	3
Business Mathematics	4	Introduction to Business	3	Beginning Dictation	4
Physical Education	1	Secretarial Accounting	3	Dictation and Transcribing Machines	3
		Physical Education	1		
	15		17		16

SECOND YEAR

Fall Quarter	Hrs.	Winter Quarter	Hrs.	Spring Quarter	Hrs.
Physical Education	1	Science or Mathematics	3-5	Science or Mathematics	3-5
Science or Mathematics	3-5	Social Science or Literature	3	Social Science or Literature	3
Social Science or Literature	3	Advanced Typing	3	Secretarial Practice	3
Business Communications	3	Intermediate Dictation and Transcription	4	Business Data Processing	3
Business Law I	3	Elective	2-3	Speech Making	3
Filing	2				
	15-17		15-18		15-17

Bachelor of Science Programs

ACCOUNTING AND MANAGEMENT

The Bachelor of Science degree is granted to two groups of graduating students: (1) those who follow the Accounting program and (2) those who select the Management option.

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

General Education and Physical Education	48 hrs.
Accounting	51 hrs.
Minor area (Data Processing or Management required)	24 hrs.
Core Courses	33 hrs.
Approved Electives	28 hrs.
TOTAL	184 hrs.

(It is recommended that students complete both minors in Data Processing and Management. With proper selection of courses, a third minor could be acquired).

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

General Education and Physical Education	48 hrs.
Management	60 hrs.
Accounting	13 hrs.
Core Courses (excluding Mathematics)	27 hrs.
Approved Electives	35 hrs.
TOTAL	183 hrs.

(It is recommended that a student complete a minor in Data Processing, Accounting, or Economics. With proper selection of courses, a student could complete the requirements for more than one minor).

ACCOUNTING

Suggested Course Sequence

FIRST YEAR

Fall Quarter	Hrs.
*Introduction to Business	3
Elective	3
English Composition	3
*Mathematical Foundations of Business	5
Principles of Management	3
	17

Winter Quarter	Hrs.
English Composition	3
*Business Data Processing	3
Speech	3
Physical Education	1
Mathematics of Finance	5
	15

Spring Quarter	Hrs.
Principles of Accounting	5
English Composition	3
Elective	3
Physical Education	1
Human Relations in Business	3
	15

SECOND YEAR

Fall Quarter	Hrs.
General Psychology	3
Principles of Accounting	5
Principles of Economics	3
Physical Education	1
Small Business Management	3
	15

Winter Quarter	Hrs.
General Psychology	3
Intermediate Accounting	5
Principles of Economics	3
*Statistical Applications of Business	5
	16

Spring Quarter	Hrs.
General Psychology	3
Cost Accounting	5
Principles of Economics	3
Management Elective	3
	14

THIRD YEAR

Fall Quarter	Hrs.
Advanced Accounting I	3
Statement Analysis	3
*Business Law I	3
Humanities Elective	3
General Education Elective	3
Keypunch	1
	16

Winter Quarter	Hrs.
Advanced Accounting II	3
*Business Law II	3
Governmental Accounting	3
*COBOL I	5
	14

Spring Quarter	Hrs.
*Business Law III	3
Advanced Accounting III	3
Systems	5
COBOL II	5
	16

FOURTH YEAR

Fall Quarter	Hrs.
Auditing	5
*Introduction to Operation Research	3
Problems in Small Business Operation	3
Assembler Language	5
	16

Winter Quarter	Hrs.
Income Tax Accounting	5
Business Policies Management	3
Computers in Management	4
Elective	3
	15

Spring Quarter	Hrs.
Advanced Tax Accounting	3
Advanced Cost Accounting	3
Advanced Problems in Small Business Operations	3
Financial Management	3
Elective	3
	15

*Core Courses

BUSINESS MANAGEMENT

Suggested Course Sequence

FIRST YEAR

Fall Quarter	Hrs.
*Introduction to Business	3
Principles of Management	3
English Composition	3
*Business Data Processing	3
Elective	3
	15

Winter Quarter	Hrs.
*Salesmanship	3
English Composition	3
Physical Education	1
*Advertising	3
Elective	3
Internal Business Organizational Structure	3
	16

Spring Quarter	Hrs.
English Composition	3
Elective	3
Physical Education	1
Principles of Accounting I	5
Forms of Business Organization	3
	15

SECOND YEAR

Fall Quarter	Hrs.
Small Business Management	3
General Psychology	3
*Business Law I	3
Principles of Economics I	3
Principles of Accounting II	5
	17

Winter Quarter	Hrs.
General Psychology	3
Principles of Economics II	3
*Income Tax—Business	3
Electives	6
Physical Education	1
	16

Spring Quarter	Hrs.
Principles of Economics III	3
Human Relations in Business	5
General Psychology	3
Elective	3
*Mathematical Foundations of Business	5
	17

THIRD YEAR

Fall Quarter	Hrs.
Problems in Small Business Operation	3
Management and Labor Relations	3
*Business Finance	3
General Education Elective	3
Managerial Accounting	3
	15

Winter Quarter	Hrs.
Principles of Marketing	3
Retail Management	3
*Statistical Applications in Business	5
*Corporate Finance	3
	14

Spring Quarter	Hrs.
Marketing Analysis and Research in Management	3
Workshop in Management Internship	3
*Insurance	3
Financial Management	3
Elective	3
	15

FOURTH YEAR

Fall Quarter	Hrs.
Management Internship	15
	15

Winter Quarter	Hrs.
Business Management Seminar	3
Business Policies and Management	3
Elective	8
	14

Spring Quarter	Hrs.
Advanced Problems in Small Business Operation	3
General Education Electives	5
Electives	6
	14

*Core Courses

Accounting

BUAC 51 ACCOUNTING WORKSHOP **3 hrs.**

An opportunity for students to improve their understanding and skills in first-year concepts and principles of accounting. Individual weaknesses are identified and emphasis is placed on correcting them through practice and application of theory. Offered subject to demand (sufficient enrollment) as night, summer, or mini-quarter course. Does not count toward degree credit.

BUAC 101 PRINCIPLES OF ACCOUNTING **FS Smr 5 hrs.**

A course suitable for all business and accounting majors. Includes development of fundamental principles of double-entry bookkeeping, the balance sheet, profit and loss statement, controlling accounts, partnership accounting, corporation accounting, bonds, and introduction to management accounting.

BUAC 201 PRINCIPLES OF ACCOUNTING **FW Smr 5 hrs.**

Continuation of BUAC 101. Prerequisite: BUAC 101, first quarter of Principles of Accounting.

BUAC 211 MANAGERIAL ACCOUNTING **F 3 hrs.**

Application of accounting information for making managerial decisions. Includes analysis and interpretation of financial statements, budgeting for planning and control, cost behavior (cost-volume-profit relationships), relevant cost analysis for making long- and short-range capital expenditure decisions, and the impact of income taxes on management planning. (This course not open to accounting majors). Prerequisite: BUAC 101.

BUAC 221 INTERMEDIATE ACCOUNTING **W 5 hrs.**

A one-quarter course designed to develop a deeper understanding of accounting theory for non-accounting and accounting major. Provides foundation necessary for specialized accounting courses. Prerequisite: BUAC 101 and 201.

BUAC 231 COST ACCOUNTING **S 5 hrs.**

Introduction to determination of manufacturing cost. Emphasis involves three elements of cost—material, labor and overhead. Job cost system, process cost system, and standard cost system are major topics. Miscellaneous cost factors are introduced at appropriate times. Prerequisite: BUAC 221.

BUAC 241 INCOME TAX **W 5 hrs.**

Determination of taxable income, exemptions, deductions, and allowances. Practice and problems in filing federal and state returns. Prerequisite: BUAC 221 or consent of instructor. This course for accounting majors only.

BUAC 261 INDEPENDENT STUDY IN ACCOUNTING **FWS Smr 1-3 hrs.**

Prerequisite: Principles of Accounting and consent of instructor.

BUAC 301 ADVANCED ACCOUNTING I **F 3 hrs.**

Accounting principles relating to partnerships, home-office and branch accounting, parent and subsidiary accounting, consolidated statements, mergers, bankruptcies, receiverships, estates and trusts. Prerequisite: BUAC 221.

BUAC 302 ADVANCED ACCOUNTING II **W 3 hrs.**

Continuation of studies from Advanced Accounting I. Prerequisite: BUAC 301.

BUAC 303 ADVANCED ACCOUNTING III **S 3 hrs.**

Continuation of studies from Advanced Accounting I and II. Prerequisite: BUAC 302.

BUAC 311 STATEMENT ANALYSIS **F 3 hrs.**

Understanding financial statements from viewpoint of bankers, executives, stockholders, and creditors. Reviews accounting principles and discusses the general techniques of analysis. Prerequisite: BUAC 221.

BUAC 331 ADVANCED COST ACCOUNTING **S 3 hrs.**

Continued study of cost accounting with emphasis on standard costs, analysis of cost for profit decision-making purposes, and other special cost and analysis problems. Prerequisite: BUAC 231.

BUAC 351 GOVERNMENTAL ACCOUNTING **W 3 hrs.**

Accounting procedures related to governmental units and non-profit institutions. Prerequisite: BUAC 221.

BUAC 361 INDEPENDENT STUDY IN ACCOUNTING **FWS Smr 1-3 hrs.**

Prerequisite: Accounting major and consent of accounting advisor.

BUAC 411 AUDITING **F 5 hrs.**

Study of scope and purpose of work of public accountant, professional ethics, legal responsibilities, internal control, fraud, audit working papers, original record examination, completing the audit report, and consulting services. Prerequisite: BUAC 221 and STAT 214.

BUAC 441 ADVANCED INCOME TAX **S 3 hrs.**

Advanced problems confronting the individual taxpayer; use of research tools to resolve special problems; and partnership, corporation, and other taxation areas. Prerequisite: BUAC 241.

BUAC 461 INTERNSHIP IN ACCOUNTING **Arr. Arranged hrs.**

Supervised work experience in business and industry. Prerequisite: Junior standing and consent of department head.

Data Processing

See Occupational Education (Vocational-Technical) section of catalog.

General Business

BUGB 101 INTRODUCTION TO BUSINESS **FWS 3 hrs.**

How the American business system operates and its place and role in the economy. American business system survey with emphasis on business functions and inter-relations between the businessman and his environment. Required of freshman business and accounting students.

BUGB 111 WORD STUDY (BUSINESS) **F 2 hrs.**

Spelling, meaning, derivation, and pronunciation with emphasis on spelling and business terms. Open to all students.

BUGB 115 FILING **FWS 2 hrs.**

Alphabetic, numeric, geographic, subject, and soundex systems of filing. Practice filing material and in locating filed correspondence.

BUGB 131 ADVERTISING **W 3 hrs.**

Dynamics of modern advertising, its practices, principles, media, and methods. The role and responsibilities of advertising in a changing business world.

BUGB 132 RETAIL ADVERTISING S 3 hrs.

Basics of retail advertising programs are identified and developed. Major areas include: preparing the store for advertising; physical application of both print and broadcast advertisements; merchandising and timing of advertising; budgeting and sales goals with respect to advertising; development of basic campaigns and advertising principles at the retail store level. Prerequisite: BUGB 131 or consent of instructor.

BUGB 135 SALESMANSHIP FW 3 hrs.

Selling techniques, importance of psychological factors, initiative, and personality involved in influencing others in business transactions.

BUGB 141 BUSINESS MATHEMATICS FWS Smr 4 hrs.

Review of fundamental skills of whole numbers, decimals, fractions, interest, and percentages as they apply to business and consumer problems. Use of office machines, pencil and paper in solving mathematical problems. Class meets daily.

BUGB 211 BUSINESS COMMUNICATIONS FWS 3 hrs.

Essentials of English in business communication. Creative, logical, and critical thinking applied to the criticism, preparation, and planning of business letters and written and oral reports. Attention is given to application letters and the employment interview. Prerequisites: First quarter English Composition and a knowledge of typing. This is an individualized course and the student works at own rate. May enter the course at any time during the quarter.

BUGB 221 INSURANCE S 3 hrs.

Common types of protection afforded by insurance including fire, life, automobile, accident, and health.

BUGB 240 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. Not for accounting majors.

BUGB 241 PERSONAL FINANCE S 3 hrs.

Managing personal finances and dealing with everyday financial problems that beset consumers, such as credit, saving, investing, and buying wisely.

BUGB 251 BUSINESS LAW I F 3 hrs.

Covers 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.

BUGB 252 BUSINESS LAW II W 3 hrs.

Analyzes sales—Article II of the Uniform Commercial Code, including risk, property rights, and warranties; commercial paper—common substitute for money as used in business, including notes, drafts, and checks; secured transactions—security devices and insurance.

BUGB 253 BUSINESS LAW III S 3 hrs.

Analyzes corporations—artificial persons permitted by law for the purpose of doing business and an examination of their formation, structure, and powers;

partnerships—the legal effect of agreements between persons doing business together; real property—problems of ownership, transfer of title, tenant-landlord relations; problems of trusts and estates.

BUGB 261 INDEPENDENT STUDY IN BUSINESS FWS Smr 1-3 hrs.
Prerequisite: Introductory courses in the field and consent of the instructor.

BUGB 341 BUSINESS FINANCE F 3 hrs.
Principles of sound financial management are introduced and stressed. Emphasis is placed on processes for assessing financial needs of a given business and the alternative solutions to such needs. Prerequisites: BUAC 211 and MATH 121.

BUGB 342 CORPORATION FINANCE W 3 hrs.
Financial problems of corporations, capital structure, sources of current and fixed capital, effects of the nature of business upon financial policy. Prerequisite: BUGB 341.

BUGB 361 INDEPENDENT STUDY IN BUSINESS FWS Smr 1-3 hrs.
Prerequisite: Consent of Instructor.

BUGB 431 INTRODUCTION TO OPERATIONS RESEARCH F 3 hrs.
Introductory course in management decision analysis including the use of probability concepts, models, linear programming, and network analysis. Examples are based on business applications. Prerequisite: MATH 121.

Job Entry Training

See Occupational Education (Vocational-Technical) section of this catalog.

Management

BUMA 101 PRINCIPLES OF MANAGEMENT FWS 3 hrs.
Decision making, communication, and leadership principles and the importance of the principles in business and other organizations. Effects of the environment on the dynamics of the organization. Required of all Management majors.

BUMA 102 INTERNAL BUSINESS ORGANIZATIONAL STRUCTURE W 3 hrs.
Essential elements necessary to any business' internal organizational structure. Development of a planning, organizing staffing, control and direction system for operational purposes within the business structure. Prerequisite: BUMA 101.

BUMA 103 FORMS OF BUSINESS ORGANIZATIONS S 3 hrs.
Business ownership forms most commonly found in today's business, advantages of organization structure, and actual business organizations are studied. Prerequisite: BUMA 102.

BUMA 121 HUMAN RELATIONS IN BUSINESS WS 3 hrs.
Formal and informal human behavior in organizations, including motivation, interaction meaning of work, human needs, the personality and organization, perception, attitude behavior, interpersonal conflict, the political nature of organization, T-groups, change agents, and organization health.

BUMA 201 SMALL BUSINESS MANAGEMENT F 3 hrs.
Aspects of management uniquely important to small business firms and the economic and social environment in which the small concerns function. Prerequisite: BUMA 101. Required of all Management majors.

BUMA 231 PRINCIPLES OF MARKETING W 3 hrs.

Functions, methods, institutions, channels, pricing, and the study of marketing concepts as an interrelated system of activities. Prerequisite: BUGB 131.

BUMA 301 PROBLEMS IN SMALL BUSINESS OPERATIONS F 3 hrs.

Analysis of managerial problems of the small business. Case studies, outside speakers, and individual reports of local small business enterprises supplement class discussions. Student must have an understanding of elementary accounting, finance, and business law, or have experience in small business operation. Prerequisite: BUMA 201.

BUMA 311 MANAGEMENT AND LABOR RELATIONS F 3 hrs.

Rights of the individual worker, his relationship to employers and unions, the right to act in concert, strikes, picketing, boycotts, and collective bargaining. Prerequisite: Principles of Economics. (This course may also be classified as an economics course).

BUMA 325 RETAIL MANAGEMENT W 3 hrs.

Basic principles and techniques of retail merchandising and store operation. Prerequisite: BUMA 201.

BUMA 331 MARKETING ANALYSIS AND RESEARCH IN MANAGEMENT S 3 hrs.

Marketing management with emphasis on methods and techniques used in the solution of marketing problems. Marketing research methods and techniques applied to the problems of collection and interpretation of data for measuring potentials in the market. Prerequisite: BUMA 231 and STAT 214.

BUMA 341 FINANCIAL MANAGEMENT S 3 hrs.

Problems of financing business enterprise, including working capital financing, budgeting, analyzing financial statements, and intermediate and long-term financing. Cases will be used to illustrate. Prerequisite: BUGB 342.

BUMA 351 WORKSHOP IN MANAGEMENT INTERNSHIP Arr 3 hrs.

Day to day problems in the business world and preparation for actual lab experiences in business management internship. This course is required for all students during the quarter prior to Internship.

BUMA 361 INDEPENDENT STUDY IN BUSINESS MANAGEMENT Arr 1-3 hrs.

Student investigates, in depth, a special management area as an independent project. Prerequisite: Introductory courses in the field and consent of the instructor.

BUMA 401 ADVANCED PROBLEMS IN SMALL BUSINESS OPERATIONS S 3 hrs.

Planning, organizing, and operating small business firms; small business as a dynamic force in the American business system; role of entrepreneur in the conception, organization, and development of firms; and extensive use of small business cases. Priority for enrollment will be given to business seniors in their final year. Prerequisite: BUMA 301.

BUMA 411 BUSINESS POLICIES AND MANAGEMENT W 3 hrs.

Duties and responsibilities of top management in establishing policies, objectives and future plans for business organizations. Study of complex cases and actual experience in real situations involving policy decisions.

BUMA 451 MANAGEMENT INTERNSHIP **Arr 15 hrs.**

Students are placed at work stations in the community to obtain practical experience. Could involve an exchange program whereby students would replace regular employees who would then enroll in courses at the college for refresher and upgrading purposes. Intern credit could be granted to regular students if prior work experience was appropriate.

BUMA 471 BUSINESS MANAGEMENT SEMINAR **Arr 3 hrs.**

Students share experiences and common problems, and familiarize one another with their on-the-job experiences. To be taken the quarter immediately following BUMA 451.

Office Administration (Secretarial)

BUOA 51 REVIEW TYPING **F No Credit**

Offered only in Continuing Education night program and designed for people needing a general review of typing before entering 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. Night Course.

BUOA 101 SECRETARIAL ACCOUNTING **FWS 3 hrs.**

For students required to keep accounting records in a legal, medical, or other professional office or for those who will work in the accounting department of a small retail firm. Includes 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 Principles of Accounting. This is an individualized course.

BUOA 111 SHORTHAND THEORY I **FWS 4 hrs.**

For 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. Individualized course.

BUOA 112 SHORTHAND THEORY II **FWS 4 hrs.**

Continuation of BUOA 111. No credit will be given if student has more than one year of junior or senior high school credit. Prerequisite: BUOA 111.

BUOA 121 BEGINNING DICTATION **FWS 4 hrs.**

Review of principles of shorthand, application of office standards for mailable transcripts, dictation at rate of 80 to 100 words a minute. Prerequisites: (1) two quarters of shorthand theory or the equivalent and (2) BUOA 154, current enrollment in BUOA 154, or permission of the instructor. Individualized course.

BUOA 141 SECRETARIAL BUSINESS MATHEMATICS **FWS 4 hrs.**

Information and necessary skill development for solving business-related mathematical problems using the ten key printing calculator, and the electronic calculator. This is an individualized course and the student works at his own rate. May enter the course at any time during the quarter.

BUOA 151 BEGINNING TYPEWRITING I **FWS 3 hrs.**

For students with no previous training. No credit will be given if student has received junior or senior high school credit. Individualized course.

BUOA 152 BEGINNING TYPEWRITING II **FWS 3 hrs.**

No credit given if student has received more than one year of junior or senior high school credit. Prerequisite: BUOA 151 or equivalent. Individualized course.

BUOA 154 INTERMEDIATE TYPEWRITING **FWS 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. Individualized course.

BUOA 221 DICTATION AND TRANSCRIPTION MACHINES **FWS 3 hrs.**

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, BUOA 154 or current enrollment in BUOA 154. Individualized course.

BUOA 224 INTERMEDIATE DICTATION AND TRANSCRIPTION **FWS 4 hrs.**

A dictation speed of 90 to 110 words a minute is attained with emphasis on mailable transcripts. Prerequisite: BUOA 121 or permission of instructor. Individualized course.

BUOA 231 MEDICAL TRANSCRIPTION **FWS 3 hrs.**

A course to build transcription competency in working with transcribing machines. Medical correspondence and professional records are used. Prerequisite: BUOA 154, current enrollment in BUOA 154, or permission of instructor. This is an individualized course and the student works at his own rate. May enter the course at any time during the quarter.

BUOA 241 LEGAL TERMINOLOGY **FWS 3 hrs.**

For students who plan to work as legal secretaries. Acquaints students with legal terminology as used in legal forms with emphasis on spelling, meaning, and use of legal terms and phrases. Individualized course.

BUOA 242 LEGAL TRANSCRIPTION **FWS 3 hrs.**

A course to build transcription competency in working with transcribing machines and magnetic typewriting equipment. Legal correspondence and documents are prepared. Basic skill is developed on the magnetic typewriter encompassing skills necessary to carry out the philosophy and implementation of word processing which is widely used in law offices. Prerequisite: BUOA 154, current enrollment in BUOA 154, or consent of instructor. The course is divided into two units, machine transcription for five weeks and magnetic typewriter for five weeks. It is an individualized course.

BUOA 244 LEGAL PROCEDURES I **FWS 3 hrs.**

Acquaints the student with everyday practices in the law office. Concentration on legal papers, forms, documents, and instruments. Course also includes legal transcription. Individualized course.

BUOA 245 LEGAL PROCEDURES II **FWS 3 hrs.**

Continuation of BUOA 244 using actual material obtained from law offices, including transcription. Individualized course.

BUOA 254 ADVANCED TYPEWRITING **FWS 3 hrs.**

Study of tabulations, telegrams, memos, business letters and legal forms. Fundamental skills are developed on duplicating machines. Prerequisite: BUOA 154. Individualized course.

BUOA 261 INDEPENDENT STUDY IN SECRETARIAL SCIENCE **FWS Smr 1-3 hrs.**

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

BUOA 265 ELECTRONIC WORD PROCESSING **FWS 3 hrs.**

An individualized concentrated study of electronic typing equipment to develop proficiency in the recording, storing, playback, and modification modes. Also provides an understanding of the utilization of such equipment in business and stresses the terminology unique to word processing. Prerequisites: BUOA 154 and BUOA 221, or permission of instructor.

BUOA 271 SECRETARIAL PRACTICE **FWS 3 hrs.**

Skill developed in application of typing and shorthand to office situations and on transcribing machines. Business dress, business ethics, and personality development are discussed. Prerequisite: BUOA 121 and BUOA 154. Individualized course.

Travel and Recreation Management

See Occupational Education (Vocational-Technical) section of this catalog.

Division of Computer Science, Mathematics and Engineering

For the Associate in Science degree, it is the function of the Division of Computer Science, Mathematics and Engineering to offer courses which:

1) *enable a student to complete two years of study directed toward ultimate completion of 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.*

For the Bachelor of Science degree, it is the function of the Division of Computer Science, Mathematics and Engineering to offer courses which:

1) *train computer-science, statistics, and mathematics professionals who are competent to work in industry, universities, government, or research institutes;*
2) *provide a strong undergraduate program for students contemplating graduate-school study;*
3) *provide courses, resources, and facilities which help other departments at Mesa College in meeting the educational needs of their students.*

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

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COMPUTER SCIENCE, MATHEMATICS, AND STATISTICS

ASSOCIATE IN SCIENCE

FIRST YEAR

Fall Quarter	Hrs.	Winter Quarter	Hrs.	Spring Quarter	Hrs.
Mathematics 150	5	Mathematics 151	5	Mathematics 152	5
Science	5	Science	5	Science	5
English 111	3	English 112	3	English 115	3
Physical Education	1	Physical Education	1	Physical Education	1
Computer Science 161	3	Computer Science 114	3	Computer Science 115	3
	17		17		17

SECOND YEAR

Fall Quarter	Hrs.	Winter Quarter	Hrs.	Spring Quarter	Hrs.
Mathematics 253	5	Mathematics 270	5	Mathematics 230	5
Circuit Analysis 251	4	Circuit Analysis 252	4	Social Science	3
Social Science	3	Social Science	3	Computer Science 240	3
Computer Science 230	3	Computer Science 250	3	Statistics 200 or Computer Science 135	5
	15		15		16

THREE-YEAR CERTIFICATE PROGRAM

A three-year Certificate may be earned by completing all of the required subjects listed in the **Bachelor of Science** program and omitting the electives.

BACHELOR OF SCIENCE

THIRD YEAR

Fall Quarter	Hrs.	Winter Quarter	Hrs.	Spring Quarter	Hrs.
Math. or CSCI 360	3	Math. or CSCI 361	3	Mathematics 380	3
Statistics 311	3	Statistics 312	3	Statistics 313	3
Computer Science 341	3	Computer Science 330	3	Computer Science 373	3
Electives	6	Electives	6	Electives	6
	15		15		15

FOURTH YEAR

Fall Quarter	Hrs.	Winter Quarter	Hrs.	Spring Quarter	Hrs.
Mathematics 450	3	Mathematics 431	3	Mathematics 451	3
Computer Science 450	3	Computer Science 440	3	Computer Science 470	3
Electives	9	Electives	9	Electives	9
	15		15		15

General education requirements must be met in electives. Accounting should be taken as an elective.

ENGINEERING

ASSOCIATE IN SCIENCE

FIRST YEAR

Fall Quarter	Hrs.	Winter Quarter	Hrs.	Spring Quarter	Hrs.
English 111	3	English 112	3	English 113	3
Mathematics 150	5	Mathematics 151	5	Mathematics 152	5
Engineering 114	3	Engineering 111	3	Engineering 112	3
Physical Education	1	Physical Education	1	Physical Education	1
Chemistry	5	Physics	5	Physics	5
	17		17		17

SECOND YEAR

Fall Quarter	Hrs.	Winter Quarter	Hrs.	Spring Quarter	Hrs.
Physics	5	Engineering 240	4	Engineering 241	4
Mathematics 253	5	Mathematics 270	5	Mathematics 230	5
Engineering 251	4	Engineering 252	4	Engineering 245 (3)	4
Social Science or Humanities (1, 2)	3	Social Science or Humanities (1, 2)	3	Social Science or Humanities (1,2)	3
	17		16		16

(1) Students should take nine 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 253.

Suggested electives are Engineering 109, 101, 115, Mathematics 161. (These courses will be very helpful in Mathematics and Engineering courses.)

Computer Science

CSCI 130 INTRODUCTION TO FORTRAN PROGRAMMING F 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: MATH 132 or equivalent.

CSCI 131 FORTRAN AND ENGINEERING PROBLEMS WS 3 hrs.

Problems using function subprograms; external statements; transferring data to and from tape; namelist statements; computer solution of engineering problems. Advanced techniques in FORTRAN. An introduction to PL/I. Prerequisites: CSCI 130 and ENGR 114.

CSCI 135 COBOL PROGRAMMING F 5 hrs.

CSCI 161 INTRODUCTION TO COMPUTING F,Smr 3 hrs.

History of computers, descriptions of a typical computer, computer elements and symbolism, computer control and data flow, peripheral components, memory devices, problem-solving using a programming language.

CSCI 230 ASSEMBLY LANGUAGE PROGRAMMING F 3 hrs.

Computer structure and machine language; addressing techniques, digital representation of data, symbolic coding and assembly systems, selected programming techniques. Prerequisite: At least one high-level language or consent of instructor.

CSCI 240 COMPUTER ARCHITECTURE S 3 hrs.

A survey of computer architectures, including memory and addressing, arithmetic schemes, data channels, order codes, microprogramming, and multiprocessors. Prerequisite: CSCI 230; ENGR 251 recommended.

CSCI 250 INFORMATION STRUCTURES W 3 hrs.

Study of information representations and relationships between forms of representations and processing techniques. Transformation between storage media; referencing of information as related to the structure of its representation. Concepts of assays, records, files, trees, list and list structure. Prerequisite: CSCI 230.

CSCI 330 PROGRAMMING LANGUAGES W 3 hrs.

Algorithmic languages, declarations, storage allocation, subroutines, coroutines and tasks. Principles and concepts which characterize various classes of high-level computer-programming languages. Prerequisites: CSCI 161, 230.

CSCI 341 ANALOG AND DIGITAL COMPUTER ELECTRONICS F 3 hrs.

Basic elements and technologies used to fabricate analog and digital computers; laboratory experience in constructing simple computer subsystems. Theory and application of hybrid computers. Prerequisite: ENGR 252.

CSCI 360 NUMERICAL ANALYSIS I F 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: ENGR 115 and MATH 152.

CSCI 361 NUMERICAL ANALYSIS II W 3 hrs.

Numerical solution of algebraic and transcendental equations, systems of equations, ordinary and partial differential equations and integral equations, interpolation, finite differences, eigen-value problems, relaxation techniques, approximations and error analysis Prerequisite: CSCI 360.

CSCI 373 COMPUTER SYSTEMS S 3 hrs.

Assembly systems, executive system, structures, protection techniques, generation and maintenance, priority and scheduling techniques for batch-processing. Prerequisite: CSCI 230.

CSCI 380 MATHEMATICAL LOGIC AND THEORY S 3 hrs.

Mathematical logic, algebra of sets, equivalence and order relations, functions, cardinal and ordinal numbers, and the paradoxes of naive set theory. Prerequisite: MATH 230.

CSCI 440 LIST AND STRING PROCESSING LANGUAGES W 3 hrs.

List processing language development and use. Analysis of strengths and weakness of list processors: Snobal, IPL-V, LISP, etc. Prerequisites: CSCI 250, 330 recommended.

CSCI 450 COMPILER STRUCTURE F 3 hrs.

A review of major problem-oriented languages; bootstrapping techniques and metacompilers; languages for compiler writing, storage allocation and mapping, dynamic allocations, scanners, code emitters, one pass and multi-pass systems, code optimization. Prerequisites: CSCI 330, 373.

CSCI 470 OPERATING SYSTEMS DESIGN S 3 hrs.

Aspects of computer operating, system design and implementation. Prerequisite: CSCI 373.

Engineering

ENGR 100 SLIDE RULE FWS 1 hr.

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

ENGR 101 VECTORS WS 1 hr.

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

ENGR 105 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 111 ENGINEERING GRAPHICS AND DESIGN I FW, Smr 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 112 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: ENGR 114 and 111.

ENGR 114 INTRODUCTION TO FORTRAN PROGRAMMING FWS, Smr 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: MATH 132 or equivalent.

ENGR 115 FORTRAN AND ENGINEERING PROBLEMS W 3 hrs.

Problems using function subprograms; external statements; transferring data to and from tape; namelist statements; computer solution of engineering problems. Advanced techniques in FORTRAN. An introduction to PL/I. Prerequisites: CSCI 130 and ENGR 114.

ENGR 230 TOPOGRAPHICAL SURVEYING F, Smr 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: MATH 131 or equivalent.

ENGR 231 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: MATH 139 or MATH 140.

ENGR 232 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: ENGR 231.

ENGR 233 ADVANCED SURVEYING **S 3 hrs.**

Celestian 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: ENGR 231 and 232.

ENGR 240 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: MATH 151 and PHYS 251, and to be taken concurrently with MATH 152.

ENGR 241 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: ENGR 240 and MATH 152.

ENGR 245 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: ENGR 241.

ENGR 251, 252, 253 CIRCUIT ANALYSIS I, II, III **FWS 4 hrs.**

An introduction to the fundamental principles of electrical engineering. Basic analysis techniques as applied to linear, lumped parameter, time invariant circuits. Principles of electronics, electromechanics, and instrumentation. Required of all engineers. Prerequisite: MATH 151 and PHYS 251 with concurrent enrollment in PHYS 252.

ENGR 259 INTRODUCTION TO ENERGY **3 hrs.**

A survey of energy and modern energy production technology for non-engineering students. Topics include elementary treatments of mechanics, heat flow, chemical energy, electrical energy, nuclear energy and the energy-producing devices which use these principles. Prerequisite: High school algebra.

ENGR 290 INDEPENDENT STUDY **1 hr.**

ENGR 291 INDEPENDENT STUDY **2 hrs.**

Mathematics

(Some courses may be taken in one hour modules)

MATH 15 BASIC MATHEMATICS **F, Smr 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 20 BASIC ALGEBRA **FW, Smr 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 100 MATHEMATICS LAB **FWS 1 hr.**

Theory and operation of calculators as applied to problems in mathematics, business, psychology, electronics, vocational technical, physical sciences and biological sciences.

MATH 101 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.

MATH 102 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.

MATH 103 TECHNICAL MATHEMATICS **S, Smr 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. Class: 4 hours.

MATH 105, 106, 107 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 105 offered in summer session.)

MATH 110 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: MATH 131 or equivalent.

MATH 114 TRAVEL AND RECREATION MATHEMATICS I **FW 3 hrs.**

A course designed to provide the mathematical tools for solving the types of problems which arise in the travel and recreation industry. Includes review of operations and terminology of arithmetic and introduction to elementary topics in algebra, geometry, and trigonometry; percentage; weights and measures; graphs; mathematics of games, business and everyday needs.

MATH 115 TRAVEL AND RECREATION MATHEMATICS II WS 3 hrs.

A continuation of MATH 114.

MATH 121 MATHEMATICAL FOUNDATIONS OF BUSINESS **FW, Smr 5 hrs.**

Designed to provide business students with basic quantitative tools and methods for solving business problems. Includes an intuitive study of functions and their graphs, linear programming, and differential and integral calculus techniques important to development of analytical competence in administrative decision-making. Prerequisite: MATH 131 or two years of high school algebra.

MATH 124 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 127 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: MATH 131.

MATH 131 COLLEGE ALGEBRA I **FWS Smr 3 hrs.**

The systems of integers, rational numbers, real numbers, and complex numbers are studied. Sets and set theory, linear and quadratic relations, exponential and logarithmic functions are included. Prerequisite: MATH 20 or one year of high school algebra.

MATH 132 COLLEGE ALGEBRA II **FWS, Smr 3 hrs.**

A continuation of MATH 131. Topics include functions and graphs, systems of equations, matrices, complex numbers, higher-degree equations, inequalities, progressions and the binomial theorem. Prerequisite: MATH 131 or consent of instructor.

MATH 138 COLLEGE ALGEBRA AND TRIGONOMETRY I **FWS Smr 5 hrs.**

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 polynominal, exponential, logarithmic and circular functions. Prerequisite: MATH 131 or three years of high school math and a good mathematics entrance exam score. Trigonometry recommended.

MATH 139 COLLEGE ALGEBRA AND TRIGONOMETRY II **WS 5 hrs.**

A continuation of Mathematics 138. Topics include inverse circular functions and conditional equations, matrices and determinants, systems of equations, complex numbers and vectors, sequences, series, math induction, binomial theorem, rational and trigonometric functions, and some probability.

MATH 140 TRIGONOMETRY **FWS, Smr 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: MATH 131 or equivalent.

MATH 150 ANALYTIC GEOMETRY WITH CALCULUS **FWS, Smr 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: MATH 139 or equivalent.

MATH 151 CALCULUS **FWS 5 hrs.**

A continuation of Mathematics 150. Differential and integral calculus combined with analytic geometry, together with applications. Special emphasis in calculus on the transcendental functions. Prerequisite: MATH 150.

MATH 152 CALCULUS **FWS 5 hrs.**

A continuation of MATH 151, 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: MATH 151.

MATH 161 PROGRAMMABLE CALCULATOR **WS 1 hr.**

Theory and operation of the programmable calculator. Prerequisite: MATH 140 or consent of instructor.

MATH 230 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: MATH 253.

MATH 253 CALCULUS **FWS, Smr 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: MATH 152.

MATH 270 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 nonlinear equations. Prerequisite: MATH 253 or consent of instructor.

MATH 290 INDEPENDENT STUDY **1 hr.**

MATH 291 INDEPENDENT STUDY **2 hrs.**

MATH 360 NUMERICAL ANALYSIS I **F 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: ENGR 115 and MATH 152.

MATH 361 NUMERICAL ANALYSIS II W 3 hrs.

Numerical solution of algebraic and transcendental equations, systems of equations, ordinary and partial differential equations and integral equations, interpolation, finite differences, eigen-value problems, relaxation techniques, approximations and error analysis.

MATH 380 MATHEMATICAL LOGIC AND THEORY S 3 hrs.

Mathematical logic, algebra of sets, equivalence and order relations, functions, cardinal and ordinal numbers, and the paradoxes of naive set theory.

MATH 401 THE METRIC SYSTEM 1 hr.

A course for learning the metric system through a series of carefully planned experiences, with emphasis on study and work through activities with the metric tape-measure and circular conversion devices.

MATH 431 ABSTRACT ALGEBRA F 3 hrs.

Preliminary examination of algebraic systems: groups, rings, fields, vector spaces, linear transformations, matrices, etc.

MATH 450 INTRODUCTION TO COMPLEX VARIABLES W 3 hrs.

Complex differentiation and integration, analyticity, Cauchy's integral theorem and formula, Taylor and Laurent series, calculus of residues.

MATH 451 ADVANCED CALCULUS I S 3 hrs.

Calculus of one variable, the real number system, continuity differentiation, integration and Reimann-Stieltjes integration.

Statistics

STAT 200 INTRODUCTION TO PROBABILITY AND STATISTICS WS, Smr 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: MATH 131 or two years of high school algebra.

STAT 214 STATISTICAL APPLICATIONS IN BUSINESS W 5 hrs.

An introduction to the methods used in business for the collection and analysis of numeric data for decision-making purposes. The course covers probability and decision theory; sample design; classical distribution; statistical inference; methods of estimation and prediction as they apply to business situations.

STAT 311 STATISTICAL METHODS F 3 hrs.

Simple and multiple analysis of covariance, introduction to non-parametric statistical techniques, design of experiments. Prerequisites: MATH 152 and STAT 200, or consent of instructor.

STAT 312 CORRELATION AND REGRESSIONS W 3 hrs.

Graphical and numerical analysis for simple and multiple correlation and regression problems, both linear and curvilinear. Time series and multivariate analysis, least squares. Prerequisites: MATH 152 and STAT 200, or consent of instructor.

STAT 313 SAMPLING TECHNIQUES **S 3 hrs.**

Survey designs, simple random, stratified and systematic samples; systems of sampling; methods of estimation; costs. Prerequisites: MATH 152 and STAT 200, or consent of instructor.

STAT 325 STATISTICAL APPLICATION OF SOCIAL STUDIES AND PSYCHOLOGY **S 3 hrs.**

Analysis of covariance; multiple regression; linear models; design of experiments; sampling. For natural or social science students.

Division of Fine Arts

The Division of Fine Arts includes the areas of Art, Drama, and Music, which provide courses for the continued cultural development of students by bringing them into contact with the cultures of the past and present. Such studies invariably define the influence of the arts on intellectual and moral development that contribute to a fuller and nobler life for the individual and society.

Instructional Staff: **Mr. Blackburn, Chairman,** and Head, Department of Music; Mr. Birkedahl; Mr. Carmichael; Mrs. Guyton; Mr. Meyers, Head, Department of Art; Mrs. Morosow; Mr. Robinson, Head, Department of Speech and Drama; Mr. Runner; Mr. Sanders; Mrs. Sanders; Mr. Schneider.

ASSOCIATE IN ARTS DEGREE

Students who wish to work toward the Associate in Arts degree should refer to the suggested General Education curriculum elsewhere in this catalog. Faculty advisers will assist Associate in Arts candidates in planning a selection of electives or course substitutions that will best suit their individual objectives.

Study directed toward the Associate in Arts degree will serve as a basis for the Bachelor of Arts in Visual and Performing Arts at Mesa College or for transfer to another institution for a degree in performing in a specific area or teaching.

BACHELOR OF ARTS DEGREE IN VISUAL AND PERFORMING ARTS

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

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

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

General Education requirement including Physical Education	45 hours
Man Creates	9 hours
Practicum in the Arts	6 hours
Civilization and the Arts	9 hours
Multi-media Production	3 hours
Aesthetics or Seminar in Critical Analysis of the Arts	3 hours
Arts Management	3 hours
Fine Arts Electives	17 hours
Other Electives	88 hours
TOTAL, includes independent study and credit by examination	183 hours

Fine Arts

FA 101, 102, 103 MAN CREATES **FWS 3 hrs.**

An inter-disciplinary survey of the creative efforts of man as they relate to each other. Art, drama, and music will be compared, with similarities stressed.

PRACTICUM IN THE ARTS **FWS 6 hrs.**

Required of Visual and Performing Arts majors in the total of 6 hours. Students with a strong background in one of the arts areas will be required to take qualifying classes outside their strength area, preferably three hours in each of

the other two disciplines. Practicum requirements may be met by selecting 6 hours from the following freshman and sophomore classes:
ART 112, 115, 131, 132, 151, 152, 180, 190, 220, 230, 240, 270.
DRAM 114, 117, 118, 119, 121, 122, 123, 124, 125, 126, 129, 142, 143, 147, 148, 149, 214, 215, 217, 218, 219, 222, 244, 245, 246, 247, 248, 249, 251, 252, 253.
MUS 127, 128, 129, 137, 138, 139, or any course carrying the prefix AMUS or PERF.

FA 301, 302, 303 CIVILIZATION AND THE ARTS FWS 3 hrs.

A history course bringing together the viewpoints of social scientists, the historian, humanist, writer, performer, and artist.

FA 401 SEMINAR IN CRITICAL ANALYSIS OF THE ARTS F 3 hrs.

A study of the factors involved in making discriminating judgments for personal development.

FA 402 ARTS MANAGEMENT W 3 hrs.

The business aspects of producing a play, concert, or exhibition. Publicity, dealing with agents, artists, union representatives, tickets, accounting, and scheduling will be studied with practical experience gained from college productions.

FA 403, 404 MULTI-MEDIA PRODUCTION WS 3 hrs.

Bringing together the various arts with a combined effort resulting in a public performance.

Art

ART 112 EARLY CHILDHOOD ART W 3 hrs.

Theory, methods and practice of conducting art activities with pre-school children. Stages of manipulative development and self-expression are described and observed. A service course for Child Care majors. Lecture: 3 hours.

ART 115 CRAFTS SURVEY F 2 hrs.

A laboratory sampling of materials and processes suitable for leisure activity and recreation programs for people of all ages. A service course for Recreation majors. Lecture: 1 hour; studio: 3 hours.

ART 131, 132 ART IN THE HOME WS 2 hrs.

Study of the elements of visual form in theory and as specifically applied to design and decoration in home furnishing. A service course for Home Economics majors. Lecture: 2 hours; studio: 2 hours.

ART 151, 152 DRAWING FWS 3 hrs.

Methods of analyzing visual phenomena are taught through observations of live models in the classroom, still-life groupings, the work of other artists, and on-site observations of Western Colorado landscape. Drawing skills are developed through such media as graphite charcoal, black lead, pen and brush with ink, conté crayon, litho crayon, and water color. Open to all students. Studio: 6 hours.

ART 180 THREE-DIMENSIONAL FORM FWS 3 hrs.

Several figurative and non-representational sculpture forms are done in additive, subtractive and assemblage media. Aesthetic and utilitarian needs are considered; Lecture: 1 hour; studio: 5 hours.

ART 190 COLOR FWS 3 hrs.

Study of color theory, description and measurement systems, uses of color in art form and meaning. Painting problems in charting, optic mixing, color harmony, local color, simultaneous contrast, and symbolism. Lecture: 3 hours; studio: 3 hours.

ART 220 PROCESSES AND MEDIA—JEWELRY FWS 3 hrs.

Basic metal processes of cutting, joining, casting and surfacing in the design of jewelry and miniature sculpture forms. Lecture: 1 hour; studio: 5 hours.

ART 230 PROCESSES AND MEDIA—FIBERS FWS 3 hrs.

An introduction course providing an overview of basic techniques in fabric design. Emphasis is on the creative aspects of designing in processes such as batik, macrame, tie-dye, hooking, and weaving.

ART 240 PROCESSES AND MEDIA—CERAMICS FWS 3 hrs.

A survey of ceramic hand-building processes, decoration processes, and glazing. Study of the sources and properties of clay. Lecture: 1 hour; studio: 5 hours.

ART 250 FIGURE DRAWING FWS 3 hrs.

A studio course in academic figure drawing emphasizing the tradition of the human figure as it has been used for centuries in the Art of western civilization. Nude models, plaster casts, anatomy charts, and the work of various figurative artists are utilized in course instruction. Studio: 6 hours. Prerequisites: ART 151 or 152 or permission of the instructor.

ART 270 PROCESSES AND MEDIA—PRINTMAKING FWS 3 hrs.

A survey of printmaking processes including relief, intaglio, and silk screen. Lecture: 1 hour; studio: 5 hours.

ART 310 EXHIBITIONS FWS 2 hrs.

Preparation and presentation of art exhibitions, including matting, framing, pedestals, design and installation, shipment. On- and off-campus work.

ADVANCED STUDIO (300 LEVEL) FWS 1 to 4 hrs.

Selected-credit independent study in choices or combinations of the following studios: Jewelry, Fibers, Ceramics, Drawing, Printmaking, Sculpture, and Painting. Definition of work to be done is contracted with faculty supervisors of appropriate studios at or prior to registration. Credit limits are 9 in any one studio per year and 9 in combined studios per quarter. Prerequisites: ART 151, 152, 180, 190, and 6 credits selected from ART 220, 230, 240, 270. (Total of 18 hours in art studio work required before Advanced Studio may be started.)

ART 321, 322, 323 JEWELRY
ART 331, 332, 333 FIBERS
ART 341, 342, 343 CERAMICS
ART 351, 352, 353 DRAWING
ART 371, 372, 373 PRINTMAKING
ART 381, 382, 383 SCULPTURE
ART 391, 392, 393 PAINTING

ADVANCED STUDIO (400 LEVEL) FWS 1 to 6 hrs.

A continuation of independent study and studio work for the advanced student. Prerequisites: 9 hours of 300-level Advanced Studio work.

ART 421, 422, 423 JEWELRY
ART 431, 432, 433 FIBERS
ART 441, 442, 443 CERAMICS
ART 451, 452, 453 DRAWING
ART 471, 472, 473 PRINTMAKING
ART 481, 482, 483 SCULPTURE
ART 491, 492, 493 PAINTING

ART 411, 412, 413 FWS 3 hrs.

A reading and seminar course for depth study of individually selected areas of world art history and the relationships of the various periods to the art of today. Prerequisites: FA 301, 302, 303.

Drama

DRAM 114 SUMMER THEATRE Smr 3 hrs.

Introduces the student to a professional summer-theatre experience. The student is expected to participate in all phases of the theatre operation including acting, technical work, directing, office management, etc. A student who registers for summer theatre should not enroll in any other class for that time. Five plays are presented in a six-week schedule.

DRAM 115 PROBLEMS IN MODERN THEATRE Arr 2 hrs.

This is a cultural enrichment course which involves a tour to a theatrical center for the observance of professional productions of dramas, musicals, operas, or other forms of stage entertainment. Papers and discussions are used for evaluation.

DRAM 117, 118, 119 PLAY PRODUCTION FWS 1 hr.

A practical course in stagecraft concerned with the production of plays. The students work in all phases of production, and the hours are arranged for the laboratory sessions.

DRAM 121 BEGINNING BALLET 1 hr.

Basic elements of ballet concerned with body control and technique.

DRAM 122 INTERMEDIATE BALLET 1 hr.

A continuation of Beginning Ballet (DRAM 121)

DRAM 123 ADVANCED BALLET 1 hr.

A continuation of Intermediate Ballet (DRAM 122)

DRAM 124 BEGINNING MODERN DANCE 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 125 INTERMEDIATE MODERN DANCE 1 hr.

A continuation of Beginning Modern Dance

DRAM 126 ADVANCED MODERN DANCE 1 hr.

A continuation of Intermediate Modern Dance.

DRAM 129 BEGINNING MODERN JAZZ S 1 hr.

The concept of jazz as a dance form.

DRAM 141 THEATRE PRACTICE: INTRODUCTION F 2 hrs.

This course introduces the student to the theatre and the business of play-production and audience responsibility. Types of plays, styles of production and audience critique are all considered.

DRAM 142 MAKE-UP W 2 hrs.

For the student who is interested in theatrical make-up. All phases of make-up will be covered, from straight make-up to the character making use of crepe hair, prosthesis, latex, and other materials.

DRAM 143 COSTUMING S 2 hrs.

For the student who is interested in costuming and the history of costumes. Helps the actor understand the actual wearing of the costumes of different periods. The student will design and construct one costume item.

DRAM 147, 148 149 DRAMA PERFORMANCE FWS 1 hr.

A student must participate in a major production on the campus. His grade will be dependent upon his final performance and the preparatory work on his character.

DRAM 211 CREATIVE PLAY ACTIVITIES—DANCE F 3 hrs.

A class designed to work with basic movement for children. Emphasis is placed on the creative exploration of space, design, dynamics and rhythm in dance.

DRAM 213 CREATIVE PLAY ACTIVITIES—DRAMA S 3 hrs.

To introduce the student to the use of dramatic activities in a learning situation. The subject matter would be of interest to anyone in the field of child care, general education, social work, religious education and/or recreation work.

DRAM 214 SUMMER THEATRE Smr 3 hrs.

See Drama 114.

DRAM 215 PROBLEMS IN MODERN THEATRE Arr. 2 hrs.

See Drama 115.

DRAM 217, 218, 219 PLAY PRODUCTION FWS 1 hr.

See Drama 117, 118, 119.

DRAM 222 IMPROVISATION AND COMPOSITION W 3 hrs.

Theory and practice in the basic principles of dance composition.

DRAM 234, 235, 236 DEVELOPMENT OF CINEMA FWS 2 hrs.

Helps students develop an understanding and appreciation of the motion-picture film as art, propaganda, and educational media. Also provides opportunity to observe the cinema's influence upon society. This is accomplished through the study of filming techniques, audience reaction, reviews, and critical essays of films. The student is expected to do a critical analysis of each film used in class.

DRAM 244 THEATRE PRACTICE: SCENE CONSTRUCTION F 2 hrs.

To expose the student to construction techniques and methods of moving scenery on the stage. The areas covered are: construction, painting, and handling of scenery, and stage properties and effects.

DRAM 245 THEATRE PRACTICE: LIGHTING AND SOUND W 2 hrs.

A study of the special problems associated with lighting and sound for educational and community stage productions. Includes basic lighting design, elements of electricity, color in light, light sources, stage-lighting instruments, and lighting design for non-commercial productions.

DRAM 246 THEATRE PRACTICE: SCENE DESIGN S 2 hrs.

Emphasizes practical application of basic design principles to modern staging methods. Stresses the function of scene design in its relation to the play, and the visual contribution of design to the production as a whole, as well as working procedures and presentation techniques. The areas covered are: scene design and the theatre, scene design as a visual art, and the design idea.

DRAM 247, 248, 249 DRAMA PERFORMANCE FWS 1 hr.

See DRAM 147, 148, 149.

DRAM 251 STAGE MOVEMENT **F 3 hrs.**

The analysis and practice of stage movement including the 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 252 IMPROVISATIONAL ACTING **W 3 hrs.**

This is not a regular acting course, but one in which the student has opportunity to become aware of his surroundings and then attempt, through observation, concentration and imagination, to make use of often neglected or overlooked details of human behavior. Includes group, duo, and individual projects.

DRAM 253 BEGINNING ACTING **S 3 hrs.**

Includes fundamentals of stage presence in both proscenium and arena staging, basic acting techniques using body and voice, and exploration of the various techniques of acting. Students perform solo, duo, and group scenes.

DRAM 254, 255, 256 INDEPENDENT STUDY IN DRAMA **FWS 3 hrs.**

This course is planned for the student who wishes to do an in-depth study of some aspect of theatre under the guidance of an instructor on the campus.

DRAM 314 SUMMER THEATRE **Smr 3 hrs.**

See DRAM 114.

DRAM 315 PROBLEMS IN MODERN THEATRE **W 2 hrs.**

See DRAM 115.

DRAM 317, 318, 319 PLAY PRODUCTION **FWS 1 hr.**

See DRAM 117, 118, 119

DRAM 321, 322, 323 REPERTORY **FWS 1 hr.**

Designed to provide students an opportunity to participate directly in the production of a piece choreographed by a faculty or guest artist.

DRAM 324 DANCE PRODUCTION **W 3 hrs.**

Analysis and practice in the production elements of dance concerts including directing, lighting, costuming and makeup for dance.

DRAM 331, 332, 333 HISTORY OF THEATRE **FWS 2 hrs.**

A study of the historical aspects of the theatre as an institution and its relationship to the other arts and to the social and economic environment.

DRAM 344 DRAFTING FOR THE THEATRE **F 3 hrs.**

A specialized course in the techniques of drafting ground plans and working drawings for the theatre. Areas covered: the ground plan, front elevations, detail drawings, full-scale drawings, sight-line drawings. Offered alternate years.

DRAM 345 STAGE LIGHTING **W 3 hrs.**

Advanced training in the art of stage lighting and design. Offered alternate years.

DRAM 346 SCENE DESIGN **S 3 hrs.**

Gives the student experience in scene design and special experience in color renderings for major type and style of production. Offered alternate years.

DRAM 347, 348, 349 DRAMA PERFORMANCE **FWS 1 hr.**

See DRAM 147, 148, 149.

DRAM 351 DIALECTS IN ACTING F 3 hrs.

An introduction to the use of dialects in performance. Students learn basic stage speech and other dialects through the performance of scenes with dialect. It is recommended that any student taking this course be familiar with the phonetic alphabet and voice control. Offered alternate years.

DRAM 353 STYLES IN ACTING W 3 hrs.

Introduces the actor to the various styles of acting used in the Classical, Elizabethan, Romantic, melodrama, and realistic dramas. The student will perform scenes from these different periods. Offered alternate years.

DRAM 354 ACTING PROJECT S 3 hrs.

An in-depth study of different performance techniques used in various styles of acting and in different genres of writing. To be presented as an acting recital or a senior project. Offered alternate years.

DRAM 414 SUMMER THEATRE W 3 hrs.

See DRAM 114.

DRAM 415 PROBLEMS IN MODERN THEATRE W 2 hrs.

See DRAM 115.

DRAM 417, 418, 419 PLAY PRODUCTION FWS 1 hr.

See DRAM 117, 118, 119.

DRAM 444 TECHNICAL EXPERIENCE IN LIGHTING AND SOUND F 3-5 hrs.

Work experience in local high school, church, community theatre or college production. Students organize work crews, design and hang scenery and lights, and run the production. No formal classwork other than student-instructor conferences and on-the-job experience. Offered alternate years.

DRAM 445 TECHNICAL EXPERIENCE IN STAGE DESIGN AND CONSTRUCTION W 3-5 hrs.

Work experience as described above. Student designs and oversees construction of a set for a local production. Offered alternate years.

DRAM 446 TECHNICAL EXPERIENCE IN COSTUMING S 3-5 hrs.

Work experience as described above. Student designs and oversees construction of costumes for a local production. Offered alternate years.

DRAM 447, 448, 449 DRAMA PERFORMANCE FWS 1 hr.

See DRAM 147, 148, 149.

DRAM 451 BEGINNING DIRECTING F 3 hrs.

Introduces the student to fundamentals of play direction from play selection to the final performance. The student works on scenes, examining them in depth and putting them on stage in class for critical viewing. Offered alternate years.

DRAM 452 ADVANCED DIRECTING W 3 hrs.

The student is expected to direct and produce a one-act play in this course. He is responsible for organizing the production, conducting the rehearsals, and presenting the play to the public. Offered alternate years.

DRAM 453 DIRECTING PROJECT S 3 hrs.

The student will do a senior project in directing. It may be a full-length play, a children's play or a series of one-acts. The student is responsible for the entire production. Offered alternate years.

DRAM 454, 455, 456 INDEPENDENT STUDY IN DRAMA FWS 3 hrs.
See DRAM 254, 255, 256.

Music

MUS 114, 115, 116 ELEMENTARY THEORY FWS 3 hrs.
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 Elementary Theory.

MUS 117, 118, 119 SIGHT-SINGING AND EAR TRAINING FWS 2 hrs.
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 correlate.

MUS 127, 128, 129 PIANO CLASS FWS 2 hrs.
Open to all students, but recommended for those students studying Elementary Theory who have little background in piano. The class studies in the electronic piano laboratory, which makes it possible to provide individual instruction in a class situation.

MUS 135 CREATIVE PLAY ACTIVITIES—MUSIC WS 3 hrs.
Designed for 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 the creating of musical instruments from simple objects.

MUS 137, 138, 139 VOICE CLASS FWS 2 hrs.
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 167, 168, 169 CONDUCTING FWS 2 hrs.
An introductory study of conducting: Choir (fall), Band (winter), Orchestra (spring).

MUS 310, 311, 312 COMPREHENSIVE MUSICIANSHIP FWS 3 hrs.
Class assignments in the areas of analysis, conducting, counterpoint, arranging, orchestration as decided by the student and instructor.

MUS 324, 325, 326 HISTORY OF MUSIC LITERATURE AND STYLES FWS 3 hrs.
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 visual and performing arts major; however, any student with sufficient background may take the course.

MUS 343, 344, 345 JAZZ HISTORY FWS 3 hrs.
Evolution of the historical and stylistic aspects of rock and jazz music. Particular emphasis is placed on performers and titles. A text is utilized in conjunction with tapes and records. Film strips and guest lecturers augment the presentation.

MUS 367, 368, 369 INTERMEDIATE CONDUCTING FWS 3 hrs.
In-depth continuation of MUS 167, 168, 169.

MUS 446, 447, 448 INDEPENDENT STUDY FWS 3-5 hrs.
Independent research or project in the student's strength area to be decided by instructor and student.

MUS 467, 468, 469 ADVANCED CONDUCTING FWS 3 hrs.
Concentrated effort in development of performance, score mastering, rehearsal and performance techniques. Continuation of MUS 367, 368, 369.

Ensembles

PERF 110, 120, 130; 210, 220, 230; 310, 320, 330; 410, 420, 430 JAZZ ENSEMBLE FWS 1 hr.
By audition only. Preference is given to participating members of Marching Band in the fall and Concert Band in winter and spring. The initial stages of the band's development include studying and playing dance band repertoire, practical performances and jazz improvisation. The group performs several concerts on campus each year, plays for area dances, and makes a concert tour in the spring.

PERF 131, 231, 331, 431 STADIUM BAND F 2 hrs.
Open to all students regardless of major. The Stadium Band performs at all home football games. The main function of the group is to provide music for the Stepperettes and appropriate music in the stands. Stadium Band may be taken for 2 hours credit or as a substitute for 1 hour of physical education credit. Rehearses at 12 noon daily during marching season.

PERF 132, 133; 232, 233; 332, 333; 432, 433 SYMPHONIC BAND 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 formal concerts on campus as well as in local high schools. Occasionally guest conductors and nationally known soloists perform with the group.

PERF 137, 138, 139; 237, 238, 239; 337, 338, 339; 437, 438, 439 INSTRUMENTAL ENSEMBLE FWS 1 hr.
Groups are organized upon the basis of talents and interests of the members. These groups may consist of various combinations of woodwind, string, brass, and percussion instruments.

PERF 140, 240, 340, 440 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 2 hours per week during basketball season. The group may accompany the basketball team out of town when need and finances permit.

PERF 141, 142, 143; 241, 242, 243; 341, 342, 343; 441, 442, 443 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 Colorado 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 conductor.

The Mesa College Civic Symphony Orchestra meets on campus 2 hours on

Tuesday evenings. The Valley Symphony, also sponsored by Mesa College, meets at Delta High School 2 hours each Thursday evening and also presents three concerts yearly.

PERF 144, 145, 146; 244, 245, 246; 344, 345, 346;
444, 445, 446 VOCAL ENSEMBLE **FWS 1 hr.**

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

PERF 147, 148, 149; 247, 248, 249; 347, 348, 349;
447, 448, 449 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.

PERF 151, 152, 153; 251, 252, 253
PIANO ACCOMPANYING **FWS 1 hr.**

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

PERF 154, 155, 156; 254, 255, 256; 354, 355, 356;
454, 455, 456 CLARINET ENSEMBLE **FWS 1 hr.**

The clarinet group is composed of interested clarinet players who desire an outlet to rehearse and perform clarinet literature.

PERF 157, 158, 159; 257, 258, 259; 357, 358, 359;
457, 458, 459 COMMUNITY CHOIR **FWS 1 hr.**

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

PERF 160, 161, 162, 260, 261, 262; 360, 361, 362;
460, 461, 462 DANCE BAND **FWS 1 hr.**

Dance Band consists of a select instrumentation of vocal and instrumental students who devote rehearsal time to standard pop, rock, and jazz tunes. Many area dances are performed during the year for various community organizations, service clubs, and schools.

PERF 165, 166, 167; 265, 266, 267; 365, 366, 367;
465, 466, 467 RECORDER ENSEMBLE **FWS 1 hr.**

A fundamental approach is used in teaching students to obtain proficiency on the Baroque recorder. Literature from all eras is utilized after basic skills are obtained.

PERF 168, 169, 170 BEGINNING JAZZ IMPROVISATION **FWS 1 hr.**

Instrumentalists learn basic techniques of performing rock and jazz solos. A modal and scalewise approach is utilized in achieving these basic concepts. Performing knowledge of major and minor scales on the individual instrument is a prerequisite.

PERF 171, 172, 173; 271, 272, 273; 371, 372, 373;
471, 472, 473 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; entertains both on campus and at community functions. Auditions are held for membership in this group.

PERF 181, 182, 183; 281, 282, 283; 381, 382, 383; 481, 482, 483 STEPPERETTES **FWS 1 hr.**

A dance/drill group which performs for football and basketball games and for community organizations. Girls are selected on a tryout basis. Open to all college women. One hour of credit may be substituted for physical education requirement during the fall quarter.

PERF 368, 369, 370 ADVANCED IMPROVISATION **FWS 1 hr.**

Emphasis is placed on learning riffs, figures, and sequences as they are utilized in various chord structures. Most of the tunes utilized involve altered chords and substitute chords. Beginning improvisation is a pre-requisite or special permission of the instructor.

PERF 384, 385, 386; 484, 485, 486 COMBO **FWS 1 hr.**

Interested individuals team up with a rhythm section in learning tunes and "head" charts. Various combinations of instrumentalists and vocalists find this class the best medium for improving performing skills and making practical application of improvisation techniques.

Applied Music

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 two hours credit; four-hours credit will be granted by special permission of the music staff only.

Visual and Performing Arts 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.

AMUS 111, 112, 113; 211, 212, 213; 311, 312, 313; 411, 412, 413 VOICE **FWS 2, 4 hrs.**

AMUS 114, 115, 116; 214, 215, 216; 314, 315, 316; 414, 415, 416 PIANO **FWS 2, 4 hrs.**

AMUS 117, 118, 119; 217, 218, 219; 317, 318, 319; 417, 418, 419 ORGAN **FWS 2, 4 hrs.**

AMUS 121, 122, 123; 221, 222, 223; 321, 322, 323; 421, 422, 423 VIOLIN **FWS 2, 4 hrs.**

AMUS 124, 125, 126; 224, 225, 226 324, 325, 326; 424, 425, 426 CELLO **FWS 2, 4 hrs.**

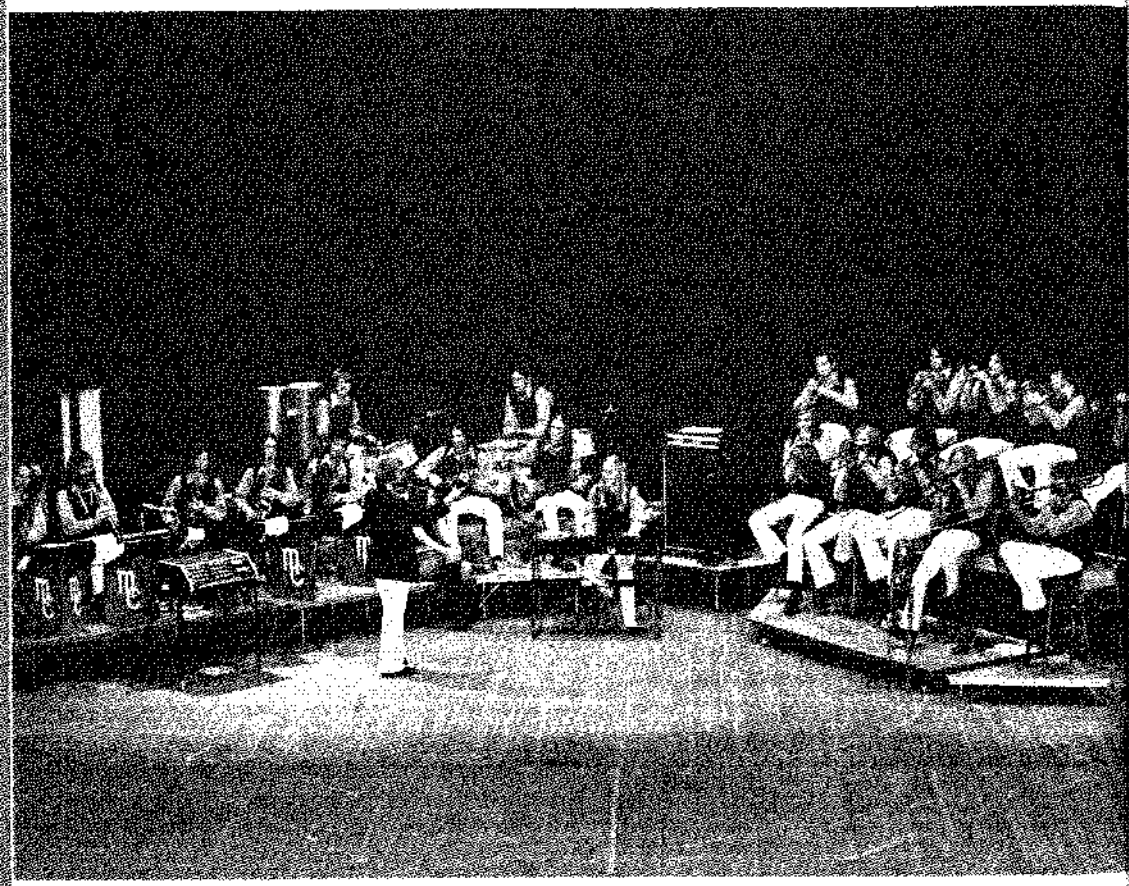
AMUS 127, 128, 129; 227, 228, 229; 327, 329, 329; 427, 428, 429 BASS **FWS 2, 4 hrs.**

AMUS 130, 131, 132; 230, 231, 232; 330, 331, 332; 430, 431, 432 GUITAR **FWS 2, 4 hrs.**

AMUS 133, 134, 135; 233, 234, 235; 333, 334, 335; 433, 434, 435 TRUMPET **FWS 2, 4 hrs.**

AMUS 136, 137, 138; 236, 237, 238; 336, 337, 338; 436, 437, 438 TROMBONE **FWS 2, 4 hrs.**

AMUS 139, 140, 141; 239, 240, 241; 339, 340, 341; 439, 440, 441	FRENCH HORN	FWS	2, 4 hrs.
AMUS 142, 143, 144; 242, 243, 244; 342, 343, 344; 442, 443, 444	TUBA	FWS	2, 4 hrs.
AMUS 145, 146, 147; 245, 246, 247; 345, 346, 347; 445, 446, 447	CLARINET	FWS	2, 4 hrs.
AMUS 148, 149, 150; 248, 249, 250; 348, 349, 350; 448, 449, 450	OBOE	FWS	2, 4 hrs.
AMUS 151, 152, 153; 251, 252, 253; 351, 352, 353; 451, 452, 453	FLUTE	FWS	2, 4 hrs.
AMUS 154, 155, 156; 254, 255, 256; 354, 355, 356; 454, 455, 456	PERCUSSION	FWS	2, 4 hrs.



Division of Humanities

The Division of Humanities endeavors 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 various forms of man's expression. With these objectives in view, students should develop enduring values, both aesthetic and utilitarian.

Instructional Staff: **Mr. Showalter, Chairman**; Mr. Berkey; Mrs. Best; Mrs. Boschi; Mr. Carmichael; Mr. Frohock; Mrs. Huffer; Mr. Robert Johnson; Mr. Tom Jones; Miss Lay; Mr. Dan MacKendrick; Mr. Mountain; Mrs. Peck; Mrs. Rick; Mr. Pilkenton; Mr. Robinson, Head, Department of Speech and Drama; Mrs. Robinson; Mr. Sowada.

ASSOCIATE IN ARTS TRANSFER PROGRAM

Students whose major interest is in one of the areas included in the Division of Humanities may work toward the Associate in Arts degree by following the General Education or General Liberal Arts curriculum on page 31 of this catalog. These programs, subject to certain alternatives that may be suggested by the student's adviser, will serve as the basis for transfer to another college or university that offers upper-division work not currently available at Mesa College.

BACHELOR OF ARTS IN LIBERAL STUDIES

The Liberal Studies Program is a new academic concept providing an opportunity for the student, in consultation with a special faculty committee, to design much of his own major program. The area requirements permit each individual to be exposed to a variety of academic or occupational disciplines; at the same time the student has considerable freedom in selecting courses to meet specific requirements. The plan also allows the student greater flexibility in selecting a supporting program of transdisciplinary study.

This degree program is designed for the student of maturity and responsibility whose interests may cross several disciplines. Although the required courses and area requirements help assure basic academic credentials, there is much opportunity for flexibility. The special project during the student's final year of baccalaureate-degree work offers broad opportunity for off-campus experiences related to a particular area of interest, or the student may engage in approved on-campus study, research or performance, depending upon individual interests.

Students transferring from other institutions or from occupationally oriented programs may find the Liberal Studies plan accommodating to a wide range of academic pursuits.

Broad Requirements for B.A. in Liberal Studies

1. Successful completion of 186 quarter hours of credit.
2. Successful completion of a senior/equivalent comprehensive.

Special Requirements for the 186 Quarter Hours of Credit

1. Forty-five credit hours in general education.
2. Ninety-one credit hours in specific areas: fine arts, 25; humanities, 25; social science, 25; mathematics, 5; physical or biological science, 5; physical education and recreation, 6.
3. Fifty hours of electives, which may be chosen from any of the following: accounting, agriculture, art, biology, business, chemistry, data processing, drama, economics, education, English, French, geology, German, history, home economics, literature, mathematics, music, occupational studies, philosophy, physical education, physics, political science, psychology, religion, sociology, social work, secretarial, Spanish, speech, technical.

Lower and Upper Division Requirements

Each student enrolled in the Liberal Studies Program will be required to complete:

1. Ninety-three hours of credit in lower-division courses.
2. Forty-five hours of credit in upper-division courses (numbered in the 300's and 400's).

Elective credit hours to complete the baccalaureate-degree requirements may be taken in the area of the student's own choice.

General Implementation by Candidate for B.A. Degree in Liberal Studies

A student entering the Liberal Studies Program must submit a major program for approval of an elected or appointed board composed of at least one faculty member from each academic division and the Occupational Studies area. This faculty board will then permit the student to select one member from the faculty board, two instructors from his major field of concentration, and one instructor from his minor or related field of concentration to advise and assist him in developing his program. This program may be submitted any time prior to the student's senior/equivalent year. The committee selected by the student will then assist the student in having the program approved by the faculty board.

Education

EDUC 251 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. Open to freshmen with permission of instructor.

EDUC 252 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: EDUC 251.

EDUC 253 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. (Continuing Education Department.)

ENGL 110 ENGLISH GRAMMAR **FWS 3 hrs.**

A review of functional grammar and usage as well as sentence structure and mechanics. The department recommends that students whose scores are low on the American College Test take ENGL 110 before ENGL 111. Credit counts as elective for a degree.

ENGL 111, 112, 113 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 115 TECHNICAL REPORT WRITING **S 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 ENGL 113 for certain students.

ENGL 117 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 118 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 119 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 121 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 122 ENGLISH: VOCABULARY **FWS 2 hrs.**

This course emphasizes vocabulary improvement by means of word analysis and study of contributions from other languages. English 121 is not a prerequisite. The course is also recommended for reading improvement.

ENGL 126, 127 HONORS ENGLISH **FW 4½ hrs.**

Designed for students whose high school records and ACT scores are in the 85th percentile or higher. The first quarter concentrates on sentence-structure errors, patterns of organization including the outline, panel discussions on man and woman in contemporary society, and the impact of scientific thought on the humanities. Critical reviews and a short thesis required. The second quarter is devoted to a longer research paper and an essay involving a critical analysis of a novel.

ENGL 131, 132, 133 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 251, 252, 253 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: ENGL 111, 112, 113 or ENGL 111 and 112 with permission of the instructor.

ENGL 311 SEMINAR: ADVANCED WRITING F 3 hrs.

Focuses study on formula required for magazine, expository, and playwriting. Prerequisite: ENGL 111, 112, 113.

ENGL 422 SENIOR SEMINAR IN ENGLISH S 3 hrs.

Designed for students interested in explorations of English or Literature. Subject areas advise of staff. (May be taken one quarter only.)

Foreign Language

Since some programs require two years of a foreign language, the department recommends that students begin their study of a foreign language during the freshman year to help insure continuity of study as an undergraduate at Mesa College. The department operates a laboratory containing fifteen dual-track recorders. Students practice individually with tapes recorded by native speakers.

FRENCH

FR 111, 112, 113 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 251, 252, 253 READING AND SPEAKING FRENCH FWS 3 hrs.

Reading of cultural material, magazine articles, and short literary selections. Discussion, guided and free conversation. Vocabulary. Aural comprehension. Prerequisite: Two years of high school French, one year of college French, or permission of the instructor.

GERMAN

GERM 111, 112, 113 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 251, 252, 253 READING AND SPEAKING GERMAN FWS 3 hrs.

Reading of cultural material, magazine articles, and short literary selections. Discussion, guided and free conversation. Vocabulary. Aural comprehension. Prerequisite: Two years of high school German, one year of college German, or permission of the instructor.

ITALIAN

ITAL 110 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 111, 112, 113 FIRST-YEAR SPANISH FWS 5 hrs.

This three-quarter sequence course is offered in the day school for students with no prior knowledge of Spanish whose major fields have a foreign-language requirement; also for all other students who are interested in a comprehensive, transfer-type program designed to develop basic competency in all four areas of language skills: understanding, speaking, reading and writing.

SPAN 114, 115, 116 CONVERSATIONAL SPANISH FWS 3 hrs.

This semi-individualized three-quarter sequence (Beginning, Intermediate, and Advanced) is for English-speaking persons who come into daily contact with Spanish-speaking individuals, either socially or in their occupations. The class helps develop pronunciation, vocabulary, and a good foundation for future mastery of Spanish-speaking skills. (Offered at night through the Office of Community Services' Continuing Education Division.)

SPAN 117, 118, 119 CAREER SPANISH FWS 3 hrs.

This limited-objective course (understanding and speaking skills only) is offered in the day school for students with or without prior knowledge of Spanish who have limited number of elective hours or are interested in only a specific aspect of Spanish. Course options for 1975-76 include medical, urban, agricultural, and tourist Spanish. Students may begin the course in any quarter and may take it for one, two, or three quarters.

SPAN 251, 252, 253 READING AND SPEAKING SPANISH FWS 3 hrs.

Reading of cultural material, magazine articles, and short literary selections. Discussion, guided and free conversation. Vocabulary. Aural comprehension. Prerequisite: Two years of high school Spanish, one year of college Spanish, or permission of the instructor.

Humanities

HUM 330 WOMEN IN WORLD THOUGHT AND LITERATURE FWS 3 hrs.

A one quarter course delving into the contributions of women to politics, philosophy, literature, art, drama, and the advancement of cultural and humanitarian concepts.

HUM 440 MAJOR SEMINAR **FWS 1-3 hrs.**

Taken senior year consisting of group discussion and individual oral and written reports on subjects selected by student and the seminar leader. Course will culminate in comprehensive examination taken in Spring. Credit not to be awarded until the comprehensive is passed. Prerequisite: At least 12 credit hours in English or literature. One hour per quarter.

Literature

LIT 121 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 122 LITERATURE FOR THE ADOLESCENT **S 3 hrs.**

Continuation of LIT 121. Literature for the Adolescent extends the study of literature for the child through the junior high years (grades 7-9, ages 11-14). Together, LIT 121 and 122 offer the college student a complete course in the study of literature for the child from his earliest associations with books and stories through his elementary and junior high years, at which time the adolescent will have made the transition from juvenile to adult reading.

LIT 131, 132, 133 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 134 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 135 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 141 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 142 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 143 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 144 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 145 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 146 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 147 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 251, 252, 253 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: ENGL 112.

LIT 254 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: ENGL 111, 112, 113.

LIT 261, 262, 263 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: ENGL 112.

LIT 316 DEVELOPMENT OF AMERICAN NOVEL I F 3 hrs.

Beginning to 1900.

LIT 317 DEVELOPMENT OF AMERICAN NOVEL II W 3 hrs.

1900 to present.

LIT 318 FRONTIER AMERICAN LITERATURE S 3 hrs.
Regional literature of U.S. frontier. Prerequisite: LIT 261, 262, 263.

LIT 322 THE BIBLE AS LITERATURE S 3 hrs.
Survey of literary achievements, as represented by the King James Bible—Old and New Testaments.

LIT 324 SHORT STORY I F 3 hrs.
Introduces the genre of the short story; provides the history and examples of short stories which reveal the development of plot, setting, character, symbol, point of view, and theme.

LIT 325 SHORT STORY II W 3 hrs.
Continuation of LIT 324. Covers short stories which are more difficult in analyzation and which reveal the development of irony, allegory, humor, satire, and fantasy.

LIT 326 WORLD DRAMA, I F 3 hrs.
Survey of drama beginning with Greek drama through the Elizabethan. (Offered alternate years).

LIT 327 WORLD DRAMA, II W 3 hrs.
Continuation of LIT 326, Jacobean and Restoration to Ibsen. (Offered alternate years.)

LIT 328 WORLD DRAMA, III S 3 hrs.
Continuation of LIT 326, 327. Ibsen to present. (Offered alternate years.)

LIT 411 AMERICAN DRAMA, I F 3 hrs.
From beginning to O'Neill. (Offered alternate years.)

LIT 412 AMERICAN DRAMA, II W 3 hrs.
From O'Neill to present. (Offered alternate years.)

LIT 415 TOPICS IN AMERICAN LITERATURE: AMERICAN FOLKLORE W 3 hrs.
Tracing and development of the American folklore genre as a literary art form.

LIT 416 ADVANCED POETRY S 3 hrs.
Reading of representative poetry from various culture and ethnic groups. (Offered alternate years.)

LIT 424 SEMINAR: LITERATURE AND SCIENCE S 3 hrs.
Advice and counsel of staff. (May be taken one quarter only.)

LIT 430 SHAKESPEARE, I W 3 hrs.
Development as a dramatist to 1650. (Offered alternate years.)

LIT 431 SHAKESPEARE, II S 3 hrs.
Shakespeare's art at its maturity. Continuation of LIT 430. (Offered alternate years.)

Philosophy

PHIL 251 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 252 HISTORY OF PHILOSOPHY **WS 3 hrs.**

Continuation of PHIL 251. Machiavelli, Luther, Calvin, Erasmus, Copernicus, Galileo, Hobbes, Descartes, Spinoza, Locke, Berkeley, Hume, Kant, Rousseau, Hegel. Schopenhauer, Nietzsche, James. No prerequisite. May be taken by permission of instructor.

PHIL 253 PHILOSOPHY: AESTHETICS **S 3 hrs.**

Examination of classical and contemporary theories of art forms by such writers as Plato., Aristotle, Tolstoy, Santayana, and Hegel; a study of these principal historical systems in interpretation and criticism of works in fine arts, music, and literature. No prerequisite. May be taken by permission of instructor. **Note:** Students desiring to work toward a baccalaureate major or minor in philosophy should take PHIL 251, 252, and 253.

Reading

READ 110 COLLEGE STUDY SKILLS AND READING **FWS 3 hrs.**

Emphasis is placed on study skills necessary for success in college. A personalized approach to reading is used to develop vocabulary, comprehension, and concentration. Especially designed for students who have been out of school for some time or who have had problems with study skills in high school.

READ 113 READING IMPROVEMENT **FWS 3 hrs.**

This developmental reading course stresses vocabulary, comprehension, and flexibility of rate. Two hours of structured classwork and one hour of skills practice in the Reading Center each week permit students to advance at their own speed.

Speech

SPCH 101 COMMUNICATIONS **FWS 3 hrs.**

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

SPCH 102 SPEECH MAKING **FWS 3 hrs.**

The development of the individual in physical effectiveness, vocal effectiveness, and knowledge of the preparation and organization of the speech. The course is designed to improve the student's ability to present himself before an audience in a speech situation.

SPCH 103 SPEECH MAKING **S 3 hrs.**

Trains the student in panels, interviews, persuasion, informative, after-dinner speaking, and situation speeches encountered in community living. Open to any student who has completed SPCH 102 or by consent of instructor.

SPCH 111 INTRODUCTION TO SPEECH PATHOLOGY **F 3 hrs.**

An introductory course for students interested in exploring the field of speech pathology and audiology. The student will be introduced to the disorders of speech and audiology.

SPCH 112 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 113 VOICE AND ARTICULATION DISORDERS S 3 hrs.
Provides an introduction to anatomy of head, neck and trunk and a thorough analysis of the nature, causes and treatment of articulation and voice disorders.

SPCH 121 INTRODUCTION TO BROADCASTING F 3 hrs.
An introductory course concerned with the broadcasting medium, its impact on society, history and basic techniques.

SPCH 122 PREPARATION FOR PRODUCTION W 3 hrs.
A basic preparatory course in production for radio and television broadcasting.

SPCH 123 PRODUCTION S 3 hrs.
A practical course in production using the information and techniques learned in SPCH 122. Open to students who have completed SPCH 122 or consent of instructor.

SPCH 131, 132 FUNDAMENTALS OF ARGUMENTATION FW 3 hrs.
A study of the basic qualities, requirements, and use of logic and ethics in any form of persuasion with an emphasis on persuasion in controversy. The basic structure of debate in all its forms is studied.

SPCH 144, 145, 146 PROBLEMS IN SPEECH FWS 1 hr.
An independent-study course which includes special problems and work in speech or speech-related activities. Designed to encourage the development of proficiency through speech activity, the course allows the student to earn one hour of credit each quarter with the possibility of earning 12 hours by completing the sequence.

SPCH 211 BASIC AUDIOLOGY F 3 hrs.
Provides an introduction to the anatomy of the hearing mechanism; the psycho-acoustics of sound and perception; and the identification, diagnosis, and rehabilitation of the acoustically impaired.

SPCH 212 PHONETICS W 3 hrs.
Introduces the student to basic physiological and acoustical phonetic theory, familiarizes him with the International Phonetic Alphabet, and provides a working knowledge of phonetic transcription.

SPCH 231, 232 FIRST-YEAR DEBATE FW 3 hrs.
Research and development of the various types of debate formats using national and international topics of current interest. The student may be interested in developing further into debate competition.

SPCH 233 DISCUSSION S 3 hrs.
This class is concerned with the language of group interaction, with emphasis on types of groups, purposes, group structure, task orientation, group climate, and group consensus. Assignments based on topics of current interest.

SPCH 241, 242, 243 ORAL INTERPRETATION FWS 3 hrs.
Emphasis is placed on the ability of the speaker to read effectively the writings of others. Selected areas are poetry, prose (including essays), and group interpretation commonly known as readers theatre. The emphasis is on communicating the author's meaning to the listeners.

SPCH 244, 245, 246 PROBLEMS IN SPEECH FWS 1 hr.
Independent study in speech. See SPCH 144, 145, 146.

SPCH 301 ORAL RHETORIC F 3 hrs.

The study of the organization, language, and structure of speech content. Concentration is on the drafting of speeches from the rough draft to final draft, with emphasis on language and sentence structure. Offered alternate years.

SPCH 302 BUSINESS AND PROFESSIONAL SPEAKING W 3 hrs.

Emphasizes the aspects to be considered when a speaker is appearing before a group or organization as a member or guest. Includes choice of subject matter, audience analysis, interest value, research and development. Offered alternate years.

SPCH 303 PSYCHOLOGY OF SPEECH S 3 hrs.

A study of the nature of audiences: their reactions, attitudes, wants and needs. Also, the course analyzes the problems that speakers may encounter: reticence, stage fright, self-image, other-image, and ways to overcome speech situations which present problems to the speaker. Offered alternate years.

SPCH 331, 332 SECOND-YEAR DEBATE FW 3 hrs.

A continuation of First-Year Debate with the emphasis on competitive debate using the national college topics. Research and case development are stressed.

SPCH 333 DISCUSSION S 3 hrs.

A second course in discussion, using topics of current interest. See SPCH 233.

SPCH 344, 345, 346 PROBLEMS IN SPEECH FWS 1 hr.

Independent study in speech. See SPCH 144, 145, 146.

SPCH 401, 402 SPEECH ANALYSIS FW 3 hrs.

The study of world-famous speeches and speakers of the past and present. The effect upon certain eras, movements, and periods of unrest as evidenced by the leadership of the time. Emphasis is on the ethos, pathos, and logos of the speaker's persuasion. Offered alternate years.

SPCH 403 GENERAL SEMANTICS S 3 hrs.

This course might well be called "The Power of Words." The effect of slang, triteness, labels, and colloquialisms upon the public and individual reactions to these techniques of language. Covers background of ethnic language and helps develop awareness of the effect of words in interpersonal and political relationships. Offered alternate years.

SPCH 444, 445, 446 SENIOR PROBLEMS IN SPEECH FWS 1 hr.

Independent study in speech. See SPCH 144, 145, 146.

Occupational Studies

The Occupational Studies area offers programs leading to the Three-Year Certificate or the Bachelor of Science degree in Occupational Guidance Specialist. These programs have been developed to train counseling personnel at various levels for jobs in business and industry, social and governmental agencies, and educational institutions.

Mr. Goffredi, Director of Occupational Studies; Mr. Graves

Occupational Guidance Specialist

A student entering this program with full-time wage-earning experience in some occupation or a combination of occupations may be awarded up to 48 quarter hours of credit. This would enable the student to complete the Bachelor of Science degree program in about three years. Documentation of the work experience should be submitted to the Director of Admissions and Records for evaluation and determination of the amount of credit to be awarded.

Students entering the program without occupational work experience will enroll in one or more occupational training programs currently offered by Mesa College. A student may choose from 22 occupational programs in planning a program to earn the 48 quarter hours required in this area.

THREE-YEAR CERTIFICATE

(135 Quarter Hours)

This three-year program is designed to train counselor aides to work at the paraprofessional level. Job opportunities include assisting professionals, serving individuals, administering tests, conducting follow-up studies, gathering career information, and related activities.

COURSE SUMMARY

	Credit Hrs.		Credit Hrs.
Communications	9	Introduction to Education	3
Elements of Mathematics	6	Laboratory Field Training	12
Psychology	9	Practicum—On-the-Job Training	18
Occupational Studies	48*	Counseling and Guidance	18
Sociology	9	Electives	9
			135*

BACHELOR OF SCIENCE

(183 Quarter Hours)

This program is designed to train individuals for job opportunities as paraprofessionals in educational institutions, counselors in business and industry, governmental units, post-secondary institutions, and other agencies.

COURSE SUMMARY

	Credit Hrs.		Credit Hrs.
Communications	9	Introduction to Education	3
Literature	3	Laboratory Field Training	12
Elements of Mathematics	6	Physical Education	3
Psychology	15	Practicum—On-the-Job Training	18
Occupational Studies	48	Counseling and Guidance	18
Sociology	9	Economics	9
Biological Sciences	9	Electives	6
Physical Sciences	15		183*

Suggested electives: education, social science, political science, humanities, business, statistics.

*Requirements may be completed in one or a combination of the following ways:
(1) Full-time, wage-earning work experience may be evaluated by the college and up to 48 quarter hours granted.
(2) Student may enroll in one or a combination of occupational programs as approved by adviser.
(3) A combination of Numbers 1 and 2.

OGSP 321 OCCUPATIONAL TESTING FOR COUNSELING F 3 hrs.

Emphasis is on the theory and practice of using standardized tests and interpretation of results. Includes group versus individual tests (cognitive, affective, and psychometer domains), reliability, validity, and standardization procedures.

OGSP 322 PRINCIPLES AND PRACTICES OF OCCUPATIONAL GUIDANCE W 3 hrs.

Analysis of career development theory, factors influencing career development, individual and group counseling and an effective career guidance program are among the topics discussed.

OGSP 323 THE ART OF LISTENING S 3 hrs.

Exploration and examination of assorted practices and conditions which facilitate interpersonal communication and effective career development. Discussion of the facilitative effects of empathy, congruence, positive regard, value identification, and attitude clarification in groups.

OGSP 421 INTERVIEWING TECHNIQUES F 3 hrs.

Career guidance and personnel interviewing techniques which aim at helping others make occupational and educational plans and decisions are discussed in addition to guided and directed interviewing.

OGSP 422 SURVEYS AND FOLLOW-UP W 3 hrs.

Emphasis is on development of labor-market information for effective manpower placement and utilization as well as follow-up research on effectiveness of personnel placement.

OGSP 423 SOURCES AND REFERENCES FOR CAREER ORIENTATION S 3 hrs.

Emphasis is on providing resources and information for assisting the career planning and development process. Topics include classification of occupational information and factors influencing workers and their careers.

OGSP 311 LABORATORY FIELD TRAINING—BUSINESS 3 hrs.
312 LABORATORY FIELD TRAINING—EDUCATION INSTITUTION 6 hrs.
313 LABORATORY FIELD TRAINING—GOVERNMENTAL UNITS 3 hrs.

Students are placed on-the-job in each of the three areas of training during successive quarters of their junior year. The objective is to gain useful exposure and experience in career development, guidance, and personnel work by working with counselors and personnel managers. A typewritten report analyzing the experience must be submitted for approval and course credit.

OGSP 411 PRACTICUM—BUSINESS 6 hrs.
412 PRACTICUM—EDUCATION INSTITUTION 6 hrs.
413 PRACTICUM—GOVERNMENTAL UNITS 6 hrs.

Following successful completion of laboratory Field Training, students are placed in business and industry, educational institution, and governmental units to gain supervised professional experience in career guidance in each of the three areas of concentration. A typed paper must be submitted for approval and course credit.

Division of Physical Education and Recreation

The Division of Physical Education and Recreation offers courses in health education, recreation leadership, and physical education activities for all students. It also offers an intercollegiate athletic program consisting of six varsity sports.

The activity program is designed to secure optimum health and physical fitness based upon the individual needs and interests of the students. Students working on degree programs must fulfill the College's physical education requirements.

Instructional Staff: Mr. Nelson, Chairman; Mr. Bergman; Mr. Haroldson; Mrs. Humphries; Mr. Perrin; Mrs. Sanders; Mr. Swanson; Mrs. Tolmen; Mr. Tooker; Mr. Wiehe.

Degree Programs

ASSOCIATE IN ARTS IN PHYSICAL EDUCATION (Two-Year Transfer)

Required: General Education requirements; Fundamentals of Sports series; PER 200, 240, 260, 265.

CERTIFICATE PROGRAM: RECREATION LEADERSHIP (Three-Year)

Required: General Education requirements; Core Courses; Emphasis Area (one); Internship.

B.A. DEGREE IN LEISURE AND RECREATION SERVICES (Four-Year)

Required: General Education requirements; Core Courses; Emphasis Area (one or two); Internship; 33 hours of electives.

CORE COURSES REQUIRED FOR RECREATION MAJORS (Certificate and Bachelor of Arts)

Course No.		Course Title	Credit Hrs.
ART	115	Crafts Survey	2
DRAM	213	Creative Play Activities—Drama	3
PER	200	Introduction to Health, Physical Education and Recreation	3
PER	260	Personal and Community Health	3
PER	331-336	Recreation Activity and Skill Series	10
PER	370	Social Recreation	3
PER	372	Recreation for the Handicapped	3
PER	386	Outdoor Recreation Planning and Design	3
PER	382	Camp Counseling	3
PER	384	Philosophy of Leisure in Contemporary Society	3
PER	386	Recreation Leadership and Supervision	5
PER	480	Organization and Administration of Recreation	3
PER	482	Management and Operation of Public, Semi-Public, and Aquatic Facilities	3
PER	484	Programs in Recreation	3
		Total Hrs.	50

EMPHASIS AREAS

In addition to the core courses, each student will choose one or two emphasis areas for concentrated study. These areas include: (1) Outdoor Recreation, (2) Recreation for the Senior Citizen, (3) Cultural Arts, and (4) Business Management.

INTERNSHIP

Each major will complete at least one internship during the senior year or the summer preceding. The internship consists of placement in a recreation agency for one full quarter. Students should plan their schedules to accommodate this course.

RECREATION LEADERSHIP MINOR (Certificate Program)

Any full-time student enrolled at Mesa College in a four-year Bachelor of Arts program may complete the required courses for the Recreation Leadership minor and receive the leadership certificate. This program is designed to strengthen employment opportunities within allied fields.

Required courses: General Education requirements; ART 115; DRAM 213; Core Courses PER 200, 295, 331-4, 370, 372, 382, 386.

Physical Education and Recreation

PER 111 Swimming
PER 112 Diving
PER 113 Bowling
PER 114 Golf
PER 115 Badminton
PER 116 Square and Folk Dance
PER 117 Social Dance
PER 118 Modern Dance
PER 119 Archery
PER 120 Tennis
PER 121 Skiing
PER 122 Physical Conditioning
PER 123 Handball
PER 124 Weight Training (Men)
PER 125 Wrestling (Men)
PER 126 Track and Field
PER 127 Squash
PER 128 Body Improvement (Women)
PER 129 Adapted P.E.
PER 131 Orienteering
PER 133 Gymnastics
PER 134 Ballet
PER 135 Modern Jazz
PER 136 Paddleball
PER 139 Bicycling
PER 151 Softball
PER 152 Volleyball
PER 153 Flag Football
PER 154 Soccer
PER 155 Baseball
PER 156 Basketball
PER 157 Speedball
PER 158 Water Polo
PER 159 Field Hockey
PER 171 Varsity Football
PER 172 Varsity Basketball
PER 173 Varsity Baseball
PER 174 Varsity Wrestling
PER 175 Varsity Tennis
PER 177 Varsity Track
PER 178 Varsity Skiing
PER 191 Stepperettes

PER 200 INTRODUCTION TO HEALTH, PHYSICAL EDUCATION AND RECREATION **F 2 hrs.**

Orientation to the breadth, scope, and nature of the professional program in health, physical education and recreation.

PER 220-9 FUNDAMENTALS OF SPORTS **FWS 2 hrs.**

A series of courses in which majors can learn the fundamentals, theory, and methods by which sports can be adapted to a variety of uses. The sports offered are: football, field sports, physical conditioning, gymnastics, basketball, tennis, volleyball, social and square dance. Offered alternate years.

PER 230 BEGINNING IMPROVISATION AND COMPOSITION **S 3 hrs.**

Basic elements of improvisation, composition, and choreography of student's dance pieces.

PER 231 CREATIVE PLAY ACTIVITIES—DANCE **F 3 hrs.**

A class designed to work with basic movement for children. Emphasis is placed on the creative exploration of space, design, dynamics and rhythm in dance.

PER 240 SPORTS OFFICIATING W 3 hrs.

Skills and techniques of officiating the three major sports: football, basketball, baseball. Lecture-lab. Sophomore standing recommended.

PER 250 SENIOR LIFESAVING WS 2 hrs.

American Red Cross course. ARC Senior Lifesaving certification to qualified students.

PER 251 WATER SAFETY INSTRUCTORS COURSE S 2 hrs.

American Red Cross course. ARC W.S.I. certification to qualified students. Prerequisite: ARC senior lifesaving certificate.

PER 253 BASIC CANOEING AND BOATING S 2 hrs.

American Red Cross course. ARC canoeing, rowing, and ontboard boating certification to qualified students. Prerequisite: PE 111 or permission of instructor.

PER 260 PERSONAL AND COMMUNITY HEALTH W 3 hrs.

Personal health problems and health problems of the community. Emphasis on development of proper attitudes and health practices.

PER 265 FIRST AID FS 2 hrs.

American Red Cross course. ARC standard certification to qualified students.

PER 272 GUN AND HUNTER SAFETY S, Smr 2 hrs.

Fundamentals and safety responsibility for the firearms user. Marksmanship, gun handling, history of firearms, and the use of different firearms.

PER 273 FLY TYING AND CASTING S, Smr 2 hrs.

Fundamentals of fly tying, choosing correct flies, choosing materials for fly tying.

PER 290 INDEPENDENT STUDY IN PHYSICAL EDUCATION FWS 1-3 hrs.

PER 291 INDEPENDENT STUDY IN HEALTH FWS 1-3 hrs.

PER 295 PHYSICAL EDUCATION AND RECREATION ASSISTANTSHIP FWS, Smr 1 hr.

Assisting public school teachers in physical education activities or public recreation practitioners in the recreation setting.

PER 296 INDEPENDENT STUDY IN DANCE COMPOSITION FWS 1-3 hrs.

PER 321 REPERTORY DANCE FWS 1 hr.

Designed to provide students an opportunity to participate directly in the production of a dance piece choreographed by a faculty member or guest artist.

PER 324 DANCE PRODUCTION W 3 hrs.

Analysis and practice of the production elements of dance concerts including directing, lighting, costuming and make-up for dance.

PER 331-6 RECREATION ACTIVITY AND SKILL SERIES FWS 2 hrs.

The study of skill development, materials, methods of instruction or supervision, organization and administration of activity in the recreation setting. The activities are golf, handball and racket games, softball, playground skills, swimming, track and field.

PER 360 CONTEMPORARY ISSUES IN HEALTH S 3 hrs.

In-depth study of drug abuse and human sexuality.

PER 370 SOCIAL RECREATION F 3 hrs.

Methods and skills in leading groups in games, ice-breakers, and other social recreation with special emphasis on planning activities and parties for children.

PER 372 RECREATION FOR THE HANDICAPPED F 3 hrs.

Study of recreation activity and its modification and adaptation for the handicapped individual.

PER 380 OUTDOOR RECREATION PLANNING AND DESIGN W 3 hrs.

Survey of outdoor recreation areas and facilities with special emphasis on the planning, design, site selection, and acquisition.

PER 382 CAMP COUNSELING S 3 hrs.

Techniques of camp counseling; program content and administration of recreational camps for the short-term camper; organization and leadership for rural and urban camps; planning for successful family camping experiences.

PER 384 PHILOSOPHY OF LEISURE IN CONTEMPORARY SOCIETY F 3 hrs.

Interpretation of recreation as a basic part of the living process; importance in individual communities and national life; the growing importance of leisure-time problems.

PER 386 RECREATION LEADERSHIP AND SUPERVISION S 3 hrs.

Theory and application of leadership as it pertains to tax-supported and voluntary agencies; understanding of the individual's role; problems of supervision: recruitment, assignment, evaluation, and in-service training.

PER 480 ORGANIZATION AND ADMINISTRATION OF RECREATION SERVICES S 3 hrs.

Modern theory and methodology of the administrative process, personnel management, budget and fiscal management, public relations, planning, evaluation and research, structure and organization, department manuals and guidelines.

PER 482 MANAGEMENT AND OPERATION OF PUBLIC, SEMI-PUBLIC AND AQUATIC FACILITIES W 3 hrs.

Management procedures and skills for effective operations of public recreation centers, YMCA, Boys Club, senior citizens centers, indoor and outdoor aquatic facilities, ski and recreational resorts. Lecture-field trips.

PER 484 PROGRAMS IN RECREATIONS W 3 hrs.

Effective methods for the task of planning a balanced community recreation program.

PER 495 INTERNSHIP IN RECREATION FWS, Smr 15 hrs.

Full-time placement in a recreation agency. The course is designed to provide a smooth transition from the classroom to the work setting through firsthand experience. Note: Application must be made during the first two weeks of the quarter prior to the quarter the internship is required.

PER 499 INDEPENDENT STUDY IN RECREATION FWS 2-5 hrs.

Division of Physical Sciences

Instructional Staff: Mr. Putnam, Chairman; Mr. Allmaras; Mr. Boge; Mr. Fynn; Mr. Girdley; Mr. James Johnson; Mr. Lenc; Mr. Readifer; Mr. White; Mr. Young.

GENERAL INFORMATION

The Division of Physical Sciences offers a variety of two-year transfer programs and one baccalaureate program. Associate in Science degrees can be earned with specialization in chemistry, geology, physics, and several pre-professional fields such as medicine. Although a person earning one of these degrees might elect to terminate his formal education at this level it would normally be expected that these studies would be continued by transferring to an institution offering appropriate baccalaureate programs. Also, the Bachelor of Science degree with a major in Environmental Geoscience can be earned. The content of this somewhat non-traditional program is indicated below.

ASSOCIATE DEGREE PROGRAM SPECIFICATIONS

Institutional requirements for the Associate in Science degree are listed elsewhere in this catalog. Within these requirements it is expected that the candidate will select the courses of study best suited to the achievement of his ultimate goal. To this end it is expected that he will consult frequently with a faculty advisor who is aware of current views of potential employers and transfer institutions concerning the contents of these programs.

ENVIRONMENTAL GEOSCIENCE PROGRAM DESCRIPTION

Mesa College is ideally located for the study of modern concepts in environmental geoscience. Situated at the junction of the Colorado and Gunnison Rivers, near the boundary between the Rocky Mountain and Colorado Plateau provinces, it is surrounded by a great variety of geologic features. In nearby areas are unexcelled exposures of sedimentary and other rock types, folds and faults, uranium deposits, base metal ore bodies, oil and gas fields, and the world's largest and richest oil shale deposits. Mesa College is also located in the heart of "Dinosaur Country." The two largest dinosaurs ever discovered, along with numerous lesser ones, have been quarried within 25 miles of the campus.

The increasing demand for energy and metals has resulted in accelerated exploration for and exploitation of the mineral resources of the region. Oil and gas wells have been drilled, coal and metal mines have been developed, ski and other recreational facilities have fluorished in the nearby mountains, and the adjacent Piceance Creek Basin has witnessed two nuclear gas-stimulation shots and the first major attempts at commercial extraction of shale oil. Such activities spawn complex environmental problems such as air and water pollution, unstable slopes, accelerated erosion and the need for site restoration. The surroundings are thus a natural outdoor geological laboratory, accessible the year around, where students can combine classroom instruction with direct observation of both natural and disturbed geological features.

ENVIRONMENTAL GEOSCIENCE BACHELOR OF SCIENCE DEGREE REQUIREMENTS

An environmental geoscience major consists of 62 hours which must include GEOL 111, 112, 113, 201, 202, 203, 301, 302, 303, 321, 322, 401, 402, 403, 404, 405, 411, and 412. (Off-campus training may be substituted for GEOL 401 and 411). In addition, supporting courses must include ENG 111, 112, and 113; SPCH 102; ECON 201 and 202 or BUAC 101 and 201; GEOG 101; LIT 131, 132, and 133; BIOL 121 and 131; CHEM 121, 122 and 123; PHYS 241, 242, and 243; MATH 131, 138 and 139; and Physical Education.

A student who contemplates entering a graduate school should also take MATH 150, 151, 152 and 253; CHEM 131, 132, and 133 and one year of a foreign language.

Chemistry

CHEM 111 CHEMICAL PROFESSIONS **F 1 hr.**

A course intended to assist the student to assess his talents and wishes as they relate to a decision to pursue a career requiring extensive study of chemistry. It is intended to be helpful not only to chemistry majors but also to students in such pre-professional programs as pre-medicine, pre-dentistry, pre-pharmacy, etc. One lecture per week.

CHEM 121, 122 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. A student enrolled in either of these courses must be enrolled concurrently in the appropriate laboratory course unless credit in it has previously been established. Prerequisites: high school algebra, or satisfactory entrance examination scores. Four lectures per week. (CHEM 121 offered also in Summer Session.)

CHEM 121L, 122L GENERAL CHEMISTRY LABORATORY **FWS 1 hr.**

Laboratory work designed to acquaint the student with the procedures and techniques of basic chemistry. The work involves measurement and observation of physical properties and chemical changes. A student enrolled in either of these courses must be enrolled in the appropriate lecture course unless credit in it has previously been established. One three-hour session per week. (CHEM 121L offered also in Summer Session.)

CHEM 123 INTRODUCTORY ORGANIC CHEMISTRY **S 4 hrs.**

A lecture course in fundamentals of organic chemistry. Introductions to carbonium ion and acid-base theory are included, as well as to nomenclature of the chemical and physical properties of selected classes of compounds. A student enrolled in this course must be enrolled concurrently in the appropriate laboratory course unless credit in it has previously been established. Four lectures per week. Prerequisite: CHEM 122 or 132.

CHEM 123L INTRODUCTORY ORGANIC CHEMISTRY LABORATORY **S 1 hr.**

Laboratory work designed to acquaint the student with several fundamental organic laboratory procedures, properties of selected classes of compounds, and some of the methods of preparative organic chemistry. A student enrolled in this course must be enrolled in the appropriate lecture course unless credit in it has previously been established. One three-hour session per week.

CHEM 131, 132 GENERAL INORGANIC CHEMISTRY **FWS 4 hrs.**

The fundamental principles of general inorganic chemistry are covered. Included are atomic structure, chemical bonding, periodic law, kinetic theory, stoichiometry, gas laws, chemical equilibrium, oxidation and reduction, and electrochemistry. Intended for students of chemistry, engineering, pre-medicine, pre-veterinary medicine, and other sciences. A student enrolled in either of these course must be enrolled concurrently in the appropriate laboratory course unless credit in it has previously been established. Corequisite: MATH 131, 138, or higher math course. Prerequisite: high school chemistry and satisfactory ACT scores or CHEM 121. Four lectures per week.

CHEM 131L, 132L GENERAL INORGANIC CHEMISTRY LABORATORY **FWS 1 hr.**

The laboratory work consists of an introduction to gravimetric, volumetric, and instrumental quantitative analysis. A student enrolled in either of these courses must be enrolled in the appropriate lecture course unless credit in it has previously been established. One three-hour session per week.

CHEM 133 INORGANIC CHEMISTRY AND QUALITATIVE ANALYSIS **S 3 hrs.**

A lecture course designed thoroughly to 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. A student enrolled in this course must be enrolled concurrently in the appropriate laboratory course unless credit in it has previously been established. Three lectures per week.

CHEM 133L INORGANIC CHEMISTRY AND QUALITATIVE ANALYSIS LABORATORY **S 2 hrs.**

Laboratory work based on traditional cation qualitative analysis emphasizing acid-base and precipitation equilibrium principles. A student enrolled in this course must be enrolled concurrently in the appropriate lecture course unless credit in it has previously been established. Two three-hour sessions per week.

CHEM 141 INTRODUCTORY INORGANIC, ORGANIC, AND PHYSIOLOGICAL CHEMISTRY **F, Smr 3 hrs.**

Lectures on the principles of inorganic, organic, and biochemistry. Intended primarily for students in the associate degree nursing and medical office assistant programs. Prerequisite: high school chemistry or CHEM 121. Three lectures per week.

CHEM 142 PHYSIOLOGICAL CHEMISTRY **W 2 hrs.**

A continuation of the biochemistry part of CHEM 141 with emphasis on the metabolism of carbohydrates, proteins, and lipids. Prerequisite: CHEM 141. Two lectures per week.

CHEM 148 INDEPENDENT STUDY IN CHEMISTRY **FWS 1 hr.**

A course in which a student with a previously developed interest in and knowledge of a specialized subject can continue his work. Although it is expected that most such work will be original, studies of a non-original nature but not in the established curriculum will also satisfy the requirements of this course. Prerequisite: consent of the instructor.

CHEM 149 INDEPENDENT STUDY IN CHEMISTRY **FWS 2 hrs.**

See Independent Study course description under CHEM 148.

CHEM 211, 212, 213 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 types of reactions and unify the subject. Enrolling in any of these courses without concurrently enrolling in the appropriate laboratory course is not recommended. Prerequisite: CHEM 132 or consent of instructor. Three lectures per week.

CHEM 211L, 212L, 213L ORGANIC CHEMISTRY LABORATORY **FWS 2 hrs.**

Laboratory exercises to accompany CHEM 211, 212, 213. Provides experience in the syntheses of 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. A student enrolled in any of these courses must be enrolled concurrently in the appropriate lecture course unless credit in it has previously been established. Two three-hour sessions per week.

CHEM 221 INSTRUMENTAL METHODS OF ANALYSIS **FW 1 hr.**

General theory of instrumental analyses. A student enrolled in this course must be enrolled concurrently in the appropriate laboratory course unless credit in it has previously been established. Prerequisite: CHEM 132 or consent of instructor. One lecture per week.

CHEM 221L INSTRUMENTAL METHODS OF ANALYSIS LABORATORY **FW 2 hrs.**

Practice of instrumental analyses, principally spectroscopic methods. A student enrolled in this course must be enrolled concurrently in the appropriate lecture course unless credit in it has previously been established. Two three-hour sessions per week.

CHEM 248 INDEPENDENT STUDY IN CHEMISTRY **FWS 1 hr.**

See Independent Study course description under CHEM 148.

CHEM 249 INDEPENDENT STUDY IN CHEMISTRY **FWS 2 hrs.**

See Independent Study course description under CHEM 148.

Geology

GEOL 101, 102, 103 INTRODUCTORY GEOLOGY **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 previous earth science experience, who need a laboratory science (refer to laboratory description). It is suggested that a student enrolled in any of these courses should be enrolled concurrently in the appropriate laboratory course unless credit in it has previously been established. Should be taken in sequence.

GEOL 101L, 102L, 103L. INTRODUCTORY GEOLOGY LABORATORY **FWS 1 hr.**

Consists of weekly two-hour laboratory sessions and one or more field trips per quarter. Fall quarter involves mineral and rock identification and map interpretation. Topography and structure of the earth are studied winter quarter by use of photographs, maps, and cross sections. Interpretation of regional and general geologic history by examination of the rock sequence and fossil specimens is emphasized during spring quarter. A student enrolled in any of these courses must be enrolled concurrently in the appropriate lecture session unless credit in it has previously been established.

GEOL 111, 112, 113 PRINCIPLES OF GEOLOGY FWS 4 hrs.

General introduction to physical and historical geology. Fall and winter quarters devoted to a study of the earth, its materials, development of land forms and the geological processes acting on and within the earth. Spring quarter deals with origin of the earth, development of the geologic record through time and evolution of life forms in the fossil record. Designed as an introductory course for geology and other science majors. The student enrolled in any of these courses must be enrolled concurrently in the appropriate laboratory course unless credit in it has previously been established. Should be taken in sequence. Four lectures per week.

GEOL 111L, 112L, 113L PRINCIPLES OF GEOLOGY LABORATORY FWS 1 hr.

A laboratory course designed to supplement the Principles of Geology lecture. Devoted to the study of minerals, rocks and fossils and to the study and interpretation of topographic and geologic maps and aerial photographs. Field trips to study local geological features and to collect fossils. Meets for one two-hour session or field trip each week. A student enrolled in any of these courses must be enrolled concurrently in the appropriate lecture session unless credit in it has been previously established. Should be taken in sequence.

GEOL 201 STRATIGRAPHY F 2 hrs.

Basic stratigraphic relations, facies, sedimentary rocks, environments of deposition, correlation, sedimentary tectonics, regional stratigraphic column and related engineering problems. A student enrolled in this course must be enrolled concurrently in the appropriate laboratory course unless credit in it has previously been established. Two lectures per week. Prerequisites: GEOL 111, 112, 113.

GEOL 201L STRATIGRAPHY LABORATORY F 1 hr.

Field trips to study local stratigraphic units and to observe weathering and engineering properties. One field trip per week. A student enrolled in this course should be enrolled concurrently in Stratigraphy lecture unless credit in it has been previously established.

GEOL 202 REGIONAL GEOLOGY S 3 hrs.

A study of the physical and historical geology of the Western Colorado Region, primarily in the field. One lecture and one three-hour laboratory per week plus four all-day field trips and four half-day field trips. Prerequisite: GEOL 201.

GEOL 203 ENVIRONMENTAL EARTH SCIENCE W 2 hrs.

Relationship between man and his geological environment. Problems man faces in using the earth including pollution, waste disposal, geological hazards, and utilization of mineral resources. Prerequisite: consent of instructor.

GEOL 205 INDEPENDENT STUDY IN GEOLOGY FWS 1 hr.

For students who wish to pursue intensive study in a limited field. Consists of conferences, reading, laboratory or field work. May be taken more than once to a maximum of six credits to pursue different studies. Prerequisite: consent of instructor.

GEOL 206 INDEPENDENT STUDY IN GEOLOGY FWS 2 hrs.

See Independent Study course description under GEOL 205.

GEOL 211 MAP DRAFTING AND READING **W 2 hrs.**

Introductory course for students not taking a full year's program in drafting. Preparation and interpretation of geological illustrations such as maps, cross sections, three-dimensional diagrams, charts and tables. Emphasis is placed on selecting proper scale, using correct lettering techniques and determining the best means for presenting geological data. A student enrolled in this course must be enrolled concurrently in the appropriate laboratory course unless credit in it has previously been established. Two hours of lecture. Prerequisite: consent of instructor.

GEOL 211L MAP DRAFTING AND READING LABORATORY **W 1 hr.**

A laboratory course designed to train the student in the use of basic drafting instruments and lettering equipment necessary for the preparation of geological illustrations. A student enrolled in this course must be enrolled concurrently in the Map Drafting and Reading Lecture unless credit in it has previously been established. Two hours of laboratory.

GEOL 212, 213 PALEOECOLOGICAL STUDIES **FW 2 hrs.**

Systematic study of fossil invertebrates, their relation to ancient environments, sequence in time and use in stratigraphic correlation. A student enrolled in this course must be enrolled concurrently in the appropriate laboratory course unless credit in it has previously been established. Should be taken in sequence.

GEOL 212L, 213L PALEOECOLOGICAL STUDIES LABORATORY **FW 1 hr.**

Identification and environmental connotations of representative fossil invertebrates. One or more field trips each quarter. A student enrolled in this course should be enrolled concurrently in the appropriate lecture session unless credit in it has been previously established.

GEOL 301 EARTH TECTONICS **F 2 hrs.**

Nature and origin of rock structures and deformation both local and large scale will be discussed. Two lectures per week. A student enrolled in this course must be enrolled concurrently in the appropriate laboratory course unless credit in it has previously been established. Prerequisite: GEOL 111, 112.

GEOL 301L EARTH TECTONICS LABORATORY **F 1 hr.**

Solution of problems by graphical, geometrical, and stereographic methods. Maps and cross-sections will be studied. A student enrolled in this course must be enrolled in the appropriate lecture course unless credit in it has previously been established. One two-hour laboratory per week.

GEOL 302, 303 MINERAL AND ENERGY RESOURCES **WS 3 hrs.**

The first course considers genesis, localization and evaluation of metalliferous ore deposits, including surface expression, secondary effects in the weathering zone, wall rock alteration and hypogene zoning. The second course considers occurrence, distribution, origin and economic value of nonmetallic minerals and petroleum. Prerequisite: consent of instructor.

GEOL 305 INDEPENDENT STUDY **FWS 1 hr.**

See Independent Study course description under GEOL 205.

GEOL 306 INDEPENDENT STUDY **FWS 2 hrs.**

See Independent Study course description under GEOL 205.

GEOL 315 MINE MAPPING AND MINING TECHNIQUES S 5 hrs.

Application of geology in mining operations; emphasis on mapping, mining methods and laboratory and office procedures in maintenance of ore reserves and control. One weekend spent in mapping geology of a mine. Saturday field trips. Prerequisite: consent of instructor.

GEOL 321 GENERAL FIELD PROCEDURES Smr 4 hrs.

Field methods used in geoscience; includes use of photographs, surveying, plane tabling, mapping techniques, measuring sections, preparation of geologic reports. Trips will be taken to local features of geologic interest. Prerequisite: consent of instructor.

GEOL 322 FIELD PROBLEMS Smr 4 hrs.

Field studies in geoscience with emphasis on geologic mapping and report preparation. Local field trips will be taken. Prerequisite: consent of instructor.

GEOL 331, 332 MINERAL STUDIES FW 2 hrs.

Morphological crystallography, recognition of minerals in hand specimen, relation of properties of minerals to their internal structure, mineral genesis, simple determination tests, and modern laboratory techniques. A student enrolled in either of these courses must be enrolled concurrently in the appropriate laboratory course unless credit in it has previously been established. Two lectures per week. Prerequisite: consent of instructor.

GEOL 331L, 332L MINERAL STUDIES LABORATORY FW 2 hrs.

Identification and classification of rock forming and ore minerals. Includes instruction in use of x-ray, mass spectrometer, thermal, atomic absorption, and neutron activation equipment. Two two-hour laboratory sessions per week. To be taken in conjunction with Mineral Studies lecture.

GEOL 340 PETROLOGY S 3 hrs.

Origin, composition, and classification of igneous, metamorphic, and sedimentary rocks. Students enrolled in this course must be concurrently enrolled in the appropriate laboratory course unless credit in it has previously been established. Three lectures per week. Prerequisite: consent of instructor.

GEOL 340L PETROLOGY LABORATORY S 1 hr.

Identification of hand specimens of igneous, metamorphic, and sedimentary rocks. Some rocks will be examined in thin section. Students enrolled in this course must also be enrolled in the appropriate lecture course unless credit in it has previously been established. One two-hour session per week. Prerequisite: consent of instructor.

GEOL 401 ADVANCED TOPICS IN GEOSCIENCE F 3 hrs.

Course consists of discussions of recent ideas, concepts and factual data relating to mineral deposits, petroleum, environmental geology and other fields of interest. Three lectures per week. Prerequisite: consent of instructor.

GEOL 402 APPLIED ENVIRONMENTAL GEOSCIENCE F 3 hrs.

Environmental analysis, productivity, theory, population fluctuations, paleoecology, water resources, earthquake hazards, soil analysis, slope stability, and related topics. Three lectures per week. One or more field trips. Prerequisite: consent of instructor.

GEOL 403 REPORT WRITING W 3 hrs.

Principles of technical writing, format for geologic reports, relationship of field or laboratory investigations and the resultant report. Critical review is given the reports for revision and rewrite where necessary. Two lectures and one consultation weekly.

GEOL 404, 405 RESOURCE EXPLORATION TECHNIQUES **FW 3 hrs.**

Principles and applications of gravity, magnetic, seismic, electrical and electromagnetic methods in subsurface exploration. Use of well cuttings, cores, and logs included. A student enrolled in either of these courses must be enrolled concurrently in the appropriate laboratory course unless credit in it has previously been established. Should be taken in sequence. Three lectures per week. Prerequisite: consent of instructor.

GEOL 404L, 405L RESOURCE EXPLORATION TECHNIQUES LABORATORY **FW 1 hr.**

Field investigations and interpretations using geophysical instruments. Making of sample logs and use of other well logs. One two-hour lab per week. One weekend field trip. To be taken in conjunction with Resource Exploration Techniques lecture.

GEOL 407 INDEPENDENT STUDY IN GEOLOGY **FWS 1 hr.**

See Independent Study course description under GEOL 205.

GEOL 408 INDEPENDENT STUDY IN GEOLOGY **FWS 2 hrs.**

See Independent Study course description under GEOL 205.

GEOL 411 GEOLOGIC SEMINAR **S 2 hrs.**

Current topics in geology and reports by participants in off-campus geoscience training program. Two class meetings per week. Prerequisite: consent of instructor.

GEOL 412 LANDSCAPE DEVELOPMENT **F 3 hrs.**

Classification, recognition, origin and significance of land forms; use of aerial photographs in interpretation; land form analysis in interpretation of geologic structure and history. Local field trips. Three lectures per week.

Physical Science

PSCI 111, 112, 113 SURVEY OF PHYSICAL SCIENCE **FWS 3 hrs.**

An introduction to the fundamental principles of the physical sciences. It is expected that from this group of courses the student will receive a basic understanding of the physical world, an appreciation of the scientific method, and some conception of the sociological significance of science and technology. Introduced in PSCI 111 are mechanics, thermodynamics, electricity, magnetism, sound and optics. PSCI 112 is basically an introduction to the principles of chemistry, including those of nuclear chemistry and energy. Included in PSCI 113 are introductions to astronomy, meteorology and geology. Not recommended for students concurrently enrolled in another physical science course or with credit previously established in such a course. Three lectures per week.

PSCI 118 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. Three lectures per week.

PSCI 121 SOLAR SYSTEM ASTRONOMY **F 3 hrs.**

Introductory course designed for liberal arts students, prospective teachers or science majors. Subjects include: determination of location and time, gravity, sun, planets, comets, meteors, satellites, moon and astronomical instruments. Knowledge of elementary algebra is desirable. Nighttime observing will be scheduled when possible. Three lectures per week.

PSCI 122 STELLAR SYSTEM ASTRONOMY **W 3 hrs.**

A study of stars and star systems including: variables, binaries, clusters, nebula, galaxies and stellar evolution. Completion of PSCI 121 would be desirable but is not a prerequisite. Nighttime observing will be scheduled when possible. Three lectures per week.

PSCI 123 WEATHER AND CLIMATE **S 3 hrs.**

An introductory course designed for liberal arts students, prospective teachers and science majors. Subjects include: atmospheric structure, heat, pressure, wind, moisture, instruments, storms, forecasting and climate. Knowledge of elementary algebra is desirable. Field trips will be scheduled as possible. Three lectures per week.

PSCI 231 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 archaeologic concepts such as excavation procedures and modern dating methods are discussed. Three lectures per week.

PSCI 232 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. Three lectures per week.

PSCI 233 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. Three lectures per week.

PSCI 236 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. Three sessions per week.

PSCI 236L MUSEOLOGY I—INTRODUCTION TO MUSEOLOGY LABORATORY **W 1 hr.**

Laboratory exercises and experience in exhibition, curatorial methods, casting and molding, and other museum techniques. One two-hour session per week.

PSCI 237 MUSEOLOGY II—INTRODUCTION TO MUSEOLOGY **S 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. Three sessions per week. Prerequisite: PSCI 236.

PSCI 237L MUSEOLOGY II—INTRODUCTION TO MUSEOLOGY LABORATORY **S 1 hr.**

Laboratory exercises and experiences in exhibition, curatorial methods, casting and molding, and other museum techniques.

PSCI 238 ARCHAEOLOGICAL EXCAVATION I **Smr 4 hrs.**

Training in archaeological field methods, including excavations of prehistoric sites, recordkeeping, care of artifacts, mapping, and analysis of data. A three-week field course. Prerequisite: consent of instructor.

PSCI 239 ARCHAEOLOGICAL EXCAVATION II **Smr 8 hrs.**

Training in archaeological field methods, including excavations of prehistoric sites, recordkeeping, care of artifacts, mapping, and analysis of data. A six-week field course. Prerequisite: consent of instructor.

PSCI 305 INDEPENDENT STUDY IN ARCHAEOLOGY **FWS 1 hr.**

For students who wish to pursue intensive study in a limited field. Consists of conferences, reading, laboratory or field work. May be taken more than once to a maximum of six credits to pursue different studies. Prerequisite: consent of instructor.

PSCI 306 INDEPENDENT STUDY IN ARCHAEOLOGY **FWS 2 hrs.**

See Independent Study course description under PSCI 305.

Physics

PHYS 111 INTRODUCTION TO PHYSICS **S 4 hrs.**

Lectures in mechanics, electricity, magnetism, thermodynamics, sound and optics. Intended for students majoring in a field other than one of the sciences. A student enrolled in this course must be enrolled concurrently in the appropriate laboratory course unless credit in it has previously been established. Four lectures per week.

PHYS 111L INTRODUCTION TO PHYSICS LABORATORY **S 1 hr.**

A laboratory with special emphasis on the understanding of underlying principles and methods of physics and their application to life in modern times. A student enrolled in this course must be enrolled in the appropriate lecture course unless credit in it has previously been established. One three-hour session per week.

PHYS 148 INDEPENDENT STUDY IN PHYSICS **FWS 1 hr.**

A course in which a student with a previously developed interest in and knowledge of a specialized subject can continue his work. Although it is expected that most such work will be original, studies of a non-original nature but not in the established curriculum will also satisfy the requirements of this course. Prerequisite: consent of the instructor.

PHYS 149 INDEPENDENT STUDY IN PHYSICS **FWS 2 hrs.**

See Independent Study course description under PHYS 148.

PHYS 241, 242, 243 GENERAL PHYSICS **FWS 4 hrs.**

Lectures and discussions in mechanics, electricity, magnetism, thermodynamics, sound, optics, and modern physics. Problem solving is emphasized. A student enrolled in any of these courses must be enrolled concurrently in the appropriate laboratory course unless credit in it has previously been established. Should be taken in sequence. Prerequisite: college trigonometry. Four lectures per week.

PHYS 241L, 242L, 243L 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. A student enrolled in any of these courses must be enrolled concurrently in the appropriate lecture course unless credit in it has previously been established. Should be taken in sequence. One three-hour session per week.

PHYS 248 INDEPENDENT STUDY IN PHYSICS **FWS 1 hr.**

See Independent Study course description under PHYS 148.

PHYS 249 INDEPENDENT STUDY IN PHYSICS **FWS 2 hrs.**

See Independent Study course description under PHYS 148.

PHYS 251, 252, 253 ENGINEERING PHYSICS **FWS 4 hrs.**

A beginning physics course for science and engineering majors. Mechanics, electricity, magnetism, thermodynamics, sound, and optics are introduced. The calculus and vectors are employed throughout. Principles and mathematical models are emphasized and problem-solving is used to determine progress. A student enrolled in any of these courses must be enrolled concurrently in the appropriate laboratory course unless credit in it has previously been established. Should be taken in sequence. Corequisite: MATH 151 or higher. Four lecture-recitation session per week.

PHYS 251L, 252L, 253L ENGINEERING PHYSICS LABORATORY **FWS 1 hr.**

Classical experiments in mechanics, electricity, magnetism, thermodynamics, sound, and optics. A student enrolled in any of these courses must be enrolled concurrently in the appropriate lecture course unless credit in it has previously been established. Should be taken in sequence. One three-hour session per week.

PHYS 264 MODERN PHYSICS **W 4 hrs.**

An introduction to special relativity, quantum physics, nuclear physics, and solid state physics. A student enrolled in this course must be enrolled concurrently in the appropriate laboratory course unless credit in it has previously been established. Prerequisite: PHYS 253. Four lecture-discussion sessions per week.

PHYS 264L MODERN PHYSICS LABORATORY **W 1 hr.**

Experiments related to the topics covered in the lecture class. A student enrolled in this course must be enrolled concurrently in the appropriate lecture course unless credit in it has previously been established. One three-hour session per week.

Division of Social Science

Courses offered by the Division of Social Science are designed to accomplish the following:

1. *In subject matter areas not included among the baccalaureate degree offerings of this Division, to offer courses designed to prepare students for more advanced work in upper division courses to be taken at other colleges and universities.*
2. *To meet the subject matter needs of students enrolled in one of the technical or vocational programs offered by the college.*
3. *To prepare students with necessary undergraduate work in the fields of psychology and sociology that they may undertake graduate work in these areas.*
4. *To prepare students for entry into the job market as paraprofessionals in the human services.*
5. *To help prepare all students for more active and intelligent roles as citizens in their respective communities.*

The Division of Social Science offers the following academic programs:

1. *The Associate in Arts Transfer Program (two years)*
2. *The Bachelor of Arts Program in Human Services with the following options:*
   - *A. The Pre-professional Option in Psychology/Sociology*
   - *B. The General Social Science Option*
   - *C. The Human Services Paraprofessional Option*

Instructional Staff: **Mr. Don MacKendrick, Chairman**; Mrs. Fink; Mr. Harper; Mr. Hightower; Mr. Holloway; Mr. Jones; Mr. Meeker; Mr. Morton; Mr. Nicholson; Mr. Perry, Mr. Roberts; Mr. Starbuck; Mr. Tiemann

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THE ASSOCIATE IN ARTS TRANSFER PROGRAM

The Associate in Arts Transfer Program is designed to serve the needs of students who wish to obtain a basic, two-year, lower-division course of study in some academic area not presently offered at Mesa College at the baccalaureate-degree level, and then transfer to some other college or university for completion of a baccalaureate degree.

These programs are based upon nearly fifty years of experience by Mesa College in lower-division education specifically designed for transfer. The prestige of Mesa College in quality transfer education assures that students may transfer to virtually any institution of higher education in the United States, smoothly and without loss of credit, provided the student follows an advised course of study.

A student who elects this program should work closely with his faculty advisor in designing a course of study and should determine at the earliest possible date the institution to which he plans to transfer.

At present, the Division of Social Science offers the Associate in Arts degree in the following areas:

Anthropology	History
Economics	Political Science
Ethnic Studies	Pre-Law
General Social Science	Social Science Education
Geography	

Students interested in any of the above areas are urged to write directly to the Division of Social Science, Mary Rait Hall, Room #306, for details, course requirements and pre-registration advising.

THE BACHELOR OF ARTS PROGRAM:

1. The Pre-professional Option in Psychology/Sociology

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

2. The General Social Science Option

This option is intended for the student who expects to seek employment upon receiving the baccalaureate degree, though entrance into a graduate or professional course of study is not precluded. Students pursuing this option are encouraged to develop, with the aid of a faculty advisor, a course of study that combines a good foundation in the social sciences with a number of skill courses in order to enhance employment opportunity. These skill courses may be in the field of social science or in other fields, such as business, art, vocational-technical, etc. It is assumed that employment opportunities will be available to graduates of this option in government, public relations, business, law enforcement and other fields where an understanding of human beings and human institutions is highly desirable if not required.

3. The Para-professional Option in Human Services

The intent of this program is to equip persons with knowledge and helping skills that will qualify them for work as para-professionals in (or with) crisis clinics, centers for the aging, youth shelters, detention homes, foster homes, schools, etc., under the supervision of professional psychologists, psychiatrists, and sociologists. Students electing this option will be encouraged to obtain practical, on-the-job internship type training in conjunction with their formal classroom studies.

General Education Requirements for the Bachelor of Arts Program

(To be completed during the first two years of study)

Psychology or Biological Science	9 hours
Physical Science	9 hours
Humanities	9 hours
Social Science	9 hours
English Composition	9 hours
Physical Education	3 hours

Specific Course Requirements for the Pre-Professional Option in Psychology/Sociology

PSY 121, 122, 123, General Psychology	9 hours
SOC 261, 262, General Sociology	6 hours
ANTH 101, 102, 103, Introduction to Anthropology	9 hours
HS 301, 302, 303, Introduction to Human Services	9 hours
PSY 320, Social Psychology	3 hours
STAT 325 Social Statistics	3 hours
PSY 400 Tests and Measures	3 hours
SOC 410 Contemporary Social Thought	3 hours
PSY 340 Abnormal Psychology	3 hours

Recommended Courses:

PSY 330, Adolescent Psychology	3 hours
SOC 400, Crime and Delinquency	3 hours
SOC 325, Sociology of Religion	3 hours
SOC 350, Thanatology	3 hours
SOC 320, Political Sociology	3 hours
SOC 330, Cultural and Racial Minorities	3 hours
PSY 310, Child Psychology	3 hours
HS 400, Special Studies	3-6 hours
PSY 360, Psychology of Old Age	3 hours

Electives to bring total course work to 183 hours, 45 hours of which must be at the upper division level.

Specific Course Requirements in the General Social Science Option

1. At least two 9-hour lower-division social science series courses.
2. HS 301, 302, 303, Introduction to Human Services (9 hours)
3. At least 45 hours of upper-division courses, 24 of which must be in the social science area.
4. Electives to bring total course work to 183 hours.

Specific Course Requirements for the Para-professional Option in Human Services:

PSY 121, 122, 123, General Psychology ..... 9 hours
SOC 261, 262, General Sociology ..... 6 hours
ANTH 101, 102, 103, Introduction to Anthropology ..... 9 hours
HS 301, 302, 303, Introduction to Human Services ..... 9 hours
PSY 320, Social Psychology ..... 3 hours
PSY 340, Abnormal Psychology ..... 3 hours
STAT 325, Social Statistics ..... 3 hours
PSY 400, Tests and Measures ..... 3 hours
SOC 410, Contemporary Social Thought ..... 3 hours
*HS 400, 401, 402, Special Studies ..... 9-18 hours
Electives to bring the total course work to 183 hours, 45 of which must be at the upper division level.

*Also see "Credit Outside Formal Course Work" below.

Credit Outside Formal Course Work

1. Credit in all basic, general education courses may be assigned by successful completion of appropriate standard examinations where such examinations are available.

2. In certain cases credit may be awarded for psychology/sociology experience in the "helping services" for fulfilling requirements in the Para-professional Human Services Option.

Students wishing additional information on credit by examination or experience credit should write directly to the Social Science Division, Mary Rait Hall, Room #306.

Anthropology

ANTH 101, 102, 103 INTRODUCTION TO ANTHROPOLOGY **FWS 3 hrs.**

An introductory survey of the basic concepts of anthropology, including the biological nature of man, the evolution of man, race, and the development and history of culture.

ANTH 251 INDEPENDENT STUDY (ANTHROPOLOGY) **F, W, or S 1 hr.**

ANTH 252 INDEPENDENT STUDY (ANTHROPOLOGY) **F, W, or S 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.

ANTH 301 THE NORTH AMERICAN INDIAN **S 3 hrs.**

A general survey of the cultural system of the North American Indians; major cultural areas, languages and behavior patterns. Case studies of selected groups. Prerequisites, ANTH 101, 102, 103.

Economics

ECON 201, 202, 203 PRINCIPLES OF ECONOMICS FWS 3 hrs.

An introductory 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. Must be taken in sequence. ECON 201 is prerequisite to ECON 202; ECON 201 and 202 are prerequisite to ECON 203.

ECON 301 LABOR-MANAGEMENT RELATIONS F 3 hrs.

A study of the organized labor movement, employer labor policies, the collective bargaining process, wages and wage regulations, social insurance, and public labor policy. Prerequisite ECON 201, 202, 203 or equivalent.

ECON 310 MONEY AND BANKING S 3 hrs.

A study of monetary, credit and banking systems in the United States. Prerequisite: ECON 201, 202, 203 or equivalent.

ECON 351 INDEPENDENT STUDY (ECONOMICS) F, W, or S 1 hr.

ECON 352 INDEPENDENT STUDY (ECONOMICS) F, W, or S 2 hrs.

See Independent Study course description under ANTH 251, 252.

ECON 401 GOVERNMENT AND BUSINESS F 3 hrs.

A study of the relationships between government policies and the conduct of business with special emphasis on small business operations. Prerequisite: ECON 201, 202, 203 or equivalent.

ECON 410 PUBLIC FINANCE W 3 hrs.

A study of the revenue and expenditure policies at federal, state and local governments and their relation to the national economy. Prerequisite: ECON 201, 202, 203 or equivalent.

ECON 420 INTERNATIONAL ECONOMICS S 3 hrs.

An introductory study of international trade theory and policy including balance of payments analysis, international investment flows and the position of the dollar in foreign exchange transactions. Prerequisite: ECON 201, 202, 203 or equivalent.

Geography

GEOG 101 INTRODUCTION TO GEOGRAPHY F 3 hrs.

This course is a basic survey of essentials of college geography, including vocabulary, basic principles and techniques.

GEOG 102 CULTURAL GEOGRAPHY W 3 hrs.

A survey of world regional geography, with attention focused on social and behavioral patterns resulting from environment.

GEOG 103 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 251 INDEPENDENT STUDY (GEOGRAPHY) F, W, or S 1 hr.

GEOG 252 INDEPENDENT STUDY (GEOGRAPHY) F, W, or S 2 hrs.

See Independent Study course description under ANTH 251, 252.

History

HIST 101, 102, 103 WESTERN CIVILIZATIONS **FWS 3 hrs.**

The political, economic, social, cultural, and military history of western mankind from ancient to modern times.

HIST 104, 105, 106 HISTORY OF EASTERN CIVILIZATION **FWS 3 hrs.**

A survey of the history of the Asian world both before and after Western penetration.

HIST 120 HISTORY OF COLORADO **F, W, or S 3 hrs.**

A survey of the history of Colorado from pre-historic times to the present.

HIST 124, 125, 126 HISTORY OF LATIN AMERICA **FWS 3 hrs.**

A survey of the history of Latin America from pre-Columbian to the present.

HIST 131, 132, 133 UNITED STATES HISTORY **FWS 3 hrs.**

A survey course in the history of the United States from the Colonial period to the present.

HIST 135 AFRO-AMERICAN HISTORY **F, W, or S 3 hrs.**

A history of the Black American from beginnings in Africa to the present.

HIST 251 INDEPENDENT STUDY (HISTORY) **F, W, or S 1 hr.**
HIST 252 INDEPENDENT STUDY (HISTORY) **F, W, or S 2 hrs.**

See Independent Study course description under ANTH 251, 252.

HIST 301 HISTORY OF ENGLAND **W 3 hrs.**

A survey of English history from ancient times to the present with an emphasis on the social and cultural development of English civilization.

HIST 310, 311, 312 TOPICS IN THE HISTORY OF AMERICAN FOLK CULTURE **S 2 hrs.**

An interdisciplinary approach to the study of American culture. Special topics selected by historical periods, with emphasis on the culture of the folk as reflected in popular literature, song, art, entertainment, sports, living conditions, moods heroes, religion, etc.

HIST 320 HISTORY OF THE SOUTHWEST **S 5 hrs.**

A history of the Borderlands (Northern Mexico and Southwestern United States) from the 16th century to 1912 with special attention to the interrelationships among Indian, Spanish, Mexican and Anglo-American influences.

HIST 330 THE RUSSIAN REVOLUTION AND THE SOVIET REGIME **S 3 hrs.**

A history of Russia since 1917, with emphasis on the revolution, the rise of communism and the political, economic, social and ideological development of the Soviet state in the 20th century. Recommended prerequisites: History of Western Civilization (modern period) or admission by instructor.

Human Services

HS 301, 302, 303 INTRODUCTION TO HUMAN SERVICES **FWS 3 hrs.**

An introductory survey of a wide range of material related to providing human services. Basic observation, interviewing and counseling techniques will be examined. Biological, psychological, and sociological bases of normal and

abnormal behavior will be surveyed, and some techniques of behavioral change will be considered. Prerequisites: PSY 121, 122, 123, SOC 261, 262, 263; junior status or permission of the instructor.

HS 310 SEX ROLE IDENTIFICATION AND HUMAN SEXUALITY **W 3 hrs.**

An interdisciplinary approach: physiological differences; sex role differences (stereotypes); trends in human sexuality and morality; cross-cultural comparisons of attitudes toward sexuality, pronography; and some discussion of sexual deviance.

HS 401, 402, 403 SPECIAL STUDIES **FWS 9-18 hrs.**

Independent study of topics mutually agreeable to student and instructor. The course may be used to pursue individual interests or to gain knowledge of material not otherwise presented within the curriculum. Human Services majors will be granted academic credit for senior-year internships through registration in this course. Prerequisites: HS major; senior status or permission of instructor.

Political Science

POLS 101, 102, 103 AMERICAN GOVERNMENT **FWS 3 hrs.**

A course which treats the framework and functions of the national government with some attention to both state and local governments.

POLS 251 INDEPENDENT STUDY (POLITICAL SCIENCE) **F, W, or S 1 hr.**

POLS 252 INDEPENDENT STUDY (POLITICAL SCIENCE) **F, W, or S 2 hrs.**

See Independent Study course description under ANTH 251, 252.

POLS 253 PHILOSOPHY OF AMERICAN DEMOCRACY **W 3 hrs.**

A course which deals with significant issues in the contemporary political culture.

POLS 254 STATE AND LOCAL GOVERNMENTS **F 3 hrs.**

A course dealing with the development, organization and operation of state and local governments in the United States. Prerequisites: Political Science 101, 102, 103.

POLS 261, 262, 263 COMPARATIVE GOVERNMENTS **FWS 3 hrs.**

An introduction to comparative politics emphasizing the political systems of Great Britain, France, Germany, the Soviet Union, and the developing nations.

Psychology

(Psychology courses do not fulfill Social Science requirements in the various degree programs.)

PSY 121, 122, 132 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.

PSY 133 HUMAN GROWTH AND DEVELOPMENT **FWS 3 hrs.**

Designed to assist the student in understanding the psychological and physiological development of the individual from conception through the period of old age. Intended for students enrolled in Associate Degree programs. Other students should enroll in PSY 310, 330, and 350.

PSY 200 MENTAL HYGIENE **W 3 hrs.**

A study of the problems of behaviorally defining mental health, and of the strategies an individual may use in the pursuit of it. PSY 200 is especially recommended for students who need an introduction to the field of abnormal psychology that emphasizes the prevention of serious problems through personal understanding. Prerequisites: PSY 121, 122, 123 or permission of the instructor.

PSY 254 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 PSY 121 and 122, which are prerequisites.

PSY 310 CHILD PSYCHOLOGY **F 3 hrs.**

A study of the individual from the prenatal period to the early stages of his adolescent development. The study will include (1) the stages of growth and maturation (2) the effects of environmental influences upon the child, and (3) the psychological and social interactions between the child and other members of society. Prerequisites: PSY 121, 122 and 123.

PSY 312 EXPERIMENTAL PSYCHOLOGY **S 3 hrs.**

An examination and comparison of research designs and methodologies employed by contemporary psychologists. Students gain experience in planning, conducting, and interpreting original research. Prerequisites: PSY 121, 122, 123.

PSY 314 PSYCHOLOGY OF LEARNING **W 3 hrs.**

A study of classical and modern psychological explanations of the phenomenon of learning at both the human and lower-animal level. Prerequisites: PSY 121, 122, 123.

PSY 320 SOCIAL PSYCHOLOGY **F 3 hrs.**

Study of the extension of principles of general psychology to behavior within social situations. Attitude formation and change, collective behavior, communication, interpersonal perception, group dynamics, leadership, and propaganda will be examined. Prerequisites: PSY 121, 122, 123, junior status or permission of the instructor.

PSY 322 MOTIVATION **F 3 hrs.**

An examination of classical and contemporary psychological explanations of the forces that originate, direct, and sustain behavior. Prerequisites: PSY 121, 122, 123.

PSY 323 CONSUMER PSYCHOLOGY **W 3 hrs.**

Study of psychological factors influencing consumer behavior. Motivational, perceptual, social, psychological, and learning topics will be examined. Research strategies and techniques will be studied, designed, and, as feasible, actually used by students. Prerequisites: PSY 121, 122, 123, senior status or permission of the instructor.

PSY 330 ADOLESCENT PSYCHOLOGY **W 3 hrs.**

A study of the physical, mental and emotional characteristics of the adolescent. The course will include a consideration of the problems that are typical of the adolescent age group. Prerequisites: PSY 121, 122 and 123.

PSY 332 INDIVIDUAL AND GROUP DIFFERENCES S 3 hrs.

A study of some measurable similarities and differences in intelligence, aptitude, achievement, and personality, including those between the sexes and among racial groups. Implications of measured differences for societal decisions regarding education and employment will be examined. Prerequisites: PSY 121, 122, 123.

PSY 340 ABNORMAL PSYCHOLOGY W 3 hrs.

A systematic presentation of the concepts related to psychopathology and personality disorders with special emphasis given to functional causation and general psychological theory. Behavior deviation patterns are described and illustrated. Prerequisites: PSY 121, 122 and 123.

PSY 350 PSYCHOLOGY OF OLD AGE S 3 hrs.

A survey of the problems of aging including the physiological, social, and psychological perspectives. Emphasis will be placed on adequate planning for the retirement years. Prerequisites: PSY 121, 122 and 123.

PSY 351 INDEPENDENT STUDY (PSYCHOLOGY) F, W, or S 1 hr.

PSY 352 INDEPENDENT STUDY (PSYCHOLOGY) F, W, or S 2 hrs.

See Independent Study course description under ANTH 251, 252.

PSY 400 TEST AND MEASUREMENTS F 3 hrs.

An introduction to the theory, problems, methods and content of psychological measurement. The course deals with the basic concepts of the purpose of testing, test administration scoring, standardization, reliability, validity and test evaluation. Some of the principal tests in use today will be studied.

PSY 412 INDUSTRIAL PSYCHOLOGY W 3 hrs.

A study of the application of psychological principles to formal, productive organizations such as businesses, governments, schools, etc. Personnel selection, placement, training and evaluation, motivation to work, job satisfaction and morale are examined. Prerequisites: PSY 121, 122, 123, 312.

PSY 414 HISTORY OF PSYCHOLOGY F (1976) 3 hrs.

A brief review of the philosophical bases of Western psychological thought, and a detailed study of key issues, theories, and methods of psychology prior to 1960. Mainly intended for those majoring in psychology and other behavioral sciences. Prerequisites: PSY 121, 122, 123.

PSY 420 PERSONALITY F (1976) 3 hrs.

A study of personality theories from the time of Freud through the present day, with emphasis given to the development and functioning of the normal personality. Prerequisities: PSY 121, 122, 123.

PSY 422 SENSATION AND PERCEPTION F (1976) 3 hrs.

An examination of classical and contemporary theories of the reception, organization, and interpretation of stimuli, especially within the visual and auditory systems. Prerequisites: PSY 121, 122, 123.

Social Science

SOCS 101 INTRODUCTION TO SOCIAL SCIENCE—SOCIOLOGY F 3 hrs.

An introduction to the fields of anthropology and sociology. Intended primarily for vocational-technical students. Other students should enroll in SOC 261, 262.

SOCS 102 INTRODUCTION TO SOCIAL SCIENCE—GOVERNMENT S 3 hrs.

A survey of government. Intended primarily for vocational-technical students. Other students should enroll in POLS 101, 102, 103.

SOCS 103 INTRODUCTION TO SOCIAL SCIENCE—ECONOMICS W 3 hrs.

An introduction to the field of economics. Intended primarily for vocational technical students. Other students should enroll in ECON 201, 202, 203.

SOCS 104 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. Intended primarily for vocational-technical students. Other students should enroll in PSY 121, 122, 123.

SOCS 148 EXPLORATORY STUDY IN THE SOCIAL SCIENCES F, W, or S 1 hr.

SOCS 149 EXPLORATORY STUDY IN THE SOCIAL SCIENCES F, W, or S 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.

SOCS 201 INTRODUCTION TO RELIGION S 3 hrs.

This transdisciplinary course introduces the student to the field of religion. Topics to be covered are: the religious impulse; types of religious experience; the religious influence on Western civilization; the Western-Eastern religious problem; the secular-religious problem; the American Civic Religion; contemporary trends in religion. Attention will be given to the Jesus, Charismatic Renewal, Catholic reform and neo-Oriental movements. Sophomore status or instructor's permission.

Sociology

SOC 144 MARRIAGE AND THE FAMILY F, W, or S 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 261, 262 GENERAL SOCIOLOGY F, W 3 hrs.

A survey of concepts in the study of sociology to acquaint students with the terminology, basic principles, and important theoretical concepts. The two quarters should be taken consecutively and SOC 261 is prerequisite to SOC 262.

SOC 263 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. Prerequisite: SOC 261 and SOC 262.

SOC 312 COLLECTIVE BEHAVIOR AND POPULAR CULTURE **W 3 hrs.**

An inquiry into the dynamics of forming new social structures, with emphasis on contrasting popular cultures and their structures with collective behavior models of the study area. Prerequisites: SOC 161, 162.

SOC 314 DEMOGRAPHY AND POPULATION **F 3 hrs.**

A survey of problems and theories of population growth, industrialization, and urbanization; the social and psychological factors involved in population dynamics and ecology. Effort will be made to acquaint students with resource materials and tools for analysis of population, population planning, and public policies. Prerequisites: SOC 161, 162.

SOC 320 POLITICAL SOCIOLOGY **W 3 hrs.**

An inter-disciplinary approach to the interactions and inter-relationships between social and political forces. Attention is given to the insights of important political sociologists such as Mannheim, Mills, Apter, Lipset and Kornhauser. The focus is on the America of the 1970s. SOC 261, 262 or the instructor's permission are prerequisites.

SOC 325 SOCIOLOGY OF RELIGION **F 3 hrs.**

This inter-disciplinary offering is a scientific study of religion, particularly in the context of modern culture. Attention is given to important social thinkers such as Durkheim, Weber, Marx, Troeltsch, R. H. Niebuhr and Yinger. Prerequisites: junior status or the instructor's permission, and SOC 261, 262.

SOC 330 CULTURAL AND RACIAL MINORITIES **S 3 hrs.**

The analysis of minority group processes in terms of race, caste, class, ethnicity, politics, religion, with an emphasis on the application of social interaction, anthropological theories of race, and social psychological theories of prejudice. Prerequisites: SOC 261 and 262.

SOC 340 SOCIAL DISORGANIZATION **F 3 hrs.**

A survey of social disorganization as a concept—historical and contemporary. Emphasis will be placed on contemporary institutions and their analysis. Prerequisites: SOC 161, 162.

SOC 350 THANATOLOGY **S 3 hrs.**

A critical review of concepts and findings of social scientists as well as a semi-scientific review of literature dealing with death. Prerequisite: SOC 261 or permission of instructor.

SOC 351 INDEPENDENT STUDY IN SOCIOLOGY **F, W, or S 1 hr.**

SOC 352 INDEPENDENT STUDY IN SOCIOLOGY **F, W, or S 2 hrs.**

See Independent Study course description under ANTH 251, 252.

SOC 400 CRIME AND DELINQUENCY **F 3 hrs.**

Study of crime, delinquency and deviance. The social and psychological factors of such behavior, trends in theory, correctional procedures, control, prevention and laws. Prerequisites: SOC 261 and 262.

SOC 410 CONTEMPORARY SOCIAL THEORY **W 3 hrs.**

Survey of sociological theories with an emphasis on twentieth century contributions. Relationship of sociology to allied fields such as anthropology, psychology, economics and political science. Prerequisites: SOC 261-262.

SOC 411 DRAMATURGIC SOCIOLOGY **F 3 hrs.**

A look at the latest trend in sociology: seeing society as a game or play. Focus on texts and class-generated experiments and discussion as an attempt to understand the meaning of everyday acts and interaction. Prerequisites: SOC 161, 162.

SOC 412 HISTORY OF SOCIOLOGY **S 3 hrs.**

A study of the development of sociology as a discipline from early times to the present.

SOC 420 SMALL GROUPS **S 3 hrs.**

An inquiry into small group processes in schools, peer, reference groups, industry, and other selected institutions; small groups as related to the larger social system; group structure and communications; the dynamics of social interaction. Prerequisites: SOC 161, 162.

Occupational Education

Area Vocational School

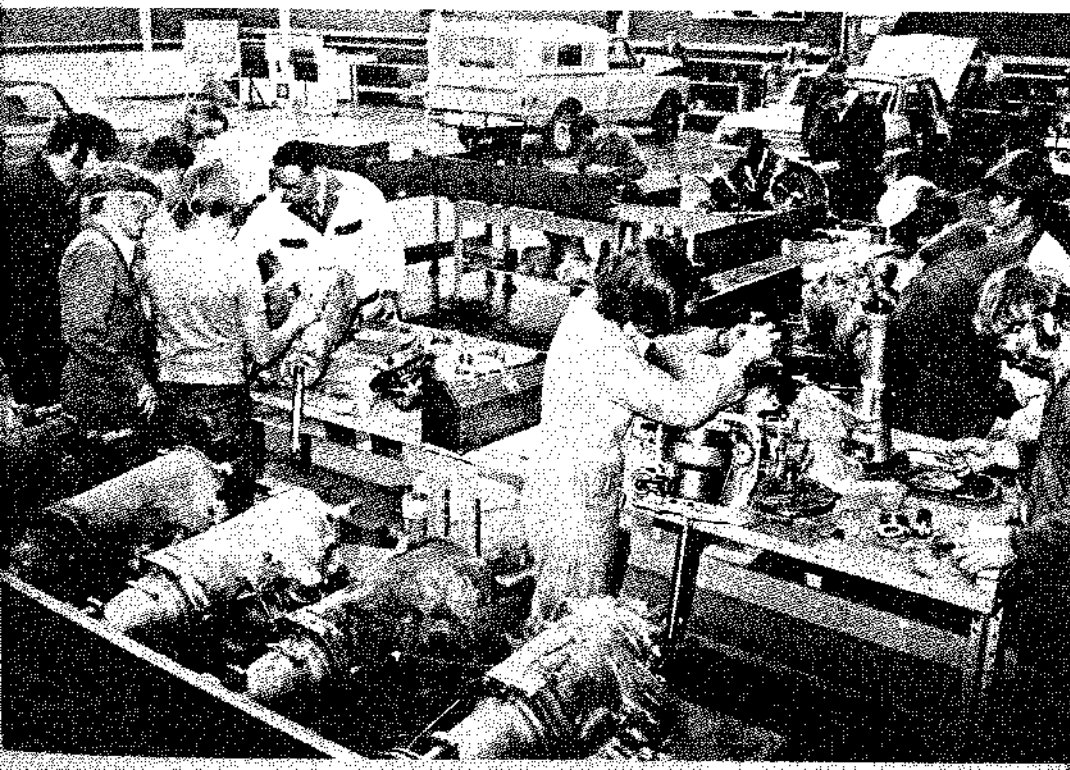
Recognizing the national need for better-trained manpower, the Mesa College Area Vocational School provides a large variety of learning opportunities for students who wish to become skilled technicians. Thousands of jobs await those who have the skills and abilities demanded by business and industry.

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

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

The curriculum of each of the programs 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 courses and curricula described on the following pages may lead to the Associate in Applied Science or Associate in Science Degree, the Mesa College Diploma, or a Certificate. High school graduates may enroll in any of these programs. High school dropouts and adults who have not completed their secondary requirements may enroll in many of the Area Vocational School offerings. If a student seeks a degree he must be a high school graduate or complete the General Education Development test, and must also meet the general requirements of the program and follow the suggested curriculum for the skill training in which he enrolls. If a student does not seek a degree, he may enroll in the individual courses that he desires and for whatever number of credit hours he wishes.



Division of Health Programs

NURSING PROGRAMS

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

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

Instructional Staff: **Mrs. Williams, Chairman**; Miss Douglas; Mrs. Eicher; Mrs. Mundy; Mrs. Pifert; Mrs. Renner; Mrs. Richmond; Miss Saccomanno; Mrs. Schumann; Mrs. VanderKolk; Mrs. Wells.

The nursing curriculum is organized so that Practical Nursing (LPN) students and Associate Degree (RN) students are enrolled in the same courses Fall and Winter quarters of the first year. During Spring Quarter, Associate Degree students will take Microbiology (BIOL 253); Practical Nursing students will take Community Nursing (NURS 132) and an English course.

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

Completion of the Practical Nursing program does not guarantee automatic acceptance into the Associate Degree program. A graduate of the Practical Nursing sequence must work for one year before being considered for admittance to the Associate Degree program.

Since there is a great need for licensed practical nurses, the spaces reserved for these students will be filled by applicants who intend to practice as LPN's.

Practical Nursing

CERTIFICATE

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

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

Associate Degree Nursing

ASSOCIATE IN SCIENCE

Initiated in September 1962, this program is fully accredited by the Colorado Board of Nursing and by the National League for Nursing. Upon completion of the prescribed course of study, the graduate receives the Associate in Science degree and is

eligible to take the examination for licensure as a registered nurse. The purpose of this program is to prepare graduates to serve as registered nurses in first-level (staff nurse) positions in hospitals, nursing homes, physicians' offices, and other health agencies where adequate direction is provided.

Laboratory experiences are planned with St. Mary's, Grand Junction Osteopathic, Mesa Memorial, and Veterans Administration hospitals, and other health and welfare agencies in the community.

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

NURSING CURRICULUM

FIRST YEAR

Fall Quarter	Hrs.	Winter Quarter	Hrs.	Spring Quarter	Hrs.
*Fundamentals of Nursing	7	Maternal-Child Nursing or		Maternal-Child Nursing or	
Introduction to Nursing	3	Medical-Surgical Nursing	12	Medical-Surgical Nursing	12
Anatomy and Physiology	5	Drugs and Dosage	2	Pharmacology	2
Nutrition	3	Anatomy and Physiology	4	**Community Nursing	2
				**English 110 or 111	3
				+Microbiology	5
	15		18		19

*Each nursing course includes laboratory (clinical) experience.
**PN students
+ADN students

Summer Quarter	Hrs.
Personal Vocational Relations	3
Disaster and Home Nursing	3
Clinical Nursing	11
Nursing Seminar	1
	18

(Student is entitled to take licensing examination for LPN after Certificate as practical nurse is earned.)

SECOND YEAR

Fall Quarter	Hrs.	Winter Quarter	Hrs.	Spring Quarter	Hrs.
English 111	3	English 112	3	English 113	3
Physical Education	1	Physical Education	1	Physical Education	1
Growth and Development or Chemistry	3	Growth and Development or Chemistry	3	#Elective (Social Science)	3
Advanced Medical-Surgical Nursing or Advanced Maternal-Child Nursing	8	Advanced Medical-Surgical or Advanced Maternal-Child Nursing	8	Nursing Problems	8
#Elective (Social Science)	3	#Electives (Social Science)	3	Trends in Nursing	2
	18		18		17

#Social Science electives: Sociology 261, 262, 263, 144 or other Social Sciences. Nine hours required for graduation.

NURS 112 FUNDAMENTALS OF NURSING F 7 hrs.

Preparation for use of principles governing procedures and skill in providing care to assist the patient in meeting activities of daily living.

NURS 113 INTRODUCTION TO NURSING F 3 hrs.

Orientation to organization of health care facilities, composition and ethical standards of the health team, basic mental and personal health concepts, and the problem-solving approach.

NURS 123 MATERNAL-CHILD NURSING WS 12 hrs.
Preparation to care for children from birth through adolescence and the prenatal, natal, and post-partum woman.

NURS 125 DRUGS AND DOSAGE W 2 hrs.
Brief history of drugs, guidelines for giving medication, a brief review of arithmetic, terminology, orientation to metric and apothecary systems.

NURS 131 PHARMACOLOGY S 2 hrs.
Information about limited specific medication and medicine categories, their uses, effects and side effect on body systems.

NURS 132 COMMUNITY NURSING S 2 hrs.
Measures taken by the community, state, and federal governments to maintain and improve the health of the people of the nation.

NURS 134 MEDICAL-SURGICAL NURSING WS 12 hrs.
Preparation to care for a variety of patients with the more common medical-surgical conditions of adults.

NURS 141 PERSONAL-VOCATIONAL RELATIONS Smr 3 hrs.
Review and greater emphasis on the ethical and legal responsibilities of the nurse. An overview of nursing history is included.

NURS 142 DISASTER AND HOME NURSING Smr 1 hr.
Introduction to the concepts of emergency and disaster nursing and the care of the patient in a home situation.

NURS 143 CLINICAL NURSING Smr 11 hrs.
Functioning in the role of a licensed practical nurse. Student functions under less direct supervision of instructor and begins to assume the more independent role of working directly on the nursing team under the direction of a team leader.

NURS 144 NURSING SEMINAR Smr 1 hr.
Practical nursing student is allowed to correlate and discuss theory and practice pertinent to common nursing problems.

NURS 253 ADVANCED MEDICAL-SURGICAL NURSING FW 8 hrs.
Provides increased depth of understanding of the human's adaptative capabilities both physiological and psychological.

NURS 261 ADVANCED MATERNAL-CHILD NURSING FW 8 hrs.
Cultural influences on maternal child nursing. A family-centered approach is utilized including developmental level responses to health and illness.

NURS 272 NURSING PROBLEMS S 8 hrs.
Studies designed to facilitate the transition from student to graduate nurse. Content and experience will be provided in management of larger groups of patients and rural nursing.

NURS 273 TRENDS IN NURSING S 2 hrs.
Important components of nursing history and current trends in nursing and health care.

Emergency Medical Technician–Ambulance Course

CERTIFICATE PROGRAM

(Eighty-one Contact Hours)

This standard curriculum has been approved by the National Highway Safety Administration, United States Department of Transportation. As the contractor, Mesa College provides coordination, classroom space, and instruction for the course, which is offered periodically upon demand. Five quarter hours of credit will be awarded upon successful completion of the course (WHEC 30).

Radiologic Technology

ASSOCIATE IN APPLIED SCIENCE

Mr. Smith

A two-year Associate in Applied Science program which continues through two summers. Admissions are limited because of the number of clinical facilities in the area. A pre-admission interview with the director is required. Both college and program application forms must be submitted by February 25 in order for applicant to be considered for admission the following Fall Quarter.

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

Students are required to maintain a 2.0 or higher grade-point average to continue in the program. At the completion of the 24-month program, students are eligible to take the national registry examinations.

RADIOLOGIC TECHNOLOGY CURRICULUM

FIRST YEAR

Fall Quarter	Hrs.
Radiologic Orientation (RADT 111)	3
Radiologic Electronics (RADT 112)	3
Medical Terminology	3
Human Anatomy and Physiology (BIOL 111)	5
English (ENGL 111)	3
Physical Education	1
	18

Winter Quarter	Hrs.
Radiographic Exposures (RADT 121)	3
Radiographic Positioning I (RADT 122)	3
Radiologic Fundamentals (RADT 123)	3
Human Anatomy and Physiology (BIOL 112)	4
English (ENGL 112)	3
Social Science or Psychology	3
	19

Spring Quarter	Hrs.
Radiographic Special Procedures (RADT 131)	3
Radiographic Positioning II (RADT 132)	4
Radiologic Pathology (RADT 133)	2
Rad Nursing Procedures (RADT 134)	2
English (ENGL 115)	3
Social Science or Psychology	3
Physical Education	1
	18

Summer Quarter	Hrs.
Radiation Therapy (RADT 141)	5
Radiographic Positioning III (RADT 142)	3
Clinical Experience I (RADT 145)	5
Social Science or Psychology	3
Physical Education	1
	17

SECOND YEAR

Fall Quarter	Hrs.
Departmental Admin. (RADT 251)	3
Advanced Techniques (RADT 252)	3
Clinical Experience II (RADT 255)	10
	16

Winter Quarter	Hrs.
Nuclear Medicine (RADT 261)	5
Radiation Physics I Lab (RADT 263)	4
Clinical Experience III (RADT 265)	10
	19

Spring Quarter	Hrs.
Radiation Physics II Lab (RADT 274)	4
Clinical Experience IV (RADT 275)	10
	14

Summer Quarter	Hrs.
Radiologic Review (RADT 281)	4
Clinical Experience V (RADT 285)	10
	14

RADT 111 RADIOLOGIC ORIENTATION F 3 hrs.

Orientation to the hospital environment, history of radiology and radiologic technology, radiation protection, ethics, and film processing.

RADT 112 RADIOLOGIC ELECTRONICS F 3 hrs.

Basic physics, electrostatics, a-c and d-c current, control of high voltage, rectification, characteristics of x rays, x-ray circuits, and x-ray tubes. Lab experience in using the x-ray simulator.

RADT 121 RADIOGRAPHIC EXPOSURES W 3 hrs.

The theory of x-ray techniques, radiographic quality, radiographic accessories and precautions.

RADT 122 RADIOGRAPHIC POSITIONING I W 3 hrs.

Radiography of the chest, abdomen, and extremities. Lecture incorporated with lab using the Alderson Phantom under supervision of the instructor in energized lab.

RADT 123 RADIOLOGIC FUNDAMENTALS W 3 hrs.

Theory of basic principles in radiographic production. Body mechanics and patient transportation. Apply knowledge of anatomy and physiology to the production of radiographs. Suitable lab experience under direct supervision of the instructor.

RADT 131 RADIOGRAPHIC SPECIAL PROCEDURES S 3 hrs.

Introduces student to medicosurgical diseases and acquaints student with sterile techniques for radiographic surgical procedures. Also acquaints student with specialized and highly technical equipment and procedures in diagnostic radiography including angiography, myelograms, lymphangiograms, etc.

RADT 132 RADIOGRAPHIC POSITIONING II S 4 hrs.

Radiography of the shoulder, pelvic girdle, cervical, thoracic, and lumbar spines. Lecture incorporating lab with the Alderson Phantom under supervision of instructor in the energized lab.

RADT 133 RADIOLOGIC PATHOLOGY S 2 hrs.

Correlation of disease processes and the resulting radiographs. The theory of repair and regeneration of tissue, formation of tumors both benign and malignant. Survey of disease processes.

RADT 134 RADIOLOGIC NURSING PROCEDURES S 2 hrs.

Generalized first-aid course including anaphylactic shock, signs, symptoms, immediate corrective measures. Drugs and contrast media frequently used in the radiographic department that could cause life-threatening problems; corrective measures to save a life. Cardiopulmonary resuscitation. Advanced life support care and routine emergency medical procedures.

RADT 141 RADIATION THERAPY **Smr 5 hrs.**

Theory of radiation therapy equipment and operation. Brief psychology of the cancer patient. Radiation physics in dosimetry. Suitable laboratory experience under the direction of the instructor and supervision of a therapy technologist in actual treatment of therapy patients.

RADT 142 RADIOGRAPHIC POSITIONING III **Smr 3 hrs.**

Radiography of the skull, including special views of the middle ear, orbits, sinuses, mastoids, etc. Lecture incorporated with the energized lab using the Alderson Phantom under direct supervision of the instructor.

RADT 145 CLINICAL EXPERIENCE I **Smr 5 hrs.**

Under direct supervision of a registered technologist, the student should be able to perform all extremity, chest, and abdomen radiographs competently, including paper work.

RADT 251 DEPARTMENTAL ADMINISTRATION **F 3 hrs.**

Instruction in the internal organization and administration of the radiographic department as well as the overall hospital operations. Includes design considerations of a radiographic department, inter- and intra-departmental operations.

RADT 252 ADVANCED TECHNIQUES **F 3 hrs.**

Very discreet theoretical analysis of technique composition including density, contrast, and detail of the radiographs. Generalized film critique.

RADT 255 CLINICAL EXPERIENCE II **F 10 hrs.**

Under direct supervision of a registered technologist the student should be able to perform all shoulder, hip, pelvis, and vertebral examinations properly and to select the proper techniques for each.

RADT 261 NUCLEAR MEDICINE **W 5 hrs.**

Theory in the medical diagnostic application of radioisotopes. Survey of equipment and materials, including dosages and routes of administration of radioactive isotopes.

RADT 261L NUCLEAR MEDICINE LAB **W 2 hrs.**

Practical lab experience in the nuclear medicine department and active participation in nuclear scans under direct supervision of the nuclear technologist.

RADT 263 RADIATION PHYSICS I **W 4 hrs.**

Laboratory experiments designed to develop skills in radiographic techniques, to recognize radiographs below acceptable levels, and to determine proper changes to improve the diagnostic quality of the radiographs.

RADT 265 CLINICAL EXPERIENCE III **W 10 hrs.**

Under direct supervision of a registered technologist the student performs previous examinations plus routine skull radiographs, special procedures, and surgery radiographs.

RADT 274 RADIATION PHYSICS II **S 4 hrs.**

A continuation of the laboratory experiments described in RADT 263.

RADT 275 CLINICAL EXPERIENCE IV **S 10 hrs.**

Under direct supervision of a registered technologist, the student performs previous examinations plus special views of the skull.

RADT 281 RADIOLOGIC REVIEW **Smr 4 hrs.**

A general organized comprehensive review of all work completed in the program. Developed as a preparation for the national registry examination.

RADT 285 CLINICAL EXPERIENCE V **Smr 10 hrs.**

Continuation of Clinical Experience IV.

Western Health Education Center

Sister Rita Orleans, Coordinator

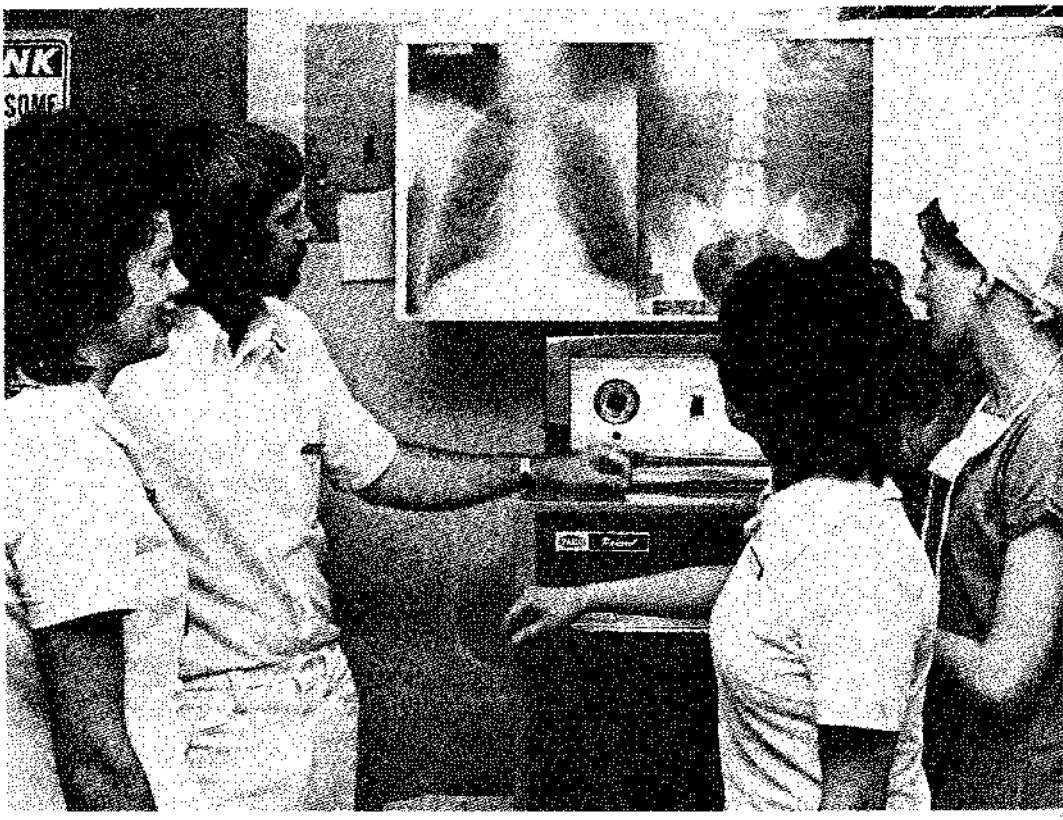
St. Mary's Hospital and Mesa College have combined resources to extend educational opportunities to the health personnel and facilities of Colorado West. This joint venture operates as Western Health Education Center with the following goals:

—To provide in-service, upgrading, and continuing education programs in the health field.

—To give recognition to students for their educational pursuits and to enable them to progress in their jobs.

—To provide sufficient numbers of the best-trained personnel possible for the health-service needs of the region.

Students register with Mesa College and may enroll for college credit if they desire.



Division of Trade and Industrial Programs

The Division of Trade and Industrial Programs offers a variety of options in Auto Body and Fender, Auto Mechanics, Electric Lineman, and Welding, each of which prepares students for employment and advancement in some of the nation's most important industries and technologies. The instructional programs include both classroom lecture-discussion and specialized training in well-equipped shops which are supervised by highly skilled personnel.

Mr. Hollan, Chairman

Auto Body and Fender

ASSOCIATE IN APPLIED SCIENCE

Mr. Hollan, Mr. Miller, Mr. Sidener

At the end of one year a student is awarded a certificate of capability. Upon completion of the requirements set forth in the curriculum, a student receives the Associate in Applied Science Degree. Practical application covers all phases of body and fender repair, including a comprehensive unit in auto painting. 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.
Electives	6 hrs.
Total required for graduation	93 hrs.

AUTO BODY AND FENDER CURRICULUM

FIRST YEAR

Fall Quarter	Hrs.
English (Auto)	3
Applied Math	3
Gen. Auto Body Repair	5
Shop Practice	1
Physical Education	1
Oxyacetylene Welding	3
	16

Winter Quarter	Hrs.
English (Auto)	3
Repair and Refinishing	5
General Refinishing	4
Physical Education	1
Auto Reconditioning	3
	16

Spring Quarter	Hrs.
English (Auto)	3
Repair and Refinishing II	5
Arc Welding	3
Physical Education	1
Auto Reconditioning	3
	15

SECOND YEAR

Fall Quarter	Hrs.
Intro. to Social Science	3
Repair and Refinishing III	5
Frame Repair	4
Panel and Spot Painting	3
	15

Winter Quarter	Hrs.
Intro. to Social Science	3
Repair and Refinishing IV	5
Estimating	2
Human Relations	3
Frame Repair	2
	15

Spring Quarter	Hrs.
Intro. to Social Science	3
Repair and Refinishing V	5
Shop Management	3
Estimating	2
Elective	3
	16

ABF 110 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 111 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 112 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 113 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 116 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, dying and repair of upholstery; cleaning and airbrush painting; exterior-finish buffing and polishing; general automotive detail procedures.

ABF 121 GENERAL REFINISHING **W 4 hrs.**

A comprehensive study of auto refinishing which includes metal conditioners, primers, sealers, surfacers, reducers, thinners, and the different types of paints and the techniques used to apply them.

ABF 124 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 132 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 133 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 134 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 250 FRAME REPAIR **F 4 hrs.**

ABF 251 FRAME REPAIR **W 2 hrs.**

Inspection, measurement and repair methods used to repair unitized and conventional frames. Shop: 10 hours.

ABF 254 REPAIR AND REFINISHING III **F 5 hrs.**

Continuation of shop learning practices. Severe collision repair procedures are studied. Shop: 15 hours.

ABF 264 REPAIR AND REFINISHING IV **W 5 hrs.**

Continuation of shop learning procedures. Emphasis on metal work and spot painting. Shop: 18 hours.

ABF 271 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 272 ESTIMATING I **W 2 hrs.**

Study of parts catalogs, flat rate, R&R procedures, insurance adjustments, and the writing of collision repair bids.

ABF 273 ESTIMATING II **S 2 hrs.**

A continuation of ABF 272.

ABF 274 REPAIR AND REFINISHING V **S 5 hrs.**

Concentration of shop and learning experiences in area in which student wishes to specialize. Shop: 15 hours.

Auto Mechanics

ASSOCIATE IN APPLIED SCIENCE

Mr. Charlesworth, Mr. Tyler, Mr. Fresquez

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

The curriculum is designed in modules of five weeks each except Engines which is ten weeks. Generally there are 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 aspects of auto mechanics.

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

Automotive 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	Credit Hrs.
Physical Education	1
Auto Mechanics Math	3
Clutch, Standard Transmission and Overdrive	5
Driveline and Differentials	5
Carburetors	5
Electrical System	5
Brakes	5
Engines	12
Ignitions	5
Auto Mechanics English	3
Intro. to Social Science	3
Engineering Drawing	3

Winter Quarter	Credit Hrs.
Physical Education	1
Physics	3
Clutch, Standard Transmission and Overdrive	5
Driveline and Differentials	5
Carburetors	5
Electrical System	5
Brakes	5
Engines	12
Ignitions	5
Auto Mechanics English	3
Intro. to Social Science	3

Spring Quarter	Credit Hrs.
Elective	3
Physical Education	1
Automatic Transmissions	5
Filling Station	5
Service Station State Inspection	5
Air Conditioning	5
Foreign Cars	5
Suspension and Alignment	12
Auto Mechanics English	3
Intro. to Social Science	3

AMEC 110 BEGINNING WELDING FOR FOR AUTO MECHANICS **W 3 hrs.**

A beginning course in gas and arc welding designed to help the auto mechanic develop basic skills for maintenance and repair welding on cars and trucks.

AMEC 111 APPLIED MATH FOR AUTO MECHANICS **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 113 INTERNAL COMBUSTION ENGINES **S 6 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 114 ENGINE REBUILDING AND REPAIRS **FW 12 hrs.**

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

AMEC 115 APPLIED PHYSICS FOR AUTO MECHANICS **W 3 hrs.**

A survey course of the principles of physics used in auto mechanics. No laboratory.

AMEC 121 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 122 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 123 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 124 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 125 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 127 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 130 NEW CAR PREPARATION S 5 hrs.

Specialized training in preparation of new cars for sale. Includes information and instruction on catalytic converter, electronic ignitions, seat-belt interlock systems, and other new equipment; also washing, small body adjustments, and chemical cleaning of both inside and outside.

AMEC 133 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 134 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, Volkswagen, 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 135 SUSPENSION AND ALIGNMENT S 12 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 the tire wearing problems, vibrations, hard steering, pulling, etc.

AMEC 136 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.

Electric Lineman

ONE-YEAR CERTIFICATE PROGRAM

Mr. Rowley

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

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

Requirements for the one-year certificate include:

No.	Course	Hrs.	No.	Course	Hrs.
ELIN 111	Applied Mathematics I	5	ELIN 136	Related Fundamentals I	4
ELIN 112	Applied Mathematics II	3	ELIN 137	Related Fundamentals II	4
ELIN 120	Fundamentals of Electricity I	4	ELIN 138	Related Fundamentals III	4
ELIN 121	Fundamentals of Electricity II	3	ELIN 140	Underground Procedures	7
ELIN 131	Electric Distribution Theory I	4	ELIN 150	Applied Theory and Fundamentals I, II, III	15
ELIN 132	Electric Distribution Theory II	4			
ELIN 133	Electric Distribution Theory III	4			

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

ELIN 111 APPLIED MATHEMATICS I **5 hrs.**

A basic review of arithmetic, followed by ratios, percentages and problems in electrical mathematics as encountered by linemen.

ELIN 112 APPLIED MATHEMATICS II **3 hrs.**

Trigonometry, vectors, and electrical mathematics appropriate for the work of linemen.

ELIN 120 FUNDAMENTALS OF ELECTRICITY I **4 hrs.**

A study of how electricity is produced, current magnetic fields, measuring devices, circuits.

ELIN 121 FUNDAMENTALS OF ELECTRICITY II **3 hrs.**

A study of AC circuits, capacitors, alternators, generators, current and voltages.

ELIN 131 ELECTRIC DISTRIBUTION THEORY I **4 hrs.**

Electrical systems, nomenclature of equipment, pole-setting and framing, hardware, tools and riggings.

ELIN 132 ELECTRICAL DISTRIBUTION THEORY II **4 hrs.**

Stress and strain, splicing, energizing lines, protective grounding conductors and connections.

ELIN 133 ELECTRIC DISTRIBUTION THEORY III **4 hrs.**

Protective devices, voltage regulation, inspection and testing, preventive maintenance, hot line tools, capacitor installation.

ELIN 136 RELATED FUNDAMENTALS I **4 hrs.**

First aid, safety code, operation of line trucks, record keeping.

ELIN 137 RELATED FUNDAMENTALS II **4 hrs.**

Electric test meters, transformers, national electric safety code.

ELIN 138 RELATED FUNDAMENTALS III **4 hrs.**

Advanced first aid, voltmeters and ammeters, lighting, human relations, watt-hour meters, blasting.

ELIN 140 UNDERGROUND PROCEDURES **7 hrs.**

Terminology, installation, protective equipment switching procedures, maintenance and inspection.

ELIN 150 APPLIED THEORY AND FUNDAMENTALS **15 hrs.**

Field training.

Welding

CERTIFICATE PROGRAMS

Mr. Branton, Mr. Fasnacht, Mr. Hill

Both four-quarter and six-quarter certificate programs are offered. If a student leaves the program before completion of the four-quarter sequence, he will be awarded a certificate of capability. Appropriate certificates will be awarded upon completion of the longer programs.

The courses are designed to give students the necessary knowledge of metals, layout work and welding processes, along with an opportunity to gain manipulative skills and the related information needed to enter and progress in the welding occupations. Instruction and shop practice are offered in oxyacetylene and electric-arc welding of ferrous and non-ferrous metals in all positions.

WELDING CURRICULUM

FOUR-QUARTER CERTIFICATE

First Quarter	Hrs.
Vocational Communications I	3
Welding Laboratory I	7
Oxyacetelene and Arc Theory	4
Applied Mathematics	3
	17

Second Quarter	Hrs.
Human Relations	3
Welding Laboratory II	7
Blueprint Reading	3
Applied Mathematics	3
	16

Third Quarter	Hrs.
Welding Laboratory III	7
Fabrication Layout	3
Metallurgy	3
Shop Management and Structural Theory	4
	17

Fourth Quarter	Hrs.
Welding Laboratory IV	7
Basic Engineering Drawing	3
*Work Experience	7
	17

SIX-QUARTER CERTIFICATE

Fifth Quarter	Hrs.
Welding Laboratory V	7
Work Experience	7
Related Class	3
	*17

Sixth Quarter	Hrs.
Welding Laboratory VI	7
Work Experience	7
Related Class	3
	*17

Available Summer Quarter	Hrs.
Welding Laboratory Only	7
*Work Experience	14

*Note: Work experience scheduled after fourth quarter or with approval of the instructor during the summer. Four hours on the job each day for 10 weeks will equate to seven quarter hours of credit. Related class of three quarter hours credit will be offered along with work experience whenever there are seven or more students registered on-the-job.

WELD 110 WELDING LABORATORY I **FWS Smr 7 hrs.**

Shop practice in safe use of equipment. Oxyacetylene welding for six weeks on mild steel in all positions and beginning arc welding for four weeks.

WELD 112 OXYACETYLENE AND ARC THEORY **F 4 hrs.**

Instruction in the proper care and use of welding equipment, selection of the proper rods and fluxes and safety as it applies to welding and welding equipment. Classroom.

WELD 115 APPLIED MATHEMATICS **FW 3 hrs.**

Basic mathematics, fractions, decimals, percentages and basic algebra, all as applied in industry.

WELD 120 WELDING LABORATORY II **FWS Smr 7 hrs.**

Continuation of arc welding; refining the welding of mild steel in all positions. Prerequisite: WELD 110 or consent of the instructor.

WELD 121 BLUEPRINT READING **W 3 hrs.**

Basic principles of blueprint interpretation and visualization of objects as applied to industry. Also the use and interpretation of welding symbols.

WELD 130 WELDING LABORATORY III **FWS Smr 7 hrs.**

Continuation of WELD 120 with emphasis on low-hydrogen electrode welding techniques. Prerequisite: WELD 120 or consent of instructor.

WELD 131 FABRICATION LAYOUT **S 3 hrs.**

Basic layout techniques from shop drawings to fabrication of sheet metal, plate, pipe and structural shapes.

WELD 141 SHOP MANAGEMENT AND STRUCTURAL THEORY **S 4 hrs.**

Study of shop operation, expenditures, floor-plan design and equipment of modern day shop. The study of codes issued by the American Petroleum Institute, American Welding Society and American Society of Mechanical Engineers as applied to industry.

WELD 145 METALLURGY **S 3 hrs.**

A general study of smelting, refining, and alloying. Discussion and demonstrations of heat-treating methods used to bring about certain desired results in metals, and also the effects of welding on metals.

WELD 240 WELDING LABORATORY IV **FWS Smr 7 hrs.**

TIG welding of stainless steel, carbon steel and aluminum. MIG employing the principle of a consumable wire feed. Repair welding. Prerequisite: WELD 130 or consent of instructor.

WELD 250 WELDING LABORATORY V **FWS Smr 7 hrs.**

Continuation of WELD 240. Advanced welding using American Welding Society, American Society of Mechanical Engineers and American Petroleum Institute codes with covered electrodes, MIG and TIG. Prerequisite: WELD 240 or consent of instructor.

WELD 252 WORK EXPERIENCE **FWS Smr 14 hrs.**

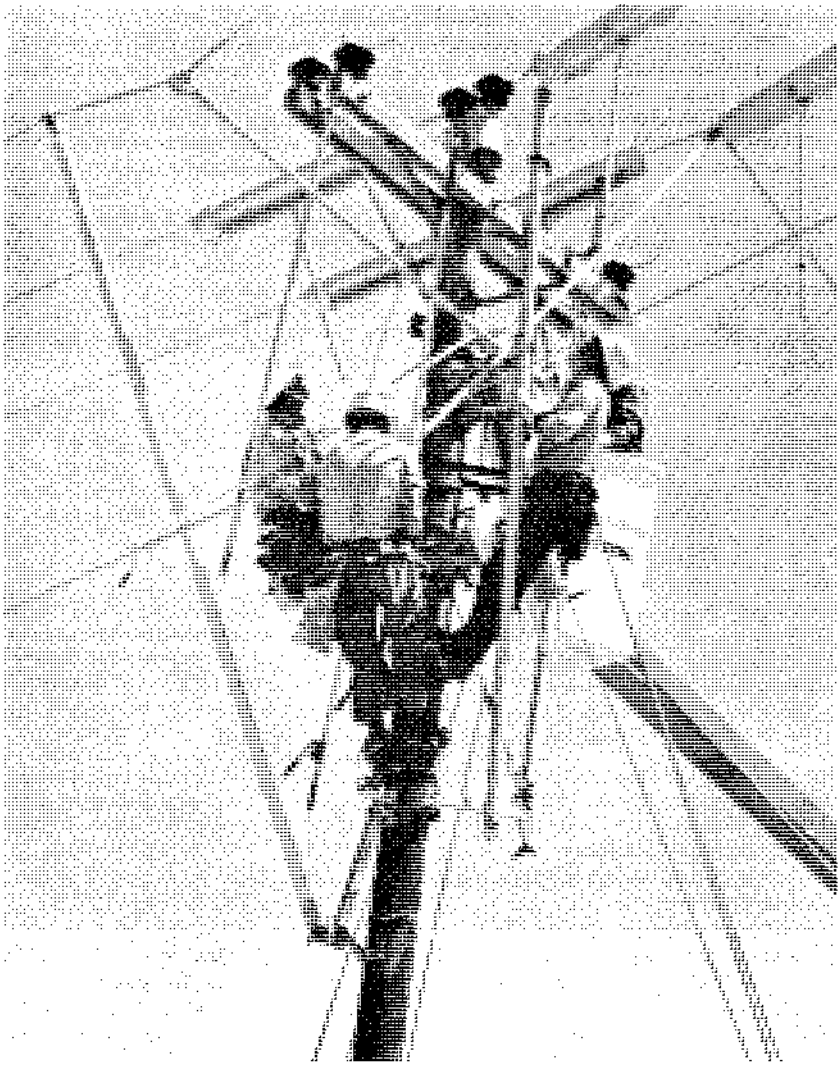
On-the-job training by local companies in fabrication, construction or maintenance welding. Minimum 10 weeks. Prerequisites: WELD 112, 115, 121, 130, 131, 141, 145, ENGR 105, or consent of instructor. Four hours per day for 10 weeks will equate to seven quarter hours credit. Eight hours per day for 10 weeks will equate to 14 quarter hours credit.

WELD 254 RELATED CLASSES
(Related to Work Experience) **FWS Smr 3 hrs.**

Classes offered same quarter as work experience, covering problems encountered on the job, such as: interpretation of blueprints and layout, problems with welds and joints, and employee-employer relations. Prerequisite: WELD 252 (or concurrent enrollment). Offered only when there are seven or more students on-the-job.

WELD 260 WELDING LABORATORY VI **FWS Smr 7 hrs.**

Pipe welding with covered electrodes, MIG and TIG in all positions; per American Welding Society, American Society of Mechanical Engineers and American Petroleum Institute codes. Prerequisite: WELD 250 or consent of instructor.



Business Occupational Programs

(Offered through the Division of Business)

Data Processing

Mr. Buckley, Mr. Dickson, Mr. Mourey

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.

CERTIFICATE

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

All Students

Fall Quarter	Hrs.	Winter Quarter	Hrs.	Spring Quarter	Hrs.
Introduction to Data Processing	3	COBOL I	5	Introduction to Social Science	3
Keypunch and Verifier	2	Introduction to Business	3	Personal Finance	3
English	3	Computer Operator	3		

Accounting Option

Fall Quarter	Hrs.	Winter Quarter	Hrs.	Spring Quarter	Hrs.
Accounting	5	Accounting	5	Income Tax	3
Business Math	4			Elective	3

SUGGESTED ELECTIVES: Beginning Typing, Reading, English (Spelling), Business Communication, Algebra, Basic Mathematics, Personal Finance, Speech, English Vocabulary, Human Relations, Insurance.

Secretarial Option

Fall Quarter	Hrs.	Winter Quarter	Hrs.	Spring Quarter	Hrs.
Intermediate Typing	3	Shorthand	4	Dictation Machine	3
Shorthand	4			Shorthand	4
				Secretarial Accounting	3

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.

ASSOCIATE IN APPLIED SCIENCE

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 are required to complete the following (any deviation from this program must be approved by student's adviser and the registrar):

English composition, 6 hours and three additional hours of composition or literature; physical education, 3 hours; social science, literature, psychology, or any combination, 9 hours; accounting, 10 hours; college algebra, data processing mathematics, and statistics or higher-level mathematics approved by adviser, 13 hours; business or accounting, 5 hours; automatic data processing, 30 hours; and electives, 14 hours, for a total of 93 hours.

DATA PROCESSING—TWO-YEAR PROGRAM

(Suggested Course Sequence)

FIRST YEAR

Fall Quarter	Hrs.
English Composition	3
Business Data Processing	3
Keypunch and Verifier	2
College Algebra I or II	3
Physical Education	1
Introduction to Business	3
	15

Winter Quarter	Hrs.
English Composition	3
Data Processing Mathematics	5
Computer Operations	3
COBOL I	5
	16

Spring Quarter	Hrs.
Principles of Accounting	5
Introduction to Probability and Statistics	5
Physical Education	1
COBOL II	5
	16

SECOND YEAR

Fall Quarter	Hrs.
Principles of Accounting	5
Principles of Economics	3
Assembler Language	5
Physical Education	1
	14

Winter Quarter	Hrs.
Computers in Management	4
Principles of Economics	3
RPG	5
Intermediate Accounting	5
	17

Spring Quarter	Hrs.
Principles of Economics	3
Automated Systems	5
Cost Accounting	5
Technical Report Writing	3
	16

BUDP 101 BUSINESS DATA PROCESSING **FWS 3 hrs.**

An introduction to the fundamentals of business data processing systems. Student is introduced 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.

BUDP 110 BASIC PROGRAMMING KEYPUNCH **FWS 1 hr.**

An introductory five-week course in the basic operations and applications of the keypunch with special emphasis on keypunching computer-programming languages. The basic operations of the sorter will be included. For accounting, management, engineering, computer science, mathematics and statistics majors with an interest in data processing. Prerequisite: Typing. Not recommended for data processing majors. (Meet four days a week)

BUDP 111 KEYPUNCH AND VERIFIER **FWS 2 hrs.**

A preliminary course in the fundamentals of the keypunch and verifier to develop the necessary operational skills for job entry. Recommended for data processing majors. Prerequisite: Typing.

BUDP 121 PRINCIPLES OF PUNCH-CARD EQUIPMENT **W 5 hrs.**

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.

BUDP 131 COBOL PROGRAMMING I **W 5 hrs.**

Students write programs using COBOL. Emphasis is placed on traditional business applications such as payroll, accounts receivable and inventory control. Students learn to debug and document their programs. Prerequisite: BUDP 101 or consent of instructor.

BUDP 132 COBOL PROGRAMMING II **S 5 hrs.**

A continuation of BUDP 131, COBOL Programming I. This course includes magnetic tape processing techniques; disk processing, including sequential, index sequential, and random processing; subroutines; overlays; and binary search techniques. Prerequisite: BUDP 131.

BUDP 211 PRODUCTION KEYPUNCH **S, Smr 2 hrs.**

An advanced course in the operation of the keypunch, verifier, and sorter. Through application of business problems in data processing and community business experience, the course utilizes techniques to build speed and increase efficiency of keypunch operators. Includes methods of using companion equipment. Offered only on sufficient student enrollment. Prerequisite: Typing or consent of instructor.

BUDP 221 COMPUTER OPERATIONS **W 3 hrs.**

Trains the student in computer operation. The student learns to compile programs written by computer programmers. Class participants use the computer in business applications and learn how to solve problems evolving from operation of the equipment. Prerequisite: BUDP 101 or consent of instructor. (Night course)

BUDP 231 ASSEMBLER LANGUAGE **F 5 hrs.**

A beginning course in IBM-360 assembler language programming. Includes data representation concepts, instruction formats, core dump analysis, basic assembler language instructions, and register usage. Students write programs in IBM-360 Assembler. Prerequisite: At least one programming course.

BUDP 233 FORTRAN IV **F 3 hrs.**

This is an introductory course in FORTRAN programming. Emphasis is placed on development of programming logic, flow-charting, input and output routines. Prerequisite: BUDP 101 or consent of instructor.

BUDP 234 RPG PROGRAMMING **W 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: BUDP 101 or consent of instructor.

BUDP 241 COMPUTERS IN MANAGEMENT **W 4 hrs.**

Designed to acquaint business managers with the computer and how to effectively use it in the management function. The relationship of computer systems and procedures to the policies and needs of management are explored. Develops design of computer data base information systems to provide information for management decision-making. Audit and control features are discussed. Prerequisite: BUDP 101.

BUDP 261 INDEPENDENT STUDY IN DATA PROCESSING **FWS 1-3 hrs.**

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

BUDP 290 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: BUDP 131 or consent of instructor.

Business Job Entry Training

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, keypunch, medical terminology, and medical laboratory techniques.

JOB ENTRY CURRICULUM

No.	Course	Total Class Hrs.	No.	Course	Total Class Hrs.
BUJT 11	Shorthand and Stenoscript	220	BUJT 51	Typewriting	220
BUJT 21	Bookkeeping	440	BUJT 61	Word Study	165
BUJT 31	Business Mathematics and Office Machines	165	BUJT 71	Speech	55
			BUJT 81	Personal Development and Filing	55
BUJT 41	Business English	220	BUJT 91	Office Procedures	Arr

BUJT 11 GREGG SHORTHAND AND STENOSCRIPT FWS Smr 3 hrs.

Beginning theory to advanced shorthand is programmed in both methods. Kits with theory workbooks, tapes, and records are available for practice at home and school. Student may cover the equivalent of a year of college shorthand. Transcription skills are taught. Goal: 80 wpm. The student may select the learning method.

BUJT 21 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.

BUJT 31 BUSINESS MATHEMATICS AND OFFICE MACHINES **FWS 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.

BUJT 41 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.

BUJT 51 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.

BUJT 61 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.

BUJT 71 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.

BUJT 81 PERSONAL DEVELOPMENT AND FILING **Arranged 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.

BUJT 91 OFFICE PROCEDURES **Time and Credit 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.

Medical Office Assisting

CERTIFICATE

Mrs. Morrow

The new and interesting career of Medical Office Assisting has been receiving increased attention in recent years. This rapidly growing career area 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 personnel for this occupation.

MEDICAL OFFICE ASSISTANT NINE-MONTH CURRICULUM

(Any deviation from this program must be approved by student's adviser and the director of admissions.)

Fall Quarter	Hrs.	Winter Quarter	Hrs.	Spring Quarter	Hrs.
English Composition	3	Business Communications	3	Human Growth and Development	3
Medical Terminology	3	Human Anatomy and Physiology	4	Medical Office Assisting	3
Intermediate Typing	3	Advanced Typing	3	Business Mathematics	4
Human Anatomy and Physiology	5	Laboratory Techniques	3	Dictation and Transcription Machines	3
Speech Communications	3	Secretarial Accounting	3	First Aid	2
	17		16		15

Special courses for this program are described below. See appropriate sections of catalog for descriptions of other courses listed in curriculum.

HLTH 147 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 154, 155 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 159 MEDICAL OFFICE PROCEDURES **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.

Secretary-Legal, Medical

ASSOCIATE IN APPLIED SCIENCE

Mrs. Hansen, Mrs. Uhrlaub

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.

SECRETARY—LEGAL, MEDICAL CURRICULUM

Suggested Course Sequence

(Any deviation from this program must be approved by student's adviser and the director of admissions.)

FIRST YEAR—All Students

Fall Quarter	Hrs.
English Composition	3
Intermediate Typing	3
Beginning Dictation	4
Filing	2
General Psychology	3
Physical Education	1
	16

Winter Quarter	Hrs.
English Composition	3
Advanced Typing	3
General Psychology	3
Intermediate Dictation and Transcription	4
Math 15, 20, 121, or 131	3-5
Physical Education	1
	17-19

Spring Quarter	Hrs.
English Composition or Literature	3
Business Communications	3
Business Mathematics	4
Gen. Psychology Or Human Growth and Development	3
Secretarial Practice	3
Physical Education	1
	17

SECOND YEAR—Medical

Fall Quarter	Hrs.
Introduction to Social Science—Sociology	3
Human Anatomy and Physiology	5
Speech	3
Medical Terminology	3
Physical Education	1
	15

Winter Quarter	Hrs.
Human Anatomy and Physiology	4
Laboratory Techniques	3
*Elective	3
Secretarial Accounting	3
Physical Education	1
Medical Transcription	3
	17

Spring Quarter	Hrs.
Personal and Community Health	3
General Microbiology	5
Medical Office Assisting	3
Physical Education	1
†Elective	3
	15

*Suggested Elective: Chemistry
†Suggested Elective: Word Processing

SECOND YEAR—Legal

Fall Quarter	Hrs.
Business Law I	3
Introduction to Social Science—Sociology	3
Legal Terminology	3
Legal Procedures I	3
Legal Transcription	3
	15

Winter Quarter	Hrs.
Business Law II	3
Human Relations in Business	3
Legal Procedures II	3
Secretarial Accounting	3
Introduction to Business	3
	15

Spring Quarter	Hrs.
Business Law III	3
Elective	3
Introduction to Social Science—Economics	3
Speech	3
Independent Study Work Experience	3
	15

See appropriate sections of this catalog for descriptions of courses listed above.

Travel And Recreation Management

ASSOCIATE IN APPLIED SCIENCE

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 (any deviation from this program must be approved by the student's adviser and the director of admissions):

Principles of Accounting or Secretarial Accounting	3-5 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.
Travel and Recreation Management Mathematics I and II	6 hrs.
Regional Natural Science	3 hrs.
Electives	8 hrs.
Total	93-95 hrs.

TRAVEL AND RECREATION MANAGEMENT CURRICULUM

Suggested Course Sequence

FIRST YEAR

Fall Quarter	Hrs.	Winter Quarter	Hrs.	Spring Quarter	Hrs.
Introduction to Business	3	English Composition	3	English Composition or Literature	3
English Composition	3	Business Mathematics	4	Elements of Math. II	3
Salesmanship	3	Elements of Mathematics I	3	Regional Natural Science	3
History of Colorado	3	Human Relations in Business	3	Survey of Tourism	3
General Psychology	3	Advertising	3	Principles of Accounting or Secretarial Accounting	3-5
Physical Education	1	Physical Education	1	Physical Education	1
	16		17		16-18

SECOND YEAR

Fall Quarter	Hrs.	Winter Quarter	Hrs.	Spring Quarter	Hrs.
Business Law	3	Principles of Marketing	3	*Work Experience	15
Tourist Management I	3	Tourist Management II	3		
Speech Making	3	Electives	8		
Small Business Management	3				
Principles of Economics	3				
	15		14		15

*This course available Fall, Winter, Spring, or Summer quarter. When possible, work experience should be scheduled during summer between freshman and sophomore years.

BUTR 101 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.

BUTR 201, 202 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.

BUTR 251 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. For Travel and Recreation Management majors only.

BUTR 261 INDEPENDENT STUDY IN TRAVEL AND RECREATION MANAGEMENT FWS 1-3 hrs.

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

Other Occupational Programs

Production Agriculture

CERTIFICATES AND ASSOCIATE IN APPLIED SCIENCE

This program provides learning opportunities in production agriculture with emphasis on actual farm methods and includes technical agriculture, farm management, mechanics, and general farm operation.

The program consists of modules ranging in length from two to six weeks. Each module has specific skill orientation to enable the student to utilize his training upon completion of the module. Both classroom and on-the-farm experiences are included in each module.

Veterans may enroll in the program for farm training.

A student may enroll in one or more modules as his needs and interests dictate. A certificate will be awarded upon completion of each module.

The Associate in Applied Science Degree may be awarded upon completion of 72 quarter hours in any combination of modules plus 21 quarter hours of general education.

Module	Credit Hrs.	Module	Credit Hrs.
Introduction to Farming	1	Turf Management	3
Irrigation	3	Horses	3
Fence Building	3	Cattle	6
Welding	6	Sheep	3
Insects and Control	6	Swine and Chickens	3
Small Engines	3	Soils	3
Large Engines	3	Fertilizers	3
Row Crops	9	Buildings	3
Fruit Crops	9	Dairy operation	6
Green House Operation	6	Farming Tourism	3
Landscaping	6	Business Principles	3

This program does not operate on the traditional quarter system. Consult the department for starting times.

AGPR 111 INTRODUCTION TO FARMING **3 hrs.**

A study of the trends in the industry, economics of farming and future aspects of the industry.

AGPR 112 IRRIGATION **3 hrs.**

Practice in the use of siphon tubes, sprinkler systems, concrete ditches, salinity control, and amounts of water.

AGPR 113 FENCE BUILDING **3 hrs.**

Practical application and methods for farm and ranch fencing, ornamental, industrial.

AGPR 114 WELDING **6 hrs.**

Practice and theory of gas and arc welding, metals and machinery repair.

AGPR 115 INSECTS AND CONTROL **6 hrs.**

Identification and control of insects found in fruit, row crops, and general farming. Use of chemicals and application of sprays.

AGPR 116 SMALL ENGINES **3 hrs.**

Practice in tune-up, maintenance, trouble shooting, and simple repair.

AGPR 117 LARGE ENGINES **3 hrs.**
Practice in tune-up, maintenance, trouble shooting, and simple repair.

AGPR 118 ROW CROPS **9 hrs.**
Planting, cultivation, irrigation, and harvesting of alfalfa, corn, grains, grasses, and vegetables.

AGPR 119 FRUIT CROPS **9 hrs.**
Planting, cultivation, irrigation, yearly care, and production and harvesting of peaches, pears, apples, apricots, cherries, and miscellaneous fruits.

AGPR 120 GREENHOUSE OPERATION **6 hrs.**
Theory and practice of crops, construction, and maintenance.

AGPR 121 LANDSCAPING **6 hrs.**
Theory and practice of grass and plants, hard materials, irrigation, and pruning.

AGPR 122 TURF MANAGEMENT **3 hrs.**
Maintenance of turf including care, insects, irrigation, soils, fertilizers.

AGPR 123 HORSES **3 hrs.**
Care, handling, maintenance, diseases.

AGPR 124 CATTLE **6 hrs.**
Care, production, maintenance, diseases.

AGPR 125 SHEEP **3 hrs.**
Care, production, maintenance, diseases.

AGPR 126 SWINE AND CHICKEN **3 hrs.**
Care, production, maintenance, diseases.

AGPR 127 SOILS **3 hrs.**
Production soils, salts, shale, sand.

AGPR 128 FERTILIZERS **3 hrs.**
Applications and uses, chemical, barnyard.

AGPR 129 BUILDINGS **3 hrs.**
Farm and ranch structures, barns, sheds, specialized facilities.

AGPR 130 DAIRY OPERATION **3 hrs.**
Milk production, cows and their maintenance, buildings, equipment.

AGPR 131 FARMING COMBINED WITH TOURISM **3 hrs.**
The tourism industry, guest ranches, recreation, a combined operation.

AGPR 132 BUSINESS PRINCIPLES **3 hrs.**
Bookkeeping, financing, taxes, economics.

AGPR 133 MARKETING **3 hrs.**
An exploration of the methods, systems, and channels used in the marketing of farm products. Includes a study of the commodity futures market as a methods to increase marketing efficiency.

Early Childhood Education

ASSOCIATE IN APPLIED SCIENCE

Mrs. Beemer

The Early Childhood Education 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 Early Childhood Education 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	51 hrs.
Electives	12 hrs.
Total required for graduation	93 hrs.

EARLY CHILDHOOD EDUCATION CURRICULUM

FIRST YEAR

Fall Quarter	Hrs.
English 121	3
General Psychology	3
Child Care	3
Speech	3
Physical Education	1
Introduction to Early Childhood	1
Elective	2
	16

Winter Quarter	Hrs.
English 112	3
General Psychology	3
Child Development	3
Elementary Art	3
Nursery School Education	2
Physical Education	1
	15

Spring Quarter	Hrs.
English 113	3
General Psychology	3
Nursery Education Lab	2
Creative Play	3
Physical Education	1
First Aid	2
Nutrition	3
	17

SECOND YEAR

Fall Quarter	Hrs.
Marriage and Family	3
Introduction to Foods	3
Literature	3
Electives	6
	15

Winter Quarter	Hrs.
Sociology or History	3
Introduction to Foods	3
Child Welfare	2
Childrens' Literature	3
Electives	3
Child Care Center Management	3
	17

Spring Quarter	Hrs.
Introduction to Meal Management	3
Internship	6
Techniques of Adult Ed	3
Creative Music	3
	15

SUGGESTED ELECTIVES: Typing, conversational Spanish, piano, voice, any home economics courses.

CCCD 111 NURSERY SCHOOL EDUCATION **W 2 hrs.**

Philosophy and theory of preschool education. Preparation for Nursery School Education and Laboratory offered spring quarter.

CCCD 112L NURSERY SCHOOL EDUCATION AND LABORATORY S 2 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 121 INTRODUCTION TO EARLY CHILDHOOD F 1 hr.

To acquaint new students with the field of early childhood, to gain knowledge of the facilities and programs offered for young children, and to observe young children at work and play.

CCCD 251 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 252-253 INTERNSHIP IN LICENSED CENTERS FWS 6 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. Students must enroll in these classes concurrently for a total of six credit hours.

CCCD 255 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 258 INDEPENDENT STUDY IN CHILD CARE FWS 2 hrs.

CCCD 259 INDEPENDENT STUDY IN CHILD CARE FWS 3 hrs.

CCCD 260 CHILD CARE CENTER MANAGEMENT F 3 hrs.

Aspects of management uniquely important to small business firms, especially the operation of child care centers. Emphasis will be placed on economics, business practices and the social environment of child care centers.

Electronics Technology

ASSOCIATE IN APPLIED SCIENCE

Mr. Alimaras, Mr. Turpin

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 111, 112, 115	9 hrs.
Social Science	9 hrs.
Physical Education	3 hrs.
Electronics	76 hrs.
Total required for graduation	97 hrs.

ELECTRONICS TECHNOLOGY CURRICULUM

FIRST YEAR

Fall Quarter	Hrs.
English 111	3
Technical Mathematics	4
Shop Processes	2
Concepts of Direct Current Circuits	7
Radio Fundamentals	2
	18

Winter Quarter	Hrs.
English 112	3
Technical Mathematics	4
Alternating Current Analysis	7
Physical Education	1
Radio Fundamentals	2
	17

Spring Quarter	Hrs.
Technical Mathematics	4
Basic Electronics	7
Physics	5
Radio Fundamentals	2
	18

SECOND YEAR

Fall Quarter	Hrs.
Pulse and Video Circuits I	5
Transistor Electronics	4
Communication Theory I	4
Introduction to Social Science (Sociology)	3
Physical Education	1
	17

Winter Quarter	Hrs.
Communication Theory II	4
Pulse and Video Circuits II	4
Electrical-Electronic Drafting	2
Human Relations	2
Introduction to Social Science	3
Physical Education	1
	17

Spring Quarter	Hrs.
Research Project	1
Calibration and Maintenance of Test Equipment	4
Ultra-High Frequencies and Microwaves	4
Intro. to Computers	4
English 115	3
	16

ELEC 114 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 117 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 118 ALTERNATING CURRENT CIRCUIT ANALYSIS **W 7 hrs.**

Generation of alternating current, alternating current fundamentals, multipolar 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. Prerequisite: MATH 101. The course is conducted in conjunction with MATH 102. Class: 4 hours. Laboratory: 6 hours.

ELEC 119 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 semi-conductor manual and specification interpretation, tube designation and basing. Prerequisite: ELEC 118. Class: 4 hours. Laboratory: 6 hours.

ELEC 121, 122, 123 RADIO AND TELEVISION FUNDAMENTALS FWS 2 hrs.

Covers basic principles and repair of radio and television.

ELEC 251 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, limitors, clampers and sweep generator circuits will be made both in the classroom and laboratory. Class: 3 hours. Laboratory: 4 hours.

ELEC 252 PULSE AND VIDEO CIRCUITS II W 4 hrs.

A continuation of ELEC 251 with emphasis on the analysis of electronic circuits and systems utilizing the circuits studied in ELEC 251. Television and radar are studied, applying the principles of pulse-shaping circuits. Class: 2 hours. Laboratory: 4 hours.

ELEC 253 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 256 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 119. Class: 2 hours. Laboratory: 4 hours.

ELEC 257 COMMUNICATION THEORY II W 4 hrs.

Continuation of ELEC 256. Prerequisite: ELEC 251. Class: 2 hours. Laboratory: 4 hours.

ELEC 258 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 259 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 119 and ELEC 251. Class: 2 hours. Laboratory: 4 hours.

ELEC 261 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 264 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 is required. Frequent conferences between the student and his adviser serve to guide the student's progress. Laboratory: 3 hours.

ELEC 265 INTRODUCTION TO COMPUTERS **S 4 hrs.**

Includes introduction to binary concept; use of two states to perform logic functions and counts; use of simpler logic gates to construct more-complex devices; study of Boolean algebra, logic truth tables, and how transition from a logic requirement to a gating network is accomplished. Also deals with digital subsystems, mathematical process of binary addition including methods of complementary binary subtraction, binary coded decimal counting and code conversion; and some discussion of digital systems.

Engineering Technician

ASSOCIATE IN APPLIED SCIENCE

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. With the present 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 111,112, or 115	9 hrs.
Physical Education	3 hrs.
Social Science	9 hrs
Engineering Technology	43 hrs.
Mathematics (ETEC 101, 102, 103)	12 hrs.
Engineering 111, 112, 114	9 hrs.
Engineering 231, 232, 233	9 hrs.
Total required for graduation	94 hrs.

CIVIL ENGINEERING TECHNICIAN CURRICULUM

FIRST YEAR

Fall Quarter	Hrs.
English 111	3
Technical Mathematics	4
Soils Engineering	3
Engr. Graphics and Design I	3
Physical Education	1
Social Science elective	3
	17

Winter Quarter	Hrs.
English 112	3
Technical Mathematics	4
Concrete I	3
Engr. Graphics and Design II	3
Physical Education	1
Social Science elective	3
	17

Spring Quarter	Hrs.
English 115	3
Technical Mathematics	4
Construction Practices	3
FORTRAN and Engr. Problems	3
Programmable Calculator	1
Social Science elective	3
	17

SECOND YEAR

Fall Quarter	Hrs.
Elementary Surveying	3
Specifications and Cost Estimates	2
Mechanics	3
Design and Drafting—Topographical	3
Physical Education	1
Elective	3
	15

Winter Quarter	Hrs.
Surveying: Curves and Earthwork	3
Strength of Materials	3
Fluid Mechanics and Hydraulics	3
Municipal Engineering	3
Elective	3
Physical Education	1
	16

Spring Quarter	Hrs.
Advanced Surveying	3
Strength of Materials	3
Independent Study in Engineering Technology	3
Highway Engineering	3
Drafting and Design—Structural	3
	15

Requirements for the Associate in Applied Science degree in Engineering Technology (Drafting) include the following:

English 111, 112, or 115	9 hrs.
Social Science	9 hrs.
Physical Education	3 hrs.
Mathematics (ETEC 101, 102, 103)	12 hrs.
Engineering 111, 112, 114	9 hrs.
Engineering Technology	48 hrs.
Engineering 230	3 hrs.
Total required for graduation	94 hrs.

DRAFTING TECHNICIAN CURRICULUM

FIRST YEAR

Fall Quarter	Hrs.
English 111	3
Technical Mathematics	4
Engr. Graphics and Design I	3
Topographical Surveying	3
Reproductions	3
Physical Education	1
	17

Winter Quarter	Hrs.
English 112	3
Technical Mathematics	4
Drafting and Design—Mechanical Systems	3
Engr. Graphics and Design II	3
Technical Illustrating I	3
Physical Education	1
	17

Spring Quarter	Hrs.
English 115	3
Technical Mathematics	4
FORTRAN and Engineering Problems	3
Technical Illustrating II	3
Slide Rule	1
Programmable Calculator	1
Physical Education	1
	16

SECOND YEAR

Fall Quarter	Hrs.	Winter Quarter	Hrs.	Spring Quarter	Hrs.
Drafting and Design—Electrical Systems	3	Mechanical Drafting	3	Independent Study in Engineering Technology	3
Drafting and Design—Topographical	3	Drafting and Design—Architectural	3	Drafting and Design—Structural	3
Specifications and Cost Estimates	2	Electrical Electronic Drafting	2	Introduction to Machine Design	3
Mechanics	3	Strength of Materials	3	Strength of Materials	3
Soils Engineering	3	Social Science elective	3	Social Science elective	3
Social Science elective	3				
	17		14		15

OPTIONS:

ELECTRICAL APPLIED—During Fall Quarter, instead of Drafting and Design (Electrical Systems) and Drafting and Design (Topographical), take Concepts of Direct-Current Circuits.

During Winter Quarter, instead of Drafting and Design (Architectural) and Mechanical Drafting, take Alternating-Current Circuit Analysis.

CIVIL APPLIED—Instead of Mechanical Drafting, take Fluid Mechanics and Hydraulics.

Instead of Drafting and Design (Electrical Systems), take Concrete I.

ETEC 101 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 102 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 trigometric functions. Class: 4 hours.

ETEC 103 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.

ETEC 120 CONSTRUCTION PRACTICES **S 3 hrs.**

A study of construction techniques, materials, structural systems, and job, site planning.

ETEC 123 CONCRETE I **W 3 hrs.**

An introduction to cement, aggregates, selection and design of concrete mixtures, and sampling and testing procedures.

ETEC 125 SOILS ENGINEERING **F 3 hrs.**

Properties of soils with compaction, consistency, classification, moisture, frost-action, permeability, strength, lateral pressures, bearing capacity, piling foundations, soil exploration, spread-footings, subgrades and pavements. Earth dams. Class: 3 hours. Laboratory: 2 hours.

ETEC 220 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 ENGR 105 or consent of instructor.

ETEC 230 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 233 HIGHWAY ENGINEERING S 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.

ETEC 240 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. Prerequisite: ETEC 103.

ETEC 241, 242 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. Prerequisite: ETEC 240. Class: 3 hours. Laboratory: 3 hours.

ETEC 245 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, orfice nozzles and weirs. Critical velocity in pipes. Head loss in pipe fittings, valves, friction coefficients. Hydraulic turbo machinery. Flow in pipe nets and open channels. Prerequisite: ETEC 103.

ETEC 251 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: ENGR 105 or equivalent.

ETEC 252 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 241 or consent of instructor.

ETEC 253 DRAFTING AND DESIGN—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: ENGR 105 or equivalent.

ETEC 254 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: ENGR 105 or equivalent.

ETEC 255 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: ENGR 105 or equivalent.

ETEC 256 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: ENGR 105 or equivalent.

ETEC 257 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: ENGR 105 or equivalent.

ETEC 258 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 259 TECHNICAL ILLUSTRATING I W 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 260 TECHNICAL ILLUSTRATING II S 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 259.

ETEC 261 REPRODUCTIONS F 3 hrs.

Use of all types of reproduction methods, blueprinting, offset printing, photographic copying, thermofaxing. Class: 1 hour. Laboratory: 3 hours.

ETEC 290 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.

Fire Science

ASSOCIATE IN APPLIED SCIENCE

This two-year program trains students for service with public or private fire-protection agencies or for employment as investigators, insurance claim adjusters, safety inspectors, etc. Upon successful completion of the curriculum the student receives the Associate in Applied Science degree. The program is offered in the night school to provide presently employed firemen the opportunity to upgrade their education and skills.

FIRE SCIENCE TECHNOLOGY CURRICULUM

FIRST YEAR

Fall Quarter	Hrs.
Political Science—Government	3
Speech	3
Fundamentals of Fire Prevention	3
Fire Apparatus and Equipment	3
Elective	3
	15

Winter Quarter	Hrs.
Survey of Physical Science	3
Mathematics	5
Related Codes and Ordinances I	3
Fire Protection—Equipment	3
Elective	3
	17

Spring Quarter	Hrs.
Survey of Physical Science	3
Blueprint Reading	3
Related Codes and Ordinances II	3
Chemistry	5
Human Relations	3
	17

Electives: Mathematics and psychology.

SECOND YEAR

Fall Quarter	Hrs.
Fire Hydraulics	3
Hazardous Material I	3
English 111	3
Psychology	5
Elective	3
Physical Education	1
	16

Winter Quarter	Hrs.
Hazardous Material II	3
Plant Layout for Fire Safety	3
Fire fighting Tactics and Strategy	3
Social Science	3
English 112	3
Physical Education	1
	16

Spring Quarter	Hrs.
Fire Department Administration	3
Rescue and First Aid	3
Insurance	3
Fire and Investigation	3
English 115	3
Physical Education	1
	16

FIRS 251 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.

FIRS 252 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 253 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 254 HAZARDOUS MATERIALS I F 3 hrs.

A review of basic chemistry, storage, handling, laws, standards and fire fighting practices pertaining to hazardous materials.

FIRS 261 PLANT LAYOUT FOR FIRE SAFETY W 3 hrs.

An analysis of industrial fire protection.

FIRS 262 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 263 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 264 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 271 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 272 RESCUE AND FIRST AID S 5 hrs.

Rescue practices, the human body, emergency care of victims, childbirth, artificial respiration, toxic gases, chemical and diseases, radioactive hazards, rescue problems, and techniques.

FIRS 273 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 274 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 275 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 Technology

ASSOCIATE IN APPLIED SCIENCE

Mr. Duff

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

GRAPHIC COMMUNICATIONS TECHNOLOGY CURRICULUM

Requirements for the Associate in Applied Science degree in Graphic Communications: English, 9 hours (including English 111, 112; 3 hours may be literature); physical education, 3 hours; social science or psychology, 9 hours; business mathematics, 4 hours; art, 5 hours; GRCO courses, 45 hours; advertising, 3 hours; journalism, 3 hours; electives, 9 hours (typing and speech recommended).

FIRST YEAR

Fall Quarter	Hrs.	Winter Quarter	Hrs.	Spring Quarter	Hrs.
English	3	English	3	English or Literature	3
Intro. to Social Science	3	Intro. to Social Science	3	Human Relations	3
Physical Education	1	Physical Education	1	Physical Education	1
Graphic Arts I	3	Business Mathematics	4	Basic Photography	3
Introduction to Graphic Communications	3	Commercial Design and Layout	3	Intro. to Composition	3
Art Elective	3	Art Elective	3		
	16		17		13

SECOND YEAR

Fall Quarter	Hrs.
Darkroom Procedure	3
Cold Type and Paste-up	3
Duplicating Offset I	3
Intro. to Journalism	3
Electives	5
	17

Winter Quarter	Hrs.
Advertising	3
Photography for Lithography and Platemaking	3
Duplicating Offset II	3
Newspaper Practices	2
Cold Type and Paste-up	3
Elective	3
	17

Spring Quarter	Hrs.
Graphic Communications Problems	4
Printing Estimating	3
Printing Plant Management	3
Elective	3
	13

GRCO 111 GRAPHIC ARTS I **F 3 hrs.**

This course is designed to develop competencies in the preparation of graphic materials.

GRCO 113 INTRODUCTION TO GRAPHIC COMMUNICATIONS **F 3 hrs.**

Graphic arts technology as related to reproduction of various graphic design techniques; provides opportunity to develop basic skills in offset lithography, screen process, and relief printing.

GRCO 121 TYPESETTING **S 3 hrs.**

A basic study of cold-type composing machines with emphasis on operation and production.

GRCO 151 BASIC PHOTOGRAPHY **F 3 hrs.**

Develops proficiencies in the production of still photographic materials which teachers can use in classroom situations.

GRCO 270 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 271 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 272 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 271.

GRCO 273 DUPLICATING—OFFSET I **F 3 hrs.**

Methods of printing and duplicating are introduced. Principles of offset duplicating explained and practiced.

GRCO 274 DUPLICATING—OFFSET II **W 3 hrs.**

Various machines explained and skills practiced. Long-runs, color and quality copy produced.

GRCO 275 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 276 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 277 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 278 NEWSPAPER PRACTICES W 2 hrs.

A study of the technical problems and techniques dealing with the production of newspapers.

GRCO 279 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 280 PRINTING ESTIMATING S 3 hrs.

A study of costs and cost-estimating techniques specifically related to the printing industry.

Law Enforcement Technology

(Police Science)

ASSOCIATE IN APPLIED SCIENCE

Mr. Newmar

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

FIRST YEAR

Fall Quarter	Hrs.	Winter Quarter	Hrs.	Spring Quarter	Hrs.
Introduction to Law Enforcement	3	Survey of Physical Science	3	**Defensive Tactics and Firearms Training	3
Political Science	3	Political Science	3	English 113 or 115	3
*Survey of Physical Science	3	Scientific Aids To Crime Detection	3	Political Science	3
English 111	3	Police Procedures	3	Survey of Physical Science	3
Administration of Justice and Court Procedures	3	Physical Education	1	Police-Community Relations	3
Physical Education	1	English 112	3	Physical Education	1
	16		16		16

SECOND YEAR

Fall Quarter	Hrs.	Winter Quarter	Hrs.	Spring Quarter	Hrs.
Psychology	3	Investigative Techniques	3	Psychology	3
Laws of Search and Seizure	3	Psychology	3	Sociology	3
Sociology	3	Sociology	3	Speech	3
Business Mathematics	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

[1] Other Physical Sciences may be substituted.
** An elective.

POLC 111 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 112 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 121 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 122 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 133 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 251 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 261 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 286 POLICE-COMMUNITY RELATIONS **S 3 hrs.**

An in-depth exploration of the roles of the police-science practitioners and their agencies. Helps student develop an awareness of the interrelationships and role expectations among the various agencies and the public.

POLC 271 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 272 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 273 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.

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

Governing Board and Administration

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James D. Palmer, President
Southern Colorado State College ..... Pueblo
Harry P. Bowes, President
Western State College ..... Gunnison
John P. Mellon, President

MESA COLLEGE STAFF OFFICIALS

General Services

CARL R. WAHLBERG, JR ..... Assistant to the President; Acting President
B.A., M.A., Ed.D., University of Denver
NATHAN E. BRUNDRIDGE ..... Director of Special 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 ..... Assistant to the Administrative Staff
B.S., Colorado State University; M.A., University of Northern Colorado
DELL R. FOUTZ ..... Coordinator of Master Planning
B.S., M.S., Brigham Young University; Ph.D., Washington State University

Business Services

RICHARD D. APPEL, C.P.A. ..... Director of Business Services
B.A., Fort Hays State College
GARY R. CALHOUN ..... Assistant Director of 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. GOFFREDI ..... 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; Director Summer Session and Mini-Quarter
B.S.B.A., University of Denver; M.Ed., Colorado State University

KEITH W. MILLER ..... Director of Community Services
B.A., M.A., University of Northern Colorado
NATHAN E. BRUNDRIDGE ..... Director of Special Projects; Assistant Director of Community Services
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 Physical Education 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 Economics
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
JAMES C. DAVIS ..... Division of Computer Science, Mathematics, and Engineering
B.A., M.A., University of Northern Colorado
DARRELL C. BLACKBURN ..... Division of Fine Arts
B.Mus.Ed., M.Mus.Ed., University of Colorado
EILEEN E. WILLIAMS, R.N. ..... Division of Health Programs
B.S., University of Denver; M.S., University of Colorado
DAN M. SHOWALTER ..... Division of Humanities
B.A., M.A., Western State College
WAYNE W. NELSON ..... Division of Physical Education and Recreation
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
HAROLD BOLLAN ..... Division of Trade and Industrial Programs
B.S., Southern Utah State College

Department Heads

DONALD E. MEYERS ..... Department of Art
B.F.A., University of Denver; M.A., University of Northern Colorado
WILLIAM S. ROBINSON ..... Department of Speech and Drama
B.A., Morris Harvey College; M.A., New York University

Student Services

JAY W. TOLMAN ..... Director of Student Services
B.S., M.S., Utah State University
TILMAN M. BISHOP ..... Associate Director of Student Services
B.A., M.A., University of Northern Colorado
BETSY A. SNEED ..... Registrar and Associate Director 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
CARRELL LYNNE EVANS ..... Counselor
B.A., University of California; M.Ed., Colorado State University
JOHN J. (JAY) JEFFERSON ..... Director of College Center
B.A., M.A., Adams State College
FRANK KELLER ..... Assistant Director of College Center
B.A., Adams State College
LANCE M. OSWALD ..... Counselor
B.S., M.S., University of Wisconsin
HAROLD RATZLAFF ..... Director of Housing
A.S., Mesa College
C.A. (JACK) SCOTT ..... Director of Admissions
B.A., University of Northern Colorado; M.A., University of Denver
MARION F. SHAW ..... Job Development Specialist
B.S., M.Ed., Colorado State University
BUD SMOCK ..... Director of Financial Aids and Student Employment
B.A., M.A., Western State College
HELEN M. SPEHAR, R.N. ..... Director of Health Services
B.S., University of Colorado
ROBERT P. STOKES ..... Vocational Guidance Specialist
B.A., Western State College; M.A., Colorado State University
RAYMOND ALAN WORKMAN ..... Counselor; Coordinator of Student Activities
B.A., University of Northern Colorado; M.P.S., Ed.D. 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., Emporia Kansas State College
KATHLEEN R. TOWER ..... Assistant Librarian
B.M.E., M.A., University of Denver

INSTRUCTIONAL PERSONNEL (1974-75 Faculty)

HERMAN C. ALEMARAS ..... Electronics, Science
B.S., University of Wisconsin; M.S., Highlands University
JAMES R. ALVILLAR ..... Business Law
A.B., University of California; J.D., Boalt Hall School of Law
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; D.A., University of Northern Colorado
VIRGINIA BEEMER ..... Early Childhood Education
B.S., Northern Arizona University
WALTER F. BERGMAN ..... Physical Education and Recreation
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. BIRKEDAHL ..... Music
B.Mus.Ed., M.Mus.Ed., University of Denver
DARRELL C. BLACKBURN (Music) ..... Chairman, Division of Fine Arts
B.Mus.Ed., M.Mus.Ed., University of Colorado
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B.A., M.A., University of Northern Colorado
HAROLD BOLLAN ..... Chairman, Division of Trade and Industrial Programs
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
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B.S., Bus.Ed., M.Bus.Ed., University of Oklahoma
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VIRGINIA T. (TESS) CARMICHAEL ..... Business
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JAMES CARSTENS ..... Chairman, Division of Business
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Diploma, Mesa College
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MAEBETH GUYTON ..... Voice
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CHEO HUMPHRIES ..... Physical Education and Recreation
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CHARLES T. (TOM) JONES ..... English, Graphic Arts, Journalism, Student Publications
B.A., M.A., University of Alabama

LLOYD E. JONES ..... Social Science
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CARL M. KERNS ..... Mathematics and Engineering
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MAURINE M. LEIGHTON ..... Home Economics
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MILTON F. LENZ ..... Chemistry, Physics
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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 (History) ..... Chairman, Division of Social Science
B.S., Colorado State University; M.A., University of Colorado

DAVID MANNEL ..... Agriculture
B.S., Colorado State University

GARY LOREN McCALLISTER ..... Biology
B.S., M.S., Brigham Young University

THOMAS M. McKEE ..... Agriculture
B.S., M.S., Utah State University

WAYNE MEEKER ..... Sociology
B.A., M.A., Western State College

DONALD E. MEYERS ..... Head, Department of Art
B.F.A., University of Denver; M.A., University of Northern Colorado

CLINTON MILLER ..... Auto Body
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PATRICK J. MORAN ..... Disadvantaged Vocational Project
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ELIZABETH MOROSOW ..... Piano
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MELDA MORROW, M.T.; Registry of Medical Technologists ..... Medical Office Program
B.S., Education, Capital University; M.A., University of Northern Colorado

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B.S., University of Missouri; M.A., Ed.S., Western State College

LLOYD MOUNTAIN ..... Language
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THOMAS L. MOUREY ..... Data Processing
B.A., Western State College

RAEDELLE H. MUNDY, R.N. ..... Nursing
B.S., Brigham Young University

WAYNE NELSON ..... Chairman, Division of Physical Education and Recreation; Director of Athletics
B.S., M.S., Utah State University

JAMES E. NEWMAN ..... Law-Enforcement Technology
B.S., California State University

I. J. NICHOLSON ..... Social Science
B.A., University of Colorado; M.A., Western State College

JAMES R. OWENSBY ..... Data Processing
A.C., Mesa College

ROBERTA R. PECK ..... English
B.A., University of Colorado; M.A., University of Wyoming

JACK M. PERRIN ..... Physical Education and Recreation
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., Stanford University

JOANNE PILERT, R.N. ..... Nursing
B.S., University of Northern Colorado

WILLIAM DAVID PILKENTON ..... Spanish, English
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, Prof. Engr.; Licensed Architect; Registered Land Surveyor ..... Engineering
B.S., Indiana Institute of Technology; M.Ed., Colorado State University

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

SHARON A. RICHMOND, R.N. ..... Nursing
B.S.N., Creighton University

EILEEN RICK ..... English
B.A., M.A., Western Michigan University

JACK E. ROADIFER ..... 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

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A.S., Wentworth Military Academy; Western Radio Institute; Hughes Aircraft Factory Training School; Martin-Denver Systems Training (Instrumentation)

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CLARENCE (ED) TOOKER ..... Physical Education and Recreation
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B.S., University of Denver, M.S., University of Colorado

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JOAN YOUNG ..... Biology
B.A., University of Colorado; M.A., University of Kansas

ROBERT YOUNG ..... Science
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GAIL YOUNGQUIST ..... Business
B.A., University of Northern Colorado; M.A., Colorado State University

ROBERT D. YOUNGQUIST ..... Business
B.S.B.A., University of Denver; M.Ed., Colorado State University

APPLIED MUSIC TEACHERS

NORMAN ASHLEY ..... Violin
MRS. JEAN BEST ..... Organ
MRS. SUSAN BOGUNOVICH ..... Piano
MRS. MARY LEAH CHAVIES ..... Piano, Bass
MRS. GLENDA COLE ..... Organ
MRS. ETHELYN CROSS ..... Piano
MISS DONNA GONSAULUS ..... Oboe, English Horn
MRS. MAEBETH GUYTON ..... Voice
KERRY HENSON ..... Percussion
MRS. MARGARET HUTTON ..... Piano, Organ
MARION JACOBS ..... Trumpet
TED LORTS ..... Voice
MRS. VONNA MILLER ..... Voice, Piano, Organ
CHARLES MYERS ..... Piano
JOHN PETERSON ..... Violin
ALLEN PORTER ..... Flute
PAT RILEY ..... Guitar
ALFRED URBACH ..... Cello
MRS. GEORGIA WATKINS ..... Flute

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Alvie Redden, B.S., M.F.A., Chairman, Division of Fine Arts
Elaine E. Ripley, B.A., M.A., Biology
Bertha L. Shaw, B.A., M.A., Reading
Laura Smith, B.A., M.A., Foreign Language

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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 Occupational Education.

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

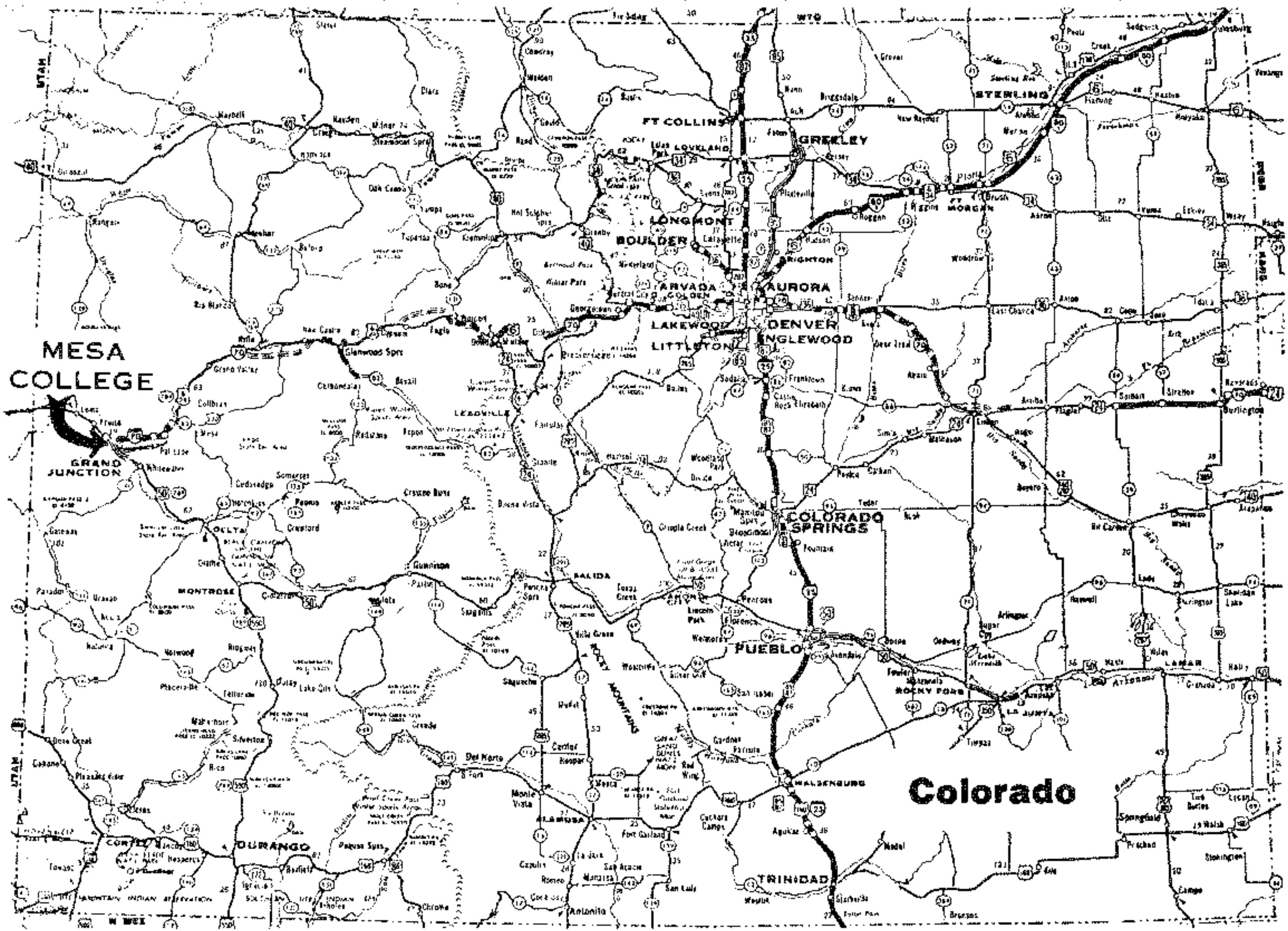
This program operates on an eight-week schedule divided into two four-week sessions, with classes being held in forenoons only. The 1975 Summer Session will begin Monday, June 28.

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 offered during the 1974 Summer Session and probably will be offered, along with others, during Summer 1975.

Course No.	Title
Biological Science and Home Economics	
BIOL 101	Biology and Lab
CEBI 19	Sewing for Teens
HEC 212	Nutrition
Business	
BUAC 101	Principals of Accounting
BUAC 231	Cost Accounting
BUGB 101	Introduction to Business
BUGB 121	Human Relations
BUGB 131	Advertising
BUGB 241	Personal Finance and Money Management
BUGB 221	Insurance
BUGB 141	Business Mathematics
BUDP 101	Introduction to Data Processing
BUDP 111	Keypunch
BUDP 211	Production Keypunch
BUOA 111	Shorthand Theory
BUOA 151,152	Beginning and Intermediate Typewriting
Fine Arts	
ART 202	Ceramics
THEA 134	Summer Theatre
Humanities	
EDUC 251	Introduction to Education
ENGL 110	English Grammar
ENGL 111	English Composition
ENGL 112	English Composition
ENGL 113	English Composition
ENGL 121	Spelling
ENGL 122	Word Study
ENGL 251	Creative Writing
LIT 121	Children's Literature
LIT 131	World Literature
LIT 132	World Literature
LIT 133	World literature
LIT 146	Afro American Literature
LIT 251	English Literature
LIT 254	Introduction to Shakespeare
LIT 261	U.S. Literature
PHIL 251	History of Philosophy
PHIL 252	History of Philosophy
READ 110	Reading and Study Skills
SPCH 102	Speech Making

Course No.	Title
Computer Science. Mathematics and Engineering	
ENGR 111	Engineering Graphics and Design
MATH 15	Basic Mathematics
MATH 131	College Algebra
MATH 138	College Algebra and Trigonometry
MATH 150	Analytic Geometry
STAT 250	Statistics
Physical Education and Recreation	
PER 113	Bowling
PER 114	Golf
PER 120	Tennis
PER 145	Judo
Physical Science	
CHEM 121	General Chemistry
CHEM 123	Introductory Organic Chemistry
CHEM 247	Introductory Inorganic, Organic and Physiological Chemistry
GEOL 101	Geology
PSCI 111	Survey of Physical Science
Social Science	
ECON 201	Principles of Economics
ECON 202	Principles of Economics
HIST 101	World Civilizations
HIST 102	World Civilizations
HIST 120	History of Colorado
HIST 131	United States History
HIST 132	United States History
POLS 101	American Government
PSY 121	General Psychology
PSY 122	General Psychology
PSY 133	Human Growth and Development
PSY 254	Educational Psychology
SOC 144	Marriage and Family
SOC 261	General Sociology
SOC 262	General Sociology
SOC 263	Social Problems
Occupational Education	
ABF	Auto Body and Fender
AMEC	Small Engine Repair
AMEC	Auto Mechanics
WELD	Welding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