### College Calendar

**1975 - 1976**

#### SUMMER SESSION, 1975
- **June 23** .......... Registration for First Four-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 25** .......... 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 6** .......... Registration
- **January 14** .......... Last Day to Change Schedule
- **February 9, 10, 11** .......... Midterm Examinations
- **March 15** .......... Winter Quarter Ends

#### SPRING QUARTER, 1976
- **March 29, 8:00 a.m.** .......... Residual ACT Testing
- **March 30** .......... Registration
- **March 30** .......... Classes Begin
- **April 7** .......... Last Day to Change Schedule
- **April 26, 27, 28** .......... Final Examinations Begin
- **May 31** .......... Memorial Day Holiday
- **June 7** .......... Final Examinations Begin
- **June 10** .......... Commencement
### College Calendar 1975-76

#### SUMMER SESSION, 1975
- **June 23**: Registration for First Four-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, 8**: 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
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- **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
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- **January 3, 8:00 a.m.**: Residual ACT Testing
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- **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.

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COVER: President Gerald Ford crowns Mesa College Homecoming Queen. Upper photo by Chip Ferron; lower photo by Grove Thoman.
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**Covers:** President Gerald Ford crowns Mesa College Homecoming Queen. Upper photo by Chip Ferron; lower photo by Grover Theurer.
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-degrees 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-freedom 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 in 1937, local individuals, organizations and students paid for the College's operations. State and county aid began in 1939 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 baccalaureate 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 1949, 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 student who utilizes 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 context, 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, ethical, health, intellectual, moral, recreational and social improvements in communities in the College's service area.

ACCREDITATION

In 1967 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 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.
Foreword

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The legislation authorized the enlargement and improvement of Mesa College to include the addition of baccalaureate 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.

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Within the above context 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, ethical, health, intellectual, moral, recreational and social improvements in communities in the College's service area.

ACCREDITATION

In 1967 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 Heiney 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 60,000 volumes. The collection includes more than 50,000 volumes plus 50 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 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. C. Campbell College Center, occupied in January 1962, contains cafes, 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. Medley 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 in beautifully landscaped Lincoln Park, the recreation center of Grand Junction. The park includes a green-turfed football field, a 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 1,177 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 104, 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 discourses 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.
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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 Canal Road. 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 2,542, including 1,477 freshmen, 556 sophomores, 168 juniors, 37 seniors, and 56 unclassified students. The freshman class consisted of 744 men and 873 women. The sophomore class included 377 men and 238 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 104, including 17 from foreign countries.

In addition, 1,222 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 coursework 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 faculty and students 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 churches.
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, has his assistant 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 seeking 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 Henry 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 1102 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-aid programs 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 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 aid 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 aid officer of the college 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 basic program for financial aid 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 $250 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 aid office of the College for necessary information and application forms. Both full time and half-time students may receive consideration.
FINANCIAL AIDS

Financial aid at Mesa College consists of a balanced program of scholarships and grant-in-aid programs 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 designed to assist students in obtaining financial aid. A student may be eligible for federal grants, scholarships, loans, and work-study funds as determined by the Office of Student Financial Aid.

COLORADO STUDENT-AID PROGRAMS (Available to full-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 residents based on the student's financial need. These grants are awarded to assist students in meeting their college expenses. For more information, please contact the Office of Student Financial Aid.

2. Colorado Scholarships — This program is an effort by the State of Colorado to recognize Colorado residents for outstanding academic achievements. These scholarships are awarded based on academic excellence and financial need. For more information, please contact the Office of Student Financial Aid.

3. Colorado Work-Study — This program is designed to provide employment, both on and off campus, for students with documented need.

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 financial aid office at any accredited post-secondary institution. The student applies directly to the Basic Educational Opportunity Grant Program for financial aid. A student may also apply to the Office of Student Financial Aid for assistance with the application process.

2. College Base Programs — Mesa College participates in many of the other federal student-aid programs. These programs include: (1) the Federal Direct Student Loan Program, (2) the Nursing Student Loan Program, (3) Federal Supplemental Educational Opportunity Grants Program, (4) the College Work-Study Program, and (5) the Federal Work-Study Program. These programs provide financial assistance to students in need of additional funds to attend college.

3. Supplemental Educational Opportunity Grants (SEOG) — These grants are available to students who demonstrate exceptional financial need. These grants are awarded on a first-come, first-served basis. For more information, please contact the Office of Student Financial Aid.

The Office of Student Financial Aid is located in 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.
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 loan 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 benefits as determined by a financial needs analysis, the student may assume 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 temporarily or permanently. 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 interterm 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 these 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.

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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 no 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.
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General Requirement. A housing deposit of $60 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.

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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

<table>
<thead>
<tr>
<th>Full-Time Students</th>
<th>Per Quarter</th>
<th>Per Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>COLORADO RESIDENTS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuition</td>
<td>$115.00</td>
<td>$345.00</td>
</tr>
<tr>
<td>Student Services and Activity Fees</td>
<td>40.50</td>
<td>121.50</td>
</tr>
<tr>
<td>Total</td>
<td>$155.50*</td>
<td>$466.50*</td>
</tr>
<tr>
<td>NON-COLORADO RESIDENTS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuition</td>
<td>$458.00</td>
<td>$1374.00</td>
</tr>
<tr>
<td>Student Services and Activity Fees</td>
<td>49.50</td>
<td>121.50</td>
</tr>
<tr>
<td>Total</td>
<td>$497.50*</td>
<td>$1495.50*</td>
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<table>
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<tr>
<th>Part-Time Students</th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>COLORADO RESIDENTS</td>
<td>$17.00 per credit hour*</td>
<td></td>
</tr>
<tr>
<td>NON-COLORADO RESIDENTS</td>
<td>$22.00 per credit hour*</td>
<td></td>
</tr>
</tbody>
</table>

*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. Those 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) $20.00
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 $150 for the year. Some saving may be realized by buying used books which may be available in limited quantities. Nursing students will have additional costs of uniforms and transportation to and from hospital training centers.

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.
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

<table>
<thead>
<tr>
<th>Full-Time Students</th>
<th>Per Quarter</th>
<th>Per Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>COLORADO RESIDENTS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuition</td>
<td>$155.00</td>
<td>$345.00</td>
</tr>
<tr>
<td>Student Services and Activity Fees</td>
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<td>$121.50</td>
</tr>
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<td>Total</td>
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<td>$466.50*</td>
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<td>$17.00</td>
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REFUNDS OF TUITION AND FEES
If a student withdraws within ten days of the first day of classes, two-thirds of the tuition and fees may be refunded. After ten days, no refunds will be made except in cases of unusual emergency.

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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, 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, electrician, electronics, engineering, firefighter, 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 sessions 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.
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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 releasedler 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.
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.

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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.

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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.

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Registration and Counseling Tests

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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 register 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 planning 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 advisors 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 is 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).
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/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/Literature .......................... 9 credit hours
   - Physical Education Activity ....................... 3 credit hours
   - Laboratory Science or Mathematics ............... 30 credit hours
   - Approved electives ................................ 35 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/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 116 (3 credit hours) or a Freshman Literature course (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 90-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 46 hours of general education. The 46 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

*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."

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 16 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 10 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.
To qualify for the two-year diploma a student must earn a minimum of a 2.0 grade-point average for 92 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 60-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 6 quarters of various physical education activity courses. A minimum of 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

*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.

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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."

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 16-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, 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.

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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 sixtieth 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.
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.

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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 advisors 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 151 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.

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

Full Quarter | Hrs. | Winter Quarter | Hrs. | Spring Quarter | Hrs.
--- | --- | --- | --- | --- | ---
English 111 | 3 | English 112 | 3 | English 113 | 3
Elective | 3 | Elective | 3 | Elective | 3
Music | 2 | Psychology | 2 | Music | 2
Psychology | 3 | Art | 2 | Psychology | 2
Physical Education | 1 | Physical Education | 1 | Physical Education | 1
--- | --- | --- | --- | --- | ---
14 | 16 | 17

SECOND YEAR

Full Quarter | Hrs. | Winter Quarter | Hrs. | Spring Quarter | Hrs.
--- | --- | --- | --- | --- | ---
History | 3 | History | 3 | History | 3
Sociology | 3 | Sociology | 3 | Sociology | 3
Psychology | 3 | Psychology | 3 | Psychology | 3
Elective | 6 | Elective | 6 | Elective | 6
Literature | 3 | Literature | 3 | Literature | 3
--- | --- | --- | --- | --- | ---
16 | 16 | 16

GENERAL LIBERAL ARTS (Transfer)
ASSOCIATE IN ARTS

FIRST YEAR

Full Quarter | Hrs. | Winter Quarter | Hrs. | Spring Quarter | Hrs.
--- | --- | --- | --- | --- | ---
English 111 | 3 | English 112 | 3 | English 113 | 3
Social Science or Literature | 3 | Social Science or Literature | 3 | Social Science or Literature | 3
Chemistry or Geology | 5 | Chemistry or Geology | 5 | Chemistry or Geology | 5
Mathematics | 5 | Mathematics | 5 | Mathematics | 5
Elective | 5 | Elective | 5 | Elective | 5
Physical Education | 1 | Physical Education | 1 | Physical Education | 1
--- | --- | --- | --- | --- | ---
10-17 | 10-18 | 16-18

SECOND YEAR

Full Quarter | Hrs. | Winter Quarter | Hrs. | Spring Quarter | Hrs.
--- | --- | --- | --- | --- | ---
Literature | 3 | Literature | 3 | Literature | 3
Psychology | 2 | Psychology | 2 | Psychology | 2
Foreign Language | 3 | Foreign Language | 3 | Foreign Language | 3
Social Science | 3 | Social Science | 3 | Social Science | 3
Elective | 2 | Elective | 2 | Elective | 2
--- | --- | --- | --- | --- | ---
17 | 17 | 16

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 course required for a diploma or associate degree.

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 advisors and other instructors and staff officials is recommended in planning this program.
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 where applicable. Courses are numbered and given titles. For example, HIST 151 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 185 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 disciplinary 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

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SECOND YEAR

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<td>3</td>
<td>Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>Science</td>
<td>3</td>
<td>Science</td>
<td>3</td>
<td>Science</td>
<td>3</td>
</tr>
<tr>
<td>Physical Education</td>
<td>3</td>
<td>Physical Education</td>
<td>3</td>
<td>Physical Education</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>16</td>
<td></td>
<td>16</td>
<td></td>
<td>16</td>
</tr>
</tbody>
</table>

GENERAL LIBERAL ARTS (Transfer)

ASSOCIATE IN ARTS

FIRST YEAR

<table>
<thead>
<tr>
<th>Fall Quarter</th>
<th>Hrs.</th>
<th>Winter Quarter</th>
<th>Hrs.</th>
<th>Spring Quarter</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 111</td>
<td>3</td>
<td>English 112</td>
<td>3</td>
<td>English 113</td>
<td>3</td>
</tr>
<tr>
<td>Social Science</td>
<td>3</td>
<td>Social Science</td>
<td>3</td>
<td>Social Science</td>
<td>3</td>
</tr>
<tr>
<td>Chemistry</td>
<td>3</td>
<td>Chemistry</td>
<td>3</td>
<td>Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>Physics</td>
<td>3</td>
<td>Physics</td>
<td>3</td>
<td>Physics</td>
<td>3</td>
</tr>
<tr>
<td>Mathematics</td>
<td>3</td>
<td>Mathematics</td>
<td>3</td>
<td>Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>Science</td>
<td>3</td>
<td>Science</td>
<td>3</td>
<td>Science</td>
<td>3</td>
</tr>
<tr>
<td>Physical Education</td>
<td>3</td>
<td>Physical Education</td>
<td>3</td>
<td>Physical Education</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>15-17</td>
<td></td>
<td>16-18</td>
<td></td>
<td>16-18</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Fall Quarter</th>
<th>Hrs.</th>
<th>Winter Quarter</th>
<th>Hrs.</th>
<th>Spring Quarter</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Literature</td>
<td>3</td>
<td>Literature</td>
<td>3</td>
<td>Literature</td>
<td>3</td>
</tr>
<tr>
<td>Psychology</td>
<td>3</td>
<td>Psychology</td>
<td>3</td>
<td>Psychology</td>
<td>3</td>
</tr>
<tr>
<td>Foreign Language</td>
<td>3</td>
<td>Foreign Language</td>
<td>3</td>
<td>Foreign Language</td>
<td>3</td>
</tr>
<tr>
<td>Social Science</td>
<td>3</td>
<td>Social Science</td>
<td>3</td>
<td>Social Science</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td>3</td>
<td>Elective</td>
<td>3</td>
<td>Elective</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>17</td>
<td></td>
<td>17</td>
<td></td>
<td>16</td>
</tr>
</tbody>
</table>
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. Ries, Chairman. Mrs. Leppke, Mr. Gruenewald, Mr. McCallister, Mr. McKee, Mrs. Young, Mr. Young.

AGRICULTURE SCIENCE

ASSOCIATE IN SCIENCE

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

**FIRST YEAR**

<table>
<thead>
<tr>
<th>Full Quarter</th>
<th>Hrs.</th>
<th>Winter Quarter</th>
<th>Hrs.</th>
<th>Spring Quarter</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attributes of Living Systems or General Botany</td>
<td>5</td>
<td>General Botany</td>
<td>5</td>
<td>Plant Classification</td>
<td>5</td>
</tr>
<tr>
<td>English Composition</td>
<td>3</td>
<td>English Composition</td>
<td>3</td>
<td>English Composition</td>
<td>3</td>
</tr>
<tr>
<td>General Chemistry or General Inorganic Chemistry</td>
<td>5</td>
<td>General Inorganic Chemistry</td>
<td>5</td>
<td>General Inorganic Chemistry</td>
<td>5</td>
</tr>
<tr>
<td>Agricultural Education</td>
<td>1</td>
<td>Physical Education</td>
<td>1</td>
<td>Physical Education</td>
<td>1</td>
</tr>
<tr>
<td>Elective</td>
<td>2</td>
<td>Elective</td>
<td>2</td>
<td>Elective</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>17</td>
<td>Total</td>
<td>17</td>
<td>Total</td>
<td>18</td>
</tr>
</tbody>
</table>

*Lower math will be required if student's high school background and A.G.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**

<table>
<thead>
<tr>
<th>Full Quarter</th>
<th>Hrs.</th>
<th>Winter Quarter</th>
<th>Hrs.</th>
<th>Spring Quarter</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introductory Animal Science</td>
<td>5</td>
<td>Economic Organization of Agriculture</td>
<td>5</td>
<td>Crop Production</td>
<td>6</td>
</tr>
<tr>
<td>General Botany or Attributes of Living Systems</td>
<td>3</td>
<td>General Botany or Attributes of Living Systems</td>
<td>3</td>
<td>General Botany or Attributes of Living Systems</td>
<td>3</td>
</tr>
<tr>
<td>English Composition</td>
<td>3</td>
<td>English Composition</td>
<td>3</td>
<td>English Composition</td>
<td>3</td>
</tr>
<tr>
<td>Agricultural Education</td>
<td>1</td>
<td>General Botany or Principles of Animal Biology</td>
<td>3</td>
<td>Speech Making</td>
<td>3</td>
</tr>
<tr>
<td>Physical Education</td>
<td>1</td>
<td>Physical Education</td>
<td>1</td>
<td>Physical Education</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>14-15</td>
<td>Total</td>
<td>18</td>
<td>Total</td>
<td>18</td>
</tr>
</tbody>
</table>

*Consult with counselor to plan a program that will best meet individual transfer needs for second year curriculum.

SUPPLEMENTAL AGRICULTURE

Students who plan to supplement their education with less than a baccalaureate 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 | 3
Principles of Plant Biology | 5
Cell Biology | 5
Multiple Resource Management | 5
Multiple Water Use Management | 4
Developmental Biology | 5
Microbiology | 5
Ecosystem Biology | 5
Ecology | 5

Total | 15 hours
Applied Activity Field Training | 25 hours
Emphasis (Student may select one of the following: Applied Biology, Ecosystem Management, Professional Agriculture, Animal Resources)
Elective | 25 hours

Total | 105 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 | 3
Principles of Plant Biology | 5
Cell Biology | 5
Multiple Resource Management | 5
Multiple Water Use Management | 4
Developmental Biology | 5
Microbiology | 5
Ecosystem Biology | 5
Ecology | 5

Total | 50 hours
Applied Activity Field Training | 25 hours
Emphasis (Student may select one of the following: Applied Biology, Ecosystem Management, Professional Agriculture, Animal Resources)
Elective | 25 hours

Total | 185 hours

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 62 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, 5; Weed Control, 4; Accounting, 3; Agricultural Economics, 5; Greenhouse Management, 4; Total 65 hours.
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. Bachelor's degrees in Animal-Plant Management.

Instructural Staff: Mr. Rice, Chairman; Mrs. Beale, Mrs. Leighton; Dr. Mann, Mr. McCallister, Mr. McKeen; Mrs. Sullivan, Mr. Turner; 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

<table>
<thead>
<tr>
<th>Fall Quarter</th>
<th>Winter Quarter</th>
<th>Spring Quarter</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attributes of Living Systems</td>
<td>General Botany</td>
<td>Plant Classification</td>
<td>5</td>
</tr>
<tr>
<td>or General Botany</td>
<td>English Composition</td>
<td>or General Botany</td>
<td>5</td>
</tr>
<tr>
<td>or General Botany</td>
<td>General Chemistry</td>
<td>General Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>or General Botany</td>
<td>General Inorganic Chemistry</td>
<td>General Inorganic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>Agricultural Profession</td>
<td>Physical Education</td>
<td>Mathematics for Biological</td>
<td>1</td>
</tr>
<tr>
<td>Elective</td>
<td>Elective</td>
<td>Science</td>
<td>3</td>
</tr>
<tr>
<td>17</td>
<td>17</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Fall Quarter</th>
<th>Winter Quarter</th>
<th>Spring Quarter</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introductory Animal Science</td>
<td>Economic Organization of Agriculture</td>
<td>Plant Classification</td>
<td>5</td>
</tr>
<tr>
<td>or General Botany</td>
<td>or General Botany</td>
<td>or General Botany</td>
<td>5</td>
</tr>
<tr>
<td>or General Botany</td>
<td>General English</td>
<td>or General Botany</td>
<td>3</td>
</tr>
<tr>
<td>or General Botany</td>
<td>General Botany or Principles of Animal Biology</td>
<td>Physical Education</td>
<td>3</td>
</tr>
<tr>
<td>Physical Education</td>
<td>14-15</td>
<td>Physical Education</td>
<td>15</td>
</tr>
</tbody>
</table>


SUPPLEMENTAL AGRICULTURE

Students who plan to supplement their education with less than a baccalaureate 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

<table>
<thead>
<tr>
<th>General Education requirement including Physical Education</th>
<th>48 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Core program</td>
<td>50 hours</td>
</tr>
<tr>
<td>Attributes of Living Systems</td>
<td>4</td>
</tr>
<tr>
<td>Principles of Animal Biology</td>
<td>5</td>
</tr>
<tr>
<td>Principles of Plant Biology</td>
<td>5</td>
</tr>
<tr>
<td>Agricultural Science</td>
<td>5</td>
</tr>
<tr>
<td>Physical Education</td>
<td>3</td>
</tr>
<tr>
<td>Science</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>139 hours</td>
</tr>
</tbody>
</table>

BACHELOR OF SCIENCE

General Education requirement including Physical Education | 48 hours |
Basic Core program | 51 hours |
Attributes of Living Systems | 4 |
Principles of Animal Biology | 5 |
Principles of Plant Biology | 5 |
Cell Biology | 5 |
Developmental Biology | 5 |
Ecosystem Biology | 5 |
Applied Activity Field Training | 18 hours |
Emphasis (student may select one of the following Applied Biology, Ecosystem Management, Professional Agriculture, Animal Resources) | 25 hours |
Electives | 50 hours |
Total | 149 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, 5; 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 65 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.

### Biological Sciences (Transfer)

#### Associate in Science

<table>
<thead>
<tr>
<th>Semester</th>
<th>Winter Quarter</th>
<th>Hrs.</th>
<th>Spring Quarter</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>General Inorganic Chemistry</td>
<td>3</td>
<td>Inorganic Chemistry and Qualitative Analysis</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>General Botany, General Zoology or Principles of Animal Biology</td>
<td>3</td>
<td>Plant Classification, General Zoology or Principles of Plant Biology</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>College Algebra I or College Algebra II or College Algebra and Trigonometry</td>
<td>3</td>
<td>English Composition</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>English Composition</td>
<td>3</td>
<td>Physical Education</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Physical Education</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>15-18</td>
<td></td>
<td>17-19</td>
<td></td>
</tr>
</tbody>
</table>

#### SECOND YEAR

<table>
<thead>
<tr>
<th>Semester</th>
<th>Winter Quarter</th>
<th>Hrs.</th>
<th>Spring Quarter</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>Soc. Sc. or Literature</td>
<td>3</td>
<td>Soc. Sc. or Literature</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Principles of Genetics or Cellular Biology</td>
<td>3</td>
<td>General Microbiology or Developmental Biology</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Elective or General</td>
<td>1</td>
<td>Elective or Inorganic Chemistry and Qualitative Analysis</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Inorganic Chemistry</td>
<td>3</td>
<td>Elective</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Elective</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Physical Education</td>
<td>1</td>
<td>Physical Education</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>16</td>
<td></td>
<td>18</td>
<td></td>
</tr>
</tbody>
</table>

### 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.

<table>
<thead>
<tr>
<th>Semester</th>
<th>Winter Quarter</th>
<th>Hrs.</th>
<th>Spring Quarter</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>English Composition</td>
<td>3</td>
<td>English Composition</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Textiles</td>
<td>3</td>
<td>Home Management</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>General Chemistry</td>
<td>3</td>
<td>Intro. to Home Economics</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Interior Design</td>
<td>3</td>
<td>Electives</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Intro. to Child Care</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Physical Education</td>
<td>1</td>
<td>Physical Education</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>19</td>
<td></td>
<td>16</td>
<td></td>
</tr>
</tbody>
</table>

#### SECOND YEAR

<table>
<thead>
<tr>
<th>Semester</th>
<th>Winter Quarter</th>
<th>Hrs.</th>
<th>Spring Quarter</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>Food Science and Preparation</td>
<td>3</td>
<td>Food Science and Preparation</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>General Psychology</td>
<td>3</td>
<td>General Psychology</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Human Anatomy and Physiology</td>
<td>3</td>
<td>Human Anatomy and Physiology</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Physical Education</td>
<td>1</td>
<td>Physical Education</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Speech Making</td>
<td>1</td>
<td>Speech Making</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td></td>
<td>17</td>
<td></td>
</tr>
</tbody>
</table>

### Biologial Science, Home Economics

#### Home Making (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 will meet their needs.

<table>
<thead>
<tr>
<th>Semester</th>
<th>Winter Quarter</th>
<th>Hrs.</th>
<th>Spring Quarter</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>English Composition</td>
<td>3</td>
<td>English Composition</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Textiles</td>
<td>3</td>
<td>Home Management</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Intro. to Home Economics</td>
<td>3</td>
<td>Intro. to Home Economics</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td>3</td>
<td>Art in the Home</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Art in the Home</td>
<td>3</td>
<td>Art in the Home</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Physical Education</td>
<td>1</td>
<td>Physical Education</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td></td>
<td>17</td>
<td></td>
</tr>
</tbody>
</table>

#### SECOND YEAR

<table>
<thead>
<tr>
<th>Semester</th>
<th>Winter Quarter</th>
<th>Hrs.</th>
<th>Spring Quarter</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>Intro. to Foods</td>
<td>3</td>
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<td>Intro. to Child Care</td>
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### Pre-Forestry

#### FIRST YEAR

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

#### SECOND YEAR

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<tr>
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</tbody>
</table>
**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; General Animal Hygiene and Management, 4; Histology, 4. Total 61 hours.**

### BIOLICAL SCIENCES (Transfer)

**ASSOCIATE IN SCIENCE**

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<td>General Inorganic Chemistry</td>
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<td>English Composition</td>
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### 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.

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<tr>
<td>English Composition</td>
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<td>Textile</td>
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<td>Intro to Home Economics</td>
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<td>Basic Clothing Construction</td>
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<td>Intermediate Clothing</td>
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### PRE-FORESTRY

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**HOME ECONOMICS (Transfer)**

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**HOMEMAKING (Terminal)**

**MESO 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.
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, stock shows, 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 hay or silage as the principle forage crops and cultivated grasses. Special attention is given to the production and management 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 foods 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.
### 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 study of various theories 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. Sections 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**  
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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.  
A study of the organization of modern agriculture in the United States and its implications for farm and non-farm people; structure of the agricultural industry and farm business; government and agriculture; analysis of the economic environment.

**AGNR 201 ENVIRONMENTAL HORTICULTURE**  
F 5 hrs.  
Principles of horticulture science as applied to the propagation and culture of horticulture crops, with emphasis on landscape design, and improvement of plants. Prerequisite: five hours of plant science or consent of instructor.

**AGNR 202 SOILS**  
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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 121 for Agriculture students; waived for Forestry.

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**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 intermountain region. Four hours lecture and two two-hour laboratories per week. Prerequisite: Five hours of plant science or consent of instructor.

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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**  
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**AGNR 252 MAMMAL NUTRITION**  
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The basic nutrients, their functions and quantitive 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**  
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A study of agricultural marketing 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: 3 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 horticultural 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 sexually 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 systematic, 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, acaricides, irradiation, chemothriant, 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 hydrology 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.
Students 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, sense, 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 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.
AGNR 321 FRUIT PRODUCTION  S  5 hrs.
Principles and practices utilized in the production, harvesting and marketing of
fruit and small fruits. Site selection, harvesting methods, marketing procedures
and the cultural practices of planting, pollination, pruning, thinning, soil
management, fertilizing and irrigation. Prerequisite: 6 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
sexually 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
ecology, and territory.

AGNR 333 WILDLIFE MANAGEMENT  F or S  4 hrs.
Insect and weed control through predators, parasites, pathogens, attractants,
irradiation, chemicals, and integrated control.

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, and 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
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 potable water quality control.

AGNR 402 WATERSHED MANAGEMENT  W  3 hrs.
Elements of wildland hydrology 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 MAMMALOLOGY 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,
vaccination, 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.

Biological Science, Home Economics

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. 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. Two 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, and buds during fall quarter. Study of plant forms
including the algae, fungi, mosses, ferns, gymnosperms, and angiosperms in
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.
BIO 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: BIO 141 or consent of
instructor. Three lectures and two laboratories per week.

BIO 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.

BIO 149  INDIVIDUAL PROBLEMS IN BIOLOGY  FWS  2 hrs.
See BIO 148 for course description.

BIO 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.

BIO 202  CELLULAR BIOLOGY  W or S  5 hrs.
The cell, its components, and their functions; physiochemical properties of living
systems, organelles, and their bioenergetics, molecular synthesis and code
transcription. Four hours lecture, one hour laboratory.

BIO 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.

BIO 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.

BIO 222  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: BIO 122 or consent of
the instructor.

BIO 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.
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.

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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.

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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 218 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 123 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.

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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.

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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 BACHELORS 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 Sm 3 hrs.
Nutritional aspects during pregnancy, lactation, infancy, childhood and
adolescence are emphasized. Prerequisite: HEC 212.

HEC 258 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 259 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 263 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 con-
sumers; 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.

Instructor: Staff: Mr. Carien, Chairman; Mr. Nevill; Mr. Buckley; Miss Cooper; Mrs. Cramm; Mr.
Crawley; Mr. Dutton; Mrs. Havens; Mrs. Harper; Mr. Hunter; Mr. Rogers; Mrs. Uhrich; 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 de-
siring 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 prep-
aration 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.
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.

Instructor Staff: Mr. Cassada, Chairman; Mr. Allevia; Mr. Buckley; Miss Coppe; Mrs. Carminie; Mr. Cassada; Mr. DeTisci; Mrs. Hansen; Mrs. Harper; Mr. Mix, Mr. Rogers; Mrs. Uberkash; 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 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)

<table>
<thead>
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<th>CERTIFICATE</th>
<th>Fall Quarter</th>
<th>Spring Quarter</th>
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<td>Principles of Accounting</td>
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<tr>
<td>Introduction to Business</td>
<td>3</td>
<td>Business Communications</td>
</tr>
<tr>
<td>English Composition</td>
<td>3</td>
<td>Business Mathematics</td>
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<tr>
<td>Speech</td>
<td>3</td>
<td>Business Data Processing</td>
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<tr>
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<td>Business Data Processing</td>
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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

<table>
<thead>
<tr>
<th>Winter Quarter</th>
<th>Spring Quarter</th>
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<tbody>
<tr>
<td>Hrs.</td>
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<td>English Grammar or Comp</td>
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<td>Beginning Typing I</td>
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<td>Filing</td>
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<td>16</td>
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</table>

Options or Electives

| Speech Communications | Human Relations in Business |
| Speech Making | Keypunch and Verifier |
| Business Data Processing | Production Keypunch |
| Business Law I | 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 | 21 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 advisor and registrar.)

<table>
<thead>
<tr>
<th>Secretarial</th>
<th>Accounting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Literature or Social Science including Psychology</td>
<td>15 hrs.</td>
</tr>
<tr>
<td>Business Mathematics or Mathematical Foundations of Business</td>
<td>4-5 hrs.</td>
</tr>
<tr>
<td>Accounting</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>Accounting</td>
<td>3-5 hrs.</td>
</tr>
<tr>
<td>Business Data Processing</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>Business Electives</td>
<td>14 hrs.</td>
</tr>
<tr>
<td>Other Electives</td>
<td>20 hrs.</td>
</tr>
<tr>
<td>English</td>
<td>9 hrs.</td>
</tr>
<tr>
<td>Intermediate Typewriting</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>Beginning Dictation</td>
<td>4 hrs.</td>
</tr>
<tr>
<td>Transcription Machines</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>Secretarial Practice</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>Business Communications</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>Physical Education</td>
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</tr>
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<td>TOTAL</td>
<td>93-96 hrs.</td>
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ACCOUNTING

ASSOCIATE IN COMMERCE

Suggested Course Sequence

<table>
<thead>
<tr>
<th>FIRST YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall Quarter</td>
</tr>
<tr>
<td>Hrs.</td>
</tr>
<tr>
<td>English Composition</td>
</tr>
<tr>
<td>Business Math or Math</td>
</tr>
<tr>
<td>Foundations of Business or Science</td>
</tr>
<tr>
<td>College Algebra or Stats</td>
</tr>
<tr>
<td>Introduction to Business</td>
</tr>
<tr>
<td>Physical Education</td>
</tr>
<tr>
<td>Business Data Processing</td>
</tr>
<tr>
<td>Speech</td>
</tr>
<tr>
<td>Elective</td>
</tr>
<tr>
<td>TOTAL</td>
</tr>
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</table>

15-18 | 15-17 |
ACCOUNTING (Nine Months)

**CERTIFICATE**

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<tr>
<th>Fall Quarter</th>
<th>Hrs.</th>
<th>Winter Quarter</th>
<th>Hrs.</th>
<th>Spring Quarter</th>
<th>Hrs.</th>
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</thead>
<tbody>
<tr>
<td>Principles of Accounting</td>
<td>.5</td>
<td>Principles of Accounting</td>
<td>.5</td>
<td>Accounting or Tax</td>
<td>.6</td>
</tr>
<tr>
<td>Introduction to Business</td>
<td>.3</td>
<td>English Composition</td>
<td>.3</td>
<td>English Composition</td>
<td>.3</td>
</tr>
<tr>
<td>Business Mathematics</td>
<td>.4</td>
<td>Speech</td>
<td>.3</td>
<td>Business Communications</td>
<td>.3</td>
</tr>
<tr>
<td>Word Study</td>
<td>.3</td>
<td>Business Data Processing</td>
<td>.3</td>
<td>Elective</td>
<td>.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>17</td>
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<td></td>
<td></td>
<td></td>
<td>17</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>15-17</td>
</tr>
</tbody>
</table>

**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.

<table>
<thead>
<tr>
<th>Fall Quarter</th>
<th>Hrs.</th>
<th>Winter Quarter</th>
<th>Hrs.</th>
<th>Spring Quarter</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Grammar or Comp</td>
<td>.3</td>
<td>Business Communications</td>
<td>.3</td>
<td>Secretarial Practice</td>
<td>.3</td>
</tr>
<tr>
<td>Shorthand Theory I or Beginning Dictation</td>
<td>.4</td>
<td>Intermediate Dictation</td>
<td>.3</td>
<td>Intermediate Typing</td>
<td>.3</td>
</tr>
<tr>
<td>Beginning Typing I</td>
<td>.3</td>
<td>Beginning Typing II</td>
<td>.3</td>
<td>Dictation and Transcription Machines</td>
<td>.3</td>
</tr>
<tr>
<td>Business Mathematics</td>
<td>.4</td>
<td>Secretarial Accounting</td>
<td>.3</td>
<td>Elective</td>
<td>.3</td>
</tr>
<tr>
<td>Filing</td>
<td>.3</td>
<td>Elective</td>
<td>.3</td>
<td></td>
<td>16</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<td>16</td>
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</table>

**CERTIFICATE**

**Suggested Courses**

<table>
<thead>
<tr>
<th>Winter Quarter</th>
<th>Hrs.</th>
<th>Spring Quarter</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speech Communications</td>
<td>.5</td>
<td>Speech Making</td>
<td>.5</td>
</tr>
<tr>
<td>Business Data Processing</td>
<td>.5</td>
<td>Business Law I</td>
<td>.3</td>
</tr>
<tr>
<td>Secretarial Practice</td>
<td>.3</td>
<td>Human Relations in Business</td>
<td>.3</td>
</tr>
<tr>
<td>Intermediate Typing</td>
<td>.3</td>
<td>Keypunch and Verifier</td>
<td>.3</td>
</tr>
<tr>
<td>Dictation and Transcription Machines</td>
<td>.3</td>
<td>Production Keypunch</td>
<td>.3</td>
</tr>
<tr>
<td>Business Communications</td>
<td>.3</td>
<td>Punch-Card Equipment</td>
<td>.3</td>
</tr>
<tr>
<td>Physical Education</td>
<td>.3</td>
<td>Medical or legal secretarial courses</td>
<td>.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**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**

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- Business Data Processing (Introduction) | 3 hrs.
- Introduction to Business | 3 hrs.
- Business Communications | 3 hrs.
- Principles of Accounting | 3 hrs.
- Business Mathematics or Mathematical Foundations of Business | 4 hrs.
- French | 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 | 21 hrs.

TOTAL | 83-86 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 requirement: (Any deviation from this program must be approved by the student's advisor and the registrar).

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secretarial Accounting</td>
<td>15 hrs.</td>
</tr>
<tr>
<td>Business Mathematics or Mathematical Foundations of Business</td>
<td>4 hrs.</td>
</tr>
<tr>
<td>Introduction to Business</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>Accounting</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>Business Data Processing</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>Business Electives</td>
<td>14 hrs.</td>
</tr>
<tr>
<td>Other Electives</td>
<td>20 hrs.</td>
</tr>
<tr>
<td>English</td>
<td>9 hrs.</td>
</tr>
<tr>
<td>Business Telephone</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>Transcription Machines</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>Secretarial Practice</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>Business Communications</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>Physical Education</td>
<td>3 hrs.</td>
</tr>
</tbody>
</table>

TOTAL | 92-96 hrs. 92-98 hrs.

**ACCOUNTING**

**ASSOCIATE IN COMMERCE**

**Suggested Course Sequence**

**FIRST YEAR**

<table>
<thead>
<tr>
<th>Fall Quarter</th>
<th>Hrs.</th>
<th>Winter Quarter</th>
<th>Hrs.</th>
<th>Spring Quarter</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Composition</td>
<td>.3</td>
<td>English Composition</td>
<td>.3</td>
<td>English Composition</td>
<td>.3</td>
</tr>
<tr>
<td>Business Math. or Math</td>
<td>.3</td>
<td>Mathematics of Finance</td>
<td>.3</td>
<td>Principles of Accounting</td>
<td>.3</td>
</tr>
<tr>
<td>Foundations of Business</td>
<td>.3</td>
<td>or Science</td>
<td>.3</td>
<td>Statistics or Science</td>
<td>.3</td>
</tr>
<tr>
<td>College Algebra or S.</td>
<td>.3</td>
<td>Introduction to Business</td>
<td>.3</td>
<td>Business Communications</td>
<td>.3</td>
</tr>
<tr>
<td>Physical Education</td>
<td>.3</td>
<td>Physical Education</td>
<td>.3</td>
<td>Physical Education</td>
<td>1</td>
</tr>
<tr>
<td>Business Data Processing</td>
<td>.3</td>
<td>Speech</td>
<td>.3</td>
<td>Elective</td>
<td>.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>14-17</td>
<td></td>
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<td></td>
<td></td>
<td>15-17</td>
<td></td>
</tr>
</tbody>
</table>
### BUSINESS ADMINISTRATION

#### ASSOCIATE IN ARTS

**Suggested Course Sequence**

<table>
<thead>
<tr>
<th>FIRST YEAR</th>
<th>Winter Quarter Hrs.</th>
<th>Spring Quarter Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Composition</td>
<td>3</td>
<td>English Composition</td>
</tr>
<tr>
<td>Principles of Economics</td>
<td>3</td>
<td>Principles of Economics</td>
</tr>
<tr>
<td>Business Law</td>
<td>3</td>
<td>Social Science or Literature</td>
</tr>
<tr>
<td>Sociology or Literature</td>
<td>3</td>
<td>Business Law</td>
</tr>
<tr>
<td>Introduction to Business</td>
<td>3</td>
<td>Intermediate Accounting</td>
</tr>
<tr>
<td>Physical Education</td>
<td>1</td>
<td>Physical Education</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>15</td>
<td>16</td>
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</table>

**SECOND YEAR**

<table>
<thead>
<tr>
<th>Winter Quarter Hrs.</th>
<th>Spring Quarter Hrs.</th>
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</thead>
<tbody>
<tr>
<td>Physical Science</td>
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</tr>
<tr>
<td>Principles of Accounting</td>
<td>3</td>
</tr>
<tr>
<td>Biology or Psychology</td>
<td>3</td>
</tr>
<tr>
<td>Literature</td>
<td>3</td>
</tr>
<tr>
<td>Principles of Economics</td>
<td>3</td>
</tr>
<tr>
<td>Principles of Accounting</td>
<td>3</td>
</tr>
<tr>
<td>Physical Education Elective</td>
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</tr>
<tr>
<td><strong>Total</strong></td>
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</tr>
</tbody>
</table>

**SECRETARIAL**

#### ASSOCIATE IN COMMERCE

**Suggested Course Sequence**

<table>
<thead>
<tr>
<th>FIRST YEAR</th>
<th>Winter Quarter Hrs.</th>
<th>Spring Quarter Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Composition</td>
<td>3</td>
<td>English Composition</td>
</tr>
<tr>
<td><em>Introduction to Business</em></td>
<td>3</td>
<td>Principles of Accounting</td>
</tr>
<tr>
<td>Short Hand Theory I</td>
<td>4</td>
<td><em>Business Data Processing</em></td>
</tr>
<tr>
<td>Social Science or Literature</td>
<td>3</td>
<td><em>Business Data Processing</em></td>
</tr>
<tr>
<td><em>Mathematics Foundation of Business</em></td>
<td>3</td>
<td><em>Business Data Processing</em></td>
</tr>
<tr>
<td>Principles of Management</td>
<td>3</td>
<td>Principles of Management</td>
</tr>
<tr>
<td><strong>Total</strong></td>
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<td>16</td>
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**SECOND YEAR**

<table>
<thead>
<tr>
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<th>Spring Quarter Hrs.</th>
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</thead>
<tbody>
<tr>
<td>English Composition</td>
<td>3</td>
</tr>
<tr>
<td><em>Introduction to Business</em></td>
<td>3</td>
</tr>
<tr>
<td>Shorthand Theory II</td>
<td>4</td>
</tr>
<tr>
<td>Social Science or Literature</td>
<td>3</td>
</tr>
<tr>
<td>Intermediate Typing</td>
<td>3</td>
</tr>
<tr>
<td><em>Mathematics Foundation of Business</em></td>
<td>3</td>
</tr>
<tr>
<td>Accounting</td>
<td>3</td>
</tr>
<tr>
<td>English Composition</td>
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<td>Physical Education</td>
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**THIRD YEAR**

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<td>Advanced Accounting I</td>
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<td>Business Law</td>
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<tr>
<td><em>Business Law</em></td>
<td>3</td>
</tr>
<tr>
<td>Governmental Accounting</td>
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<tr>
<td>Principles of Management</td>
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<td>Principles of Management</td>
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</tr>
<tr>
<td>General Education Elective</td>
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</tbody>
</table>
## BUSINESS ADMINISTRATION

### ASSOCIATE IN ARTS

**Suggested Course Sequence**

<table>
<thead>
<tr>
<th>FIRST YEAR</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall Quarter</strong></td>
<td><strong>Hrs.</strong></td>
</tr>
<tr>
<td>English Composition</td>
<td>3</td>
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<tr>
<td>Physical Science</td>
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<td>Principles of Accounting</td>
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<td>Biology or Psychology</td>
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<td>Literature</td>
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<td>Principles of Economics</td>
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<tr>
<td>Principles of Economics</td>
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<tr>
<td><strong>SECOND YEAR</strong></td>
<td><strong>Hrs.</strong></td>
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<td><strong>Winter Quarter</strong></td>
<td><strong>Hrs.</strong></td>
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<tr>
<td>Physical Science</td>
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<td>Principles of Accounting</td>
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<tr>
<td><strong>Spring Quarter</strong></td>
<td><strong>Hrs.</strong></td>
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<tr>
<td>Principles of Accounting</td>
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<td>Principles of Accounting</td>
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<tr>
<td>Principles of Accounting</td>
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</tr>
</tbody>
</table>

**TOTAL:** 184 Hrs.

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

### 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 areas (Data Processing or Management required) | 24 hrs. |
| Core Courses (excluding Mathematics) | 33 hrs. |
| Approved Electives | 25 hrs. |
| **TOTAL** | **183 hrs.** |

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

### ACCOUNTING

**Suggested Course Sequence**

<table>
<thead>
<tr>
<th>FIRST YEAR</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall Quarter</strong></td>
<td><strong>Hrs.</strong></td>
</tr>
<tr>
<td>Principles of Accounting</td>
<td>3</td>
</tr>
<tr>
<td>Principles of Accounting</td>
<td>3</td>
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<tr>
<td>Principles of Accounting</td>
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<td>Principles of Accounting</td>
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<tr>
<td>Principles of Accounting</td>
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</tr>
<tr>
<td>Principles of Accounting</td>
<td>3</td>
</tr>
<tr>
<td>Principles of Accounting</td>
<td>3</td>
</tr>
<tr>
<td>Principles of Accounting</td>
<td>3</td>
</tr>
<tr>
<td>Principles of Accounting</td>
<td>3</td>
</tr>
<tr>
<td><strong>Spring Quarter</strong></td>
<td><strong>Hrs.</strong></td>
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<tr>
<td>Principles of Accounting</td>
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</table>

**SECOND YEAR**

| **Fall Quarter** | **Hrs.** |
| General Psychology | 3 |
| Principles of Accounting | 3 |
| Principles of Accounting | 3 |
| Principles of Accounting | 3 |
| Principles of Accounting | 3 |
| Principles of Accounting | 3 |
| Principles of Accounting | 3 |
| Principles of Accounting | 3 |
| Principles of Accounting | 3 |
| **Spring Quarter** | **Hrs.** |
| Principles of Accounting | 3 |
| Principles of Accounting | 3 |
| Principles of Accounting | 3 |
| Principles of Accounting | 3 |
| Principles of Accounting | 3 |
| Principles of Accounting | 3 |
| Principles of Accounting | 3 |
| Principles of Accounting | 3 |
| Principles of Accounting | 3 |

**TOTAL:** 183 Hrs.

For Accounting, it is recommended that students complete a minor in Data Processing and Management. With proper selection of courses, a third minor could be acquired.
### 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 majors. 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 281 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.
### FOURTH YEAR

<table>
<thead>
<tr>
<th>Fall Quarter</th>
<th>Winter Quarter</th>
<th>Spring Quarter</th>
<th>Hrs.</th>
<th>Hrs.</th>
<th>Hrs.</th>
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<tbody>
<tr>
<td>Auditing</td>
<td>Income Tax Accounting</td>
<td>Advanced Tax Accounting</td>
<td>5</td>
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</tr>
<tr>
<td>*Introduction to Operation Research</td>
<td>Business Policies</td>
<td>Advanced Cost Accounting</td>
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<tr>
<td>Problems in Small Business</td>
<td>Management</td>
<td>Principles of Accounting I</td>
<td>3</td>
<td>3</td>
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<tr>
<td>Business Operation</td>
<td>Elective</td>
<td>Elective</td>
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</tbody>
</table>
| *Assembler Language | | | | | | 15
| | | | | | 15

*Core Courses

### BUSINESS MANAGEMENT

#### Suggested Course Sequence

#### FIRST YEAR

<table>
<thead>
<tr>
<th>Fall Quarter</th>
<th>Winter Quarter</th>
<th>Spring Quarter</th>
<th>Hrs.</th>
<th>Hrs.</th>
<th>Hrs.</th>
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<tbody>
<tr>
<td>*Introduction to Business</td>
<td>*Sustainability</td>
<td>English Composition</td>
<td>3</td>
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<tr>
<td>Principles of Management</td>
<td>Business Ethics</td>
<td>Physical Education</td>
<td>3</td>
<td>3</td>
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<tr>
<td>English Composition</td>
<td>Advertising</td>
<td>Management I</td>
<td>3</td>
<td>3</td>
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<tr>
<td>*Business Data Processing</td>
<td>Elective</td>
<td>Principles of Accounting II</td>
<td>3</td>
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<tr>
<td></td>
<td></td>
<td>*Co-operative</td>
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#### SECOND YEAR

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<tr>
<th>Fall Quarter</th>
<th>Winter Quarter</th>
<th>Spring Quarter</th>
<th>Hrs.</th>
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<tbody>
<tr>
<td>Small Business Management</td>
<td>General Psychology</td>
<td>Principles of Economics</td>
<td>3</td>
<td>3</td>
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<tr>
<td>General Psychology</td>
<td>Human Relations</td>
<td>Economics II</td>
<td>3</td>
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<tr>
<td>*Business Law I</td>
<td>Business Law II</td>
<td>Economics</td>
<td>3</td>
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<tr>
<td>Principles of Economics I</td>
<td>Principles of Economics II</td>
<td>Economics</td>
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</tr>
<tr>
<td>*Principles of Accounting II</td>
<td>*Co-operative</td>
<td>Elective</td>
<td>5</td>
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| | | *Mathematical Foundations of Business | | | 17
| | | | | | 17

#### THIRD YEAR

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<thead>
<tr>
<th>Fall Quarter</th>
<th>Winter Quarter</th>
<th>Spring Quarter</th>
<th>Hrs.</th>
<th>Hrs.</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Problems in Small Business</td>
<td>Principles of Marketing</td>
<td>Marketing Analysis and Research in Management</td>
<td>3</td>
<td>3</td>
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<tr>
<td>Management and Labor Relations</td>
<td>*Statistical Applications</td>
<td>Workshop in Management</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>*Business Finance</td>
<td>General Education</td>
<td>Business Internship</td>
<td>3</td>
<td>3</td>
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<tr>
<td>General Education Elective</td>
<td>Management and Labor Relations</td>
<td>*Insurance</td>
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<tr>
<td>*Managerial Accounting</td>
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<td>Financial Management</td>
<td>3</td>
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<td></td>
<td></td>
<td>Elective</td>
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#### FOURTH YEAR

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<tr>
<th>Fall Quarter</th>
<th>Winter Quarter</th>
<th>Spring Quarter</th>
<th>Hrs.</th>
<th>Hrs.</th>
<th>Hrs.</th>
</tr>
</thead>
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<tr>
<td>Management Internship</td>
<td>Business Management</td>
<td>Advanced Problems in Small Business</td>
<td>15</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Business Finance and Management</td>
<td>General Education</td>
<td>Elective</td>
<td>15</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>
| *Core Courses | | | | | 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.

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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 411  INDEPENDENT STUDY IN ACCOUNTING  FWS Smr 1-3 hrs.
Prerequisite: Accounting major and consent of accounting advisor.

BUAC 441  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-relationships 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: filing out the personal income tax return; selecting the proper tax rates; personal exemptions and dependents; determining what income is taxable to the individual; kick 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;
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.

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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 249  INCOME TAX  WS  3 hrs.  This course covers the following areas of personal income tax: filing 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.

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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 Sr 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. Prerequisite: BUAC 211 and MATH 121.

BUGB 342 CORPORATION FINANCE W 2 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 Sr 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, controlling and direction system for operational purposes within the business structure. Prerequisite: BUAC 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: BUAC 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: BUAC 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 101.

BUMA 301 PROBLEMS IN SMALL BUSINESS OPERATIONS F 2 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: BUGB 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 335 RETAIL MANAGEMENT W 3 hrs.
Basic principles and techniques of retail merchandising and store operation. Prerequisite: BUAC 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: BUAC 231 and STAT 214.

BUMA 341 FINANCIAL MANAGEMENT S 3 hrs.
Problems of financing business enterprises, 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 job 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: BUAC 101.

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.
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 201 INDEPENDENT STUDY IN BUSINESS FWS 3mr 1-3 hrs.
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Financial problems of corporations, capital structure, sources of current and capital, effects of the nature of business upon financial policy. Prerequisite: BUGB 341.

BUGB 361 INDEPENDENT STUDY IN BUSINESS FWS 3mr 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, 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: BUAC 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 251 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.
BUOA 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.

BUOA 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 BUOA 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 TYPWRITING 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 TYPWRITING 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 TYPWRITING  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, 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 TYPWRITING  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 Sum 1-3 hrs.
Prerequisite: Introductory courses in the field and consent of instructor.
BUOA 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.

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

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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 Sam 1-3 hrs.
Prerequisite: Introductory courses in the field and consent of instructor.
Travel and Recreation Management
See Occupational Education (Vocational-Technical) section of this catalog.

Computer Science, Mathematics, and Engineering

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.

Instructor Staff: Mr. Davis, Chairman; Mr. Bailey, Mr. Britton, Miss Hefner; Mr. Hawkins, Mr. Horns; Mr. KKrause, Mr. Lukas, Mr. Phillips, Mr. Ramay; Mr. Riske, Mr. Wamser

Computer Science, Mathematics, and Statistics

Associate in Science

First Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Fall Quarter</th>
<th>Hrs.</th>
<th>Winter Quarter</th>
<th>Hrs.</th>
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Second Year

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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.
BUOA 265  ELECTRONIC WORD PROCESSING  FWS  3 hrs.
An individualized 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.

COMPUTER SCIENCE, MATHEMATICS, ENGINEERING

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.

Instructinal Staff: Mr. Davis, Chairman; Mr. Bailey, Mr. Bratton, Mrs. Hefner, Mr. Hawkins; Mr. Kramer, Mr. Locke, Mr. Phillips, Mr. Ramsey, Mr. Rybak; Mr. Warner

COMPUTER SCIENCE, MATHEMATICS, AND STATISTICS
ASSOCIATE IN SCIENCE

FIRST YEAR

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SECOND YEAR

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<td>Circuit Analysis 281</td>
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<td>Circuit Analysis 282</td>
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<td>Social Science</td>
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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

<table>
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<th>Full Quarter Hrs.</th>
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<tbody>
<tr>
<td>Math or CSCI 340</td>
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<td>Statistics 311</td>
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<td>Computer Science 341</td>
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#### FOURTH YEAR

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<th>Full Quarter Hrs.</th>
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<tr>
<td>Mathematics 440</td>
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<td>Computer Science 440</td>
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<tr>
<td></td>
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</tbody>
</table>

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

### ENGINEERING

#### ASSOCIATE IN SCIENCE

#### FIRST YEAR

<table>
<thead>
<tr>
<th>Full Quarter Hrs.</th>
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<tr>
<td>English 111</td>
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<td>Mathematics 140</td>
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<td>Engineering 114</td>
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<td>Physical Education</td>
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#### SECOND YEAR

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<th>Full Quarter Hrs.</th>
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<td>Mathematics 251</td>
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<td>Civil Engineering 251</td>
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<td>Social Science or Humanities (1, 2)</td>
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</tbody>
</table>

(1) Students should take nine credits in one area (e.g., history, economy, or humanities)

(2) Students majoring in Civil Engineering should take their Humanities until the junior year. A Diploma may be granted.

(3) Electrical Engineering students substitute Civil Engineering 251.

Suggested electives are Engineering 100, 101, 118, Mathematics 161. (These courses will be very helpful in Mathematics and Engineering courses.)

### Computer Science

**CSCI 130 INTRODUCTION TO FORTRAN PROGRAMMING**  F 3 hrs.
Varies 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; namedl statements; computer solution of engineering problems. Advanced techniques in FORTRAN. An introduction to P.L/I. Prerequisites: CSCI 130 and ENGR 114.

**CSCI 135 COBOL PROGRAMMING**  F 5 hrs.

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### COMPUTER SCIENCE, MATHEMATICS, ENGINEERING 57

**CSCI 161 INTRODUCTION TO COMPUTING**  F, Sum 3 hrs.
History of computers, descriptions of a typical computer, computer elements and symbolisms, 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 arrays, 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, 280.

**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 260.

**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 449 LIST AND STRING PROCESSING LANGUAGES**  W 3 hrs.
List processing language development and use. Analysis of strengths and weaknesses of list processors: Snobol, IPL-V, LISP, etc. Prerequisites: CSCI 250, 350 recommended.
BACHELOR OF SCIENCE

THIRD YEAR

Full Quarter

Hrs.

Winter Quarter

Hrs.

Spring Quarter

Hrs.

Mathematics 460

3

Computer Science 450

3

Electives

6

Statistics 112

3

Computer Science 350

3

Electives

6

Electives

3

Electives

3

Electives

9

Electives

9

15

15

15

FOURTH YEAR

Full Quarter

Hrs.

Winter Quarter

Hrs.

Spring Quarter

Hrs.

Mathematics 491

3

Computer Science 470

3

Electives

9

Chemistry

1

Mathematics 452

3

Physics

1

Electives

5

Electives

5

15

15

15

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

ENGINEERING ASSOCIATE IN SCIENCE

FIRST YEAR

Full Quarter

Hrs.

Winter Quarter

Hrs.

Spring Quarter

Hrs.

English 111

3

English 112

3

Mathematics 181

3

Chemistry

1

Mathematics 182

3

Engineering 111

3

Physics

1

Mathematics 183

3

Engineering 112

3

Physical Education

1

Engineering 113

3

Computer Science 340

3

Mathematics 184

3

Physics Education

1

Electives

5

Electives

5

17

17

17

SECOND YEAR

Full Quarter

Hrs.

Winter Quarter

Hrs.

Spring Quarter

Hrs.

English 211

3

Engineering 252

4

Mathematics 253

5

Engineering 252

4

Mathematics 270

5

Engineering 252

4

Physical Education

1

Engineering 252

4

Social Science or

Humanities (1, 2)

3

Electives

2

Engineering 253

4

Social Science or

Humanities (1, 2)

3

Electives

2

Electives

2

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 252.
Suggested electives are Engineering 101, 103, 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; and from tape; named statements; computer solution of engineering problems. Advanced techniques in FORTRAN. An introduction to PDL. Prerequisites: CSCI 130 and ENGR 114.

CSCI 135 COBOL PROGRAMMING

F 5 hrs.

CSCI 141 INTRODUCTION TO COMPUTING

F, S 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, input codes, microprogramming, and multiprocessing. Prerequisite: CSCI 230; ENGR 201 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 essays, records, files, trees, lists and list structure. Prerequisite: CSCI 230.

CSCI 330 PROGRAMMING LANGUAGES

W 3 hrs.

Algorithmic languages, declarations, storage allocation, subroutines, coroutine 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, algebras 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 weaknesses of list processors: Snobol, IPL-V, LISP, etc. Prerequisites: CSCI 250, 330 recommended.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Schedule</th>
<th>Credits</th>
<th>Description and Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCI 450</td>
<td>COMPILER STRUCTURE</td>
<td>F, S</td>
<td>3 hrs.</td>
<td>A review of major problem-oriented languages; bootstrapping techniques and metaassemblers; languages for compiler writing; storage allocation and mapping; dynamic allocation; scanners, code emitters, one pass and multi-pass systems; code optimization. Prerequisite: CSCI 330, 373.</td>
</tr>
<tr>
<td>CSCI 470</td>
<td>OPERATING SYSTEMS DESIGN</td>
<td>S</td>
<td>3 hrs.</td>
<td>Aspects of computer operating, system design and implementation. Prerequisite: CSCI 373.</td>
</tr>
<tr>
<td>ENGR 100</td>
<td>SLIDE RULE</td>
<td>F, W, S</td>
<td>1 hr.</td>
<td>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.</td>
</tr>
<tr>
<td>ENGR 101</td>
<td>VECTORS</td>
<td>W</td>
<td>1 hr.</td>
<td>A brief introduction to vector algebra, primarily applied to engineering problems.</td>
</tr>
<tr>
<td>ENGR 105</td>
<td>BASIC ENGINEERING DRAWING</td>
<td>F</td>
<td>3 hrs.</td>
<td>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.</td>
</tr>
<tr>
<td>ENGR 111</td>
<td>ENGINEERING GRAPHICS AND DESIGN I</td>
<td>F, W, S</td>
<td>3 hrs.</td>
<td>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.</td>
</tr>
<tr>
<td>ENGR 112</td>
<td>ENGINEERING GRAPHICS AND DESIGN II</td>
<td>W</td>
<td>3 hrs.</td>
<td>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. Prerequisite: ENGR 114 and 111.</td>
</tr>
<tr>
<td>ENGR 114</td>
<td>INTRODUCTION TO FORTRAN PROGRAMMING</td>
<td>F, W, S</td>
<td>3 hrs.</td>
<td>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.</td>
</tr>
<tr>
<td>ENGR 115</td>
<td>FORTRAN AND ENGINEERING PROBLEMS</td>
<td>W</td>
<td>3 hrs.</td>
<td>Problems involving subroutines, external statements, transferring data to and from tape, namelist statements, computer solution of engineering problems. Advanced techniques in FORTRAN. An introduction to PL/I. Prerequisite: CSCI 130 and ENGR 114.</td>
</tr>
<tr>
<td>ENGR 220</td>
<td>TOPOGRAPHICAL SURVEYING</td>
<td>F, S</td>
<td>3 hrs.</td>
<td>The fundamentals of map-making. Includes use of plane table and aildyce, 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.</td>
</tr>
<tr>
<td>ENGR 231</td>
<td>ELEMENTARY SURVEYING</td>
<td>F</td>
<td>3 hrs.</td>
<td>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. Prerequisite: MATH 139 or MATH 140.</td>
</tr>
<tr>
<td>ENGR 232</td>
<td>SURVEYING: CURVES AND EARTHWORK</td>
<td>W</td>
<td>3 hrs.</td>
<td>The course includes calculations and field procedures for surveying circular, spiral and parabolic curves; route planning, location and design; measurement and compilation of earthwork quantities; and slope staking. Two lectures and two laboratories per week. Prerequisite: ENGR 231.</td>
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<tr>
<td>ENGR 233</td>
<td>ADVANCED SURVEYING</td>
<td>S</td>
<td>3 hrs.</td>
<td>Celestial observations to determine latitude, longitude, and true azimuth; photogrammetry, triangulation, state plane coordinate systems, and computer applications in surveying. Two lectures and two laboratories per week. Prerequisite: ENGR 231 and 232.</td>
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<tr>
<td>ENGR 240</td>
<td>STATICS</td>
<td>W</td>
<td>4 hrs.</td>
<td>Topics include principles of statics, study of vectors, forces and couples, force systems and their resultants, force systems of equilibrium (tense analysis), flexible cables, crane, 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.</td>
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<tr>
<td>ENGR 241</td>
<td>DYNAMICS</td>
<td>S</td>
<td>4 hrs.</td>
<td>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.</td>
</tr>
<tr>
<td>ENGR 251, 252, 253</td>
<td>CIRCUIT ANALYSIS I, II, III</td>
<td>F, W, S</td>
<td>4 hrs.</td>
<td>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.</td>
</tr>
<tr>
<td>ENGR 259</td>
<td>INTRODUCTION TO ENERGY</td>
<td>F</td>
<td>3 hrs.</td>
<td>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.</td>
</tr>
<tr>
<td>ENGR 290</td>
<td>INDEPENDENT STUDY</td>
<td>W</td>
<td>1 hr.</td>
<td></td>
</tr>
<tr>
<td>ENGR 291</td>
<td>INDEPENDENT STUDY</td>
<td>W</td>
<td>2 hrs.</td>
<td></td>
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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. Prerequisite: 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. Prerequisite: 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 subroutines, external statements; transferring data to
and from tape; namelist statements; computer solution of engineering problems.
Advanced techniques in FORTRAN. An introduction to PL/I. Prerequisite: CSCI
130 and ENGR 114.

ENGR 220  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 130 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 laboratory periods per week. Prerequisite: ENGR 231.

ENGR 233  ADVANCED SURVEYING  S  3 hrs.
Celestial observations to determine latitude, longitude, and true azimuth;
photogrammetry, triangulation, state plane coordinate systems, and computer
applications in surveying. Two lectures and two laboratory periods per week.
Prerequisites: ENGR 231 and 232.

ENGR 240  STATICS  W  4 hrs.
Topics include principles of statics, study of vectors, force and couples, force
systems and their resultants, force systems of equilibrium (truss analysis,
flexible cables, crane), 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 192.

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 192.

ENGR 245  FLUID MECHANICS  S  4 hrs.
Basic concepts of fluid mechanics. Fluid properties, fluid statics, and intro-
duction 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.

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

MATH 15 BASIC MATHEMATICS
F, Smr 3 hrs.
Designed to reinforce the student's 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, derivatives 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 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 106 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
FW, 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 polynomial, 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 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 "i"
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 school. 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 trigonomet-
try, 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; percentages, 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 polynomial, 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 162.

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 Riemann-Stieljes 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, sampling 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.
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.

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   2 hrs.

MATH 300 NUMERICAL ANALYSIS I
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MATH 361 NUMERICAL ANALYSIS II
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   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.

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   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.

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   W 3 hrs.
   Graphical and numerical analysis of 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.
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.

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Education requirement</td>
<td>46 hours</td>
</tr>
<tr>
<td>Physical Education</td>
<td>1 hour</td>
</tr>
<tr>
<td>Fine Arts Core Courses</td>
<td>3 hours</td>
</tr>
<tr>
<td>Visual Arts Core Courses</td>
<td>3 hours</td>
</tr>
<tr>
<td>Performing Arts Core Courses</td>
<td>3 hours</td>
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<tr>
<td>Fine Arts Electives</td>
<td>15 hours</td>
</tr>
<tr>
<td>Other Electives</td>
<td>6 hours</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>68 hours</td>
</tr>
</tbody>
</table>

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
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 inevitably define the influence of the arts on intellectual and moral development that contribute to a fuller and nobler life for the individual and society.

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<td>General Education requirement (including Physical Education)</td>
<td>46 hrs</td>
</tr>
<tr>
<td>Fine Arts Elective</td>
<td>17 hrs</td>
</tr>
<tr>
<td>Other Elective</td>
<td>8 hrs</td>
</tr>
</tbody>
</table>

TOTAL, includes independent study and credit by examination 183 hrs

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

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:
DRAM 104, 117, 118, 119, 121, 122, 123, 124, 125, 126, 129, 142, 143, 147, 148, 149, 214, 215, 217, 218, 219, 222, 244, 246, 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 furnishings. 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,
colored crayon, litho crayon, and water color. Open to all students. Studio: 6 hours.
ART 190 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, use of color in art
form and meaning. Painting problems in charting, optical mixing, color harmony,
local color, simultaneous contrast, and symbolism. Lecture: 3 hours; studio: 3 hours.

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 studies per quarter. Prerequisites: ART 151, 152, 180,
190, and 6 credits selected from ART 220, 220, 240, 270. (Total of 16 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
the other two disciplines. Practicum requirements may be met by selecting 6
hours from the following freshman and sophomore classes:
DRAM 114, 117, 118, 119, 121, 122, 123, 124, 125, 126, 129, 142, 143, 147, 148,
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
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Methods of analyzing visual phenomena are taught through observations of live
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Several figurative and non-representational sculpture forms are done in additive,
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Lecture: 1 hour; studio: 6 hours.

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Study of color theory, description and measurement systems, use 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.

ADVANCED STUDIO (300 LEVEL) FWS 1 to 4 hrs.
Selected-credit independent study in a medium or combination of the following
media: 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,
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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.
Prerequisite: 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 observation 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
labouratory 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.
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 course for that time. Five plays are presented in a six-week schedule.

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DRAM 121 BEGINNING BALLET
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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 prosenium 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 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 prosenium and arena staging,
basic acting techniques using body and voice, and exploration of the various
methods 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
aspects 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, light-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 drama. 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 448 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 classes 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
preventing 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.
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 studying Elementary Theory who have little background in piano. The class stiffles 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, kindergartners, 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.

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 the Marching Band and other instrumental groups. The group performs at home athletic events.

PERF 151, 251, 351, 451  STADIUM BAND  F 2 hrs.
Open to all students regardless of major. The Stadium Band performs at home athletic events. The main function of the group is to provide music for the Steppettes and appropriate music at football games. Rehearsals are at 12 noon daily during the football season.

PERF 152, 252, 352, 452  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 157, 158, 159, 257, 258, 259; 357, 358, 359;
457, 458, 459  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 home basketball games. The group may incorporate 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
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 in the elements of music 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 corollate.

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, kindergarteners, 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 voice tone, breath control, phrasing, range and diction. Standard song literature is studied. Open to all students.

MUS 187, 188, 189 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 Classical 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 434, 435, 436 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.

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.
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 chair 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 group" 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 $55.00 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 FWS 2, 4 hrs.

AMUS 127, 128, 129; 227, 228, 229; 327, 328, 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.
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 scaleswise 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 group" 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 $5.00 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, 328, 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.
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.

Instructor Staff: Mr. Showalter, Chairman; Mr. Becker, Mrs. Bet; Mrs. Bauch; Mr. Ermine; Mr. Frohock; Mrs. Heffer; Mr. Robey Johnson; Mr. Tim Jones; Miss Levy; Mr. Dan MacKinnick; Mr. Mountain; Mr. Potts; Mrs. Rice; Mr. Pflaster; Mr. Robinson, Head, Department of Speech and Drama; Mrs. Robinson; Mr. Soveral.

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 last 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 156 quarter hours of credit.
2. Successful completion of a senior/comprehensive examination.

Special Requirements for the 188 Quarter Hours of Credit

1. Forty-five credit hours in general education.
2. Ninety-one credit hours in specific areas: fine arts, humanities, social science, mathematics, physical or biological science, physical education and recreation.
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.
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Institutional Staff: Mr. Shawbaker, Chairman; Mr. Beecy; Mrs. Beo; Mrs. Beals; Mr. Cernichale; Mr. Wesel; Mrs. Hufner; Mr. Robert Johnson; Mr. Tom Jones; Miss Lay; Mr. Dan MacKinnon; Mr. Munchian; Mrs. Sartse; Mrs. Rick; Mr. Pakian; Mr. Robinson, Head, Department of Speech and Drama; Mrs. Robinson; Mrs. Sweda.

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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 minor/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 relationships; to help student to take advantage of community resources; and to provide student with experience as a teacher aide. 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 must show 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 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 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.
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.
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Elective credit hours to complete the baccalaureate-degree requirements may be taken in the area of the student's own choice.

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Education

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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 relationships; 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 machine, 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.)

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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 resumés, 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: SPEPPING  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 a prerequisite. The course is also recommended for reading improvement.

ENGL 126, 127 HONORS ENGLISH  FWS  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 1976-76 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 in politics, philosophy, literature, art, drama, and the advancement of cultural and humanitarian concepts.
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 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.

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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.

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Reading of cultural material, magazine articles, and short literary selections. Discussion, guided and free conversation. Vocabulary. Aural comprehension. Prerequisites: 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 study 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 151, 152, 153 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, Molière, 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 the stories of 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 extending to the present-day theatrical. 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 studies 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 R. 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 cultural 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 background. 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 most famous 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.
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 principles. 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 231, 232, 233 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 1860.

LIT 317 DEVELOPMENT OF AMERICAN NOVEL II W 3 hrs.
1900 to present.
LIT 328  FRONTIER AMERICAN LITERATURE  S 3 hrs.
Regional literature of U.S. frontier. Prerequisite: LIT 261, 262, 263.

LIT 329  THE BIBLE AS LITERATURE  S 3 hrs.
Survey of literary achievements, as represented by the King James Bible—Old and New Testaments.

LIT 330  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 331  SHORT STORY II  W 3 hrs.
Continuation of LIT 330. Covers short stories which are more difficult in analysis and which reveal the development of irony, allegory, humor, satire, and fantasy.

LIT 332  WORLD DRAMA, I  F 3 hrs.
Survey of drama beginning with Greek drama through the Elizabethan. (Offered alternate years)

LIT 333  WORLD DRAMA, II  W 3 hrs.
Continuation of LIT 332. Jacobean and Restoration to Ibsen. (Offered alternate years)

LIT 334  WORLD DRAMA, III  S 3 hrs.
Continuation of LIT 332, 333. Ibsen to present. (Offered alternate years)

LIT 335  AMERICAN DRAMA, I  F 3 hrs.
From beginning to O'Neill. (Offered alternate years)

LIT 336  AMERICAN DRAMA, II  W 3 hrs.
From O'Neill to present. (Offered alternate years)

LIT 337  TOPICS IN AMERICAN LITERATURE: AMERICAN FOLKLORE  W 3 hrs.
Tracing and development of the American folk lore genre as a literary art form.

LIT 338  ADVANCED POETRY  S 3 hrs.
Reading of representative poetry from various culture and ethnic groups. (Offered alternate years)

LIT 339  SEMINAR: LITERATURE AND SCIENCE  S 3 hrs.
Advice and counsel of staff. (May be taken one quarter only)

LIT 340  SHAKESPEARE, I  W 3 hrs.
Development as a dramatist to 1550. (Offered alternate years)

LIT 341  SHAKESPEARE, II  S 3 hrs.
Shakespeare's art at its maturity. Continuation of LIT 340. (Offered alternate years)

Philosophy

PHIL 261  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; Platonus, 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.
**LIT 318** Frontier American Literature S 3 hrs.
Regional literature of U.S. frontier. Prerequisite: LIT 261, 282, 283.

**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 analysis 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 cultures 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 1660. (Offered alternate years.)

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

**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 Heidegger; a study of those 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,
titiveness, 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.
SPCH 113 VOICE AND ARTICULATION DISORDERS  S  3 hrs.
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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.

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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.

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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.

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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. Goffred, Director of Occupational Studies

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

(125 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

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<th>Course</th>
<th>Credit Hrs.</th>
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<td>Communications</td>
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<td>Mathematics</td>
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<td>3</td>
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<td>Psychology</td>
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<td>Occupational Studies</td>
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<td>Sociology</td>
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<td><strong>Total</strong></td>
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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

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<tr>
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<td>Communications</td>
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<td>Literature</td>
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<td>Biological Science</td>
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<td>Physical Science</td>
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<td><strong>Total</strong></td>
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</tbody>
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Suggested elective: 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 60 quarter hours granted.
(2) Student may enroll in one or a combination of occupational programs as approved by director.
(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 psychomotor 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 guidance program are among the topics discussed.

OGSP 323 THE ART OF LISTENING

S 3 hrs.
Exploration and examination of assertive 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.

OGSP 312 LABORATORY FIELD TRAINING—EDUCATION INSTITUTION

6 hrs.

OGSP 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 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 institutions, 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.
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. Goetzl, Director of Occupational Studies

Mr. Graven

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

(125 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

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communications</td>
<td>9</td>
</tr>
<tr>
<td>Elements of Mathematics</td>
<td>6</td>
</tr>
<tr>
<td>Laboratory Field Training</td>
<td>12</td>
</tr>
<tr>
<td>Practicum—On-the-Job Training</td>
<td>16</td>
</tr>
<tr>
<td>Counseling and Guidance</td>
<td>16</td>
</tr>
<tr>
<td>Electives</td>
<td>3</td>
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<tr>
<td></td>
<td>135</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communications</td>
<td>9</td>
</tr>
<tr>
<td>Literature</td>
<td>3</td>
</tr>
<tr>
<td>Elements of Mathematics</td>
<td>6</td>
</tr>
<tr>
<td>Laboratory Field Training</td>
<td>12</td>
</tr>
<tr>
<td>Practicum—On-the-Job Training</td>
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<td>Counseling and Guidance</td>
<td>16</td>
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<tr>
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<td>6</td>
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<td>183</td>
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</table>

<table>
<thead>
<tr>
<th>Suggestions</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Education, social science, political science, humanities, business, statistics.</td>
<td></td>
</tr>
</tbody>
</table>

*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.

OCCUPATIONAL STUDIES

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 psychometric 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.
OGSP 312 LABORATORY FIELD TRAINING—EDUCATION INSTITUTION  6 hrs.
OGSP 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.
OGSP 412 PRACTICUM—EDUCATION INSTITUTION  6 hrs.
OGSP 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 one 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. Nelsen, Chairman; Mr. Boggs; Mr. Holzemer; Mrs. Humphries; Mr. Perry; Mrs. Landers; Mr. Swan; Mrs. Tolman; Mr. Tucker; Mr. Wade.

Degree Programs

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

Required: General Education requirements; Fundamentals of Sports series; PER 200, 240, 260, 285.

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)

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credit Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 115</td>
<td>Creative Survey</td>
<td>2</td>
</tr>
<tr>
<td>DRAM 213</td>
<td>Creative Play Activities—Drama</td>
<td>3</td>
</tr>
<tr>
<td>PER 200</td>
<td>Introduction to Health, Physical Education and Recreation</td>
<td>3</td>
</tr>
<tr>
<td>PER 260</td>
<td>Personal and Community Health</td>
<td>3</td>
</tr>
<tr>
<td>PER 370</td>
<td>Recreation Activity and Skill Series</td>
<td>10</td>
</tr>
<tr>
<td>PER 372</td>
<td>Social Recreation</td>
<td>3</td>
</tr>
<tr>
<td>PER 380</td>
<td>Recreation for the Handicapped</td>
<td>3</td>
</tr>
<tr>
<td>PER 382</td>
<td>Camp Counseling</td>
<td>3</td>
</tr>
<tr>
<td>PER 384</td>
<td>Philosophy of Leisure in Contemporary Society</td>
<td>3</td>
</tr>
<tr>
<td>PER 386</td>
<td>Recreation Leadership and Supervision</td>
<td>3</td>
</tr>
<tr>
<td>PER 462</td>
<td>Organization and Administration of Recreation</td>
<td>3</td>
</tr>
<tr>
<td>PER 464</td>
<td>Management and Operation of Public, Semi-Public, and Aquatic Facilities</td>
<td>3</td>
</tr>
</tbody>
</table>

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, 245, 331-4, 370, 372, 382, 386.

Physical Education and Recreation

PER 131 Swimming                     PER 134 Bullet
PER 132 Diving                      PER 135 Modern Jazz
PER 133 Bowling                     PER 136 Paddleball
PER 134 Golf                        PER 139 Bicycling
PER 135 Badminton                   PER 151 Softball
PER 136 Square and Folk Dance       PER 152 Volleyball
PER 137 Social Dance                PER 153 Flag Football
PER 138 Modern Dance                PER 154 Soccer
PER 139 Archery                     PER 155 Baseball
PER 120 Tennis                      PER 156 Basketball
PER 121 Swimming                    PER 157 Speedball
PER 122 Physical Conditioning       PER 158 Water Polo
PER 123 Handball                    PER 159 Field Hockey
PER 124 Weight Training (Men)       PER 171 Varsity Football
PER 125 Wrestling (Men)             PER 172 Varsity Basketball
PER 126 Track and Field             PER 173 Varsity Baseball
PER 127 Squash                      PER 174 Varsity Wrestling
PER 128 Body Improvement (Women)    PER 175 Varsity Tennis
PER 130 Adapted P.E.                PER 177 Varsity Track
PER 131 Orienteering                PER 176 Varsity Skiing
PER 133 Gymnastics                  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 220-4 FUNDAMENTALS OF SPORTS

FWS 2 hrs. A series of courses in which majors can learn the fundamentals, theory, and methods in 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, composition, and choreography of student's dance pieces.
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.

Instructor Staff: Mr. Nelson, Chairman; Mr. Serrfman, Mr. Hardison; Mrs. Humphrey; Mr. Perkins; Mrs. Sanderson, Mr. Santasi, Mrs. Tolman, Mr. Todder, Mr. Wades.

Degree Programs

ASSOCIATE IN ARTS IN PHYSICAL EDUCATION (Two-Year Transfer)
Required: General Education requirements; Fundamentals of Sports series; PER 200, 240, 280, 285.

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)

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<td>Creative Play Activities—Drama</td>
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</tr>
<tr>
<td>PER 200</td>
<td>Introduction to Health, Physical Education</td>
<td>3</td>
</tr>
<tr>
<td>PER 260</td>
<td>Personal and Community Health</td>
<td>3</td>
</tr>
<tr>
<td>PER 370</td>
<td>Social Recreation</td>
<td>3</td>
</tr>
<tr>
<td>PER 372</td>
<td>Recreation for the Handicapped</td>
<td>3</td>
</tr>
<tr>
<td>PER 380</td>
<td>Outdoor Recreation Planning and Design</td>
<td>3</td>
</tr>
<tr>
<td>PER 382</td>
<td>Camp Counseling</td>
<td>3</td>
</tr>
<tr>
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<td>Philosophy of Leisure in Contemporary Society</td>
<td>3</td>
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<tr>
<td>PER 386</td>
<td>Recreation Leadership and Supervision</td>
<td>5</td>
</tr>
<tr>
<td>PER 442</td>
<td>Organization and Administration of Recreation</td>
<td>3</td>
</tr>
<tr>
<td>PER 484</td>
<td>Program in Recreation</td>
<td>3</td>
</tr>
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<td></td>
<td><strong>Total Hrs.</strong></td>
<td><strong>50</strong></td>
</tr>
</tbody>
</table>

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 215; Core Courses PER 200, 295, 331-4, 370, 372, 382, 385.

Physical Education and Recreation

PHYSICAL EDUCATION, RECREATION 91
PER 240  SPORTS OFFICIATING W 3 hrs.
Skills and technique 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 on-board 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 280  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, costume and make-up for dance.

PER 381-6  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 390  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 485  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.
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 outboard 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 311  REPERTORY DANCE  FWS  1 hr.
Design 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, costume 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.

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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 492  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

MESA COLLEGE

Institutional Staff: Mr. Parman, Chairman; Mr. Allen, Director; Mr. Pyle, Mr. Oleson; Ms. Johnson; Mr. Oleson; Mr. B stir, 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 content 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 unexposed 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 dinosaur eggs 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 flourished in the nearby mountains, and the adjacent Piceance Creek Basin has witnessed two nuclear gas-steam plants and the first major attempts at commercial extraction of shale oil. Such activities have spawned complex environmental problems such as air and water pollution, unstable slopes, accelerated erosion and the need for site restoration. The surrounding environment, 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 GEOI 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 GEOI 401, 402, 403, 404, 405, 411, and 412. Office staff training may be substituted for GEOI 401. In addition, supporting courses must include ENO 111, 112, and 113; SPCH 102; ECON 201 and 202 or BUS 101 and 102; or BUAC 191 and 192; BIOS 121 and 123; PHYS 241, 242, and 243; MATH 131, 135, and 139; and Physical Education.

A student who contemplates entering a graduate school should also take MATH 150, 151, 152 and 203; CHEM 131, 132, and 133 and one year of a foreign language.

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. Prerequisite: 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 carbon compounds 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 concurrently in the appropriate laboratory 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 nuclear chemistry. Intended for students of chemistry, engineering, pre-medicine, pre-veterinary medicine, and other sciences. 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. Corequisite: MATH 131, 136, or higher math course. Prerequisite: high school chemistry and satisfactory ACT scores or CHEM 121. Four lectures per week.
Division of Physical Sciences

Institutional Staff: Mr. Putnam, Chairman; Mr. Adams; Mr. Brey; Mr. From; Mr. Girdley; Mr. Jameson; Mr. Levee; Mr. Roediller; Mr. Wilde; 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 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, normally is 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 courses of study best suited to his goal. To this end it is anticipated 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 unexcavated 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 flourished in the nearby mountains, and the adjacent Peaceace Creek Basin has witnessed two nuclear gasification shots and the first major attempts at commercial extraction of shale oil. Such activities spawn complex environmental problems such as air and water pollution, unattractive, 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 geologic 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 contemplating entering a graduate school should also take MATH 150, 151, 152 and 250; CHEM 131, 132, and 133 and one year of a foreign language.

CHEM 111 CHEMICAL PROFESSIONS

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 law, inorganic, 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. Prerequisite: 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. Introduction 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 courses 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 211L, 212L, 213L ORGANIC CHEMISTRY LABORATORY
FWS 3 hrs.
Lectures and discussions concerning the chemical and physical properties of the major classes of organic compounds. Mechanism, stoichiometry, acid-base, and related theories are used throughout to relate types of reactions and only 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 221L, 222L, 223L INSTRUMENTAL METHODS OF ANALYSIS LABORATORY
FWS 1 hr.
Laboratory exercises to accompany CHEM 211, 212, 213. Provides experience in the synthesis 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 LABORATORY
FW 1 hr.
General theory of instrumental analysis. 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 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 GEOLGY
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 GEOLGY LABORATORY
FW 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 course unless credit in it has previously been established.
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 2 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 211L, 212L, 213L ORGANIC CHEMISTRY LABORATORY
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 221L INSTRUMENTAL METHODS OF ANALYSIS LABORATORY
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 224L INSTRUMENTAL METHODS OF ANALYSIS LABORATORY
FW 2 hrs.
Practice of instrumental analyses, principally spectrophotometric 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 GEOLGY
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 GEOLGY 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. Prerequisite: 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 Paleaeoecological 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 Paleaeoecological Studies Laboratory**  
FW 1 hr.
Identification and environmental annotations 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 metalliciferous 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**  
See Independent Study course description under GEOL 205.

**GEOL 306 Independent Study**  
FWS 2 hrs.
See Independent Study course description under GEOL 205.
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
S 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 interactive 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.
Introduction 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 PALEOEKOLOGICAL 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 PALEOEKOLOGICAL 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 metalliciferous 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 table 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 be concurrently 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, paleoclimatology, 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. Introductions 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 ecological natural regions of the natural environment, with emphasis placed on 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.
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 tableing, 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 enrolled concurrently 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 specimen of igneous, metamorphic, and sedimentary rocks. Some rocks will be examined in thin section. Students enrolled in this course must be enrolled concurrently 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. 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 ecological significance of science and technology. Introductions 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 ecological relationships of the natural environment, with emphasis placed on weather, 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, nebulae, 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 anthropologic 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, Mayan 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 discussed. Three lectures per week.

PSCI 238  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.

PHYS 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.

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.
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.

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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.

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Division of Social Science

Courses offered by the Division of Social Science are designed to accomplish the following:

1. To meet the subject matter needs of students enrolled in one of the technical or vocational programs offered by the college.
2. To prepare students with necessary undergraduate work in the fields of psychology and sociology that they may undertake graduate work in these areas.
3. To prepare students for entry into the job market as paraprofessionals in the human services.
4. 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

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
- Economics
- Ethnic Studies
- General Social Science
- Geography
- History
- Political Science
- Pre-Law
- Social Science Education

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.
Division of Social Science

Courses offered by the Division of Social Science are designed to accomplish the following:

1. To provide courses 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.

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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 students 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. Those 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 within 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 Sciences (9 hours)
- Humanities (9 hours)
- Social Science (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 (6 hours)
- PSY 301, 302, 303, Introduction to Human Services (9 hours)
- SOC 301, Social Psychology (3 hours)
- SOC 310, Social Statistics (3 hours)
- SOC 341, Contemporary Social Thought (3 hours)

Recommended Courses:

- PSY 200, Adolescent Psychology (3 hours)
- SOC 400, Crime and Delinquency (3 hours)
- SOC 405, Sociology of Religion (3 hours)
- SOC 410, Political Sociology (3 hours)
- SOC 450, Social Change and Social Movements (3 hours)
- PSY 310, Child Psychology (3 hours)
- PSY 320, Sociology of Old Age (3 hours)

Electives to bring total course work to 180 hours, 65 hours of which must be at the upper division level.

Specific Course Requirements in the General Social Science Option

1. At least two 3 hour lower division social science core courses.
2. AR 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 180 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 (6 hours)
- PSY 301, Social Psychology (3 hours)
- SOC 301, Social Statistics (3 hours)
- SOC 341, Contemporary Social Thought (3 hours)
- SOC 410, Sociology of Old Age (3 hours)

Electives to bring total course work to 180 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/social science 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 Bilt 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.
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 a profession normally requires 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 Pre-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 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)

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Psychology or Biological Sciences</td>
<td>9</td>
</tr>
<tr>
<td>Physical Science</td>
<td>9</td>
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<tr>
<td>Humanities</td>
<td>9</td>
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<tr>
<td>Social Sciences</td>
<td>6</td>
</tr>
<tr>
<td>English Composition</td>
<td>3</td>
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<tr>
<td>Physical Education</td>
<td>3</td>
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</tbody>
</table>

Specific Course Requirements for the Pre-professional Option in Psychology/Sociology

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>PSY 121, 122, 123, General Psychology</td>
<td>9</td>
</tr>
<tr>
<td>SOC 201, 242, General Sociology</td>
<td>6</td>
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<tr>
<td>ANTH 101, 102, 103, Introduction to Anthropology</td>
<td>8</td>
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<tr>
<td>PSY 201, 202, 203, Introduction to Human Services</td>
<td>8</td>
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<tr>
<td>PSY 230, Social Psychology</td>
<td>3</td>
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<tr>
<td>STAT 225, Social Statistics</td>
<td>3</td>
</tr>
<tr>
<td>PSY 406, Tests and Measurements</td>
<td>3</td>
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<tr>
<td>SOC 410, Contemporary Social Thought</td>
<td>3</td>
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<tr>
<td>PSY 349, Abnormal Psychology</td>
<td>3</td>
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</tbody>
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Recommended Courses:

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<tr>
<td>PSY 330, Adolescent Psychology</td>
<td>3</td>
</tr>
<tr>
<td>SOC 400, Crime and Delinquency</td>
<td>3</td>
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<tr>
<td>SOC 335, Sociology of Religion</td>
<td>3</td>
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<tr>
<td>SOC 350, Political Sociology</td>
<td>3</td>
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<tr>
<td>SOC 530, Cultural and Racial Minorities</td>
<td>3</td>
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<tr>
<td>PSY 310, Child Psychology</td>
<td>3</td>
</tr>
<tr>
<td>HIS 300, Special Studies</td>
<td>3</td>
</tr>
<tr>
<td>PSY 530, Psychology of Old Age</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives to bring total course work to 183 hours, 60 of which must be at the upper division level.

Specific Course Requirements in the General Social Science Option

1. At least two major lower-division social science courses.
2. HIS 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 Pre-professional Option in Human Services:

<table>
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<tr>
<th>Course</th>
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<tr>
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<td>3</td>
</tr>
<tr>
<td>HIS 400, 401, 402, Special Studies</td>
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</table>

Electives to bring 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 Pre-professional Human Services Option.

Students wishing additional information on credit by examination or experience credit should write directly to the Social Science Division, Mary Bait Hall, Room #506.

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.
See Independent Study course description under ANTH 251, 252.

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.
See Independent Study course description under ANTH 251, 252.

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 prehistoric 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.
See Independent Study course description under ANTH 251, 252.

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, modes, 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 320 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 prerequisite: History of Western Civilization (modern period) or permission 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
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.

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A study of the organized labor movement, employer labor policies, the collective bargaining process, wages and wage regulations, social security and public labor policy. Prerequisite ECON 201, 202, 203 or equivalent.

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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.
See Independent Study course description under ANTH 251, 252.

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.

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This course is a basic survey of essentials of college geography, including vocabulary, basic principles and techniques.

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See Independent Study course description under ANTH 251, 252.

GEOG 252 INDEPENDENT STUDY (GEOGRAPHY) F, W, or S 2 hrs.

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 prehistoric 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.
See Independent Study course description under ANTH 251, 252.

HIST 252 INDEPENDENT STUDY (HISTORY) F, W, or S 2 hrs.

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, manners, 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
An interdisciplinary approach: physiological differences; sex role differences (stereotypes); trends in human sexuality and morality; cross-cultural comparisons of attitudes toward sexuality, promiscuity, and some discussion of sexual deviancy.

HS 401, 402 SPECIAL STUDIES
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
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
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, 123 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. Prerequisites: 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 333 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.
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; pornography; 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, 123  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.

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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, if 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.
MESA COLLEGE

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 therapy. 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.
See Independent Study course description under ANTH 251, 252.

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 1900. 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. Prerequisites: 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 SOCS 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 2 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 interdisciplinary 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 in 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 283 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. Prerequisites: SOC 261 and SOC 282.
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.

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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.
See Independent Study course description under ANTH 251, 252.

PSY 352  INDEPENDENT STUDY (PSYCHOLOGY)  F, W, or S  2 hrs.

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.

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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 (1978)  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. Prerequisites: 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

SOC 101  INTRODUCTION TO SOCIAL SCIENCE—SOCIOLGY  F  3 hrs.
An introduction to the fields of anthropology and sociology. Intended primarily for vocational-technical students. Other students should enroll in SOC 281, 282.

SOC 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.

SOC 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.

SOC 148  EXPLORATORY STUDY IN THE SOCIAL SCIENCES  F, W, or S  1 hr.

SOC 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 clinic, etc. It is expected that the students will arrange their own time and work on the job two hours for each hour enrolled.

SOC 201  INTRODUCTION TO RELIGION  S  3 hrs.
This interdisciplinary 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 283  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. Prerequisites: 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 resources and tools for analysis of population, population planning, and public policies. Prerequisites: SOC 161, 162.

SOC 320 POLITICAL SOCIOLOGY W 3 hrs.
An interdisciplinary 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, Asper, Lipset and Kornhauser. The focus is on the Americas of the 1970s. SOC 261, 262 or the instructor's permission are prerequisites.

SOC 325 SOCIOLOGY OF RELIGION F 3 hrs.
This interdisciplinary 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, Tönnies, R. H. Niebuhr and Yingst. 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 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.

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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.
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Division of Health Programs

NURSING PROGRAMS

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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. Eber; Mrs. Munson; Mrs. Tidwell; Mrs. Ranker; Mrs. Richard; Miss Sommers; Mrs. Scherman; Mrs. VanderGal; 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 150) 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 failing grades who fails to pass the minimum requirements will be required to retake the course at the end of the quarter. Students who have made a whole grade will be required to seek a different position as nurses’ aides or orderlies.

Completion of the Practical Nursing program does not guarantee automatic acceptance into the Associate Degree program. A student of the Practical Nursing course 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 space reserved for these students will be filled by applicants who intend to practice as LPNs.

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

<table>
<thead>
<tr>
<th>Fall Quarter Hrs.</th>
<th>Winter Quarter Hrs.</th>
<th>Spring Quarter Hrs.</th>
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</thead>
<tbody>
<tr>
<td><strong>Fundamentals of Nursing</strong></td>
<td>Medical-Surgical Nursing or Maternal-Child Nursing</td>
<td>Medical-Surgical Nursing or Maternal-Child Nursing</td>
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<td>Anatomy and Physiology</td>
<td>Anatomy and Physiology</td>
<td>Anatomy and Physiology</td>
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<td>Nutrition</td>
<td>Pharmacology</td>
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</table>

*Each course includes laboratory (clinical) experience.

**PN students + ADN students

SUMMER QUARTER HRS.

<table>
<thead>
<tr>
<th>Personal Vocational Relations</th>
<th>Disaster and Home Nursing</th>
<th>Clinical Nursing</th>
<th>Nursing Seminar</th>
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</table>

(Student is entitled to take licensing examination for LPN after Certificate as practical nurse is earned.)

SECOND YEAR

<table>
<thead>
<tr>
<th>Fall Quarter Hrs.</th>
<th>Winter Quarter Hrs.</th>
<th>Spring Quarter Hrs.</th>
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<tbody>
<tr>
<td>English 111</td>
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<td>English 153</td>
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<td>Growth and Development or Chemistry</td>
<td>Growth and Development or Chemistry</td>
<td>Advanced Medical-Surgical Nursing or Advanced Maternal-Child Nursing</td>
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<tr>
<td>Advanced Medical-Surgical Nursing or Advanced Maternal-Child Nursing</td>
<td>#Elective (Social Science)</td>
<td>Trends in Nursing</td>
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</table>

#Social Science electives. Biologies 261, 262, 263, 144 or other Social Sciences. Nine hours required for graduation.

NURS 112 FUNDAMENTALS OF NURSING 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 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.
Division of Health Programs

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Instructional Staff: Mrs. Williams, Chairman; Miss Douglas, Mrs. Rice, Mrs. Mundy; Mrs. Pillet; Mrs. Hunter; Mrs. Richmond; Miss Sammartino; Mrs. Schumann; Mrs. VandenGoor; 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 110) 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 a nursing aide or orderly.

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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 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

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<tr>
<th>Fall Quarter</th>
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<th>Winter Quarter</th>
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<th>Spring Quarter</th>
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<tbody>
<tr>
<td><em>Fundamentals of Nursing</em></td>
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<td>Maternal-Child Nursing</td>
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<td>Anatomy and Physiology</td>
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<td>Drug and Dosage</td>
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* Each nursing course includes laboratory (clinical) experience.
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<th>Fall Quarter</th>
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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.
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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

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<tr>
<th>Semester</th>
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<tr>
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<td>Spring Quarter</td>
<td>PHS 112 - Medical Terminology (3)</td>
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<td>Summer Quarter</td>
<td>PHS 113 - Medical Terminology (3)</td>
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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

<p>| FIRST YEAR |</p>
<table>
<thead>
<tr>
<th>Hrs.</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall Quarter</td>
<td>Winter Quarter</td>
</tr>
<tr>
<td>Radiologic Orientation (RADI 111)</td>
<td>3</td>
</tr>
<tr>
<td>Radiologic Electronics (RADI 122)</td>
<td>3</td>
</tr>
<tr>
<td>Medical Terminology</td>
<td>0</td>
</tr>
<tr>
<td>Human Anatomy and Physiology (BIOC 111)</td>
<td>5</td>
</tr>
<tr>
<td>English (ENG 111)</td>
<td>3</td>
</tr>
<tr>
<td>Physical Education</td>
<td>1</td>
</tr>
<tr>
<td>--</td>
<td>14</td>
</tr>
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<td>Spring Quarter</td>
<td></td>
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<tr>
<td>Hrs.</td>
<td>Hrs.</td>
</tr>
<tr>
<td>Summer Quarter</td>
<td>Fall Quarter</td>
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<tr>
<td>Radiographic Special Procedures (RADI 130)</td>
<td>3</td>
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<tr>
<td>Radiographic Positioning II (RADI 132)</td>
<td>4</td>
</tr>
<tr>
<td>Aud Nursing Procedures (RADI 134)</td>
<td>2</td>
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<tr>
<td>English (ENG 125)</td>
<td>3</td>
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<tr>
<td>Social Science or Psychology</td>
<td>3</td>
</tr>
<tr>
<td>Physical Education</td>
<td>3</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
</tr>
<tr>
<td>------------</td>
<td>--------------------------------------------------------</td>
</tr>
<tr>
<td>RADT 111</td>
<td>RADIOLOGIC ORIENTATION</td>
</tr>
<tr>
<td></td>
<td>Orientation to the hospital environment, history of</td>
</tr>
<tr>
<td></td>
<td>radiology and radiologic technology, radiation</td>
</tr>
<tr>
<td></td>
<td>protection, ethics, and film processing.</td>
</tr>
<tr>
<td>RADT 122</td>
<td>RADIOLOGIC POSITIONING II</td>
</tr>
<tr>
<td></td>
<td>Radiography of the chest, abdomen, and extremities.</td>
</tr>
<tr>
<td></td>
<td>Lecture incorporates lab using the Alderson Phantom</td>
</tr>
<tr>
<td></td>
<td>under supervision of the instructor in energized lab.</td>
</tr>
<tr>
<td>RADT 123</td>
<td>RADIOLOGIC FUNDAMENTALS</td>
</tr>
<tr>
<td></td>
<td>Theory of basic principles in radiographic production.</td>
</tr>
<tr>
<td></td>
<td>Body mechanics and patient transportation. Apply</td>
</tr>
<tr>
<td></td>
<td>knowledge of anatomy and physiology to the</td>
</tr>
<tr>
<td></td>
<td>production of radiographs. Suitable lab experience</td>
</tr>
<tr>
<td></td>
<td>under direct supervision of the instructor.</td>
</tr>
<tr>
<td>RADT 181</td>
<td>RADIOGRAPHIC SPECIAL PROCEDURES</td>
</tr>
<tr>
<td></td>
<td>Introduces student to medicosurgical diseases and</td>
</tr>
<tr>
<td></td>
<td>acquaints student with sterile techniques for</td>
</tr>
<tr>
<td></td>
<td>radiographic surgical procedures. Also acquaints</td>
</tr>
<tr>
<td></td>
<td>student with specialized and highly technical</td>
</tr>
<tr>
<td></td>
<td>equipment and procedures in diagnostic radiography</td>
</tr>
<tr>
<td></td>
<td>including angiography, myelograms, lymphangiograms,</td>
</tr>
<tr>
<td></td>
<td>etc.</td>
</tr>
<tr>
<td>RADT 132</td>
<td>RADIOGRAPHIC POSITIONING II</td>
</tr>
<tr>
<td></td>
<td>Radiography of the shoulder, pelvic girdle, cervical,</td>
</tr>
<tr>
<td></td>
<td>thoracic, and lumbar spines. Lecture incorporating</td>
</tr>
<tr>
<td></td>
<td>lab with the Alderson Phantom under supervision of</td>
</tr>
<tr>
<td></td>
<td>instructor in the energized lab.</td>
</tr>
<tr>
<td>RADT 133</td>
<td>RADIOLOGIC PATHOLOGY</td>
</tr>
<tr>
<td></td>
<td>Correlation of disease processes and the resulting</td>
</tr>
<tr>
<td></td>
<td>radiographs. The theory of repair and regeneration</td>
</tr>
<tr>
<td></td>
<td>of tissue, formation of tumors both benign and</td>
</tr>
<tr>
<td></td>
<td>malignant. Survey of disease processes.</td>
</tr>
<tr>
<td>RADT 134</td>
<td>RADIOLOGIC NURSING PROCEDURES</td>
</tr>
<tr>
<td></td>
<td>Generalized first-aid course including anaphylactic</td>
</tr>
<tr>
<td></td>
<td>shock, signs, symptoms, immediate corrective</td>
</tr>
<tr>
<td></td>
<td>measures. Drugs and contrast media frequently used in</td>
</tr>
<tr>
<td></td>
<td>the radiographic department that could cause life-</td>
</tr>
<tr>
<td></td>
<td>threatening problems; corrective measures to save a</td>
</tr>
<tr>
<td></td>
<td>life. Cardiopulmonary resuscitation. Advanced life</td>
</tr>
<tr>
<td></td>
<td>support care and routine emergency medical</td>
</tr>
<tr>
<td></td>
<td>procedures.</td>
</tr>
<tr>
<td>RADT 141</td>
<td>RADIATION THERAPY</td>
</tr>
<tr>
<td></td>
<td>Theory of radiation therapy and operation. Brief</td>
</tr>
<tr>
<td></td>
<td>psychology of the cancer patient. Radiation physics</td>
</tr>
<tr>
<td></td>
<td>in dosimetry. Suitable laboratory experience</td>
</tr>
<tr>
<td></td>
<td>under the direction of the instructor and supervision</td>
</tr>
<tr>
<td></td>
<td>of a therapy technologist in actual treatment of</td>
</tr>
<tr>
<td></td>
<td>therapy patients.</td>
</tr>
<tr>
<td>RADT 142</td>
<td>RADIOGRAPHIC POSITIONING III</td>
</tr>
<tr>
<td></td>
<td>Radiography of the skull, including special views of</td>
</tr>
<tr>
<td></td>
<td>the middle ear, orbits, sinuses, mastoidectomy, etc.</td>
</tr>
<tr>
<td></td>
<td>Lecture incorporates the energized lab using the</td>
</tr>
<tr>
<td></td>
<td>Alderson Phantom under direct supervision of the</td>
</tr>
<tr>
<td></td>
<td>instructor.</td>
</tr>
<tr>
<td>RADT 145</td>
<td>CLINICAL EXPERIENCE I</td>
</tr>
<tr>
<td></td>
<td>Under direct supervision of a registered technologist,</td>
</tr>
<tr>
<td></td>
<td>the student should be able to perform all</td>
</tr>
<tr>
<td></td>
<td>extremity, chest, and abdomen radiographs</td>
</tr>
<tr>
<td></td>
<td>competently, including paper work.</td>
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<tr>
<td>RADT 251</td>
<td>DEPARTMENTAL ADMINISTRATION</td>
</tr>
<tr>
<td></td>
<td>Instruction in the internal organization and</td>
</tr>
<tr>
<td></td>
<td>administration of the radiographic department as well</td>
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<tr>
<td></td>
<td>as support of the hospital. Includes design</td>
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<tr>
<td></td>
<td>considerations of a radiographic department,</td>
</tr>
<tr>
<td></td>
<td>inter- and intra-departmental operations.</td>
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<tr>
<td>RADT 252</td>
<td>ADVANCED TECHNIQUES</td>
</tr>
<tr>
<td></td>
<td>Very discreet theoretical analysis of technique</td>
</tr>
<tr>
<td></td>
<td>composition including density, contrast, and detail</td>
</tr>
<tr>
<td></td>
<td>of the radiographs. Generalized film critique.</td>
</tr>
<tr>
<td>RADT 255</td>
<td>CLINICAL EXPERIENCE II</td>
</tr>
<tr>
<td></td>
<td>Under direct supervision of a registered technologist</td>
</tr>
<tr>
<td></td>
<td>the student should be able to perform all shoulder,</td>
</tr>
<tr>
<td></td>
<td>hip, pelvis, and vertebral examinations properly and</td>
</tr>
<tr>
<td></td>
<td>to select proper techniques for each.</td>
</tr>
<tr>
<td>RADT 261</td>
<td>NUCLEAR MEDICINE</td>
</tr>
<tr>
<td></td>
<td>Theory in the medical diagnostic application of</td>
</tr>
<tr>
<td></td>
<td>radiotopes. Survey of equipment and materials,</td>
</tr>
<tr>
<td></td>
<td>including dosages and routes of administration of</td>
</tr>
<tr>
<td></td>
<td>radiotopes.</td>
</tr>
<tr>
<td>RADT 2811</td>
<td>NUCLEAR MEDICINE LAB</td>
</tr>
<tr>
<td></td>
<td>Practical lab experience in the nuclear medicine</td>
</tr>
<tr>
<td></td>
<td>department and active participation in</td>
</tr>
<tr>
<td></td>
<td>nuclear scans under direct supervision of the nuclear</td>
</tr>
<tr>
<td></td>
<td>technologist.</td>
</tr>
<tr>
<td>RADT 263</td>
<td>RADIATION PHYSICS I</td>
</tr>
<tr>
<td></td>
<td>Laboratory experiments designed to develop skills in</td>
</tr>
<tr>
<td></td>
<td>radiographic techniques to recognize radiographs</td>
</tr>
<tr>
<td></td>
<td>below acceptable levels, and to determine proper</td>
</tr>
<tr>
<td></td>
<td>changes to improve the diagnostic quality of the</td>
</tr>
<tr>
<td></td>
<td>radiographs.</td>
</tr>
<tr>
<td>RADT 265</td>
<td>CLINICAL EXPERIENCE III</td>
</tr>
<tr>
<td></td>
<td>Under direct supervision of a registered technologist</td>
</tr>
<tr>
<td></td>
<td>the student performs previous examinations plus routine</td>
</tr>
<tr>
<td></td>
<td>skull radiographs, special procedures, and</td>
</tr>
<tr>
<td></td>
<td>surgery radiographs.</td>
</tr>
<tr>
<td>RADT 274</td>
<td>RADIATION PHYSICS II</td>
</tr>
<tr>
<td></td>
<td>A continuation of the laboratory experiments described</td>
</tr>
<tr>
<td></td>
<td>in RADT 263.</td>
</tr>
<tr>
<td>RADT 276</td>
<td>CLINICAL EXPERIENCE IV</td>
</tr>
<tr>
<td></td>
<td>Under direct supervision of a registered technologist,</td>
</tr>
<tr>
<td></td>
<td>the student performs previous examinations plus</td>
</tr>
<tr>
<td></td>
<td>special views of the skull.</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>RADT 111</td>
<td>Radiologic Orientation</td>
</tr>
<tr>
<td></td>
<td>Orientation to the hospital environment, history of radiology and radiologic technology, radiation protection, ethics, and film processing.</td>
</tr>
<tr>
<td>RADT 112</td>
<td>Radiologic Electronics</td>
</tr>
<tr>
<td></td>
<td>Basic physics, electromagnetism, a-c and d-c current, control of high voltage, rectification, characteristics of x-rays, x-ray circuitry, and x-ray tubes. Lab experience in using the x-ray simulator.</td>
</tr>
<tr>
<td>RADT 121</td>
<td>Radiographic Exposures</td>
</tr>
<tr>
<td></td>
<td>The theory of x-ray techniques, radiographic quality, radiographic accessories and precautions.</td>
</tr>
<tr>
<td>RADT 122</td>
<td>Radiographic Positioning I</td>
</tr>
<tr>
<td></td>
<td>Radiography of the chest, abdomen, and extremities. Lecture incorporated with lab using the Alderson Phantom under supervision of the instructor in energized lab.</td>
</tr>
<tr>
<td>RADT 123</td>
<td>Radiologic Fundamentals</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td>RADT 131</td>
<td>Radiographic Special Procedures</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td>RADT 132</td>
<td>Radiographic Positioning II</td>
</tr>
<tr>
<td></td>
<td>Radiography of the shoulder, pelvic girdle, cervical, thoracic, and lumbar spines. Lecture incorporating lab with the Alderson Phantom under supervision of instructor in energized lab.</td>
</tr>
<tr>
<td>RADT 133</td>
<td>Radiologic Pathology</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td>RADT 134</td>
<td>Radiologic Nursing Procedures</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
</tbody>
</table>

**OCCUPATIONAL EDUCATION 123**

**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 experiences 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 abdominal 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 276** Clinical Experience IV  S 10 hrs.
Under direct supervision of a registered technologist, the student performs previous examinations plus special views of the skull.
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 pursuit 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 Line, 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. Bollan, Chairman

Auto Body and Fender
ASSOCIATE IN APPLIED SCIENCE

Mr. Bollan, Mr. Miller, Mr. Bleecker

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, practical skills, 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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automotive English</td>
<td>3</td>
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<tr>
<td>Social Science</td>
<td>3</td>
</tr>
<tr>
<td>Physical Education</td>
<td>3</td>
</tr>
<tr>
<td>Auto Body</td>
<td>46</td>
</tr>
<tr>
<td>Electives</td>
<td>6</td>
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</tbody>
</table>

Total required for graduation: 73 hrs.

AUTO BODY AND FENDER CURRICULUM

FIRST YEAR

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Hrs.</th>
<th>Winter Quarter</th>
<th>Hrs.</th>
<th>Spring Quarter</th>
<th>Hrs.</th>
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</thead>
<tbody>
<tr>
<td>Fall Quarter</td>
<td></td>
<td></td>
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<tr>
<td>English (Auto)</td>
<td>3</td>
<td>English (Auto)</td>
<td>3</td>
<td>English (Auto)</td>
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<tr>
<td>Applied Math</td>
<td>3</td>
<td>Repair and Refinishing</td>
<td>5</td>
<td>Repair and Refinishing II</td>
<td>3</td>
</tr>
<tr>
<td>Gen. Auto Body Repair</td>
<td>5</td>
<td>General Refinishing</td>
<td>4</td>
<td>Art Welding</td>
<td>3</td>
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<tr>
<td>Shop Practices</td>
<td>4</td>
<td>Physical Education</td>
<td>3</td>
<td>Physical Education</td>
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<tr>
<td>Physical Education</td>
<td>1</td>
<td>Auto Body Refinishing</td>
<td>3</td>
<td>Auto Refinishing</td>
<td>3</td>
</tr>
<tr>
<td>Deposition &amp; Welding</td>
<td>3</td>
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<td></td>
<td>16</td>
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SECOND YEAR

<table>
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<th>Quarter</th>
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<th>Winter Quarter</th>
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<th>Spring Quarter</th>
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<tbody>
<tr>
<td>Fall Quarter</td>
<td></td>
<td></td>
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<tr>
<td>Intro. to Social Science</td>
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<td>Intro. to Social Science</td>
<td>3</td>
<td>Intro. to Social Science</td>
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<tr>
<td>Repair and Refinishing III</td>
<td>5</td>
<td>Repair and Refinishing IV</td>
<td>3</td>
<td>Repair and Refinishing V</td>
<td>3</td>
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<td>FRAME Repair</td>
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<td>Estimating</td>
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<td>Total</td>
<td>16</td>
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<tr>
<td>Panel &amp; Spot Painting</td>
<td>3</td>
<td>Human Relations</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>FRAME Repair</td>
<td>2</td>
<td></td>
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<td></td>
<td>16</td>
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</tbody>
</table>

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ASSOCIATE IN APPLIED SCIENCE
Mr. Rollan, Mr. Miller, Mr. Bienew

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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automotive English</td>
<td>9 hrs.</td>
</tr>
<tr>
<td>Social Science</td>
<td>8 hrs.</td>
</tr>
<tr>
<td>Physical Education</td>
<td>8 hrs.</td>
</tr>
<tr>
<td>Auto Body</td>
<td>11 hrs.</td>
</tr>
<tr>
<td>Electives</td>
<td>6 hrs.</td>
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<td><strong>Total required for graduation</strong></td>
<td>36 hrs.</td>
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AUTO BODY AND FENDER CURRICULUM

**FIRST YEAR**

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Hrs.</th>
<th>Winter Quarter</th>
<th>Hrs.</th>
<th>Spring Quarter</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>English (Auto)</td>
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<td>English (Auto)</td>
<td>3</td>
<td>English (Auto)</td>
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<tr>
<td>Applied Math</td>
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<td>Repair and Refinishing</td>
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<tr>
<td>Gen. Auto Body Repair</td>
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<td>General Refinishing</td>
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<td>Physical Education</td>
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<tr>
<td>Shop Practice</td>
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<tr>
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<tr>
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<td></td>
<td></td>
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<td><strong>Total</strong></td>
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</table>

**SECOND YEAR**

<table>
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<tr>
<th>Quarter</th>
<th>Hrs.</th>
<th>Winter Quarter</th>
<th>Hrs.</th>
<th>Spring Quarter</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intro. to Social Science</td>
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<td>Intro. to Social Science</td>
<td>3</td>
<td>Repair and Refinishing</td>
<td>3</td>
</tr>
<tr>
<td>Repair and Refinishing III</td>
<td>3</td>
<td>Repair and Refinishing IV</td>
<td>4</td>
<td>Estimating</td>
<td>3</td>
</tr>
<tr>
<td>Frame Repair</td>
<td>4</td>
<td>Shop Management</td>
<td>3</td>
<td>Estimating</td>
<td>3</td>
</tr>
<tr>
<td>Panel and Spot Painting</td>
<td>3</td>
<td></td>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td>16</td>
</tr>
</tbody>
</table>
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 shop 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: 9 hours.

ABF 116 AUTO RECONDITIONING  WS 3 hrs.
This course affords instruction in new car preparation; glass removal and in-
stallation; minor panel repair and refinishing; spot painting; cleaning, dying
and repair of upholstery; cleaning and airbrush painting; exterior-finish
bumping 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, thiners, 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 utilized 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: 19 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. Presquie

This program is designed to train persons who wish to enter into the automotive
service trades including general mechanics, specialist of various types, shop foremen,
service managers, service salesmen, instructors, factory service representatives,
insurance adjusters 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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automotive English</td>
<td>9 hrs</td>
</tr>
<tr>
<td>Physical Education</td>
<td>3 hrs</td>
</tr>
<tr>
<td>Engineering Drawing</td>
<td>3 hrs</td>
</tr>
<tr>
<td>Auto Mechanics</td>
<td>60 hrs</td>
</tr>
<tr>
<td>Social Science</td>
<td>6 hrs</td>
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<tr>
<td>Electives</td>
<td>3 hrs</td>
</tr>
</tbody>
</table>

Total required for graduation    | 93 hrs  |
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     W  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 paint 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 utilized 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: 15 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. Freytag

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 adjusters 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 Engine 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: 2 hrs.

Total required for graduation: 83 hrs.
AUTO MECHANICS CURRICULUM

<table>
<thead>
<tr>
<th>Fall Quarter</th>
<th>Credit Hrs.</th>
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<th>Spring Quarter</th>
<th>Credit Hrs.</th>
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<td>Personal Education</td>
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<td>Auto Mechanic Math</td>
<td>3</td>
<td>Physics</td>
<td>3</td>
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<tr>
<td>Auto Mechanics Math</td>
<td>3</td>
<td>Clutch, Standard Transmission and Overdrive</td>
<td>5</td>
<td>Electrical System</td>
<td>5</td>
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<tr>
<td>Gearbox</td>
<td>5</td>
<td>Engine</td>
<td>12</td>
<td>Ignition</td>
<td>5</td>
</tr>
<tr>
<td>Electrical System</td>
<td>5</td>
<td>Engineer</td>
<td>12</td>
<td>Auto Mechanic English</td>
<td>3</td>
</tr>
<tr>
<td>Ignition</td>
<td>5</td>
<td>Intro to Social Science</td>
<td>3</td>
<td>Intro to Social Science</td>
<td>3</td>
</tr>
</tbody>
</table>

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 synchronmesh 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 CARBURATORS  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, servos, 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 6 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: Cole, 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.
AUTO MECHANICS CURRICULUM

Fall Quarter Credit Hrs. Winter Quarter Credit Hrs. Spring Quarter Credit Hrs.

Physical Education 3
Auto Mechanics Math 3
Chem, Standard Trans-
mision and Overdrive 5
Drivelines and Differentials 5
Carburetors 5
Electrical System 5
Brakes 12
Ignitions 5
Auto Mechanic English 3
Intro. to Social Science 3
Engineering Drawing 3

AMEC 110 BEGINNING WELDING FOR FOR AUTO MECHANICS W 3 hrs.
A beginning course in gas and arc welding designed to help the student become an effective welder in the mechanical and repair welding on cars and trucks.

AMEC 111 APPLIED MATH FOR AUTO MECHANICS W 3 hrs.
A brief review of the arithmetic, shop math, and algebra that students will need to understand the mathematical aspects of auto mechanics.

AMEC 113 INTERNAL COMBUSTION ENGINES W 8 hrs.
A basic study of the internal combustion engine dealing with types, design, construction, principles of operation, and application of engine components. The theoretical principles of cooling, lubrication, ignition and fueling as well as 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, gear, gear ratios, and synchronmesh 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 systems. 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, servos, 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 in 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. Bowley

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:

<table>
<thead>
<tr>
<th>No.</th>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELIN 111</td>
<td>Applied Mathematics I</td>
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<tr>
<td>ELIN 112</td>
<td>Applied Mathematics II</td>
<td>3</td>
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<tr>
<td>ELIN 120</td>
<td>Fundamentals of Electricity I</td>
<td>4</td>
</tr>
<tr>
<td>ELIN 121</td>
<td>Fundamentals of Electricity II</td>
<td>3</td>
</tr>
<tr>
<td>ELIN 131</td>
<td>Electric Distribution Theory I</td>
<td>4</td>
</tr>
<tr>
<td>ELIN 132</td>
<td>Electric Distribution Theory II</td>
<td>4</td>
</tr>
<tr>
<td>ELIN 133</td>
<td>Electric Distribution Theory III</td>
<td>4</td>
</tr>
<tr>
<td>ELIN 134</td>
<td>First aid, safety code, operation of line trucks, record keeping</td>
<td>4</td>
</tr>
</tbody>
</table>

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

**ELIN 111 APPLIED MATHEMATICS I**

A basic review of arithmetic, followed by ratios, percentages and problems in electrical mathematics as encountered by linemen.

**ELIN 120 FUNDAMENTALS OF ELECTRICITY I**

A study of how electricity is produced, current magnetic fields, measuring devices, circuits.

**ELIN 121 FUNDAMENTALS OF ELECTRICITY II**

A study of AC circuits, capacitors, alternators, generators, current and voltages.

**ELIN 131 ELECTRIC DISTRIBUTION THEORY I**

Electrical systems, configuration of equipment, pole-setting and framing, hardware, tools and rigging.

**ELIN 132 ELECTRIC DISTRIBUTION THEORY II**

Stress and strain, splicing, energizing lines, protective grounding conductors and connections.

**ELIN 133 ELECTRIC DISTRIBUTION THEORY III**

Protective devices, voltage regulation, inspection and testing, preventive maintenance, hot line tools, capacitor installation.

**ELIN 134 RELATED FUNDAMENTALS I**

First aid, safety code, operation of line trucks, record keeping.

---

**OCCUPATIONAL EDUCATION 131**

**ELIN 127 RELATED FUNDAMENTALS II**

Electric test meters, transformers, national electric safety code.

**ELIN 128 RELATED FUNDAMENTALS III**

Advanced first aid, voltmeters and ammeters, lighting, human relations, watch-hour meters, blasting.

**ELIN 140 UNDERGROUND PROCEDURES**

Terminology, installation, protective equipment switching procedures, maintenance and inspection.

**ELIN 150 APPLIED THEORY AND FUNDAMENTALS**

Field training.

---

**Welding CERTIFICATE PROGRAMS**

Mr. Braim, Mr. Panaudit, Mr. Bill

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 metal 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**

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Hrs.</th>
<th>Hrs.</th>
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<tr>
<td>First</td>
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**SIX-QUARTER CERTIFICATE**

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</table>

*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 equal 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.*
Electric Lineman
ONE-YEAR CERTIFICATE PROGRAM

Mr. Bowley

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 technique, 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 3 ELIN 128 Related Fundamentals I 6
ELIN 112 Applied Mathematics II 3 ELIN 129 Related Fundamentals II 4
ELIN 120 Fundamentals of Electricity I 3 ELIN 130 Related Fundamentals III 4
ELIN 121 Fundamentals of Electricity II 3 ELIN 131 Underground Procedures 3
ELIN 132 Electric Distribution Theory I 4 ELIN 132 Applied Theory and Fundamentals I, II, III 15
ELIN 133 Electric Distribution Theory II 4
ELIN 134 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 rigging.

ELIN 132 ELECTRIC 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 138 RELATED FUNDAMENTALS I 4 hrs.
First aid, safety code, operation of line trucks, record keeping.

OCCUPATIONAL EDUCATION

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, watch-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. Branden, Mr. Fassnacht, Mr. Gill

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

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<tr>
<th>First Quarter</th>
<th>Hrs.</th>
<th>Second Quarter</th>
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<td>Blueprint Reading</td>
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SIX-QUARTER CERTIFICATE

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\*Work Experience

Available Summer Quarter | Hrs. |
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*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 equal one quarter hour of credit. Related class of three quarter hour 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 Welding 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, 150, 191, 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.

### 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 layouts, 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.
WELD 110 WELDING LABORATORY I
Shop practice in safe use of equipment. Oxygen-syngene welding for six weeks on mild steel in all positions and beginning arc welding for four weeks. FWS Smr 7 hrs.

WELD 112 OXYACETYLENE AND ARC THEORY
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. F 4 hrs.

WELD 115 APPLIED MATHEMATICS
Basic mathematics, fractions, decimals, percentages and basic algebra, all as applied in industry. FW 3 hrs.

WELD 120 WELDING LABORATORY II
Continuation of arc welding, refining the welding of mild steel in all positions. Prequisite: WELD 110 or consent of the instructor. FWS Smr 7 hrs.

WELD 121 BLUEPRINT READING
Basic principles of blueprint interpretation and visualization of objects as applied to industry. Also the use and interpretation of welding symbols. W 3 hrs.

WELD 130 WELDING LABORATORY III
Continuation of WELD 120 with emphasis on low-hydrogen electrode welding techniques. Prerequisite: WELD 120 or consent of instructor. FWS Smr 7 hrs.

WELD 131 FABRICATION LAYOUT
Basic layout techniques from shop drawings to fabrication of sheet metal, plate pipe and structural shapes. S 3 hrs.

WELD 141 SHOP MANAGEMENT AND STRUCTURAL THEORY
Study of shop operation, expenditures, floor-plan design and equipment of modern day shop. The study of codes issued by the American Welding Institute, American Welding Society and American Society of Mechanical Engineers as applied to industry. S 4 hrs.

WELD 145 METALLURGY
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. S 3 hrs.

WELD 240 WELDING LABORATORY IV
TIG welding of stainless steel, carbon steel and aluminum. MIG employing the principle of a consumable wire feed. Repair welding. Prerequisite: WELD 120 or consent of instructor. FWS Smr 7 hrs.

WELD 250 WELDING LABORATORY V
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. FWS Smr 7 hrs.

WELD 252 WORK EXPERIENCE
On-the-job training by local companies in fabrication, construction or maintenance welding. Minimum 10 weeks. Prerequisites: WELD 112, 115, 121, 120, 131, 141, 146, 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. FWS Smr 14 hrs.
Business Occupational Programs
(Offered through the Division of Business)

Data Processing
Mr. Buckley, Mr. Dicken, Mr. Morey

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 machine 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

<table>
<thead>
<tr>
<th>Fall Quarter</th>
<th>Hrs.</th>
<th>Winter Quarter</th>
<th>Hrs.</th>
<th>Spring Quarter</th>
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Accounting Option

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<td>English</td>
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Secretarial Option

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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
- Machine Supervisors
- Installation Supervisors
- Programmers
- Research
- Computer Specialists

Students electing the two-year Data Processing program are required to complete the following Major and completely from this program must be approved by student's adviser and the registrar.

DATA PROCESSING—TWO-YEAR PROGRAM

(Suggested Course Sequence)

<table>
<thead>
<tr>
<th>FIRST YEAR</th>
<th>Hrs.</th>
<th>Winter Quarter</th>
<th>Hrs.</th>
<th>Spring Quarter</th>
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<tr>
<td>English Composition</td>
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<td>Principles of Accounting</td>
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<tr>
<td>Business Data Processing</td>
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<td>Data Processing Mathematics</td>
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<td>Introduction to Probability</td>
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<td>Keypunch and Verifier</td>
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<td>Physical Education</td>
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<td>College Algebra I or II</td>
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<td>COBOL</td>
<td>5</td>
<td>Introduction to Business</td>
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<td>Physical Education</td>
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<td>COBOL II</td>
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<td>Principles of Economics</td>
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<td>RPG</td>
<td>5</td>
<td>Cost Accounting</td>
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<tr>
<td>Physical Education</td>
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<td>Intermediate Accounting</td>
<td>5</td>
<td>Technical Report Writing</td>
<td>5</td>
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</table>

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 operator 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 the ability to solve business problems at electronic speeds. Systems and procedures involved in data processing will be stressed throughout.
Business Occupational Programs
(Offered through the Division of Business)

Data Processing
Mr. Bradley, Mr. Dickson, Mr. Moxey

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

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DATA PROCESSING NINE-MONTH CERTIFICATE PROGRAM

All Students

<table>
<thead>
<tr>
<th>Full Quarter</th>
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<th>Winter Quarter</th>
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<td>Introduction to Data Processing</td>
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Accounting Option

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Secretarial Option

<table>
<thead>
<tr>
<th>Full Quarter</th>
<th>Hrs.</th>
<th>Winter Quarter</th>
<th>Hrs.</th>
<th>Spring Quarter</th>
<th>Hrs.</th>
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<tbody>
<tr>
<td>Intermediate Typing</td>
<td>3</td>
<td>Shorthand</td>
<td>4</td>
<td>Secretarial Accounting</td>
<td>3</td>
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<td>Shorthand</td>
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<td>Shorthand</td>
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</tbody>
</table>


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 courses: typing, data processing fundamentals, and programming. Students must be approved by the advisor and the registrar.

DATA PROCESSING—TWO-YEAR PROGRAM

(Suggested Course Sequence)

<table>
<thead>
<tr>
<th>FIRST YEAR</th>
<th>FALL QUARTER</th>
<th>Hrs.</th>
<th>WINTER QUARTER</th>
<th>Hrs.</th>
<th>SPRING QUARTER</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Composition</td>
<td>3</td>
<td>Business Data Processing</td>
<td>3</td>
<td>Principles of Accounting</td>
<td>5</td>
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<tr>
<td>Principles of Accounting</td>
<td>5</td>
<td>Data Processing Mathematics</td>
<td>3</td>
<td>Introduction to Probability</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Keypunch and Verifier</td>
<td>2</td>
<td>Computer Operations</td>
<td>3</td>
<td>Statistics</td>
<td>5</td>
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<tr>
<td>College Algebra I or II</td>
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<td>COBOL I</td>
<td>5</td>
<td>Physical Education</td>
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<td>COBOL II</td>
<td>5</td>
<td>Introduction to Business</td>
<td>3</td>
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<tr>
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<table>
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<th>SECOND YEAR</th>
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<th>Hrs.</th>
<th>WINTER QUARTER</th>
<th>Hrs.</th>
<th>SPRING QUARTER</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principles of Accounting</td>
<td>5</td>
<td>Computers in Management</td>
<td>4</td>
<td>Principles of Economics</td>
<td>3</td>
<td></td>
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<tr>
<td>Principles of Economics</td>
<td>3</td>
<td>Principles of Economics</td>
<td>3</td>
<td>Cost Accounting</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Assembly Language</td>
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<td>Intermediate Accounting</td>
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<td>Technical Report Writing</td>
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<tr>
<td>-</td>
<td>14</td>
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<td>17</td>
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</table>

BUDP 101 BUSINESS DATA PROCESSING

An introduction to the fundamentals of business data processing systems. An introduction to automated data processing systems including unit record and computer equipment, their uses 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

An introductory five-week course in the basics of business programming and applications of the keypunch with special emphasis on keypunching computer-programming languages. The basic operations of the computer 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

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

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.

OCCUPATIONAL EDUCATION 135

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 92 hours.
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. This course includes the use of 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 Assembly. 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 applications will primarily be reports and financial statements. Operating procedures for the 360 system 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 documented 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. U. Smith

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. Students with 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

<table>
<thead>
<tr>
<th>No.</th>
<th>Course</th>
<th>Total Class Hrs.</th>
<th>No.</th>
<th>Course</th>
<th>Total Class Hrs.</th>
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<tbody>
<tr>
<td>BUTF 11</td>
<td>Shorthand and Stenographic</td>
<td>225</td>
<td>BUTF 61</td>
<td>Typing</td>
<td>230</td>
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<td>BUTF 21</td>
<td>Bookkeeping</td>
<td>440</td>
<td>BUTF 62</td>
<td>Word Processing</td>
<td>165</td>
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<tr>
<td>BUTF 31</td>
<td>Business Mathematics</td>
<td>165</td>
<td>BUTF 71</td>
<td>Speech</td>
<td>55</td>
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<td>BUTF 41</td>
<td>Business English</td>
<td>120</td>
<td>BUTF 91</td>
<td>Office Procedures</td>
<td></td>
</tr>
</tbody>
</table>

BUTF 11 GREGG SHORTHAND AND STENOGRAFIC

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: 60 wpm. The student may select the learning method.
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, Smn 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.
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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.

OCCUPATIONAL EDUCATION 137

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 132 or consent of instructor.

Business Job Entry Training

CERTIFICATE
An Occupational Program Designed to Help Students Acquire Skills for Job Competency
Mrs. Ohland

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Total Class Hrs.</th>
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<tbody>
<tr>
<td>BUJT 11 Shorthand and Stenotype</td>
<td>220</td>
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<tr>
<td>BUJT 21 Bookkeeping</td>
<td>448</td>
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<tr>
<td>BUJT 31 Business Mathematics</td>
<td>165</td>
</tr>
<tr>
<td>BUJT 41 Business English</td>
<td>220</td>
</tr>
</tbody>
</table>

BUJT 11 GREGG SHORTHAND AND STENOGRAPHY  FWS Smn 3 hrs.
Beginning theory to advanced shorthand is programmed in both methods. Kites 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 available 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. Duplexing 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 range of positions in doctors' offices, hospitals, clinics, research foundations, and drug companies. Meta 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 advisor and the director of admissions)

<table>
<thead>
<tr>
<th>Fall Quarter</th>
<th>Hrs.</th>
<th>Winter Quarter</th>
<th>Hrs.</th>
<th>Spring Quarter</th>
<th>Hrs.</th>
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</thead>
<tbody>
<tr>
<td>English Composition</td>
<td>3</td>
<td>Business Communications</td>
<td>3</td>
<td>Human Growth and Development</td>
<td>3</td>
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<tr>
<td>Medical Terminology</td>
<td>3</td>
<td>Human Anatomy and Physiology</td>
<td>4</td>
<td>Medical Office Assisting</td>
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</tr>
<tr>
<td>Intermediate Typing</td>
<td>3</td>
<td>Advanced Typing</td>
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<td>Business Mathematics</td>
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<tr>
<td>Human Anatomy and Physiology</td>
<td>5</td>
<td>Laboratory Techniques</td>
<td>3</td>
<td>Dictation and Transcription</td>
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</tr>
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<td>Speech Communications</td>
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<td>Accounting</td>
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<td>First Aid</td>
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</table>

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. Humes, Mrs. Uhlbaugh

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.
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 advisor and the director of admissions.)

<table>
<thead>
<tr>
<th>Fall Quarter</th>
<th>Hrs.</th>
<th>Winter Quarter</th>
<th>Hrs.</th>
<th>Spring Quarter</th>
<th>Hrs.</th>
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<tbody>
<tr>
<td>English Composition</td>
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<td>Business Communications</td>
<td>3</td>
<td>Human Growth and Development</td>
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<td>Medical Terminology</td>
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<td>Human Anatomy and Physiology</td>
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<td>Medical Office Assisting</td>
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</tr>
<tr>
<td>Intermediate Typing</td>
<td>3</td>
<td>Advanced Typing</td>
<td>3</td>
<td>Business Mathematics</td>
<td>4</td>
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<td>Human Anatomy and Physiology</td>
<td>5</td>
<td>Laboratory Techniques</td>
<td>3</td>
<td>Dietetics and Transcription</td>
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<td>Speech Communications</td>
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<td>Secretarial Accounting</td>
<td>3</td>
<td>Medical Office Procedures</td>
<td>3</td>
</tr>
</tbody>
</table>

Total: 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. Hanson, Mrs. Uhlenhake

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 the student's advisor and the director of admissions.)

FIRST YEAR—All Students

<table>
<thead>
<tr>
<th>Fall Quarter</th>
<th>Hrs.</th>
<th>Winter Quarter</th>
<th>Hrs.</th>
<th>Spring Quarter</th>
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<tbody>
<tr>
<td>English Composition</td>
<td>3</td>
<td>English Composition</td>
<td>3</td>
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<tr>
<td>Intermediate Typing</td>
<td>3</td>
<td>Advanced Typing</td>
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<td>Business Communications</td>
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<td>Business Calculation</td>
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<td>General Psychology</td>
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<td>Business Mathematics</td>
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<td>Human Anatomy and Physiology</td>
<td>3</td>
<td>Business Mathematics or Math II</td>
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<td>Ge. Psychology or Psych</td>
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<tr>
<td>Medical Terminology</td>
<td>3</td>
<td>Physical Education</td>
<td>3</td>
<td>Growth and Development</td>
<td>3</td>
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<tr>
<td>Physical Education</td>
<td>1</td>
<td>Applied Anatomy</td>
<td>4</td>
<td>Secretarial Practice</td>
<td>3</td>
</tr>
<tr>
<td>*Suggested Elective: Chemistry</td>
<td>1</td>
<td>Medical Transcription</td>
<td>3</td>
<td>Physical Education</td>
<td>3</td>
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<td>16</td>
<td>*Suggested Elective: Word Processing</td>
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SECOND YEAR—Medical

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<th>Fall Quarter</th>
<th>Hrs.</th>
<th>Winter Quarter</th>
<th>Hrs.</th>
<th>Spring Quarter</th>
<th>Hrs.</th>
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<tbody>
<tr>
<td>Introduction to Social Science—Sociology</td>
<td>3</td>
<td>Human Anatomy and Physiology</td>
<td>4</td>
<td>Personal and Community Health</td>
<td>3</td>
</tr>
<tr>
<td>Human Anatomy and Physiology</td>
<td>5</td>
<td>Laboratory Techniques</td>
<td>4</td>
<td>General Microbiology</td>
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<td>Speech</td>
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<td>Medical Office Assisting</td>
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<td>16</td>
<td>*Suggested Elective: Word Processing</td>
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SECOND YEAR—Legal

<table>
<thead>
<tr>
<th>Fall Quarter</th>
<th>Hrs.</th>
<th>Winter Quarter</th>
<th>Hrs.</th>
<th>Spring Quarter</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Law I</td>
<td>3</td>
<td>Business Law II</td>
<td>3</td>
<td>Business Law III</td>
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<tr>
<td>Sociology</td>
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<td>Human Relations in Business</td>
<td>3</td>
<td>Elective</td>
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<tr>
<td>Exercise Science</td>
<td>3</td>
<td>Legal Procedure II</td>
<td>3</td>
<td>Science—Economics</td>
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<td>Legal Terminology</td>
<td>3</td>
<td>Secretarial Accounting</td>
<td>3</td>
<td>Social Psychology</td>
<td>3</td>
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<tr>
<td>Legal Procedure I</td>
<td>3</td>
<td>Introduction to Business</td>
<td>3</td>
<td>Independent Study</td>
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<td>Legal Procedure II</td>
<td>3</td>
<td>Business Law</td>
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<tr>
<td></td>
<td>16</td>
<td>*Suggested Elective: Chemistry</td>
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</tr>
</tbody>
</table>

*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.

TRAVEL AND RECREATION MANAGEMENT CURRICULUM

Suggested Course Sequence

FIRST YEAR

<table>
<thead>
<tr>
<th>Fall Quarter</th>
<th>Hrs.</th>
<th>Winter Quarter</th>
<th>Hrs.</th>
<th>Spring Quarter</th>
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</thead>
<tbody>
<tr>
<td>Introduction to Business</td>
<td>3</td>
<td>English Composition</td>
<td>3</td>
<td>English Composition</td>
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</tr>
<tr>
<td>Business Law</td>
<td>3</td>
<td>Business Mathematics</td>
<td>4</td>
<td>Literature</td>
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<tr>
<td>History of Colorado</td>
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<td>Elements of Mathematics I</td>
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<td>Elements of Mathematics II</td>
<td>3</td>
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<td>General Psychology</td>
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<td>General Psychology</td>
<td>3</td>
<td>Business Law</td>
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<td>*Suggested Elective: Chemistry</td>
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SECOND YEAR

<table>
<thead>
<tr>
<th>Fall Quarter</th>
<th>Hrs.</th>
<th>Winter Quarter</th>
<th>Hrs.</th>
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<th>Hrs.</th>
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<tbody>
<tr>
<td>Business Law</td>
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<td>Principles of Marketing</td>
<td>3</td>
<td>*Work Experience</td>
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<tr>
<td>Tourist Management I</td>
<td>3</td>
<td>Tourist Management II</td>
<td>3</td>
<td>Elective</td>
<td>3</td>
</tr>
<tr>
<td>Speech Making</td>
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<td>Small Business Management</td>
<td>3</td>
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<tr>
<td>Small Business Management</td>
<td>3</td>
<td>Principles of Economics</td>
<td>3</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>16</td>
<td></td>
<td>17</td>
<td></td>
<td>17</td>
</tr>
</tbody>
</table>

*This course available Fall, Winter, Spring, or Summer quarters. When possible, work experience should be scheduled during summer before freshman and sophomore years.

BUTR 101 SURVEY OF TOURISM

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

This course will explore problems with specific applications to the various phases of the travel and recreation industry.

BUTR 251 WORK EXPERIENCE

A course designed to provide 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 261 INDEPENDENT STUDY IN TRAVEL AND RECREATION MANAGEMENT

Prerequisite: Introductory courses in the field and consent of instructor.
### SECRETARY—LEGAL, MEDICAL CURRICULUM

#### Suggested Course Sequence

(Any deviation from this program must be approved by the student’s adviser and the director of admissions.)

<table>
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<th>Winter Quarter</th>
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<tbody>
<tr>
<td>Fall Quarter</td>
<td></td>
<td>16</td>
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<tr>
<td>English Composition</td>
<td>3</td>
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<tr>
<td>Intermediate Typing</td>
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<tr>
<td>Beginning Dictation</td>
<td>4</td>
<td></td>
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<tr>
<td>Filing</td>
<td>2</td>
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<tr>
<td>General Psychology</td>
<td>3</td>
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<tr>
<td>Physical Education</td>
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<td></td>
<td>16</td>
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<td>Spring Quarter</td>
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<td>Fall Quarter</td>
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<td>Winter Quarter</td>
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<td>English Composition</td>
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<tr>
<td>Advanced Typing</td>
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<tr>
<td>General Psychology</td>
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#### SECOND YEAR—Medical

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<tbody>
<tr>
<td>Introduction to Social Science—Sociology</td>
<td>3</td>
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<tr>
<td>Human Anatomy and Physiology</td>
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<tr>
<td>Speech</td>
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<td></td>
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<tr>
<td>Medical Terminology</td>
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<td>Physical Education</td>
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<td>16</td>
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#### SECOND YEAR—Legal

<table>
<thead>
<tr>
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<th>Winter Quarter</th>
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<tbody>
<tr>
<td>Business Law I</td>
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<tr>
<td>Introduction to Social Science—Sociology</td>
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<td></td>
</tr>
<tr>
<td>Legal Terminology</td>
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<td>Legal Procedures</td>
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<td>Legal Procedures I</td>
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<td></td>
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</table>

### OCCUPATIONAL EDUCATION

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):

<table>
<thead>
<tr>
<th>Fall Quarter</th>
<th>Winter Quarter</th>
<th>16</th>
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<tbody>
<tr>
<td>English Composition</td>
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<tr>
<td>Business Law II</td>
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<tr>
<td>Human Relations to Business</td>
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<tr>
<td>Elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Legal Procedures</td>
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<td></td>
</tr>
<tr>
<td>Legal Procedures I</td>
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<td></td>
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</table>

### TRAVEL AND RECREATION MANAGEMENT CURRICULUM

#### Suggested Course Sequence

<table>
<thead>
<tr>
<th>FIRST YEAR</th>
<th>Winter Quarter</th>
<th>16</th>
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</thead>
<tbody>
<tr>
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<td>English Composition</td>
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<td>Business Law</td>
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<td>Human Relations to Business</td>
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</tr>
<tr>
<td>Elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Legal Procedures</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Legal Procedures I</td>
<td>3</td>
<td></td>
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<td></td>
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</table>

### SECOND YEAR

<table>
<thead>
<tr>
<th>Fall Quarter</th>
<th>Winter Quarter</th>
<th>16</th>
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</thead>
<tbody>
<tr>
<td>Business Law</td>
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<td></td>
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<tr>
<td>Principles of Marketing</td>
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<td>Tourist Management I</td>
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<td>Elective</td>
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<td>Small Business Management</td>
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<td>Principles of Economics</td>
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</tbody>
</table>

### 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 recreationist 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.

---

### BUTR 101 SURVEY OF TOURISM

**S 3 hrs.**

A course designed to acquaint students with opportunities in the travel and recreation facilities. Representatives of tourist industries will address the students. The course is open to junior and senior years.

### 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

**FW Smr 10 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.

<table>
<thead>
<tr>
<th>Module</th>
<th>Credit Hrs.</th>
<th>Module</th>
<th>Credit Hrs.</th>
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<tbody>
<tr>
<td>Introduction to Farming</td>
<td>4</td>
<td>Turf Management</td>
<td>3</td>
</tr>
<tr>
<td>Irrigation</td>
<td>3</td>
<td>Horses</td>
<td>3</td>
</tr>
<tr>
<td>Fence Building</td>
<td>3</td>
<td>Cattle</td>
<td>3</td>
</tr>
<tr>
<td>Welding</td>
<td>4</td>
<td>Sheep</td>
<td>3</td>
</tr>
<tr>
<td>Insects and Control</td>
<td>5</td>
<td>Swine and Chickens</td>
<td>3</td>
</tr>
<tr>
<td>Small Engines</td>
<td>3</td>
<td>Skills</td>
<td>4</td>
</tr>
<tr>
<td>Large Engines</td>
<td>3</td>
<td>Fertilizers</td>
<td>3</td>
</tr>
<tr>
<td>Row Crops</td>
<td>5</td>
<td>Buildings</td>
<td>3</td>
</tr>
<tr>
<td>Fruit Crops</td>
<td>9</td>
<td>Dairy operation</td>
<td>6</td>
</tr>
<tr>
<td>Green House Operation</td>
<td>5</td>
<td>Farming Technology</td>
<td>6</td>
</tr>
<tr>
<td>Landscaping</td>
<td>6</td>
<td>Business Principles</td>
<td>3</td>
</tr>
</tbody>
</table>

This program does not operate on the traditional quarter system. Consult the department for starting times.

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 means to increase marketing efficiency.
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.

<table>
<thead>
<tr>
<th>Module</th>
<th>Credit Hrs.</th>
<th>Module</th>
<th>Credit Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction to Farming</td>
<td>4</td>
<td>Turf Management</td>
<td>3</td>
</tr>
<tr>
<td>Irrigation</td>
<td>3</td>
<td>Horses</td>
<td>3</td>
</tr>
<tr>
<td>Fence Building</td>
<td>3</td>
<td>Cow</td>
<td>3</td>
</tr>
<tr>
<td>Welding</td>
<td>6</td>
<td>Sheep</td>
<td>3</td>
</tr>
<tr>
<td>Insects and Control</td>
<td>6</td>
<td>Swine and Chickens</td>
<td>3</td>
</tr>
<tr>
<td>Small Engines</td>
<td>3</td>
<td>Soils</td>
<td>3</td>
</tr>
<tr>
<td>Large Engines</td>
<td>3</td>
<td>Fertilizers</td>
<td>3</td>
</tr>
<tr>
<td>New Crops</td>
<td>3</td>
<td>Buildings</td>
<td>3</td>
</tr>
<tr>
<td>Fruit Crops</td>
<td>3</td>
<td>Dairy operation</td>
<td>6</td>
</tr>
<tr>
<td>Green House Operation</td>
<td>5</td>
<td>Farrowing Tournaments</td>
<td>3</td>
</tr>
<tr>
<td>Landscaping</td>
<td>8</td>
<td>Business Principles</td>
<td>3</td>
</tr>
</tbody>
</table>

This program does not operate on the traditional quarter system. Consult the department for starting times.

AGPR 117 LARGE ENGINES
Practice in tune-up, maintenance, trouble shooting, and simple repair.

AGPR 118 HOW CROPS
Planting, cultivation, irrigation, and harvesting of alfalfa, corn, grains, grasses, and vegetables.

AGPR 119 FRUIT CROPS
Planting, cultivation, irrigation, yearly care, and production and harvesting of peaches, pears, apples, apricots, cherries, and miscellaneous fruits.

AGPR 120 GREENHOUSE OPERATION
Theory and practice of crops, construction, and maintenance.

AGPR 121 LANDSCAPING
Theory and practice of grass and plants, hard materials, irrigation, and pruning.

AGPR 122 TURF MANAGEMENT
Maintenance of turf including care, insects, irrigation, soils, fertilizers.

AGPR 123 HORSES
Care, handling, maintenance, diseases.

AGPR 124 CATTLE
Care, production, maintenance, diseases.

AGPR 125 SHEEP
Care, production, maintenance, diseases.

AGPR 126 SWINE AND CHICKEN
Care, production, maintenance, diseases.

AGPR 127 SOILS
Production soils, salts, shale, sand.

AGPR 128 FERTILIZERS
Applications and uses, chemical, barnyard.

AGPR 129 BUILDINGS
Farm and ranch structures, barns, sheds, specialized facilities.

AGPR 130 DAIRY OPERATION
Milk production, cows and their maintenance, buildings, equipment.

AGPR 131 FARMING COMBINED WITH TOURISM
The tourism industry, guest ranches, recreation, a combined operation.

AGPR 132 BUSINESS PRINCIPLES
Bookkeeping, financing, taxes, economics.

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
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<tr>
<td>Social Science or Literature</td>
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</tr>
<tr>
<td>Physical Education</td>
<td>3</td>
</tr>
<tr>
<td>Psychology</td>
<td>3</td>
</tr>
<tr>
<td>Required courses for Child Care Center Director</td>
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</tr>
<tr>
<td>Electives</td>
<td>12</td>
</tr>
<tr>
<td>Total required for graduation</td>
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</tr>
</tbody>
</table>

**EARLY CHILDHOOD EDUCATION CURRICULUM**

**FIRST YEAR**

<table>
<thead>
<tr>
<th>Full Quarter</th>
<th>Hrs.</th>
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</thead>
<tbody>
<tr>
<td>Winter Quarter</td>
<td></td>
</tr>
<tr>
<td>English 112</td>
<td>3</td>
</tr>
<tr>
<td>General Psychology</td>
<td>3</td>
</tr>
<tr>
<td>Child Care</td>
<td>3</td>
</tr>
<tr>
<td>Speech</td>
<td>3</td>
</tr>
<tr>
<td>Physical Education</td>
<td>3</td>
</tr>
<tr>
<td>Introduction to Early Childhood</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>1</td>
</tr>
<tr>
<td>16</td>
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<table>
<thead>
<tr>
<th>Spring Quarter</th>
<th>Hrs.</th>
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<tbody>
<tr>
<td>English 113</td>
<td>3</td>
</tr>
<tr>
<td>General Psychology</td>
<td>3</td>
</tr>
<tr>
<td>Child Development</td>
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<tr>
<td>Elementary Art</td>
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<tr>
<td>Nursery School Education</td>
<td>3</td>
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<tr>
<td>Physical Education</td>
<td>3</td>
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<tr>
<td>First Aid</td>
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<tr>
<td>Nutrition</td>
<td>3</td>
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**SECOND YEAR**

<table>
<thead>
<tr>
<th>Full Quarter</th>
<th>Hrs.</th>
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<tbody>
<tr>
<td>Winter Quarter</td>
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<tr>
<td>Marriage and Family</td>
<td>3</td>
</tr>
<tr>
<td>Introduction to Foods</td>
<td>3</td>
</tr>
<tr>
<td>Literature</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>6</td>
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<td></td>
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<table>
<thead>
<tr>
<th>Spring Quarter</th>
<th>Hrs.</th>
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<tbody>
<tr>
<td>Sociology or History</td>
<td>3</td>
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<tr>
<td>Introduction to Meal</td>
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<td>Management</td>
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<tr>
<td>Internship</td>
<td>3</td>
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<tr>
<td>Techniques of Adult Ed</td>
<td>3</td>
</tr>
<tr>
<td>Creative Music</td>
<td>3</td>
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<tr>
<td>15</td>
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</tbody>
</table>

**SUGGESTED ELECTIVES:** Typing, conversational Spanish, piano, voice, or home economics courses.

C CDCD 111  NURSERY SCHOOL EDUCATION  W  2 hrs.

Philosophy and theory of preschool education. Preparation for Nursery School Education and Laboratory offered spring quarter.

C CD 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.

C CD 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.

C CD 252-253  INTERNSHIP IN LICENSED CENTERS  FWS  8 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.

C CD 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.

C CD 258  INDEPENDENT STUDY IN CHILD CARE  FWS  2 hrs.

C CD 259  INDEPENDENT STUDY IN CHILD CARE  FWS  3 hrs.

C CD 250  CHILD CARE CENTER MANAGEMENT  S  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. Almaraz, Mr. Temple

The Electronics Technology curriculum has been arranged to provide optimum specialized technical instruction. The objective and the emphasis throughout is 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.
Early Childhood Education

ASSOCIATE IN APPLIED SCIENCE

Mrs. Beenen

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 both 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 day-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 .................................... 6 hrs.
- Psychology .............................................. 6 hrs.
- Required courses for Child Care Center Director ..... 12 hrs.
- Electives .................................................. 18 hrs.

Total required for graduation: 63 hrs.

EARLY CHILDHOOD EDUCATION CURRICULUM

FIRST YEAR

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Fall Quarter</th>
<th>Winter Quarter</th>
<th>Spring Quarter</th>
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<td>Hrs.</td>
<td>Hrs.</td>
<td>Hrs.</td>
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<tr>
<td>English 111</td>
<td>3</td>
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<tr>
<td>General Psychology</td>
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<td></td>
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<tr>
<td>Child Care</td>
<td>2</td>
<td></td>
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<tr>
<td>Speech</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical Education</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Introduction to Early Childhood</td>
<td>1</td>
<td></td>
<td></td>
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<tr>
<td>Elective</td>
<td>2</td>
<td></td>
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<td>17</td>
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</table>

SECOND YEAR

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Fall Quarter</th>
<th>Winter Quarter</th>
<th>Spring Quarter</th>
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<tbody>
<tr>
<td></td>
<td>Hrs.</td>
<td>Hrs.</td>
<td>Hrs.</td>
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<tr>
<td>Marriage and Family</td>
<td>3</td>
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<tr>
<td>Introduction to Food</td>
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<tr>
<td>Literature</td>
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<td></td>
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<tr>
<td>Elective</td>
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<tr>
<td>Total</td>
<td>15</td>
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</tbody>
</table>

SUGGESTED ELECTIVES: Typing, conversational Spanish, piano, voice, any home economics courses.

C C C D 1 1 1  NURSERY SCHOOL EDUCATION W 2 hrs.

Philosophy and theory of preschool education. Preparation for Nursery School Education and Laboratory offered spring quarter.

OCCUPATIONAL EDUCATION

C C C D 1 1 2 L 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.

C C C D 1 2 1 I N T R O D U C T I O N T O E A R L Y C H I L D H O O D 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.


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.


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.

C C C D 2 5 5 T E C H N I Q U E S O F A D U L T E D U C A T I O N 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.

C C C D 2 5 8 I N D E P E N D E N T S T U D Y I N C H I L D C A R E F W S 2 hrs.

C C C D 2 5 9 I N D E P E N D E N T S T U D Y I N C H I L D C A R E F W S 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. Almario, Mr. Tiptoe

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 .......................................................... 7 hrs.
- Total required for graduation ................................. 75 hrs.

### ELECTRONICS TECHNOLOGY CURRICULUM

#### FIRST YEAR

<table>
<thead>
<tr>
<th>Fall Quarter</th>
<th>Hrs.</th>
<th>Winter Quarter</th>
<th>Hrs.</th>
<th>Spring Quarter</th>
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<tbody>
<tr>
<td>English 111</td>
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<td>English 112</td>
<td>3</td>
<td>Technical Math</td>
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<tr>
<td>Technical Math 4</td>
<td>Technical Math 4</td>
<td>Base Electronics 7</td>
<td>Physics 8</td>
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<tr>
<td>Shop Processes 2</td>
<td>Alternating Current</td>
<td>1</td>
<td>Analysis 7</td>
<td>Radio Fundamentals 2</td>
<td></td>
</tr>
<tr>
<td>Concepts of Direct-CURRENT Circuits 3</td>
<td>Physical Education 1</td>
<td>1</td>
<td>Radio Fundamentals 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radio Fundamentals 2</td>
<td>18</td>
<td>17</td>
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</table>

#### SECOND YEAR

<table>
<thead>
<tr>
<th>Fall Quarter</th>
<th>Hrs.</th>
<th>Winter Quarter</th>
<th>Hrs.</th>
<th>Spring Quarter</th>
<th>Hrs.</th>
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<tbody>
<tr>
<td>Pulse and Video</td>
<td>Communication Research Project 1</td>
<td>1</td>
<td>Communication Calibrated and Maintained 4</td>
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</tr>
<tr>
<td>Circuit 1 4</td>
<td>Theory 2 4</td>
<td>Circuit 2 4</td>
<td>Calibration of Test Equipment 4</td>
<td>Ultra-High Frequencies 4</td>
<td></td>
</tr>
<tr>
<td>Communication Theory 1 4</td>
<td>Communication Theory 1 4</td>
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<tr>
<td>Introduction to Social Science 3</td>
<td>Electrical-Electronic and Microwave 4</td>
<td>4</td>
<td>Introduction to Computers 2</td>
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<td>Physical Education 1</td>
<td>Human Relations 3</td>
<td>3</td>
<td>English 115 3</td>
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<td>Science 3</td>
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<td>Physical Education 1</td>
<td>17</td>
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</table>

### ELEC 114  SHOOP PROCESSES

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

An introduction to electronics, atomic structure, electrostatics, basic electrical units, electronic components and diagrams, power of ten ammeters, voltmeters, ohmmeters, multimeters. Magnetic fundamentals, electromagnetism, motion, special meters, Kirchoff's first and second laws, electrical power, self inductance, mutual inductance, inductors, capacitors, capacitors, marking, series, capacitor theory.

Class: 4 hours. Laboratory: 6 hours.

### ELEC 118  ALTERNATING CURRENT CIRCUIT ANALYSIS

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.

### ELEC 119  BASIC ELECTRONICS

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, photo tubes and electronic-ray indicators, cathode-ray tube, high frequency tubes, tube and semiconductor manual and specification interpretation, tube designation and basking. Prerequisite: ELEC 118.

Class: 4 hours. Laboratory: 6 hours.

### ELEC 121, 122, 123  RADIO AND TELEVISION FUNDAMENTALS

Covers basic principles and repair of radio and television.

### ELEC 251  PULSE AND VIDEO CIRCUITS I

The study of electronic circuit technology analyzing the principles of vacuum tubes to circuits designed to produce noninvasive or pulse signal waves. Analysis of multivibrators, blocking and shock excited oscillators, limiters, clamps 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

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

A course of semiconductor action, junction, transistor, static characteristics, principles of transistor circuitry, transistor circuit parameters, common-base amplifier, common-emitter amplifier and bias stabilization. Laboratory application will be by auto amplifiers, voltage-regulated power supplies, superheterodyne receiver and transistors, transmitters. Class: 2 hours. Laboratory: 4 hours.

### ELEC 258  COMMUNICATION THEORY I

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

Continuation of ELEC 256. Prerequisite: ELEC 251. Class: 2 hours. Laboratory: 4 hours.

### ELEC 258  PHYSICS

Graphical and mathematical analysis of force, 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.
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:

<table>
<thead>
<tr>
<th>English 111</th>
<th>112</th>
<th>116</th>
<th>9 hrs.</th>
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</thead>
<tbody>
<tr>
<td>Social Science</td>
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<tr>
<td>Physical Education</td>
<td>3 hrs.</td>
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<td>Electives</td>
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<tr>
<td>Total required for graduation</td>
<td>76 hrs.</td>
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</table>

**ELECTRONICS TECHNOLOGY CURRICULUM**

| FIRST YEAR |  |
|---|---|---|---|---|
| Fall Quarter | Hrs. | Winter Quarter | Hrs. | Spring Quarter | Hrs. |
| English 111 | 3 | English 112 | 3 | Technical Mathematics | 4 |
| Technical Mathematics | 4 | Technical Mathematics | 4 | Basic Electronics | 7 |
| Shop Processes | 7 | Alternating Current | 7 | Physics | 6 |
| Concepts of Direct-Current Circuits | 7 | Analysis | 7 | Radio Fundamentals | 2 |
| Radio Fundamentals | 2 | Physical Education | 4 | Physical Education | 18 |
| | 18 | | | 77 |

| SECOND YEAR |  |
|---|---|---|---|---|
| Fall Quarter | Hrs. | Winter Quarter | Hrs. | Spring Quarter | Hrs. |
| Circuits I | 5 | Circuits II | 4 | Calibrations and Maintenance | 4 |
| Communication Theory I | 4 | Communication Theory II | 4 | Ultra-High Frequency Circuits | 4 |
| Introduction to Solid State Electronics | 3 | Broadband Circuits | 4 | Introduction to Computers | 4 |
| Physical Education | 1 | Human Relations | 3 | English 115 | 3 |
| | 17 | | | 16 |

**ELEC 114 SHOP PROCESSES**

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**

An introduction to electronics, atomic structure, electronistics, basic electrical units, electronic components and diagrams, powers of ten ammeters, voltmeters, ohmmeters, multimeters. Magnetic fundamentals, electromagnetism, meter movements, special meters, Kerepoff’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**

Generation of alternating current, alternating current fundamentals, multi-polar generators, introduction to vectors, A-C reactive circuits, inductance, inductive reactance and impedances, series A-C circuits analysis, parallel A-C circuits analysis, R-L time constants, capacitors 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 radiation, topics in vector algebra in the analysis of impedence networks. Prerequisite: MAT 171. The course is conducted in conjunction with MAT 112. Class: 4 hours. Laboratory: 6 hours.

**ELEC 119 BASIC ELECTRONICS**

Electron emission, thermionic emitters, vacuum tube, static and dynamic characteristics, concepts of semiconductor devices, classes of amplifier operation, transistor types, transistor equivalent circuits, beam power vacuum tubes, microwave tubes, gas tubes, phototubes and electro-ray indicators, cathode-ray tube, high frequency tubes, tube and semi-conductor manual and schematic interpretation, tube designation and aging. Prerequisite: ELEC 118. Class: 4 hours. Laboratory: 6 hours.

**ELEC 121, 122, 123 RADIO AND TELEVISION FUNDAMENTALS**

Covers basic principles and repair of radio and television. FWS 2 hrs.

**ELEC 251 PULSE AND VIDEO CIRCUITS I**

The study of electronic circuit technology applying the principles of vacuum tubes to circuits designed to produce non sinusoidal or pulse signal waveforms. Analysis of multivibrators, block and shock excited oscillators, limiters, clamps 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**

A continuation of ELEC 251 with emphasis on the analysis of electronic circuits and systems utilizing the circuits studied in ELEC 251. Television and radio are studied, applying the principles of pulse-shaping circuits. Class: 2 hours. Laboratory: 4 hours.

**ELEC 253 TRANSISTOR ELECTRONICS I**

A course of semiconductor action, junction, transistor, static characteristics, principles of transistor circuitry, transistor circuit parameters, common-base amplifier, common-emitter 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**

Amplitude modulation and frequency modulation. Radio frequency amplifiers and frequency measurement, two-way communications. Requirements for government radio operator license. Communications application. Prerequisite: ELEC 119. Class: 2 hours. Laboratory: 4 hours.

**ELEC 257 COMMUNICATION THEORY II**

Continuation of ELEC 256. Prerequisite: ELEC 251. Class: 2 hours. Laboratory: 4 hours.

**ELEC 258 PHYSICS**

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 advisor 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 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.

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**Engineering Technician**

**ASSOCIATE IN APPLIED SCIENCE**

Mr. Ramsey, Mr. Rybak

Engineering technology is 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 or 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:

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### OCCUPATIONAL EDUCATION

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>English 11, 112, or 115</td>
<td>9 hrs.</td>
</tr>
<tr>
<td>Physical Education</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>Social Science</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>Engineering Technology</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>Mathematics (ETTC 101, 102, 103)</td>
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</tr>
<tr>
<td>Engineering 111, 113, 114</td>
<td>9 hrs.</td>
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<tr>
<td>Engineering 211, 212, 213</td>
<td>9 hrs.</td>
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</table>

Total required for graduation: 34 hrs.

### CIVIL ENGINEERING TECHNICIAN CURRICULUM

#### FIRST YEAR

<table>
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<tr>
<th>Quarter</th>
<th>Hrs.</th>
<th>Winter Quarter</th>
<th>Hrs.</th>
<th>Spring Quarter</th>
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<tr>
<td>Fall</td>
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<td></td>
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</tr>
<tr>
<td>English 111</td>
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<td>English 115</td>
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#### SECOND YEAR

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<tr>
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<th>Hrs.</th>
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<th>Hrs.</th>
<th>Spring Quarter</th>
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<tbody>
<tr>
<td>Fall</td>
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<td>Specifications and Cost</td>
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<td>Estimates</td>
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<td>Geodetic Surveying</td>
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Requirements for the Associate in Applied Science degree in Engineering Technology (Drafting) include the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>English 111, 112, or 115</td>
<td>9 hrs.</td>
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<tr>
<td>Physical Education</td>
<td>3 hrs.</td>
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<tr>
<td>Social Science</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>Mathematics (ETTC 101, 102, 103)</td>
<td>12 hrs.</td>
</tr>
<tr>
<td>Engineering 111, 113, 114</td>
<td>9 hrs.</td>
</tr>
<tr>
<td>Engineering 211, 212, 213</td>
<td>9 hrs.</td>
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Total required for graduation: 34 hrs.

### DRAFTING TECHNICIAN CURRICULUM

#### FIRST YEAR

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Hrs.</th>
<th>Winter Quarter</th>
<th>Hrs.</th>
<th>Spring Quarter</th>
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<tr>
<td>Fall</td>
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<tr>
<td>English 112</td>
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<td>Technical Mathematics</td>
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*Please note that the above information is a simplified representation of the curriculum and may not include all the details.*
ELEC 259 ULTRA HIGH FREQUENCIES AND MICROWAVES I

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 281 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 count; 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. Ryal

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 applications: 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.

Requirements for the Associate in Applied Science degree in Engineering Technology (Civil) include the following:

CIVIL ENGINEERING TECHNICIAN CURRICULUM

Fall Quarter

<table>
<thead>
<tr>
<th>Course</th>
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<td>Engineering Graphics and Design I</td>
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<td>Physical Education</td>
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<td>Social Science Elective</td>
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Winter Quarter

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<td>Engineering Graphics and Design II</td>
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<td>Physical Education</td>
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Spring Quarter

<table>
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<th>Course</th>
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<td>English 115</td>
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<td>Petroleum Engineering</td>
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<td>Mechanical Engineering</td>
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OCCUPATIONAL EDUCATION

Total required for graduation: 54 hrs.

DRAFTING TECHNICIAN CURRICULUM

FIRST YEAR

Fall Quarter

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<td>Technical Mathematics I</td>
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<td>Engineering Graphics and Design I</td>
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Winter Quarter

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<td>Engineering Graphics and Design II</td>
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<td>Technical Surveying</td>
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<td>Physical Education</td>
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Spring Quarter

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<th>Course</th>
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Total required for graduation: 48 hrs.
SECOND YEAR

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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 (Architectural 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 trigonometric 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. Scheduling of 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: filtration, clarifier, chlorination, fluoridation, corrosion, 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.

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.
SECOND YEAR

<table>
<thead>
<tr>
<th>Fall Quarter Hrs.</th>
<th>Winter Quarter Hrs.</th>
<th>Spring Quarter Hrs.</th>
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<tbody>
<tr>
<td>Drafting and Design.... 3</td>
<td>Mechanical Drafting.... 3</td>
<td>Independent Study in Engineering Technology.... 3</td>
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<tr>
<td>Electrical Systems.... 3</td>
<td>Drafting and Design.... 3</td>
<td>Architectural.... 3</td>
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<tr>
<td>Topographical.... 3</td>
<td>Electrical Electronics.... 2</td>
<td>Structural.... 3</td>
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<tr>
<td>Specifications and Design.... 3</td>
<td>Drafting.... 2</td>
<td>Introduction to Machine Design.... 3</td>
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<td>Cast Fabrication.... 3</td>
<td>Strength of Materials.... 3</td>
<td>Design.... 3</td>
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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 "/" 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 trigonometric 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 compactness, 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. Scheduling 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 environments; rainfall and ground run-off ecology; collection and distribution of water supplies; the treatment of water: clarification, filtration, chlorination, fluoride, corrosion, 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.

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: 2 hours.

ETEC 262 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.

### OCCUPATIONAL EDUCATION CURRICULUM

#### FIRST YEAR

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Electives: Mathematics and psychology.

#### SECOND YEAR

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#### FIRE SCIENCE TECHNOLOGY CURRICULUM

**FIRST YEAR**

- **Fall Quarter**
  - Political Science—Government: 3 Hrs.
  - Speech: 3 Hrs.
  - Fundamentals of Fire Prevention: 3 Hrs.
  - Fire Protection—Equipment: 3 Hrs.
  - Elective: 3 Hrs.

- **Spring Quarter**
  - Survey of Physical Science: 3 Hrs.
  - Mathematics: 3 Hrs.
  - Related Codes and Ordinances I: 3 Hrs.
  - Ordinances II: 3 Hrs.
  - Elective: 3 Hrs.

**SECOND YEAR**

- **Fall Quarter**
  - Hazardous Materials II: 3 Hrs.
  - Plant Layout: 3 Hrs.
  - Fire Safety: 3 Hrs.
  - Fire Fighting Tactics and Strategy: 3 Hrs.
  - English 112: 3 Hrs.

- **Spring Quarter**
  - Fire Hydraulics: 3 Hrs.
  - Fire Prevention Administration: 3 Hrs.
  - Safety and First Aid: 3 Hrs.
  - Fire and Investigation: 3 Hrs.
  - Physical Education: 3 Hrs.

**Electives:** Mathematics and psychology.
ETC 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.

ETC 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.

ETC 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.

ETC 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.

ETC 259 TECHNICAL ILLUSTRATING I  W 3 hrs.
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ETC 261 REPRODUCTIONS  F 3 hrs.
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ASSOCIATE IN APPLIED SCIENCE

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### FIRE SCIENCE TECHNOLOGY CURRICULUM

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### 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 incendiaryism, arson laws, and types of incendiary fires. Methods of determining fire causes, recognizing and preserving evidence, interviewing and eliciting witnesses. Procedures in handling juveniles, court procedures and giving court testimony.

**FIRS 275** FIRE PROTECTION EQUIPMENT AND SYSTEMS
Portable fire extinguishing equipment; sprinkler systems; protective systems for special hazards, fire alarm and detection systems.

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**Graphic Communications Technology**

**(Associate in Applied Science)**

Mr. Stoff

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).

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**GRCO 111** GRAPHIC ARTS I  F  3 hrs.
This course is designed to develop competencies in the preparation of graphic materials.

**GRCO 112** 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** TYPSETTING  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.
Graphic Communications Technology
ASSOCIATE IN APPLIED SCIENCE
Mr. Buff

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 reproduction, and visual information recording, storage, and retrieval.

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SECOND YEAR

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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-run, 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
Mt. Newman

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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

<table>
<thead>
<tr>
<th>Fall Quarter</th>
<th>Hrs.</th>
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<tbody>
<tr>
<td>Introduction to Law Enforcement</td>
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<tr>
<td>Political Science</td>
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<tr>
<td>*Survey of Physical Science</td>
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<td>English 111</td>
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<tr>
<td>Administration of Justice and Court Procedure</td>
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<tr>
<td><strong>Debbie Tactics and Firearms Training</strong></td>
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<tr>
<td>Firearms Training</td>
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<td>Sociology</td>
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<tr>
<td>Special Problems in Police</td>
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SECOND YEAR

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<td>Business Mathematics</td>
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<td>State and Local Government</td>
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*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 transition 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 231 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. 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 investigatory reports, and case follow-up. Includes discussion on use of informants and methods of tracing fugitives.
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**OCCUPATIONAL EDUCATION**

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A survey of American Jurisprudence, pertinent historical background, and a study of both federal and state court systems and the procedures employed therein.

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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.

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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.
POLL 268 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.

POLL 271 JUVENILE DELINQUENCY AND PROCEDURE  W  3 hrs.
A survey of the various federal and state agencies and statutes involved in juvenile justice procedures. A discussion of the causes and effects of juvenile crime.

POLL 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.

POLL 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, including 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 in 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 non-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 land greater interest to the various offerings.

Through the College's cultural programs, students have opportunities 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.
**POLC 260 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.

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KEITH W. MILLER
B.A., M.A., University of Northern Colorado
Director of Community Services

NATHAN E. BRUNO
B.S., M.E.d., Colorado State University
Assistant Director of Community Services

CHARLES E. HENDERSON
B.A., M.A., University of Northern Colorado
Director of Audio-Visual Services

CLARENCE R. ROD WYNN
B.A., University of Northern Colorado; M.A., Adams State College
Director of Adult Physical Education Activities

MARTIN A. WENGER
B.A., University of Utah; M.L.S., University of Oklahoma
Director of Library Services

Division Chairmen

ROBERT R. RICE
B.S., Colorado State University; M.S., University of Illinois
Division of Biological Science and Home Economics

JAMES C. CARROLL
B.A., M.A., Western State College; Ph.D., Colorado State University
Division of Business

JAMES C. BEECHER
B.A., M.A., University of Northern Colorado
Division of Mathematics and Engineering

DARRELL E. BLACKBURN
B.S., M.S., Ed., M.Mus. Ed., University of Colorado
Division of Fine Arts

ELLEN E. WILLIAMS, R.N.
B.S., University of Denver; M.S., University of Colorado
Division of Health Programs

DALE W. SEWELL
B.A., M.A., Western State College
Division of Humanities

WAYNE W. NELSON
B.S., M.Ed., Western State College
Division of Physical Education and Recreation

WILLIAM J. FITTON
B.S., M.S., Utah State University
Division of Physical Science

DONALD A. MANDERS
B.S., Colorado State University; M.A., University of Colorado
Division of Social Science

HAROLD NOLLAN
B.S., Northern State College
Division of Trade and Industrial Programs

Department Heads

DONALD H. HOFF
R.F.A., University of Denver; M.A., University of Northern Colorado
Department of Art

WILLIAM R. BONNICK
B.A., Morris Harvey College; M.A., New York University
Department of Speech and Drama

Student Services

JAY W. INGMAN
B.S., M.S., Utah State University
Director of Student Services

TILMAN M. BISHOP
B.A., M.A., University of Northern Colorado
Assistant Director of Student Services

BRUTWIN J. SMITH
B.S., East Texas State University; M.A., Adams State College
Registrar and Associate Director of Student Services

RICHARD E. BACA
B.S., University of Colorado
Registrar; Special Staff Consultant

MARK L. STEWART
B.S., University of Colorado
Assistant Registrar

CARL M. KINNELL
B.S., M.S., Eastern Colorado State College
Counselor

JOHN H. JACOBSON
B.A., M.A., Adams State College
Assistant Director of Counseling Center

FRANK MILLER
B.A., Adams State College
Assistant Director of Counseling Center

LANCE M. OSWALD
B.S., M.S., University of Wisconsin
Assistant Director of Counseling Center

HAROLD E. HOPPE
B.A., M.S., Adams State College
Director of Admissions

ROBERT B. STOKES
B.B.A., University of Northern Colorado; M.A., University of Denver
Director of Admissions

BUD SHERWOOD
B.A., M.S., Colorado State University
Director of Student Services

HELEN H. SPERANZI
B.S., University of Colorado
Director of Health Services

ROBERT E. STOKES
B.S., University of Colorado; M.S., Colorado State University
Vocational Guidance Specialist

RAYMOND ALAN WRIGHT
B.A., University of Northern Colorado
Counselor Coordinator of Student Activities

Librarians

MARTIN A. WENGER
B.A., University of Utah; M.L.S., University of Oklahoma
Head Librarian

ELIZABETH COHEN
B.A., University of Colorado; M.A., University of Denver
Assistant Librarian

PAULINE MESSINGER
B.A., Bethany College; M.S., Emporia Kansas State College
Assistant Librarian

KATHLEEN E. TOWEY
B.M.E., M.A., University of Denver
Assistant Librarian

INSTRUCTIONAL PERSONNEL (1974-75 Faculty)

HERMAN C. ANDERS
B.S., University of Missouri; M.S., Highlands University
Business Law

CHARLES W. MAGO
B.A., M.A., University of Northern Colorado
Mathematics

BRUCE A. BAUER
B.S., Kansas State University; M.A., University of Missouri—Kansas City; B.A., University of Northern Colorado
Biology

VIRGINIA BEEVER
B.S., Northern Arizona University
Early Childhood Education

WALTER R. BERGMAN
B.S., M.Ed., Colorado State University
Physical Education and Recreation

RICHARD L. BENTLEY
B.A., Fort Lewis College; M.A., Eastern New Mexico University
English

FRANCES J. BENT
B.A., William Jewell College; Certificate, Kansas City Business College; M.A., Adams State College
English

WALTER J. BURKE
B.S., M.A., M.S., Ed., University of Denver
Music

DONALD C. BLACKBURN
B.S., M.S., M.Ed., University of Colorado
Chairman, Division of Fine Arts

ORVILLE J. HOFF
B.S., M.A., University of Northern Colorado
Chemistry

HAROLD NOLLAN
B.S., Southern Utah State College
Chairman, Division of Trade and Industrial Programs

LORRAINE BROOK
B.S., M.A., University of Colorado
Business

WILLIAM BROWN
B.A., M.A., Adams State College; M.S., Denver State College
Mathematics

C. JAMES BUCKLEY, JR., C.P.A.
B.A., Wartburg State College; M.S., Colorado State University
Accounting

TENNETT ANN CAPPS
B.S., M.S., Ed., University of Oklahoma
Business

FERRIS R. CARDIN
B.A., M.S., University of Houston
Speech and Drama

LORRAINE CALHOUN
B.A., M.A., Western State College
Business

VIRGINIA C. CARDELL
B.A., Western State College
Business

JAMES C. DAVIS
B.A., M.A., University of Northern Colorado
Business

DALE DICKINSON
B.S., M.S., University of Denver; M.Ed., Colorado State University
Business

LAURA DOUGLAS
B.S., University of Northern Colorado
Nursing

DAVID R. DUFF
B.A., University of Denver; M.S., Colorado State University
Graphic Communications

MARIE JOYCE EICHER
B.S., B.S., University of Colorado
Nursing

KEVIN L. FAHNNACHT
B.S., M.A., Utah State University
Welding

PATRICK FINCH
B.A., M.A., University of Northern Colorado
Psychology

JOE E. FREEMAN
B.S., M.Ed., University of Northern Colorado
Certified Instructor, State Board for Community Colleges and Occupational Education

RICHARD FRANKEN
B.A., William Jewell College; M.A., University of Oregon
English

JOHN J. FRYE
B.A., M.S., University of Denver
Physics
THOMAS S. MOIR
B.A., M.A., Western State College

MAE H. MUNY
R.N., University of Wyoming

WAYNE M. MUNSON
B.S., M.S., Utah State University

JAMES A. NEWTON
B.A., California State University

I. J. NICHOLSON
Chairman, Division of Physical Education and Recreation

JAMES W. OPENBRY
B.A., Vassar College

ROBERT R. PETERSON
English

ROBERT M. FERNER
B.A., University of Colorado, M.A., University of Wyoming

MORTON FERBER
Social Science

DEAN P. PHILLIPS
B.S., Architectural Engineering, University of Colorado; B.S., Business, University of Missouri; M.S., Stanford University

CHRISTOPHER F. RULEY
B.A., Marshall College in M.A., University of Michigan

LAWRENCE J. SULLIVAN
Chairman, Division of Physical Science

WILLIAM D. FINKEN
B.S., Colorado State College

L. M. WATSON
B.A., University of Washington

LEE A. WENNER
English

ROBERT B. RICE
Chairman, Division of Biological Sciences and Home Economics

SHARON A. RICHMOND
B.A., Grinnell College

EILEEN RICK
B.A., Western Michigan University

JACK E. ROBBINS
B.S., York College of Pennsylvania; Ph.D., Colorado State University

DAN RILEY
B.A., University of Northern Colorado; M.A., Western State College

MAI ROBINSON
B.S., University of Colorado

WILLIAM W. ROBINSON
B.A., M.P.A., University of Denver

DAVID E. ROGERS
B.A., University of New Mexico; M.A., Golden Gate University

JAMES A. ROWLEY
Electric Lineman

L. D. ROBBINS
Chairman, Division of Science Education

E. W. ROBINSON
B.S., University of Colorado

GARY L. ROBINSON
B.S., Eastern Washington College

WILLIAM F. ROGERS
B.A., Eastern Washington College; M.A., University of Colorado

DENNIS R. ROSE
B.A., University of Iowa; M.A., University of Colorado

PAUL L. SCHNEIDER
B.A., M.A., University of Northern Colorado

WILMA E. SCHMIDT
Director, Practical Nursing

DAN M. SCHROEDER
Chairman, Division of Humanities

ROBERT N. SCHRADER
B.A., M.A., Western State College

GENE R. STARK
B.A., M.A., University of Wyoming

THOMAS D. GRAYII
B.A., M.A., Adams State College; Ed.D., University of Northern Colorado

NANCY GUY
B.A., University of New Mexico

DONALD J. HARDY
B.A., University of Northern Colorado; M.A., Colorado State University

HELEN M. HARDY
B.A., Washington State University; M.A., University of Denver

BRUCE HARDY
Physical Education and Recreation

JAMES T. HARDY
B.S., Central Methodist College

EDWIN C. HAYES
B.A., M.A., University of Northern Colorado

JOHN F. HENDERSON
B.S., Texas Tech University; M.A.T., Colorado State University

SILAS B. HIGGINS
B.A., M.A., Western Kentucky University

ROBERT H. HILL
Walking

CHRISTOPHER M. HOLLOWAY
B.A., California State College; M.A., University of Colorado

MADGE HOPPER
B.A., Saint Paul College, M.A., University of North Carolina

CHEO HUMPHREY
Physical Education and Recreation

JAME S. JOHNSON
B.A., University of Colorado, M.S., University of Utah

ROBERT T. JOHNSON
B.A., M.A., Western State College

CHARLES T. JONES
English, Journalism, Student Publications

LLOYD D. JONES
B.A., Western State College

CARL M. KEEN
Mathematics and Engineering

DOUGLAS LAY
B.A., Western State College

MAURINE M. LIEGHAM
B.S., Oklahoma State University; M.E., Colorado State University

MULHOLLAND LANG
B.A., Ohio Wesleyan University; M.S., Clarkson College of Technology

CALVIN LARSON
B.S., Brigham Young University; M.A.T., Colorado State University

DANIEL M. LUXE
B.A., M.A., Western State College

DONALD A. McKEEN
Chairman, Division of Science Education

C. W. McKEEN
B.S., Colorado State University; M.A., University of Colorado

DAVID MANUEL
Agriculture

GARY L. MCCANN
B.S., M.S., Brigham Young University

TOM M. MANN
B.A., M.S., Utah State University

WAYNE MASON
B.S., M.A., Western State College

DONALD E. MEYERS
B.A., University of Denver; M.A., University of Northern Colorado

CLINTON MILLER
Auto Body

PATRICK F. MOLAN
B.S., University of Colorado

ELIZABETH MOSHER
Piano

MELDA MURPHY
B.S., University of Missouri; M.A., Ed.S., Western State College

LOUIE M. MURPHY
B.A., University of Colorado; M.A., Middlebury College

LLOYD MOUNTAIN
B.A., University of Colorado; M.A., Middlebury College
MARCELLA SULLIVAN ............................. Home Economics
B.S., M.Ed., Colorado State University

THOMAS J. SWANSON ......................... Physical Education and Recreation
B.S., Colorado State College; M.A., University of Northern Colorado

HARRY A. TISMAN, Ph.D. ..................... Psychology
B.A., M.A., University of Colorado; Ph.D., Colorado State University

CLIFFORD C. TIMPE ......................... Electronica
A.S., Westworth Military Academy; Western Radio Institute; Hughes Aircraft Factory Training School;
Marine Corps Systems Training (Instrumentation)

LOUISE TOLMAN ...................... Physical Education and Recreation
B.A., Brigham Young University

CLARENCE (RD) TOOMEY ........................ Physical Education and Recreation
B.A., University of Northern Colorado; M.A., Adams State College

WILLIAM M. TYLER .......................... Auto Mechanic
B.S., M.B., Colorado State University

MURIEL UHLHAUS ....................... Business
B.A., Western State College; M.A., Colorado State University

JANE VANDERKLOK, R.N. ............... Nursing
B.S.N., X.P.H., University of Michigan

DON M. WARNER ..................... Computer Science
B.A., California State University; M.A., Claremont Graduate School

ANNA J. WELLS, R.N. .............. Nursing
B.S.N., University of Northern Colorado; M.S.N., University of Colorado

KENNETH L. WHITE .................. Chemistry
B.A., M.A., Western State College

BYRON E. WIERSE .................. Physical Education and Recreation
B.A., M.A., Adams State College

EDWIN E. WILLIAMS, B.S. .......... Piano
B.S. University of Denver; M.S., University of Colorado

DONALD B. YOUNKER ................ Biology
B.S., Western Michigan University; M.A., D.D.S., University of Michigan

JOAN YOUNG ......................... Biology
B.A., University of Colorado; M.A., University of Kansas

ROBERT YOUNG ......................... Science
B.S., University of Colorado; Ph.D., Ohio State University

GAIL YOUNOQUIST .................... Business
B.A., University of Northern Colorado; M.A., Colorado State University

ROBERT J. YOUNOQUIST ............. Business
B.S., M.A., University of Denver, M.Ed., Colorado State University

APPLIED MUSIC TEACHERS
NORMA ASHTY .......................... Violin

MRS. JEAN BURT ........................ Organ

MRS. JOAN BURGESS .......................... Piano

MRS. MARY LEAH CHAVIS ......... Piano, Bass

MRS. GLENDA COLE .......................... Organ

MRS. ETHEL CROZ .......................... Piano

MRS. DONNA GONZALES ......... Oboe, English Horn

MRS. MARIE HUTTON .......................... Piano

KERRY HENSON .......................... Voice

MRS. MARGARET HUTTON ......... Piano, Organ

MARION LACROIX ..................... Trumpet

TED LOGS ......................... Voice, Piano, Organ

MRS. VONNA MILLER .......................... Piano

CHARLES MURPHY .......................... Voice

JOHN PETERSON .......................... Violin

KELLY PORTER .......................... Flute

PAT RILEY .......................... Cello

ALFRED URBACH .......................... Flute

MRS. GEORGIA WATKINS ............. Flute
MARCELLA SULLIVAN............................................................... Home Economics  
B.S. M.Ed., Colorado State University

THERMONE F. SWANSON.......................................................... Physical Education and Recreation  
B.S., Colorado State College; M.A., University of Northern Colorado

HARRY A. TEMANN, JR............................................................... Psychology  
B.S., M.S.A., University of Colorado; Ph.D., Colorado State University

CARRIE L. TEMPLE................................................................. Electronic  
A.S., Westwood Military Academy; Western Rediff Institute; Hughes Aircraft Factory Training School

LOUISE TELMANN................................................................. Physical Education and Recreation  
B.A., Brigham Young University

CLARENCE E. TOLDRICK......................................................... Physical Education and Recreation  
B.A., University of Northern Colorado; M.A., Adams State College

WILLIAM M. TYLER............................................................... Auto Mechanics  
B.S., M.S., Colorado State University

MURIEL UHLAUR ................................................................. Business  
B.A., Western State College; M.A., Colorado State University

JANICE VANDERKORTE, R.N.................................................. Nursing  
B.S.N., M.P.H., University of Michigan

DON W. WAKEM................................................................. Computer Science  
B.S., California State University; M.A., Claremont Graduate School

ANNA C. WALTER, R.N.......................................................... Nursing  
B.S., University of Northern Colorado; M.S., University of Colorado

KENNETH L. WHITE.............................................................. Chemistry  
B.A., M.A., Western State College

BYRON E. WHITE............................................................... Physical Education and Recreation  
B.A., M.A., Adams State College

RICHARD W. WILLIAMS, R.N............................................... Physical Education and Recreation  
B.S., University of Denver; M.S., University of Colorado

DONALD D. YOUNK ............................................................ Biology  
B.S., Western Michigan University; M.A., D.D.S., University of Michigan

JOAN YOUNG................................................................. Biology  
B.A., University of Colorado; M.A., University of Kansas

ROBERT YOUNG.............................................................. Science  
B.S., University of Colorado; Ph.D., Ohio State University

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B.A., University of Northern Colorado; M.A., Colorado State University

ROBERT D. YOUNGQUIST.................................................. Business  
B.B.A., University of Denver; M.S.E., Colorado State University

APPLIED MUSIC TEACHERS
NORMAN ASHLEY............................................................. Violin
MRS. JEAN BENT............................................................. Organ
MRS. ROSE SCHRAMM .......................................................... Piano
MRS. MARY LEAH CHAVEZ............................................... Piano, Bass
MRS. GLENDA COLE.......................................................... Organ
MRS. STREMY CHIKNEN................................................... Piano
MRS. DONNA GONZALES................................................... Oboe, English Horn
MRS. MARIE GODT............................................................ Voice
KERRY HENSON.............................................................. Piano, Organ
MRS. MARGARET HUPHMAN............................................. Piano, Organ
MRS. LINDA LACOSSE...................................................... Trumpet
TED LORIE................................................................. Voice, Piano, Organ
MRS. VONDA MILLER.......................................................... Voice
MRS. JANE MYERS............................................................ Piano
JOHN PETERSON............................................................. Violin
ALLEN PETERSON............................................................ Flute
PAT REILLY............................................................... Guitar
ALFRED URBACH............................................................. Cello
MRS. GEORGIA WATTS...................................................... Flute

EMERITI
William A. McVey, B.S., M.P., M.A., R.D., President
W. Lowell Henry, B.A., M.A., E.D., Vice-President
Mary Bart, B.A., M.A., Vice-President
Kenneth L. Kline, B.A., M.A., Dean of Special Services
Mary M. Coleman, B.S., M.D.S, Mathematics
J. Leon Daily, B.A., M.A., Social Science
Matte F. Dreyer, B.A., M.A., P.D., Registrar
Virginia Falgum, B.A., M.A., English
Marilyn George, B.A., M.A., English
Eugene L. Hensel, B.A., M.A., Director of College Center
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Melvin A. Miller, B.A., M.A., Chairman, Division of Physical Sciences
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George Monis, B.S., M.A., Mathematics, Engineering
Pearl M. (Dee) Randolph, R.N., Director of Student Health Services
Alice Redding, B.S., M.P.A., Chairman, Division of Fine Arts
Elaine E. Reilly, B.A., M.A., Biology
Bertha L. Shaw, B.A., M.A., Physical Education
**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.

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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 23.

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.

<table>
<thead>
<tr>
<th>Course No.</th>
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<td>BENC 120</td>
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<td>College Algebra and Trigonometry</td>
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