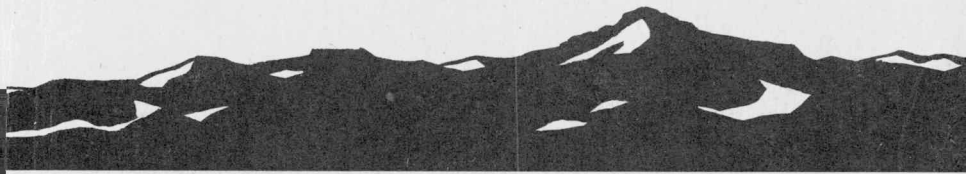


Library 97

THE
UNIVERSITY
OF NORTHERN
COLORADO



BULLETIN
1973 & 74

University of Northern Colorado



GRADUATE SCHOOL CATALOG 1973-74

Effective dates: June 1, 1973 to May
31, 1974.

THUMB INDEX

General Information	4
Academic Information	9
Fees and Expenses	27
Departmental Program Requirements	32
Graduate Course Descriptions	116
Board of Trustees	227
General Administration	227
Graduate School Faculty	228
Graduate Council Members	243

Bulletin Series LXXIII ●
April, 1973 ● Number 4

Published Monthly. Publications
Office, UNC. Entered as Second
Class Matter and postage paid at
the post office at Greeley, Colorado
80639.

SEPTEMBER

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

OCTOBER

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

NOVEMBER

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

DECEMBER

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

JANUARY

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

FEBRUARY

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28		

MARCH

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

APRIL

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

MAY

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

JUNE

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

JULY

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

AUGUST

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

UNIVERSITY CALENDAR

1973-1974

Summer Quarter, 1973

- June 12—Registration for 10-week classes (All other classes may be enrolled for at this time)
- June 13—Classes Begin
- June 19—Registration for 8-week classes (Classes that have not begun may be registered for at this time. Subsequent classes may be registered for on the first day of those classes.)
- July 4—Independence Day
- July 23-27—Mid-term Week
- August 15—Commencement (10:00 a.m.)
- August 17—Quarter Ends

Fall Quarter, 1973

- September 17—Laboratory School Opens
- September 21—New Undergraduate Students Report
- September 24-25—Registration
- September 26—Classes Begin
- October 29—November 2—Mid-term Week
- November 9-10—Winter Quarter Preregistration (No classes November 9)
- November 20—Thanksgiving Vacation (Begins after last class)
- December 8—Commencement (10:00 a.m.)
- December 11—Quarter Ends

Winter Quarter, 1974

- January 2—Registration
- January 3—Classes Begin
- February 7-14—Mid-term Week
- February 15-16—Spring Quarter Preregistration (No classes February 15)
- March 9—Commencement (10:00 a.m.)
- March 14—Quarter Ends

Spring Quarter, 1974

- March 25—Registration
- March 26—Classes Begin
- April 22-26—Mid-term Week
- May 3-4—Fall Quarter Preregistration (No classes May 3)
- May 27—Memorial Day (No classes)
- June 1—Commencement (10:00 a.m.)
- June 6—Quarter Ends

Summer Quarter, 1974

- June 11—Registration for 10-week classes (All other classes may be enrolled for at this time)
 - June 12—Classes Begin
 - June 17—Registration for 8-week classes (Classes that have not begun may be registered for at this time. Subsequent classes may be registered for on the first day of those classes.)
 - July 4—Independence Day
 - July 15-19—Mid-term Week
 - August 14—Commencement (10:00 a.m.)
 - August 16—Quarter Ends
- (There will be classes Friday, July 5, 1974.)

GENERAL INFORMATION

The University of Northern Colorado is primarily concerned with the needs and welfare of students and directs its major attention to classroom teaching. It seeks to provide all students with a broad general education as well as preparation for selected professions (within the fields of business, education, health services, music, and related areas) and pre-professions (such as pre-law, pre-medicine, and others). Historically, a principal emphasis has been upon preparing students for careers in education.

A wide variety of program offerings are organized within eight schools and colleges (College of Arts and Sciences, College of Education, School of the Arts, School of Business, School of Educational Change and Development, School of Health, Physical Education and Recreation, School of Music, and School of Nursing). Advanced programs are offered through the Graduate School, and an Air Force officer's program is available through the Division of Aerospace Studies.

For the convenience of students, the academic calendar is arranged on the quarter system, with new students being permitted to enter at the start of any quarter and to be enrolled continuously through all four quarters. This allows completion of the usual four-year baccalaureate program within three years if the students prefers. The quarters are of approximately equal length, beginning respectively in September, January, March, and June.

Location. The university is located in a residential area in the southern part of Greeley, Colorado, a city with a population of about 40,000 situated 30 miles from the front range of the Rocky Mountains. It lies roughly 50 miles north of Denver and 50 miles south of Cheyenne, Wyoming, at an elevation of 4,648 feet above sea level. The climate is dry and relatively mild.

Accreditation and Affiliation. The university is a member of and accredited by the North Central Association of Colleges and Secondary Schools (since 1916).

Various of its academic programs have special accreditation by the following: American Chemical Society (1968), Colorado State Board of Accountancy (1967), Colorado State Board of Nursing (1965), National Association of Schools of Music (1967), National Council for Accreditation of Teacher Education (1960), and National League of Nursing (1966).

The institution holds membership in the American Association of Colleges for Teacher Education, the American Association of State Colleges and Universities, the American Council on Education, the Council of Graduate Schools in the United States, the Midwest Conference on Graduate Study and Research, the Western Association of Graduate Schools, and other educational organizations.

Placement Service. The Placement Center serves all persons who have completed programs of study at the University of Northern Colorado and who enroll for the service. A file of credentials is maintained for each registrant for a period of five years but must be updated at the end of each five years or earlier in order to keep the information correct and therefore of use to potential employers. Records not renewed in five years are destroyed.

The Placement Center cannot guarantee employment but acts as an effective liaison between applicants for positions and educational institutions, business concerns, and government agencies. Interviews are arranged, and the applicant receives information regarding positions, methods of applying, interview procedures, and the like.

Vacancy notices from schools are sent to the Placement Center throughout the year, the greatest number being received between January and June for positions available the following September.

Libraries. The main University Library is located on the West Campus and incorporates some of the latest equipment and techniques known to library sciences to provide the materials and services necessary for student and faculty research and study.

A special reserve book facility and reading room, photo-duplication services, microfilm reading and storage, and a rare books room are included in the building. A multipurpose room (little theatre) which seats 300 is also provided.

The library materials collection, housed largely in the University Library, contains over 300,000 volumes, including periodicals, government documents, pamphlets, reference materials, and over 150,000 microforms. The stacks are open to all students and other patrons. Individual and group study facilities are located near all stack areas.

The music library is located in Carter Hall 307. Selected library volumes, including music reference materials, together with music recordings, scores, and listening equipment are available.

The Educational Resources Center is located in McKee Hall. Here education materials, textbooks, curriculum guides, and testing materials are available for the student who is preparing to teach.

The Laboratory School libraries (K-6 and 7-12) are located in Bishop-Lehr Hall. The best of children's and young adult literature has been gathered in approximately 23,000 volumes, together with other learning media, for the laboratory school student and faculty use. University students preparing to teach also find this facility and its collection worth examining.

For library orientation, a handbook entitled *A Guide to the Libraries* is available at the main desk of the University Library. Tours and special instruction in library use are available on request.

Instructional Materials Center. Services provided by the Instructional Materials Center cover the range of educational media. The center provides a media consulting service for faculty and others, and questions concerning audio-visual needs should be directed to this office.

Faculty film requests and orders are processed by this department. A library of 2,000 films, 900 filmstrips, several hundred audio recordings and numerous video tapes is available. All audio-visual equipment and films for the university are centrally located, supplied, and maintained in the center. Student projectionists are provided for faculty members who desire this help.

Audio production studios provide tape recording and duplication services. A graphics production staff is also available in the center for the creation and reproduction of visual and photographic instructional materials. Through the facilities of the Instructional Television (ITV) division, a complete production studio is available. A three channel distribution system allows for playback of videotapes or distribution of locally originated live telecasts to most buildings on campus. Portable video units utilizing ½-inch video tape are also available on loan from the IMC.

Educational Planning Service. Consultant services for school districts and educational institutions are provided through the Educational Planning Service, which is organized to utilize the experience and specialized knowledge of the entire university faculty. Services to schools and colleges include curriculum planning, administration and organization problems, planning educational facilities and planning for higher education. The Educational Planning Service is a self-supporting, non-profit activity with the fees for services set on a cost basis.

Bureau of Business and Public Research. The bureau's primary mission is to provide research and consultative services to business and government organizations. It has been officially designated by the U.S. Department of Commerce as a Census Summary Tape Processing Center and has assumed responsibility for establishing and coordinating the development of a regional planning data depository for the Northern Colorado area.

Bureau of Research. Consultative services are provided to the university, individual faculty members, doctoral students, public schools and other educational organizations. Services include aid in preparing statistical designs, drafting of proposals for research funds and grants, dissemination of research reports, and aid in other phases of research and development. University and public school organizations are assisted in planning test programs, large scale research projects, innovative projects, and program evaluation.

Insurance Institute. The function of the Insurance Institute is to formulate insurance courses and other insurance programs in cooperation with the School of Business and insurance industry and to act as coordinator of these courses and programs. Special emphasis is placed on undergraduate work in insurance and on in-service training for insurance industry personnel in academic work leading to advanced professional designations.

Computer and Data Processing Center. The facilities are used to support academic programs at all levels. The center is available to all students, faculty, and staff for course work and/or research projects. In addition, the administrative data processing facet of the university is processed by the center. The center staff provides consulting service and assistance to all users.

Rocky Mountain Special Education Instructional Materials Center. An integral part of the special education program at the University of Northern Colorado is the Rocky Mountain Special Education Instructional Materials Center. This facility is one of 12 such centers in the United States supported by funds from the U.S. Office of Education. The center's chief function is to provide for acquisition and lending services of special education instructional materials to educators in a five-state area, including Montana, Wyoming, Colorado, Utah and New Mexico.

Special education students at the Greeley campus find the center's storage of materials and information services helpful in their studies and research. The center puts within the reach of students and educators alike an ever-expanding wealth of the latest in instructional materials.

Center for Special and Advanced Programs. The Center for Special and Advanced Programs has been created to meet the educational needs of the employed adult. Programs are designed to enable students to obtain degrees without undue interference with full-time employment.

The program uses a flexible course format which permits the fully employed adult to participate in a full-time degree program that specifically utilizes and builds upon his work experience and allows the student to develop a program that will be relevant to his career objectives. Seminars preceded by directed readings, workshops, lectures, discussions, case studies, and individual study and research form the basis for much of the course work.

For further information and a special catalog, address the Campus Director for the Center for Special and Advanced Programs.

Health Services

The Student Health Center offers examination, treatment, and limited dispensary facilities with registered nurses in attendance at all times during the day and with physicians present from 7 to 10 hours per day, Monday through Friday.

Off-Campus Services are available to all full-time students through a contract with the Medical Staff of the Weld County General Hospital. A student may go to the office of any physician included in the contract or, if necessary, the physician may make a home call. No hospital benefits are included. To obtain service, the student must show his current I.D. card. A list of physicians, their telephone numbers, and the services provided are listed in a yellow pamphlet distributed at registration. Doctor's charges are paid at the end of each quarter within the limits provided in the contracts. Students who are on off-campus assignments, outside the boundaries of Weld County, are provided comparable services in the area of their assignment. Instructions for this service are explained in the pamphlet.

A Student Group Hospitalization and Accident Insurance Policy which provides supplementary medical and surgical care for a low cost per student per quarter for *full-time* students is contracted for by the university. Dependent coverage is available on an optional basis the first quarter of enrollment each school year, full annual premium or the prorated amount required.

A Student Health Services Brochure is provided which may be consulted for further details regarding all services described above.

Copies of Medical Records will be sent to another institution for a \$2.00 fee.

Housing

Student Residence Halls. Room and board, or room only (apartment type) accommodations are available in university residence halls for undergraduate or graduate students on a contract basis for the full school year consisting of the fall, winter and spring quarters. No student is permitted to break this contract unless he withdraws from the university or marries and establishes a household with his spouse. Residence in these halls provides social, educational and cultural advantages to the student. Each hall is under the supervision of a director chosen for his or her experience and interest in the personal and social growth of college-age students.

Linen and Bedding. Students provide their own personal linens and towels. The university furnishes and launders bedding in the residence halls.

Dining Rooms. Students living in the room and board residence halls have their meals in the dining rooms maintained on the campus. Rates are established on a room-and-board basis. These rates may vary slightly depending upon location and size of the room as well as upon any marked fluctuations in food costs. Such changes are authorized by the Board of Trustees. Notification of changes in rates is given at least 30 days in advance of any school quarter.

Married Student Housing. There are 98 permanent two-bedroom furnished apartments available for students and their immediate families. These units are located on university-owned property near the residence halls on the east campus between 17th and 18th Streets. Applications for rentals are made to the Director of Student Housing, University of Northern Colorado, Greeley, Colorado 80639. A \$50 deposit must accompany an application for all married housing units.

Off-Campus Housing. The Housing Office provides limited assistance to obtain housing in the city of Greeley. Board is available in the residence halls on a contract basis for students living off-campus.

The Housing Office assists students who cannot find university housing by maintaining current lists of private rooms, apartments and houses that are available in the Greeley area. Students seeking off-campus residence are advised to arrive on campus early.

Only those persons who agree to the Colorado Fair Housing Act of 1959 are eligible to be listed with the University of Northern Colorado. The University of Northern Colorado does not inspect nor approve off-campus housing.

Financial Aids

The University of Northern Colorado offers a wide variety of financial aids for deserving and needy students.

Graduate students should apply to the Office of Financial Aids for loan or Work-Study assistance only. Graduate students interested in applying for assistantships, fellowships, traineeships, grants, or scholarships should write to the appropriate academic college, school or department.

For information regarding teacher assistantships and fellowships in the area of Special Education, the applicant should write to the Dean of the School of Special Education and Rehabilitation, University of Northern Colorado.

Graduate students who wish to apply for loan or Work-Study assistance are required to submit a copy of the Family Financial Statement (FFS) to the Iowa City office of ACT by February 15 each year, designating the University of Northern Colorado as one of the recipients. The FFS form may be obtained by writing to the Director of Financial Aids at the university.

Applications for financial assistance during the academic year must be received by the Office of Financial Aids at least 60 days prior to the start of Fall, Winter, Spring, and Summer Quarters.

The Family Financial Statement is the initial application for all forms of financial aid.

Loans. The University participates in the National Direct Student Loan Program, Federally Insured Student Loan Program, and its own Short-Term Loan Program. Loan applicants must show financial need and at least average academic potential. Address all inquiries to the Director of Financial Aids, University of Northern Colorado.

Employment. Federal College Work-Study Program awards are available to qualified students for on-campus employment. In order to determine eligibility, students are required to submit the ACT Family Financial Statement. The University rate of pay is based on the minimum wage law, with consideration given to types of skills required on the job.

The University also endeavors to assist students in securing off-campus employment. Off-campus hours and rates are determined by the individual employer.

Veterans Eligible for "G.I." Educational Benefits. All ex-service personnel entering under the Veterans' Education and Training Program must present a Certificate of Eligibility valid for use at the University of Northern Colorado. This Certificate must be presented to the Veterans Counselor in the Office of Financial Aids at the time of registration. To obtain the Certificate of Eligibility, students are required to submit the Veteran's Application for Program of Education or Training (VA Form 21E-1990) to the nearest Veterans Administration Regional Office at least six weeks prior to the expected date of enrollment.

Veterans transferring from one institution to another should request new Certificates of Eligibility by submitting a Request for Change of Program or Place of Training (VA Form 21E-1995) to their nearest Veterans Administration Regional Office at least six weeks prior to enrollment at the University.

Further information concerning Veterans' Affairs may be obtained from the Office of Financial Aids at the University of Northern Colorado.

Other Awards

Oliver M. Dickerson Memorial Scholarship—The fund was established to perpetuate the memory of Oliver M. Dickerson by providing a fund, the income of which shall be at least \$1,000 annually, which amount is to be awarded annually to an able and deserving university graduate recommended by the Scholarship Committee of the Department of History to do graduate work for an M.A. degree in the field of history at the University of Northern Colorado.

Elizabeth P. Hall Memorial Graduate Scholarship in Biology—The Elizabeth P. Hall Memorial Graduate Scholarship of \$500 is established to assist in the continued education for one year of the most promising baccalaureate graduate specializing in any biological science, who would be unable otherwise, for financial reasons, to enter the Graduate School of the University of Northern Colorado. The recipient will receive during the ensuing academic year ten installments of \$50 each.

ACADEMIC INFORMATION

Program. The University of Northern Colorado offers advanced programs of professional work leading to the Master of Arts degree, Master of Science degree, Specialist in Education degree, Doctor of Arts degree, Doctor of Education degree, and Doctor of Philosophy degree. Graduate study was first offered during the Summer Session of 1913. In 1929 the Board of Trustees authorized the offering of a program leading to the doctoral degree and in 1952 the specialist degree was approved. The first master's degree was conferred in 1914, the first Doctor of Philosophy degree in 1934, the first Doctor of Education degree in 1939, and the first Doctor of Arts degree in 1970.

Organization. The members of the Graduate Faculty are designated by the President of the university from the regular faculty, after nomination by the appropriate Deans and department chairmen, and approval by the Graduate Council and the Dean of the Graduate School. The Graduate Faculty establishes the policies for graduate work. In the interim between meetings of the Graduate Faculty, the Graduate Council makes necessary decisions.

Effective Dates of this Catalog. The effective dates of this catalog are from June 1, 1973 to May 31, 1974. Students *enrolling* for the first time at the university during these effective dates will follow the regulations and requirements in this catalog until their graduation.

Admission. Candidates for all graduate degrees must file with the Dean of the Graduate School an application and two copies of certified transcripts of all previous academic credits *thirty days before registration*.¹ The application for the master's degree or the graduate student certification program must be accompanied by a \$10.00 non-refundable transcript evaluation fee. The university requires that the Graduate Record Examination Aptitude Test scores accompany the doctoral application.

Following admission of the student, one copy of his application and one copy of the transcript(s) are placed in *his* file in the Graduate School Office. Two Xerox copies of the application and one copy of the transcript(s) are sent to the major adviser via the department chairman or school dean who has made the appointment of the major adviser. The adviser should keep one copy of the application (ADVISER'S COPY) and the transcript(s). The other copy of the application (STUDENT'S COPY) should be handed by the adviser to the student. *Initial* admission to any graduate program remains valid for one calendar year. If admission requirements have been changed after one year has elapsed, the student must satisfy the new requirements.

A student who has not received an official admission letter from the Graduate School Office has *not* been admitted to a graduate degree program.

Disadvantaged Student. Special criteria have been established for admission of a disadvantaged student. Such students may be considered for admission to a graduate program by petition to the Special Graduate School Screening Committee.

¹Foreign students must file application and transcripts sixty days before registration.

English Proficiency for International Students. The Test of English as a Foreign Language (TOEFL) is required for all students with a native language other than English. The scores must be sent to the Graduate School Office. Arrangements to take this test can be made by writing to:

Test of English as a Foreign Language
Educational Testing Service
Box 899
Princeton, New Jersey, U.S.A., 08540

Students who wish to take TOEFL in Hong Kong, India, Nepal, or Taiwan should obtain information from:

Test of English as a Foreign Language
Examinations Section
Education Department
Canton Road Government Offices
11th Floor
Canton Road, Kowloon
Hong Kong

Test of English as a Foreign Language
Bureau of Educational Research
Ewing Christian College
Allahabad 3, U.P., India

Language Center
2-1, Hsu-chow Road
Taipei, Taiwan (100)
Republic of China

Health. Each graduate student in a degree program shall submit to the Student Health Service of the university a health report which is acceptable to the staff of the Student Health Service indicating the student is in good physical and mental health, has no communicable disease, and has no defects or deficiencies which would hinder satisfactory progress in his curriculum.

Photographs. Each student is requested to furnish two photographs for the official files of the university. These photographs are for identification purposes only and not a criterion for admission.

Course Work May Count for Next Degree. Students in the last quarter of academic study for one degree may register for graduate courses which are in excess of the requirements for that degree when application for admission to the next higher degree program has been filed *prior* to the final quarter. If a student is admitted, he *must* complete a Petition to Count Work on the Next Higher Degree in the quarter *prior* to enrolling in the course(s). Students will be held for final examinations in the courses taken for the next higher degree. At least three quarters must elapse between the granting of two degrees.

Registration and Advisement. The Dean of the Graduate School will request the department chairman or school dean to appoint an adviser for those students who have completed admission requirements. All degree programs will be planned with and approved by the student's adviser.

If a student wishes to change his major, he must complete a Request For Change of Major form at the Graduate School Office. The request is forwarded to the departments involved for acceptance or rejection and the departments will return the form to the Graduate School Office. If permission is granted, the Dean of the Graduate School requests the new department chairman to appoint an adviser and notifies the former adviser of the change.

Unclassified Graduate Student. Each student is urged to apply for a degree program at the beginning of his graduate experience. However, graduate students who are not candidates for advanced degrees or who have not been

admitted officially to a degree program may register as unclassified students. None of the work taken by a graduate student who is enrolled in an unclassified status may be counted in meeting the minimum residence requirements. All residence requirements must be completed after the student has been admitted to a degree program. The Assistant to the Dean of the Graduate School, or one designated by him, must sign the registration forms of all unclassified graduate students. If an unclassified graduate student later decides to apply for admission to a degree program, a maximum of one quarter (or 15 quarter hours), of completed unclassified graduate work may be counted in his degree program if not needed to satisfy the minimum grade point average for admission. An unclassified graduate student who wishes to have his unclassified course work made applicable to his degree program must complete a petition at the Graduate School Office to transfer work to a degree program during his first quarter of residence following his admission.

Student Responsibility. The graduate student is expected to know the requirements for the degree he plans to earn. While the personnel of the Graduate School Office and the student's adviser will endeavor to aid in every way possible, the responsibility for any error in his enrollment or in the interpretation of the rules rests with the student.

Citizenship Standards. University of Northern Colorado students neither gain nor lose any of the rights or responsibilities of other citizens by virtue of their student status. They are subject to the same federal, state, and local laws as non-students, and they are the beneficiaries of the same safeguards of individual rights as non-students.

Specific rights, responsibilities and codes of conduct are listed in university publications and are communicated through groups and organizations of the university community by meetings, publications, and contracts. It is the student's obligation to conduct himself as a responsible citizen and to abide by the university's stated rules and regulations. In developing responsible student conduct, counseling, guidance, and admonition, as well as disciplinary proceedings are used. Student conduct involving minor infractions of university regulations will subject the student to disciplining probationary action by the university. Student conduct involving major infractions of university regulations will subject the student to suspension or expulsion from the institution.

Competency in English Usage and Speech Skills. A student is expected to have such competency in English usage and such speech skills as will enable him to progress satisfactorily in his chosen curriculum and to perform adequately when in his later vocation.

A student may be counseled or required by a faculty member, department and/or adviser to enroll in the writing laboratory and/or in a speech course.

English Style Form Standards. *A manual for Writers of Term Papers, Theses and Dissertations*, Third Edition, Revised, by Kate L. Turabian, is the standard style form to be followed for all written material. There are exceptions in some colleges, schools and departments and the student should check with his major department to determine the specific style form to be used in that discipline. Turabian manual is available for purchase in the University Bookstore.

Academic Freedom and Ethics. Every graduate student, when acting or speaking as an individual citizen, has the same rights and obligations as any other citizen. The graduate student also enjoys the special rights and responsibilities always associated with professional knowledge and competence. Thus the student is expected to know and follow the stated regulations of the Graduate School and also to learn and apply in his academic and professional life the standards of ethical practice acceptable in academic circles. Violations of published regulations or of professional ethics may be brought to the attention of the student by the faculty and in severe cases may result in suspension or expulsion from the program.

Course Numbers. Courses numbered 500 to 799 may be taken for graduate credit only. Courses numbered 700 to 799 may be taken for specialist or doctoral credit only.

With the exception of the Educational Field Experiences courses (EDFE 553 and EDFE 563) all courses bearing catalog numbers of 500 or above carry graduate credit.

No graduate student may count in his degree program more than fifteen (15) hours of work in courses numbered in the 300's and/or 400's (courses open to juniors and seniors). Educational Field Experiences courses bearing catalog numbers of 499 or below, and EDCI 341 do *not* carry graduate credit.

Schedule of Classes. The university publishes a Schedule of Classes Bulletin which lists courses being offered during Fall, Winter and Spring Quarters. Courses offered in the Summer Quarter are listed in the Summer Bulletin.

Course Load, Credit, and Off-Campus Courses. The normal load for graduate credit applicable to a degree is fifteen hours per quarter. Overloads (16 to 19 quarter hours) must be approved by the Dean of the Graduate School. Under no circumstances may a student count in a degree program more than 19 hours of *course work* in a fall, winter, spring, or summer quarters; more than 16 hours in an eight weeks summer session; or more than 9 hours in a five week enrollment.

Graduate credit is not given for any course taken by correspondence.

A student may register for a class for no credit by paying appropriate tuition fees. The registration card should be stamped no credit by the Registrar.

A student may earn a maximum of fifteen quarter hours of credit applicable to a degree program in off-campus courses or Tele-Lecture courses offered by the University of Northern Colorado.

Attendance. Regular attendance in all classes will be assumed and encouraged. The instructor will determine the relationship between class attendance and the objectives of his class and the way in which he will evaluate attendance as a factor in the achievement of the student.

The instructor has the responsibility to inform students of his policies as these policies relate to the students' grades. The student also has the responsibility of knowing the policies in each course.

Withdrawal from Class. When a student registers for a class, he is considered to be a member of that class. If he should wish to withdraw from the class, he must first obtain a withdrawal form from the Records Office and obtain the signature of the faculty member teaching the class from which he desires to withdraw. If the faculty member refuses to sign the withdrawal form the student should contact the Student Personnel Office. No withdrawals from class are permitted during the last two weeks of a quarter. Withdrawal deadlines for each quarter are posted in the Schedule of Classes.

Grading System. Alphabetical grades are used: A, B, C, D, F. Other marks used are "Inc." incomplete; "W" withdrawal; "TF" unapproved withdrawal; "S" satisfactory or "U" unsatisfactory. If an "Inc." has not been cleared during the following academic quarter, that grade will remain on the student's permanent record and the student must again enroll in that course to receive credit for satisfactory completion.

Each of the letters of the grading system has a numerical value. The letter "A" has a value of 4 points per unit of credit; "B" a value of 3 points; "C" a value of 2 points; "D" a value of 1 point; and "F" a value of zero.

No student grade can be changed after the first two weeks of the quarter following the receipt of the original grade by the Recorder.

Limitations on Enrollment

1. Members of the faculty of the University of Northern Colorado above the rank of instructor will not be granted a graduate degree at this institution.

2. Only one doctorate may be earned at this institution.

3. A student who has earned two degrees at this institution must secure approval from his major department to pursue another degree at the University of Northern Colorado.

4. Minimum Grade Average in Graduate Courses Taken at University of Northern Colorado to Continue in Degree Programs:

a. A graduate student must maintain a cumulative 3.00. If he drops below 3.00, he is sent a warning letter. If he drops below 3.00 a second quarter, his degree program is terminated.

A student must have a 3.00 *before* final credit is given for a thesis, a specialist practicum, or a dissertation.

5. If a student has graduate degree program terminated because of low grade average or because of failure to pass the retake of the comprehensive examination he will not be admitted to another graduate degree program.

Graduation Exercises. Students are encouraged to attend graduation. Those who choose not to participate must notify the Graduate School Office at least two weeks prior to graduation. Students who participate in graduation are required to wear appropriate academic costume.

After the application for graduation has been filed, the student must inform the Graduate School Office of any change in his proposed quarter of graduation so that his name will be again placed on the graduation list. This notification must be made by the end of the second week of the quarter in which he plans to graduate.

Student's Right of Appeal. A graduate student must petition the Graduate Council to waive a Graduate School rule published herein. Petition forms are available in the Graduate School Office. The petition must be completed and signed by the student, signed by the adviser (for transmittal only) and be presented to the Graduate School Office at least one week prior to its consideration by the Graduate Council. The last Thursday of each month is "petition day" at which time student petitions are considered. If a majority of the members of the Graduate Council vote that strict enforcement of the published rule would be a manifest hardship on the student, the rule will be waived for the petitioning student.

Teacher Education

The University of Northern Colorado offers a certification program for the individual who holds the Bachelor's degree in a non-teacher education program or who holds a Bachelor's degree in a teacher education program but now wishes a recommendation for certification in a different area. Students pursuing this UNC certification program are not automatically enrolled in a Master of Arts degree program. Separate application must be made to the Graduate School for the latter.

To enroll in the Graduate Certification Program, an individual must make formal application with the Graduate School for admission in order to pursue this program. The application must be accompanied by a \$10.00 transcript evaluation fee. The prospective student indicates in which teaching area he wishes to seek certification; i.e., elementary education or a specific secondary teaching area such as English or Chemistry. The Graduate School must be supplied with two complete and official transcripts of all previous work. *A grade point average of C+ (2.70) is required to be admitted. Applicants having a grade point average between 2.50 and 2.69 may be admitted by the Dean of the Graduate School on departmental recommendation accompanied by a statement of the reason for the recommendation. The Dean will take the recommendation of the department into account in making his admission decision. His decision shall be final.* Also the student must submit a report of a health examination. A completed health report should be mailed to the Graduate School by the student's personal physician. Appropriate forms are available from the Graduate School.

Recommendation for teacher certification presupposes the successful completion of the three basic components of Teacher Education: 1. General Education; 2. Professional Education; and 3. Subject Matter Specialization. In order to secure a University of Northern Colorado institutional recommendation for certification an individual must meet the university's standards as to quality and quantity in each of the three categories mentioned above with respect to work taken prior to coming to the University of Northern Colorado and after arrival on the campus.

Graduate Certification Program: Basis of Evaluation

- A. Satisfactory completion of college or university course work in the following areas: 1. Communications; 2. General Psychology; 3. Humanities; 4. Personal Living; 5. Science; 6. Social Science.
- B. Satisfactory completion of professional education courses which are the following: (students may receive exemptions on the basis of evaluation of transcripts from previously attended colleges or universities except as noted).

Professional Education:

Course No.	Course Title	Hours	Credit
EDF	365—Basic Concepts of Education	5	
EDF	485—Philosophy of Education	3	
•EDFE 360	to 390—Introduction to Student Teaching (appropriate to Specialization) 2		
•EDCI	341—Methods of Teaching (appropriate to Specialization)	3	
	or		
	equivalent methods of teaching		
PSY	341—Educational Psychology	5	
•EDFE	—Terminal Student Field Experience for initial teacher certification	18	

*These specific courses MUST be satisfactorily completed AT THE UNIVERSITY OF NORTHERN COLORADO.

- C. Satisfactory completion of courses designated by the school or department concerned upon the basis of an evaluation of transcripts from previously attended colleges and universities.

Once admitted to the certification program by the Graduate School, transcripts are forwarded to the Assistant to the Dean, College of Education for evaluation with respect to General Education and Professional Education. He first forwards the transcripts and evaluation form to the academic teaching area for evaluation with respect to the teaching area selected. An adviser is then appointed by the department involved. Every student thus evaluated will receive a copy of the evaluation which indicates exactly what course work must be completed in order for him to be recommended for certification. Information is available in Room 518, McKee Hall of Education.

Professional Teacher Education Program

Graduate students who have been admitted to the Graduate School of the University of Northern Colorado for the purpose of meeting certification requirements automatically are afforded tentative admission to the Professional Teacher Education Program (PTE) for their first quarter in residence. However, tentative admission does *not* constitute full admission. Admission is based upon scholarship, personality, character and the physical characteristics requisite to successful teaching. They must submit their applications for formal admission to PTE during the *first two weeks of the first quarter* of enrollment (not mailed in ahead of time).

The applications for PTE will then be checked and if they are complete the graduate students who submitted them will be afforded a quarter of probationary admission. A graduate student's application for formal admission will be reprocessed at the beginning of his second quarter in residence and the student will be notified by letter of the Professional Teacher Education Committee's action concerning the application. No formal admission is granted without a positive recommendation from the schools or departments offering the teaching programs for which recommendation for certification is sought; therefore, every graduate student seeking certification must obtain the guidance of his adviser at the time of his first registration concerning special school or departmental requirements for recommendation for both PTE admission and certification. School or departmental recommendation implies satisfactory completion of work in programs related to basic school or departmental requirements. Application forms and directions may be secured from the College of Education office, Room 518, McKee Hall.

Any student who changes his teaching area after being admitted to PTE must file a new application for evaluation in the new teaching area.

If at any time after admission to PTE a department or school wishes to revoke its endorsement of a candidate a statement of desire for removal of the

candidate must be presented to the Professional Teacher Education Committee.

Any student admitted to PTE who is placed on probation or suspended by the university is automatically afforded the same status with respect to PTE. Students suspended and later readmitted to the university must reapply for admission to PTE.

Any student who has had his admission to PTE revoked or who has been denied admission to the Professional Teacher Education Program may request a hearing from the Chairman of the Professional Teacher Education Committee. The hearing shall be scheduled within ten days of the date the request is filed provided the university is in session at that time. The results of the hearing held by the Review Sub-Committee of the Professional Teacher Education Committee shall then be transmitted in writing to the student within 24 hours.

Educational Field Experiences

Quarterly student teaching and year-long internship assignments are available in cooperating school districts throughout the state. These placements are made with the approval of the Director of Educational Field Experiences, upon the recommendation of the students' academic department and of the Professional Teacher Education Committee.

The minimum requirement for a teaching certificate is 18 quarter hours. Only limited student teaching placements are available in the summer quarter.

The following requirements must be completed before beginning *student teaching*:

1. Completed at least two quarters as a full-time student on the university campus. A minimum of 10 quarter hours per quarter is considered a full-time load for graduate students.
2. Completed the following courses or an approved equivalent: PSY 340 and EDF 365.
3. Completed a minimum of 18 quarter hours in Elementary Teacher Education courses including EDFE 360, 361 or 362, EDEL 320 or 620, and EDRD 612 or 613 or equivalent if applying for student field work at the elementary level. EDFE 360, 361 or 362, EDEL 320 or 620, and EDRD 612 or 613 or equivalent must be completed before terminal student field work.
4. Met all specific departmental requirements for terminal student field experience.
5. Completed one course in the series EDFE 360 to 390 and EDCI 341 or equivalent in all subject matter areas, major or minor wherein secondary school terminal student field experience is contemplated.
6. Been afforded *full* admission to PTE.
7. Been approved by the Professional Education Committee for student teaching upon the recommendation of the appropriate department or school.

Internship students must meet all of the above-mentioned prerequisites and also complete certain other requirements as may be set by the Professional Education Committee before beginning the intern assignment.

All students must file application in the office of Educational Field Experiences, 25 McKee Hall. It is to be clearly understood that assignments are initiated and confirmed by the office of Educational Field Experiences only.

Firm quarterly application deadlines for student field experiences are as follows; all above requirements should be completed by these dates:

for Fall placement: no later than May 1.

for Winter placement: no later than October 15.

for Spring placement: no later than February 1.

for summer placement: no later than June 1.

for Internship: no later than March 1.

Interdisciplinary and Individual Studies. Interdisciplinary Studies are offered in appropriate areas and levels of instruction. Theses courses may be offered through the coordinated efforts of two or more disciplines or by one department

offering courses that are appropriate to several courses of study. (See below).

Individual studies are available in most disciplines. This type of study involves a great amount of self-directed study on the part of the individual student under the guidance of an instructor.

The following policies concerning registration apply:

1. The study must be limited to four hours per quarter.
2. The approved ID/IS registration form used. The applicant must have the approval evidenced by signature of the instructor who will direct the study, the student's advisor, and the department chairman of the department in which the study is to be done.

Master of Arts or Master of Science Degree

Admission. A student must hold a baccalaureate degree from an accredited college or university. A grade average of 2.70 on the most recent 100 hours is required to be admitted. Applicants having a grade average between 2.50 and 2.69 may be admitted by the Dean of the Graduate School on departmental recommendation accompanied by a statement of the reason for the recommendation. The Dean will take the recommendation into account in making his admission decision. His decision shall be final. A minimum of 45 quarter hours of work applicable to the degree must be completed after the Dean has admitted the student on departmental recommendation.

Transfer of Credit. A maximum of eight quarter hours of graduate credit in which grades of A and B are recorded may be transferred from institutions approved by a recognized accrediting agency to offer a graduate program leading to the master's degree. No transfer credit shall be counted that was earned more than five years prior to completion of the degree. This credit must be compatible with the student's area of concentration and can not be used to meet the requirement that 22 hours of the course work must be in courses numbered 500 or above and taken in residence at Greeley. The request for transfer of credit must be made by the student in person (not by mail) and must be approved by the Assistant to the Dean, Graduate School, prior to securing approval of the major adviser. The student must return in person (not by mail) the completed transfer form and the official transcript to the Graduate School Office before any transfer of credit will occur. *No transfer of credit will be accepted after 4:00 p.m. Friday of the second week of the quarter in which the student plans to graduate.* Graduate credit is not transferable if earned in off-campus classes or in courses classified as "extension" unless these credits are acceptable toward a master's degree at the "parent institution." Transferred credit may not be used to make up "D" or "F" grades received in required courses.

Residence and Time Requirement. Candidates must satisfactorily complete a minimum of ten weeks attendance and ten quarter hours (eight weeks attendance and ten quarter hours during the summer quarter) of graduate credit on the campus each of two quarters in order to satisfy minimum residence requirements. Ten quarter hours credit equals two-thirds of a regular load, and by definition enables the candidate to be technically classified as a full-time student. All residence requirements must be completed after the candidate has been admitted to the master's program.

The maximum time limit for completion of the graduate program is five calendar years. If the student does not complete his program within the time limit, his degree program will be terminated.

Minimum Requirements for the Major. In the first quarter in residence all students are required to register for Introduction to Graduate Study.¹ Standards for graduate study, research methods, evaluation of printed research, biblio-

¹Following research-oriented course substitutions which have been approved by the Graduate Council may be made in lieu of Introduction to Graduation Study: Health, Physical Education and Recreation, HPER 602; Biological Science, BIO 694; Chemistry, at least CHEM 390 and two hours in CHEM 599; Elementary Education—Early Childhood Education, EDEL 664; History, HIST 600; Mathematics (liberal arts), MATH 510, 3 hours; Mathematics (Teacher Education), MED 672; Music, MUS 600; Physics at least four hours in PHYS 661; Science Education, SCED 673; Social Science with concentration in Sociology, SOC 660; Special Education, EDSE 689.

graphical tools and other items will be emphasized. The student should take Introduction to Graduate Study and a course with his adviser during his first quarter.

The student must have a minimum of 64 quarter hours of graduate and undergraduate credit in the major field. At least 24 quarter hours of graduate credit must be in the major field and must be taken at the University of Northern Colorado.

The student whose undergraduate record shows a high specialization in a few areas at the expense of general cultural background in the arts and sciences may be required to earn part of his graduate credit in these areas.

Specific Requirements for Graduation. In addition to the general requirements of the Graduate School and the departmental specific requirements, the student shall:

1. Earn a minimum of 45 quarter hours of graduate credit and maintain a 3.00 (B) grade average. At least 22 hours of this credit must be in courses open only to graduate students (courses numbered 500 and above) and *taken in residence at Greeley*. No student may count in his degree program more than 15 hours of work in courses numbered in the 300's and/or 400's (courses open to juniors and seniors).

Candidates in the arts and sciences programs in botany, chemistry, physics, or zoology are required to write a thesis. A thesis is optional for all other programs on recommendation of the major adviser. With the approval of the major adviser and the Dean of the Graduate School, a creative project in educational media, fine arts, literature, or music may be prepared as the equivalent of a thesis.

Candidates electing to write a thesis or to prepare a creative project must, 17 days before the end of the quarter in which they expect to graduate, present to the Graduate School Office four copies of the thesis or a detailed written explanation of the creative project's contribution to contemporary thought and life. Fine arts students must include in their detailed written explanation, photographs of completed works for documentation. The four copies must be in final typed form, approved and signed by the adviser.

After being signed and bound, three copies of the thesis or creative project become the property of the university and one is sent to the student. The original and one copy are filed in the university library, and one copy is delivered to the student's major adviser. A charge is made for binding and mailing.

The student must provide an abstract with each copy of the thesis or creative project. An extra copy shall be filed in the Graduate School Office.

A minimum/maximum of 8-15 quarter hours of credit is granted for the thesis or creative project.

2. Pass a written comprehensive examination or otherwise demonstrate competency in the major field by a departmentally approved equivalent. The student should ascertain departmental requirements at the time he initiates his program.

The student must obtain from the Graduate School Office a "Permit to Take Written Comprehensive Examination or Otherwise Demonstrate Competency." His examination paper, after being evaluated by the adviser, or the written report, after being signed by the adviser, confirming that the departmentally approved equivalent has been completed satisfactorily, shall be filed in the Graduate School Office at least 17 days before the end of the quarter in which the candidate expects to graduate. The comprehensive examination or the departmentally approved equivalent may not be completed until the student has finished, or has in progress, the basic required program of his major and has the approval of his major adviser and the Graduate School Office.

In case of failure to complete satisfactorily the comprehensive examination or the departmentally approved equivalent the student may retake the test or redo the departmentally approved equivalent. One quarter must intervene before the examination may be retaken or the second attempt may be made to satisfy the departmentally approved equivalent. A special fee will be charged for this. The student must pay the fee at the Accounting Office and present his receipt at the Graduate School Office to secure a second permit. Failure to pass the retest or to satisfactorily demonstrate competency in the major field by a departmentally approved equivalent will terminate the student's degree program.

If a student fails the comprehensive examination or fails to demonstrate competency in the major field in one discipline and is permitted to change to another discipline, he may take the comprehensive examination or may demonstrate competency only once in the new discipline.

Formal Application for Graduation—The student *must* file in person (not by mail) a formal application for graduation at the Graduate School Office no later than 30 days prior to the quarter in which the candidate expects to graduate. A late fee (payable in the Accounting Office, Frasier 11) will be charged for failure to apply on time. *No application will be accepted after 4:00 p.m., Friday of the second week of the quarter in which the student expects to graduate.*

Specialist in Education Degree

The Specialist in Education degree program shall prepare one to be a specialist. It is not necessarily a program of more courses and more credits in the same departmental patterns as those usually found in the master's and doctor's programs.

Each applicant for admission to the program will be considered as an individual case in terms of the area in which he wishes to specialize, his background and experience preparing him for such specialization, and the possibility of a program being provided to offer him the opportunity he desires. The applicant will be expected to have a very clear idea of his proposed area of specialization.

The university does not have the facilities, offerings, or staff to support all of the areas that might be suggested by the applicant. Programs may cut across departmental lines.

A candidate might wish to specialize in areas similar to the following:

- a. The Supervision of Student Teaching
- b. The Supervision of Science Instruction
- c. Conservation Education
- d. Testing in the Elementary School
- e. Consultant in School Buildings
- f. Curriculum Consultant
- g. Outdoor Education
- h. Information Specialist for Public Schools, Colleges, Universities, Business, Industry and Government
- i. Speech Communication
- j. Vocational Education

In some disciplines the course of study is partially or fully prescribed to satisfy certification requirements. A student should consult the departmental statement in the discipline of his interest.

Candidates who choose to continue work toward a doctoral degree on completion of the Ed.S. degree may apply for admission to the doctoral program. A maximum of 35 quarter hours of credit which have been earned in the specialist program and which are applicable to the doctoral degree may be transferred. These hours must be approved by all members of the student's Oral Comprehensive Examination Committee.

Preparation of Junior College or Community College Teachers. Since there is a large and growing demand for teachers in the various disciplines at the junior college or community college level, a student who holds a master's degree in a content discipline may desire to continue his preparation through the specialist degree and then seek employment in such institutions.

Admission. 1. Although a master's degree from an accredited college or university is usually a prerequisite for admission, students may be admitted with a bachelor's degree from an accredited college or university and permitted to by-pass the master's degree requirements, depending upon the general nature of the specialist program which is requested. In such cases the student must earn a minimum of 90 quarter hours for the specialist's degree.

2. The applicant must have an adequate academic background in the areas involved in his plan of specialization. If inadequate, the Supervising Committee

will require course work in addition to the minimum requirements of the Ed.S. degree.

3. The applicant must have an academic grade average of 2.70 (B—) or better. An applicant may be admitted who is slightly below this level but has a satisfactory combined score on the quantitative and verbal parts of the Aptitude Test of the Graduate Record Examination.

4. Two years of successful teaching experience is a prerequisite for admission to work for the Specialist in Education degree (exception: Rehabilitation Counseling).¹

5. In addition to the admission requirements, the applicant is required to take the Graduate Record Examination Aptitude Test during his first quarter in residence. University of Northern Colorado is a national center for administering the Graduate Record Examinations. The Aptitude Test and the Advanced Test in each discipline will occur on the Greeley campus on October 27, 1973, and on June 15, 1974. Application forms to take the examinations may be secured from the Counseling and Testing Office, or from the Educational Testing Service, Box 1502. Berkeley, California 94701. A student must apply about three weeks prior to taking the test.

Advisement. When a student has been admitted to a specialist program, he is notified of his admission and that the chairman of the department of his specialization will appoint his Supervising Committee (major adviser and one additional member) with the approval of the Dean of the Graduate School.

Continuation in Specialist Program. 1. All students must realize that the Graduate Council is directed to continually provide realistic evaluation of the student's progress, and to discourage any student from continuing whenever it seems advisable.

2. At the end of the student's first quarter in residence his department will submit to the Graduate Council a recommendation that he continue in his present program or that his present program should be terminated. The recommendation will be based on multiple criteria such as: scores on the Graduate Record Examination; the faculty interview; the professional recommendations; recommendations of the major adviser and other departmental faculty; academic ethics; and the grade average for all prior work and for the first quarter in the program. The multiple criteria approach does not assume that each of these factors carry equal weight; any one factor might well outweigh all others.

The Graduate Council will vote on those recommended for continuance in their programs. Recommendations for termination will be held pending the student's request for an appeal. Upon receipt of notification from his department of its recommendation that his program should be terminated, the student may file an appeal in the Graduate School Office. The student will be notified in writing that he has sixty (60) days from the date the written notice was mailed to file an appeal. If the student requests an appeal, a Sub-Committee of the Graduate Council will meet with the student, a representative from the student's major department, and any others the Sub-Committee wishes to call, to hear the appeal and will make a recommendation to the Graduate Council for a final decision. If no appeal is filed within sixty (60) days from the date the written notice was mailed, the Graduate Council will vote on the termination recommendation of the department.

3. The student who has had his program terminated by the Graduate Council may make application for an entirely new program in another major. If the department of the proposed new major is willing to accept the student, he may use as many of his previous courses as the department of his new major will accept.

Transfer of Credit. A maximum of eight quarter hours of graduate credit in which grades of A and B are recorded may be transferred from institutions ap-

¹Psychology, Counseling and Guidance areas require as a prerequisite two years of teaching or equivalent psychological experience. One year of this experience must be obtained prior to admittance to the program. Educational Administration requires sufficient experience to indicate probable success as an administrator. College Student Personnel Work requires work experience that indicates probable success as a College Student Personnel Worker.

proved by a recognized accrediting agency to offer a graduate program leading to specialist or doctoral degrees. No transfer credit shall be counted that was earned more than six years prior to *completion* of the degree. This credit must be compatible with the student's area of concentration and cannot be used to meet the requirement that 24 hours of the course work must be in courses numbered 500 or above and taken in residence at Greeley. The request for transfer of credit must be made by the student in person (not by mail) and must be approved by the Assistant to the Dean, Graduate School, *prior* to securing approval of the major adviser. The student must return in person (not by mail) the completed transfer form and the official transcript to the Graduate School Office before any transfer of credit will occur. *No transfer of credit will be accepted after 4:00 p.m. Friday of the second week of the quarter in which the student plans to graduate.* Graduate credit is not transferable if earned in off-campus classes or in courses classified as "extension." Transferred credit may not be used to make up "D" or "F" grades received in required courses.

Residence and Time Requirements. Candidates for the degree must satisfactorily complete a minimum of ten weeks attendance and ten quarter hours (eight weeks attendance and ten quarter hours during the summer quarter) of graduate credit on the campus each of two quarters in order to satisfy minimum residence requirements. Ten quarter hours credit equal two-thirds of a regular load, and by definition enable the candidate to be technically classified as a full-time student. All residence requirements must be completed after the candidate has been admitted to the specialist program.

The maximum time limit for completion of the graduate program is six calendar years. If the student does not complete his program within the time limit, his degree program will be terminated.

Specific Requirements for Graduation. In addition to the general requirements of the Graduate School and the departmental specific requirements, the student shall:

1. Earn a minimum of 45 quarter hours of graduate credit beyond the master's degree (90 hours if the student enters the program with only a baccalaureate degree) and maintain a 3.00 (B) grade average. At least 24 quarter hours of this credit must be in courses open only to graduate students (courses numbered 500 and above) and *taken in residence at Greeley*. The required practicum, or its equivalent, hours may be counted to meet this requirement. No student may count in his degree program more than 15 hours of work in courses numbered in the 300's and/or 400's (courses open to juniors and seniors).

Specialized interest of the student for which no regularly scheduled courses are available will be cared for through Individual Studies (622), Internship in Educational Administration (EDAD 680), Practicum (601).

2. Complete the course, Introduction to Doctoral Research (700), or its equivalent unless a comparable course on the graduate level has been completed and is accepted by the adviser.

3. Present the Specialist Degree Practicum (701, 8 hours) representing his major interest.¹ A written plan for the practicum shall be filed in the Graduate School Office by the end of the eighth week of the second quarter and must have been approved by the Supervising Committee. The Supervising Committee will direct the preparation and evaluation of the required practicum.

At least 17 days before the end of the quarter in which the student plans to graduate, four typewritten copies of the practicum which has been approved by the student's Supervisory Committee shall be filed in the Graduate School Office. The four copies will be bound. The original and one copy will be placed in the library, one copy will be delivered to the major adviser, and one copy will be sent to the student. A binding and mailing fee will be charged.

¹The Graduate Council has authorized *specific* substitutions for the Specialist Degree Practicum. Students in Rehabilitation Counseling will register for EDSE 694, Supervised Clinical Practice in Rehabilitation Counseling, 16 quarter hours; students in School Psychology will register for PCG 789, Internship in School Psychology, 16 quarter hours. Students in School Counseling shall substitute 8 hours of PCG 692 or PCG 792.

4. Pass a written comprehensive examination over his specialty and his Specialist Degree Practicum, and meet such other final requirements as his committee may prescribe. The student must obtain from the Graduate School Office a "Permit To Take Written Comprehensive Examination." His examination paper, after being evaluated by the adviser, shall be filed in the Graduate School Office at least 17 days before the end of the quarter in which the candidate expects to graduate.

In case of failure to pass the written comprehensive examination the student may retake the test. One quarter must intervene before the examination may be retaken. A special examination fee will be charged for this additional test. The student must pay the fee at the Accounting Office and present his receipt at the Graduate School Office to secure a permit for the retake. Failure to pass the retest will terminate the degree program.

If a student fails the comprehensive examination in one discipline and is permitted to change to another discipline he may take the comprehensive examination only once in the new discipline.

Formal Application for Graduation. The student *must* file in person (not by mail) a formal application for graduation at the Graduate School Office not later than 30 days prior to the quarter in which he expects to graduate. A late fee will be charged for failure to apply on time. *No application will be accepted after 4:00 p.m. Friday, of the second week of the quarter in which the student expects to graduate.*

Doctor of Arts, Education and Philosophy Degrees

Some departments may offer programs leading to the Doctor of Arts (D.A.) degree; others may offer the Doctor of Education (Ed.D.) or the Doctor of Philosophy (Ph.D.) degree, as indicated in the Graduate Degree Requirements section of this catalog. The Doctor of Philosophy degree, traditionally granted as the highest degree by many American universities, was first conferred by the University of Northern Colorado in 1930. The Doctor of Education degree was introduced a few years later as more appropriate for professional programs in the field of education and psychology.

The program leading to the Doctor of Arts Degree is designed to prepare a student for creative teaching at the junior (community) or senior college level together with a supplementary commitment to research. The salient features of the Doctor of Arts programs are as follows:

1. The major portion of the student course work is in the major discipline in which he plans to teach.
2. Adequate flexibility in each student's program is provided so that he may have an adequate opportunity to work in supportive areas based upon his needs and interests.
3. The student will be prepared for college teaching through courses which enable him to understand the teaching-learning process, the nature of the college student, issues in college curriculum and instruction, and the responsibilities of faculty members in an institutional setting. Each student will be required to take ID 702, Seminar in College Teaching.
4. Each student will be provided with supervised teaching experience. Each student will enroll in ID or departmental prefix 755, Supervised Practicum in College Teaching (maximum of nine hours). The number of credit hours will vary depending upon the student's previous experience and needs but in no case will the supervised teaching experience be omitted.
5. Through the course work and at least minimal experience in his own research, the student will be trained to interpret research in his major discipline.
6. The student will be expected to write a dissertation incorporating the results of independent investigation in his subject matter area, in teaching problems or techniques in his area or an original synthesis and evaluation of materials potentially valuable in college teaching.

Admission. 1. An applicant must possess at least a baccalaureate degree from an accredited college or university. Those students who enter the doctoral degree with only the baccalaureate degree must earn a minimum of 135 quarter hours of graduate credit. Those students who enter the doctoral degree program with the master's degree must earn a minimum of 90 quarters hours of graduate credit. He will be admitted if his previous academic average is B or better, and if he had a satisfactory score on the Aptitude Test of the Graduate Record Examination. *The university requires that the aptitude scores accompany the doctoral application.*

2. Sixty-four quarter hours in professional education courses are prerequisites for admission to the doctoral program in Special Education,¹ forty quarter hours in English Education, and thirty-four quarter hours in Music Education.

Professional education courses necessary for a teacher to be certified to teach in his state are prerequisites for admission to Health and Physical Education, Mathematics Education, and Science Education.

3. Although teaching experience is not a prerequisite for admission, the candidate may be required by the department to obtain two years teaching experience before the degree will be conferred.²

4. In addition to the admission requirements, the applicant is required to take the Area Test in Social Science, Natural Science, and Humanities during his first quarter in residence. The Area Test will occur at 8:00 a.m. on the second Saturday of each quarter: Fall; Winter; Spring; Summer. The fee of \$5.00 is payable at the Accounting Office, Frasier 11. The student must take his receipt to the Counseling and Testing Center to obtain admission to the test.

Advisement. When a student has been admitted he is notified of his admission and that the chairman of his major department will assign his adviser. Each student will have two committees during his doctoral program: (1) Oral Comprehensive Examination Committee and (2) Dissertation Committee. Each committee shall include at least three members of the faculty recommended by the major adviser, approved and transmitted by the chairman of the department, and appointed by the Dean of the Graduate School. In addition, a faculty representative from a department other than the major department shall be appointed by the Dean of the Graduate School. No faculty member will be appointed to a doctoral committee without his consent. An All-University Faculty Representative must be present at all doctoral oral comprehensive examinations and at all dissertation defenses. A request for change in committee membership may be initiated by the major adviser, by the student, or by a member of the committee. All such requests must be presented to the major department for review. The department will decide (except the faculty representative) whether the request shall be granted and, if approved, will designate the necessary replacement. The replacement also must be approved by the Dean of the Graduate School. If a member of the Dissertation Committee is not on campus during the quarter in which the dissertation outline is defended, or in which the dissertation is defended, the major adviser may secure the appointment of a new committee member or he may continue without that committee member. At least three-fourths of the members of the Dissertation Committee, one of whom must be the major adviser, must sign the outline and the approved dissertation.

Research Adviser. At the request of the adviser a research adviser may be appointed to direct the dissertation. If the research adviser supervised the preparation of the dissertation, the hooding of the candidate shall be done by the research adviser.

Continuation in Doctoral Program. 1. All students must realize that the Graduate Council is directed to continually provide realistic evaluation of the

¹Exception: Rehabilitation Counseling.

²Psychology, Counseling and Guidance requires two years of teaching or equivalent psychological experience. One year of this experience must be obtained prior to admittance to the program. Educational Administration requires sufficient experience to indicate probable success as an administrator. Mathematics Education requires two years teaching experience prior to graduation.

student's progress, and to discourage any student from continuing whenever it seems advisable.

2. Each department will, at the end of the student's first quarter in residence, notify the student in writing that he is: (a) encouraged to continue in his present program; (b) discouraged from continuing in his present program; (c) placed on review for one quarter. Multiple criteria such as: scores on the Graduate Record Examination and the Area Test; the faculty interview; the professional recommendations; recommendations of the major adviser and other departmental faculty; academic ethics; and the grade average for all prior work and for the first quarter in the program are used to determine the recommendation of the department. The multiple criteria approach does not assume that each of these factors carry equal weight; any one factor might well outweigh all others.

3. At the end of the student's second quarter in residence his department will submit to the Graduate Council a recommendation that he continue in his present program or that his present program should be terminated. The Graduate Council will vote on those recommended for continuance in their programs. Recommendations for termination will be held pending the student's request for an appeal. Upon receipt of notification from his department of its recommendation that his program should be terminated, the student may file an appeal in the Graduate School Office. The student will be notified in writing that he has sixty (60) days from the date the written notice was mailed to file an appeal. If the student requests an appeal, a Sub-Committee of the Graduate Council will meet with the student, a representative from the student's major department, and any others the Sub-Committee wishes to call, to hear the appeal and will make a recommendation to the Graduate Council for a final decision. If no appeal is filed within sixty (60) days from the date the written notice was mailed, the Graduate Council will vote on the termination recommendation of the department.

4. The student who has had his program terminated by the Graduate Council may make application for an entirely new program in another major. If the department of the proposed new major is willing to accept the student, he may use as many of his previous courses as the department of his new major will accept.

Minimum Requirements for the Major. In the first quarter in residence, all students are required to register for Introduction to Doctoral Research.¹ Not later than the second quarter in residence, the candidate will work out a long range program of studies with his adviser. One copy of this proposed program will be placed in the student's folder in the Graduate School Office; one copy will be presented to the adviser; and if the student has a supporting area or minor, one copy is sent to that department. Doctoral students should study with members of the Graduate Faculty or members of the faculty who possess an earned doctorate. Specific exceptions may be made by the major adviser. No credit will be counted in a doctoral program if the course was taught by a faculty member who is pursuing an advanced degree at the University of Northern Colorado.

Students concentrating in English Education, Industrial Arts Education, or Music Education must complete the basic foundational courses which are EDF 785, Philosophical Foundations of Education; EDF 765, Sociological Foundations of Education; PCG 740, Psychological Foundations of Education.

Research. A dissertation (ID or departmental prefix 799, Doctoral Dissertation) is required. The student will register for six quarter hours of Doctoral Dissertation in addition to his regular *course* load during each of his three consecutive quarters in residence.²

¹Following research-oriented course substitutions which have been approved by the Graduate Council may be made in lieu of Introduction to Doctoral Research: Chemistry, at least CHEM 390 and two hours in CHEM 599; Health and Physical Education, HPER 602 and HPER 703; Mathematics, MATH 510, 3 hours; Mathematics Education, MED 672; Psychology, Counseling and Guidance, PCG 780; Research and Statistical Methodology, RSM 713; Science Education, SCED 673.

²All students who are receiving GI benefits should consult with the Director of Financial Aids *prior* to registering for their three consecutive quarters in residence.

The preliminary outline of the dissertation and the dissertation shall be under the supervision of the adviser and the dissertation committee. Six copies of the dissertation outline are required. One copy must be on red-lined bond paper and is filed in the Graduate School Office. (*See Graduation Requirements for filing of approved dissertation*).

Candidacy for the Degree. To be eligible for admission to candidacy for a doctoral degree, the student shall have:

1. Earned at least 36 hours at UNC beyond the master's degree (81 hours if the student enters the program with only a baccalaureate degree) with a 3.00 (B) or better grade average.
2. Passed satisfactorily the written and oral comprehensive examinations.
3. Presented an approved outline for the dissertation.
4. If his major department requires it demonstrated that he has knowledge and understanding in the three areas of Natural Science, Social Science and Humanities.
5. Meet the research tools requirement in programs requiring such competency. If a student is using a collateral field of study as an approved substitute for one research tool he may be admitted to candidacy prior to completing the requirements in the collateral field .

No student will be graduated at the end of the quarter in which he is admitted to candidacy.

Residence and Time Requirements. The University offers four complete quarters of study (Fall, Winter, Spring, Summer) during each *calendar* year. The minimum residence for the doctorate is any three *consecutive* quarters. During those three consecutive quarters, candidates must satisfactorily complete a minimum of ten weeks attendance and ten quarter hours (eight weeks attendance and ten quarter hours during the summer quarter of *graduate course work* on the campus. Ten quarter hours credit equal two-thirds of a regular load, and by definition enable the candidate to be technically classified as a full-time student. Residence requirements must be completed after the candidate has been admitted to the doctoral degree program.

The maximum time limit for earning the doctoral degree is eight calendar years. If the student does not complete his program within the time limit, his degree program will be terminated.

Transfer of Credit. A maximum of 12 quarter hours of graduate credit in which grades of A and B are recorded may be transferred from institutions approved by a recognized accrediting agency to offer a graduate program leading to a doctoral degree. No transfer credit shall be counted that was earned more than eight years prior to *completion* of the degree. This credit must be compatible with the student's degree program and can not be used to meet the requirement that 36 hours of the course work must be in courses numbered 500 or above and *taken in residence at Greeley*. In some cases additional transfer credit may be accepted by the candidate's Oral Comprehensive Examination Committee after he has been encouraged to continue toward the doctoral objective by the Graduate Council. He may apply for transfer up to a maximum of 35 quarter hours (including the original 12 quarter hours previously accepted). Student must complete a transfer of credit petition at the Graduate School Office.

The request must be made in person (not by mail) and must be approved by the Assistant to the Dean, Graduate School, *prior* to securing approval of the major adviser. The student must return the completed transfer form and the official transcripts to the Graduate School Office before any transfer of credit will occur. *No transfer of credit will be accepted after 4:00 p.m. Friday of the second week of the quarter in which the student plans to graduate.* Graduate credit is not transferable if earned in off-campus classes or in courses classified as "extension." Transferred credit may not be used to make up "D" or "F" grades received in required courses.

The Graduate Council reserves the right to send doctoral students to another accredited institution which offers the doctorate to earn a maximum of 15 quarter hours in *specific* courses.

Graduation. In addition to the general requirements of the Graduate School and the departmental specific requirements, the student shall:

1. Earn a minimum of 90 quarter hours of graduate credit beyond the master's degree (135 hours if the student enters the program with only a baccalaureate degree) and maintain a 3.00 (B) grade average. At least 36 quarter hours of this credit must be in courses open only to graduate students (courses numbered 500 or above) and *taken in residence at Greeley* (58 quarter hours if student enters the program with only a baccalaureate degree). No student may count in his degree program more than 15 hours of work in courses numbered in the 300's and/or 400's (courses open to juniors and seniors).

2. If his major department requires it, demonstrate that he has knowledge and understanding in the three areas of Natural Science, Social Science, and Humanities. Students who fail to make satisfactory scores on the Area Test may be held for enrichment course(s). These requirements will be imposed in addition to the minimum requirements for the doctoral degree.

3. Demonstrate competency in two acceptable research tools for the Doctor of Philosophy degree and the Doctor of Arts degree in History. These research tools include foreign language(s), applied statistics, mathematical statistics, computer information processing, and an acceptable collateral field. Demonstrate competency in one foreign language for Doctor of Education degree in English and in English Education. Demonstrate competency in one acceptable research tool for the Doctor of Arts degree in Geography. (A mimeographed statement in regard to doctoral research tools is available in the Graduate School Office.)

4. Pass satisfactorily the following examinations in addition to the usual course examinations. (*No oral examination or dissertation defense will be scheduled during the last two weeks of a quarter.*)

(a) *Comprehensive written and oral examinations covering course work.*

These examinations will take place after the student has successfully completed at UNC with a 3.00 (B) grade average, 36 hours beyond the master's degree (81 hours if the student enters the program with only a baccalaureate degree). The supporting area or minor examination may be taken whenever permission is given by the supporting area or minor department. The written examination will be available to all members of the Oral Comprehensive Examination Committee *prior* to the oral examination and finally shall be filed in the student's folder in the Graduate School Office. (The student must obtain from the Graduate School Office a "Permit To Take Written Comprehensive Examination.")

The comprehensive written examination shall be designed, administered, and evaluated by the graduate faculty of the student's major field of study and any other qualified individuals the major adviser chooses to consult. The oral comprehensive examination shall be administered except in those cases in which the student has failed the written comprehensive examination.

In case of failure to pass the written comprehensive examination the student may be permitted to retake the test. A special examination fee will be charged for this additional test. The student must pay the fee at the Accounting Office to secure a permit for the retake. One quarter must intervene before the examination may be retaken. Failure to pass the retest will terminate the degree program.

If a student fails the written comprehensive examination in one discipline and is permitted to change to another discipline he may take the comprehensive examination only once in the new discipline.

The time and place of the oral comprehensive examination shall be arranged by the Graduate School Office (the major adviser, who will serve as the Chairman of the Oral Comprehensive Examination Committee, shall call the Graduate School Office to request the arrangements) and shall be announced in the Faculty Bulletin. All members of the faculty may attend the examination and may ask questions of the student after the Oral Comprehensive Examination Committee members have completed their questioning. Graduate students may attend with permission from the chairman of the committee. At least three-fourths of the members of the Oral Comprehensive Examination Committee must vote in the affirmative for the student to pass the oral examination.

A student who takes the oral comprehensive examination will be classified in one of the following four categories:

- (1) Passed.
- (2) Will pass if meets stated conditions.
- (3) Unsatisfactory (with retake permitted for which a fee will be charged. One quarter must intervene before the examinations may be given again. A second retest will not be permitted).
- (4) Failed (with retake *NOT* permitted). In this instance the student will have eliminated himself from further work applicable to the doctorate and may not present himself for further examinations.

At least three-fourths of the Oral Comprehensive Examination Committee must concur in the reported evaluation.

If the Oral Comprehensive Examination Committee voted that the student will pass if he meets stated conditions, the student must meet the stated conditions prior to his admission to candidacy. At least three-fourths of the Oral Comprehensive Examination Committee must affirm that the conditions have been met. If the evaluation was unsatisfactory (with retake permitted) at least three-fourths of the Oral Comprehensive Examination Committee must vote in the affirmative for the student to pass the retake. It shall be the responsibility of the major adviser to secure the signatures of the members of the Oral Comprehensive Examination Committee and to return the Report of the Oral Comprehensive Examination to the Graduate School Office.

- (b) *Oral Examination in defense of the dissertation.* Each doctoral candidate must present his dissertation in acceptable form to the Graduate School Office three weeks prior to the scheduling of the defense examination. The three week period will be used by the Dissertation Committee to read the study. The examination must occur at least three weeks prior to graduation. If it is impossible to meet this requirement, the examination date will be moved into the following quarter, subject to the same deadline conditions.

The time and place of oral defense of the dissertation shall be arranged by the Graduate School Office (the major adviser, who will serve as the Chairman of the Dissertation Committee, shall call the Graduate School Office to request the arrangements) and shall be announced in the Faculty Bulletin. All members of the faculty may attend the examination and may ask questions of the student after the Dissertation Committee members have completed their questioning. Graduate students may attend with permission from the chairman of the committee. At least three-fourths of the members of the Dissertation Committee must vote in the affirmative for the student to pass the oral defense of the dissertation.

5. File in the Graduate School Office at least 17 days before graduation four copies of the corrected and approved dissertation and a 600 word abstract.

6. Pay for the publication of the dissertation. The dissertation is microfilmed and the abstract is published in *Dissertation Abstracts*. For the purpose of publication the student must provide the Graduate School Office with two extra copies of the abstract. If the abstract is longer than 600 words the student will be required to pay an additional publication charge.

7. Pay for the binding and mailing of the dissertation. At least four copies of the study, including the abstract, are required to be bound. After being bound, the original and one copy are filed in the university library, one copy is delivered to the student's adviser and one copy is sent to the student.

8. File a vita to be included in the permanent record.

Formal Application for Graduation. The student must file in person (not by mail) a formal application for graduation at the Graduate School Office not later than 30 days prior to the quarter in which the student expects to graduate. A late fee (payable in the Accounting Office, Frasier 11) will be charged for failure to apply on time. *No application will be accepted after 4:00 pm. Friday of the second week of the quarter in which the student expects to graduate.*

Postdoctoral Programs

Programs of research and advanced study for persons holding the earned Doctor of Arts, Doctor of Education, or Doctor of Philosophy degree are available in selected areas. Admission is on an individual basis, and the specific research project or program of studies pursued is planned by the postdoctoral student in conference with a faculty committee appointed to advise him and to make an assessment of his progress at the end of the program. Work on the postdoctoral level may be taken in areas such as administration, college student personnel work, educational psychology, curriculum and instruction, elementary education, higher education, special education, and statistics. Further information regarding admission procedures may be obtained from the Dean of the Graduate School.

School of Educational Change and Development

Donald G. Decker, Dean
Donald M. Luketich, Program Director

Master of Arts
 Specialist in Education
 Doctor of Arts
 Doctor of Education

The School is an approved administrative unit of the university. The major purpose of the school is to cooperate with and facilitate innovative programs and ideas anywhere within the university.

Students who wish to pursue innovative programs leading to a degree may submit a proposal to the school. The school does not duplicate any academic program of the university, but exists as an option for those students who wish to pursue programs that require the use of the total resources of the university. Admission will be by invitation and based on the program the student submits that has been approved by the Advisory Board and the Resource Board. In general, the program will be of an interdisciplinary nature and will use the total resources of the university, and may use the resources of the community, state and nation.

A Student Manual is available in the University Bookstore. It contains information about the school, the procedures the students are to follow, and the forms the student uses as he pursues his program.

Programs and projects submitted to the school that do not involve a degree are administered by the Program Director. Departments, schools, and colleges within the university may request the services of the Program Director. Public schools, institutions, and other colleges and universities who desire the services of the school may work with the Program Director to develop programs and projects.

FEES AND EXPENSES

All rates quoted below are established for 1972-73 and are subject to a provision of the trustees that the university reserves the right to change tuition, fees, and other charges on published notice prior to the beginning of any aca-

ademic quarter. As with all state-supported institutions, the rates are affected by legislative action which may not be finalized until late spring of any given year.

Tuition and student services fees are incurred during each quarterly registration period and are due and payable at the time shown on the billing which is mailed to the student each quarter. Charges are assessed for the total of partial or full programs whether taken for credit or no credit.

On-Campus Instruction

FALL, WINTER, OR SPRING QUARTERS

	Colorado Resident	Non-Resident
Six Credit Hours or less:		
Per Credit Hour of Enrollment	\$ 12.00	\$ 20.00
More than six credit hours:		
Tuition	\$ 89.00	\$355.00
Student Services Fees	45.00	45.00
Total	\$134.00	\$400.00

SUMMER QUARTER

	Colorado Resident	Non-Resident
Six Credit Hours or less:		
Per Credit Hour of Enrollment	\$ 12.00	\$ 20.00
More than six credit hours:		
Tuition	\$ 89.00	\$355.00
Student Services Fees	31.00	31.00
Total	\$120.00	\$386.00

Off-Campus Instruction* (Extension—Continuing Education Services)

	Tuition Per Credit Hour	
Group Instruction	\$ 15.00	(Multiply credit hour unit by number of credit hours of enrollment.)
Correspondence Study	12.00	
Multi-media Learning Package	\$15.00 In-state \$25.00 Out-of-state	
ID or Departmental Prefix 799*		
Doctoral Dissertation	\$ 12.00	

*Residence status is not determined for or applied to these unit programs.

Payment of tuition and student services fees entitles the registrant to instruction and a number of campus services.

On campus in the academic year a student enrolled for six or fewer credit hours is entitled to the services of the Student Health Center, library privileges, normal course materials, the student newspaper, and the use of University Center facilities.

On campus or on student teaching assignment in the academic year, a student enrolled for seven or more credit hours is entitled to obtain every regular university service accorded to full-time registrants. In addition to the services above listed, the student is issued an identification card or validation stamp which provides for admission to campus athletic events, performing arts plays and productions, selected lectures and other public events specified for admission under the I.D. card. Full-time students are also covered by a student health services program. Details of this coverage may be obtained from the Student Health Center.

During the summer quarter, the student services fees do not provide for contractual medical treatment. They are committed for use in an expanded and varied program of campus social, recreational and instructional activities as well as carrying the cost of the campus health offices.

The right of a student to classification as a resident for tuition payment purposes in a state institution of higher education is determined under state policy—Colorado Revised Statutes 1966 and Session Laws of Colorado 1967 as amended. Administrative procedures which fix status before or at the time of registration have been approved by the Trustees of the State Colleges in Colorado. If, following a registration and payment of tuition, the status conferred on a student is questioned for revision, appeal may be made on a specific form and the case will be reviewed by the University Committee on Residence Status. The determination by the committee following the review is final. All matters concerning residency status rulings shall be filed with the Office of the Registrar, where referrals will appropriately be made to the University Committee on Residence Status.

In planning a full program of courses, the typical single student on campus should be prepared to meet costs of approximately the following amounts:

	Status	
	Resident of Colorado	Non-Resident of Colorado
FALL, WINTER, AND SPRING QUARTERS		
Tuition and Student Services Fees*	\$ 402.00	\$1,200.00
Books and Supplies (estimated)**	180.00	180.00
Board and Room (average)	975.00	975.00
Personal Expenses***	480.00	480.00
Total Expenses Academic Year of Three Quarters	\$2,037.00	\$2,835.00
SUMMER QUARTER, EXCLUSIVELY		
Tuition and Student Services Fees*	\$ 120.00	\$ 386.00
Books and Supplies (estimated)**	60.00	60.00
Board and Room (average)	290.00	290.00
Personal Expenses***	150.00	150.00
Total, Full Quarter	\$ 620.00	\$ 886.00

*Subject to periodic increases.

**Varies according to area of study.

***Amounts given for personal expenses are the estimated normal expenses incurred for clothing, sundries, entertainment, etc. Travel, unusual expenses of a wardrobe or auto maintenance should be added. Family expenses follow the regular family budget elsewhere maintained except for quoted university expenses. Graduate fees, music fees and certain incidental fees below must also be added to the above estimates where applicable.

Incidental Extra Fees Applicable Under Specified Conditions

Certified Statement of Issuance of Teaching Certificate and/or diploma..	\$ 1.00
Change of Program: Assessed for each add-drop slip processed	2.00
Extension of Credit: Assessed if and when a deferred payment program is concluded to be effective within a quarter	3.00
Assessed charges are due and payable at the time shown on the billing which is mailed to the student each quarter. Deferments are arranged only for sufficient cause and only for payments by installments within the quarter. Any action which has the effect of postponing a cash collection beyond the date on which a charge is due will automatically invoke the applicable extension of credit charge. No registration is permitted without a down payment of at least one-third of total charges. No deferment is issued for a limited course program or for a campus residence of one month or less.	
Late Registration Fee: Assessed for registration after scheduled registration time	5.00
Assessed for each added day of late registration	2.00
Late Fee Payment: Assessed for a fee payment completed on the first day following the days scheduled for regular fee payment	5.00
Assessed for each added day of late fee payment	2.00
Late Application for Graduation	10.00

30 / FEES AND EXPENSES

Meal Ticket Replacement	5.00
Official Transcript of University Records, per copy	1.00
Optional Student Health Insurance Coverage Summer Quarter Only	14.50
(Full-time students for 1972-73 academic year have prepaid coverage for the Summer Quarter of 1973)	
Proficiency Examination	2.00
Special Billing: Assessed when an itemized invoice of an account is requested by the student or a supporting agency	1.00
Special Program Fees such as bowling, skiing, field trips, golf, etc.	At Cost
Special Tests by the Counseling Service	5.00
Student Identification Card Replacement	5.00
Transcript Evaluation Fee for applications for the baccalaureate and masters' degrees and graduate student certification program	10.00

Fees Added for Graduate Study

Doctoral Surcharge (assessed to each doctoral student in successive quarters of enrollment up to six quarters) for a total (minimum-maximum of \$300.00. This fee is assessed as follows:	
First quarter	\$50.00
Second quarter	50.00
Third quarter	50.00
Fourth quarter	50.00
Fifth quarter	50.00
Sixth quarter	50.00
Doctoral Dissertation Abstract Publication (assessed at the time the study is accepted)	40.00
Specialist in Education Surcharge* (assessed to each specialist student in successive quarters of enrollment up to three quarters) for a total (minimum-maximum) of \$75.00. This fee is assessed as follows:	
First quarter	25.00
Second quarter	25.00
Third quarter	25.00
Binding and mailing Thesis, Practicum or Dissertation Study (4 copies required)	
	16.00
Comprehensive Examination Retesting Fee	10.00
Foreign Language Examination required for doctoral program	10.00
Graduate Record Examinations: Area Test in Social Science, Natural Science, and Humanities (for doctoral students)	5.00

*Enrollees in the doctoral or the specialist program pay all tuition and fees applicable to each regularly registered student in each quarter of attendance plus the applicable fees listed above. Any unclassified graduate student who possesses the Master of Arts degree and who subsequent to enrollment elects to enter the Specialist in Education degree program or a doctoral degree program will be assessed a surcharge commensurate with the amount of unclassified credit earned.

Fees for Music Instruction

Individual music lessons, per quarter	
Non-music majors	\$15.00
Persons not enrolled in the university or affiliated schools	25.00

Placement Center Charges

(The placement year begins July 1 and ends June 30)	
Initial enrollment	\$10.00
Re-enrollment	10.00
First and subsequent copies of teacher placement credentials mailed when applicant has not re-enrolled, per copy	2.00
Telephone calls, telegrams, postage for Air Mail and Special Delivery are billed at actual cost.	

Policy on Reassessments, refunds, Retentions on Withdrawal. By action of the Trustees of the University of Northern Colorado, adjustments in tuition or fees are permitted after registration only under specific conditions. In most cir-

cumstances a change in the number of credit hours for which a student registers will not affect the charges initially assessed. When changes in a course of study within the first week result in registration of less than seven hours, applicable refund of tuition and fees will be made.

To be eligible for a refund of any kind upon withdrawal from school the student must present a formal, approved Notice of Withdrawal or an Add-Drop Slip at the Accounting Office. The Records Office and Housing Office will provide information on the application procedures required. Refunds are not prorated; rather, they are made in terms of the below policy statements and the residence halls lease.

Refunds allowed against paid tuition and student services fees upon withdrawal are provided as follows:

- On programs of three credit hours or less, none.
- On programs of four through six credit hours, one-half if withdrawal occurs in the first two weeks following registration; thereafter none.
- On programs of seven or more credit hours, three-fourths if withdrawal is before the close of the second week, one-half if before the close of the third week, one fourth if before the close of the fourth week, and thereafter none.

Refunds allowed against assessed quarterly board and room charges and annual apartment rentals are permitted under the terms of the Residence Halls Lease. The Housing Office when consulted at withdrawal will provide information on the computations applied. Deposit refunds are calculated separately and apart from board and room charges and are remitted or credited only after all requirements of a withdrawal in good standing are met.

Incidental fees are not refunded for any cause at any time.

Residence Hall Charges—All rates quoted shall apply to the Summer and Fall Quarters of 1973 and the Winter and Spring Quarters of 1974.

RESIDENCE HALLS WITH ROOM AND BOARD (Occupancy: two persons per room)	Quarterly Rates per Student
Harrison, McCowen, Wilson, Wiebking	\$340.00
Belford, Kendel, Tobey, Sabin, Snyder	325.00
Cross, Hadden, Hays, Troxel	320.00

RESIDENCE HALLS, APARTMENT STYLE, WITHOUT BOARD
(Occupancy: Four persons per apartment)

Turner Hall	\$160.00
New Apartment Building	\$185.00

Board Service only is available at the residence halls on a quarterly contract basis for students living in Turner Hall, the new apartment building or off-campus.

Board Only

Breakfast only	\$50.00
Lunch only	82.70
Dinner only	100.00
Full Board (20 meals per week)	210.00

Family Facilities—Additional family facilities are available Summer Quarter only limited to the student and three (3) dependents per family, including furnishings and utilities.

	1973 Summer Quarter
Turner Hall	\$300.00
New Apartment Building	\$350.00

32 / DEPARTMENTAL PROGRAM REQUIREMENTS

Partial Session—1973 Summer Quarter Only	Per Week
Board and Room, Men's and Women's Residences	
Occupancy, single person per room	\$38.50
Occupancy, two persons per room	34.00
Student Family Apartments, East Campus, leased on 12 month contract. (Includes furnishings and utilities.)	Monthly \$105.00

Occupancy where permitted for an approved partial session of eight weeks or less, shall be at the above per week rates. Sessions of nine or more weeks shall be assessed at the full session (10 weeks) service rate quoted above.

Address the Housing Office when applying for any type of campus housing. A deposit of \$50.00 must be advanced to confirm a reservation. If it is decided not to attend the University of Northern Colorado, and a written statement is received by the Housing Office to that effect, the policy in regard to housing deposit refunds is as follows:

A \$25.00 refund will be made to academic year applicants who cancel their housing contract on or before August 15. Applicants who contract during the year starting with the Winter, Spring, or Summer Quarters are subject to the cancellation deadline dates below:

November 15 (for Winter Quarter applicants)

February 15 (for Spring Quarter applicants)

May 15 (for Summer Quarter applicants)

Notice received after deadline dates or no notice of intent to forego attendance at the university will result in a full forfeiture of the deposit. A housing deposit for a student who is in assigned university housing will be held during all consecutive reservation periods and the full period of residence. The deposit will be refunded by mail when all monies owed to the University are paid and the contract fulfilled, approximately 60 days after termination of campus residence.

DEPARTMENTAL PROGRAM REQUIREMENTS

Graduate Degrees Offered by Departments or Disciplines

Anthropology ¹	M.A.
Biological Science	M.A., Ed.S., D.A.
Botany	M.A.
Business	M.A., Ed.S., Ed.D.
Chemistry	M.A., Ed.S., D.A.
College Student Personnel Work	Ed.S., Ph.D.
Curriculum and Instruction	M.A., Ed.S., Ed.D.
Economics ¹	M.A.
Educational Administration	M.A., Ed.S., Ed.D.
Educational Media	M.A., Ed.S.

Elementary Education	M.A., Ed.S., Ed.D.
English	M.A., Ed.S., Ed.D.
Fine Arts	M.A.
Geography ¹	M.A., D.A.
Health, Physical Education and Recreation	M.A., Ed.S., Ed.D.
History	M.A., D.A.
Home Economics	M.A.
Industrial Arts	M.A., Ed.S., Ed.D.
Mathematics	M.A., Ed.S., Ed.D., D.A.
Music	M.A., Ed.S., Ed.D.
Physical Science	M.A.
Physics	M.A., Ed.S.
Political Science ¹	M.A.
Psychology, Counseling and Guidance	M.A., Ed.S., Ed.D.
Reading	M.A., Ed.S., Ed.D.
Research and Statistical Methodology	M.S., Ph.D.
Science Education	M.A., Ed.S., Ed.D.
School of Educational Change and Development	M.A., Ed.S., D.A., Ed.D.
Social Science	M.A., Ed.D.
Sociology ¹	M.A.
Special Education	M.A., Ed.S., Ed.D.
Speech Communication and Journalism	M.A., Ed.S.
Theatre Arts	M.A.
Zoology	M.A.

In addition, a *doctoral* student may be required by the major adviser or department to take a number of additional hours in one or more of the following supporting areas:

Business Education	Industrial Arts Education
College Student Personnel Work ¹	Mathematics
Curriculum and Instruction	Mathematics Education
Curriculum and Instruction: Vocational Education	Music Education
Educational Administration	Outdoor Education
Educational Media ¹	Psychology, Counseling and Guidance ¹
Elementary Education ¹	Reading ¹
English Education	Science
Health and Physical Education	Science Education
Higher Education ¹	Social Science
History and Philosophy of Education ¹	Statistics and Measurement ¹

A *doctoral* student may be permitted to declare a minor of at least 24 quarter hours under a plan approved by the department in which the proposed minor is declared. The student will be required to pass a separate comprehensive examination administered by the department in which the student has declared a minor.

¹The departments of Anthropology, Economics, Geography, Political Science, and Sociology offer a Master of Arts degree in Social Science. The student may concentrate in the discipline of his choice.

Anthropology

Master of Arts Degree

A concentration in Anthropology is offered within the major in Social Science. See Social Science, page 97.

In addition to the General Graduate School admission requirements for entrance, the Anthropology Department reserves the right to screen candidates for admission to the program.

Biological Sciences

Degrees in biological science are administered by the Department of Biological Sciences.

Master of Arts Degree

Minimal Requirements:

BIO	691—Seminar in Biological Sciences	3
BIO	694—Foundations of Biological Research	3
	(Substitute for ID 600)	
	(Should be taken as soon as possible after beginning of graduate program)	
BIO	697—Graduate Research	2
	Selected courses in Biological Science assuring an understanding of the basic principles of botany and zoology. Course work must be recommended and approved by Biological Science Advisory Committee	37
		<hr/>
		45

Thesis not required.

Proficiency in chemistry through general biochemistry is strongly recommended for this degree.

Doctor of Arts Degree

The objective of the Doctor of Arts program is to prepare versatile and well-informed teachers of biological sciences. Emphasis is placed on the training of effective teachers and not on the production of skilled research scientists. A student successfully completing this program will be well qualified to teach biological sciences at the junior (community) or senior college level.

Admission Requirements:

In addition to the general Graduate School admission requirements for entrance, the Department of Biological Sciences reserves the right to administer a qualifying examination to any student before admission to the Doctor of Arts program in Biological Sciences.

General Requirements:

Though each student's individual program is designed to give him a foundation in Biological Sciences and will vary according to his previous academic work, all students are required to complete the following:

ID	702—Seminar in College Teaching	3
BIO	691—Seminar in Biological Sciences	3
BIO	694—Foundations of Biological Research (Waived if a masters thesis was completed. Substitute for ID 700. Should be taken as soon as program is initiated.)	3
BIO	691—Effective Teaching (Forum)	3
BIO	755—Doctoral Supervised Teaching	6

Professional Requirements:

ID	799—Doctoral Dissertation	18
RSM	605—Statistical Inference	5

Recommended Electives:

SCED	672—Science Curriculum in the Secondary School	3
SCED	674—Instructional Problems in Teaching Science	3
SCED	676—Construction of Achievement Tests in Science	3
SCED	681—Problems in Teaching Biology	4
SCI	300—History of Biology	3
SCI	676—History of Science	3
SCI	679—Philosophy of Science	3

The student's individualized program in biological sciences will be determined by his graduate advisory committee after reviewing his transcripts. The student should expect to be required to take course work in areas where he is deficient. Such course work may not carry graduate credit.

Each student is required to prepare a dissertation reporting the results of his research. The dissertation must be defended in an oral examination conducted by the student's graduate committee.

Each student must pass a written and oral comprehensive examination covering the subject matter in his graduate program. These exams should be scheduled as soon after completion of course work as possible. The exams will be conducted by the graduate committee.

Botany

Degrees in botany are administered by the Department of Biological Sciences.

Master of Arts Degree*Minimal Requirements:*

BIO	691—Seminar in Biological Sciences	3
BIO	694—Foundations of Biological Research	3
	(Substitute for ID 600)	
	(Should be taken as soon as possible after beginning of graduate program)	
	Course of instruction as determined by the Biological Science Advisory Committee in consultation with the student. (This includes up to 8 hours ID 699)	39
		<hr/>
		45

Thesis required. Proficiency in chemistry through general biochemistry is required for this degree.

Master of Arts Degree (Teaching)*Minimal Requirements:*

BIO	691—Seminar in Biological Sciences	3
BIO	694—Foundations of Biological Research	3
	(Substitute for ID 600)	
	(Should be taken as soon as possible after beginning of graduate program)	
BIO	697—Graduate Research	2
	Course of study as determined by the Biological Science Advisory Committee in consultation with the student. (This includes up to 8 hours ID 699)	37
		<hr/>
		45

Proficiency in chemistry through general biochemistry is strongly recommended for this degree.

Business

The degree of *Master of Arts* is offered in Business Teaching and in Business. Applicants for this specialization must possess a B.A., or a B.S. degree in some area of business and should have completed the standard

36 / DEPARTMENTAL PROGRAM REQUIREMENTS

business core required of all undergraduates in business programs or its equivalent.

The degree of *Specialist in Education* is offered also for business teachers of various kinds. See the general information under *Specialist in Education* section of the Graduate Academic Information for details. This is a very flexible degree program, and a program of study can be worked out with a major adviser to fit individual needs.

The degree of *Doctor of Education* is offered in Business Teaching.

Master of Arts Degree in Business Teaching

General Requirements:

BUS	600—Introduction to Graduate Study	3
	Electives from PSY, ECON, BUS, VE, HR, ED	3-5
		<hr/> 8

Professional Course Requirements:

BUED	672—Curriculum Construction for Business Teachers	5
BUED	673—Current Problems in Business Teaching	3
	Two Improvement of Instruction courses	4
		<hr/> 12

Business Content Course Requirements:

BUS	601—Foundations of Business	3
	Specialization (Two courses must be at 600 level.)	9-12
	Other Business courses (In two fields; one-half the credits must be at 600 level.)	14
		<hr/> 26-29

Specialization may be selected from accounting, finance, general business, information systems, management, or marketing.

Two other fields of study may be selected from the above specializations and also in addition from: higher education, insurance, office administration, and personnel administration.

Master of Arts Degree in Business

General Requirements: (8 quarter hours plus undergraduate core of 45 hours).

1. Each student must have completed 45 quarter hours of undergraduate business course work before taking graduate business courses. These hours must include the undergraduate business core (per the Catalog or an equivalent consistent with the American Association of Collegiate Schools of Business (AACSB) recommendations).

2. BUS 600—Introduction to Graduate Study3 quarter hours

3. Graduate course in business statistics5 quarter hours
(ID 598 until new course approved) or equivalent (such as
RSM 505 Statistical Inference)

Graduate Business Requirements: (24 quarter hours)

Students must take at least 24 quarter hours of graduate-level courses in business (courses with BUS prefix and numbered 500 or 600), with at least one course from *each* of the following five areas of business:

Accounting
 Finance
 Information Systems
 Management
 Marketing

Additional Course Work:

Additional course work for the balance of the program is to be taken in business and related areas with the approval of the student's advisor.

Doctor of Education Degree in Business Teaching

The degree is planned to prepare persons for teaching in college schools and departments of business, or to prepare persons to teach in business teacher education departments in colleges or universities. The program provides a background in research methodology, business, and professional education courses.

General Requirements:

A minimum of 90 quarter hours of graduate credit beyond the master's degree is required. These hours shall include the following required courses:

ID	700—Introduction to Doctoral Research	3
	(if a similar course has not been taken previously)	
ID	799—Doctoral Dissertation	18
BUED	701—Seminar in Analysis of Research in Business Teaching	5
BUED	702—Issues and Trends in Business Teaching	3
BUED	703—Post-High School Business Teaching	3
RSM	505—Statistical Inference	5
	Business, economics, and business teacher education courses elected by student with the consent of the adviser.	

Students must take at least 24 quarter hours of graduate-level courses in business (courses with BUS prefix and numbered 500 or 600), with at least one course from *each* of the following five areas of business:

Accounting
 Finance
 Information Systems
 Management Systems
 Management
 Marketing

Chemistry

Master of Arts Degree

Prerequisites:

1. Chemistry—A student must have completed acceptable courses in each of the four major fields of chemistry: organic, inorganic, analytical, and physical.
2. College mathematics through differential and integral calculus.
3. College physics—one year.
4. Language—the reading knowledge of one foreign language (preferably German).
5. If these requirements are not fulfilled, a student may be admitted on a provisional basis. The deficiencies are to be removed as soon as possible, but graduate credit will not be allowed.

Requirements:

1. Thirty quarter hours of course work distributed between major and minor.

38 / DEPARTMENTAL PROGRAM REQUIREMENTS

Two thirds of these courses must be in the major field, and on approval of the adviser all thirty hours may be in the major.

2. An acceptable thesis on research work. Registration for fifteen quarter hours in ID 699 is required. The thesis must be defended in an oral examination before the student's graduate committee.

3. Pass a written and oral comprehensive examination covering the subject matter in the graduate program and any other material which may seem pertinent in the opinion of the committee.

4. The minor (if elected) should be in a related field (preferably physics or mathematics).

Courses Required in Chemistry if not taken on undergraduate level:

CHEM	390—Chemical Literature	1
CHEM	414—Instrumental Methods of Analysis	5
CHEM	431—Organic Qualitative Analysis	3
		<hr/>

9

Courses Required in Chemistry (18 hours from the following):

CHEM	501—Special Topics in Inorganic Chemistry	3
CHEM	502—Advanced Inorganic Chemistry	3
CHEM	503—Organometallic Chemistry	3
CHEM	511—Special Topics in Analytical Chemistry	3
CHEM	531—Stereochemistry of Organic Compounds	3
CHEM	532—Theoretical Organic Chemistry	3
CHEM	533—Reactions and Reaction Mechanisms in Organic Chemistry.....	3
CHEM	534—Special Topics in Organic Chemistry	2
CHEM	535—Synthetic Organic Chemistry	3
CHEM	553—Chemical Thermodynamics I	2
CHEM	554—Chemical Thermodynamics II	2
CHEM	555—Chemical Kinetics	3
CHEM	556—Chemical Spectroscopy	3
CHEM	599—Seminar in Chemistry	3
CHEM	654—Statistical Thermodynamics	3
CHEM	657—Special Topics in Physical Chemistry	2
CHEM	658—Quantum Chemistry I	2
CHEM	659—Quantum Chemistry II	2
		<hr/>

18

ID	699—Thesis	15
----	------------------	----

Complete program to 45 hours with chemistry courses numbered 481 or above with selected minor courses approved by the adviser

3-12

45

Master of Arts Degree (Teaching)

Prerequisites:

1. The courses in chemistry required for the B.A. degree in chemistry (teaching) at University of Northern Colorado or suitable substitutes.

2. Twelve hours of physics.

3. Mathematics through integral calculus.

4. If these requirements are not fulfilled, a student may be admitted on a provisional basis. The deficiencies must be removed as soon as possible or graduate credit will not be allowed.

Requirements:

1. A minimum of 45 hours of course work distributed between chemistry and professional courses.

Required Courses:

SCED	672—Science Curriculum in the Secondary School.....	3	
SCED	673—Seminar in Science Education Research.....	3	
SCED	682—Problems in Teaching Chemistry	4	10
CHEM	390—Chemical Literature	1	
CHEM	401—Inorganic Chemistry II	3	
CHEM	414—Instrumental Methods of Analysis	5	
CHEM	431—Organic Qualitative Analysis	3	12
CHEM	451—Physical Chemistry I	4	
CHEM	452—Physical Chemistry II	4	
CHEM	453—Physical Chemistry III	4	
CHEM	454—Physical Chemistry I Laboratory	1	
CHEM	455—Physical Chemistry II Laboratory	1	
CHEM	456—Physical Chemistry III Laboratory	1	
	<i>or</i>		
CHEM	551—Principles of Physical Chemistry I	6	
CHEM	552—Principles of Physical Chemistry II	6	12-15
CHEM	599—Seminar in Chemistry		3-4
	Electives (with approval of major adviser).....		15-19
			4-8
			<hr/> 45

Electives may be selected from the following chemistry or science education courses or from any physics courses numbered above 400.

Recommended Electives:

CHEM	481—Physical Biochemistry
CHEM	495—Seminar in Teaching Chemistry
CHEM	501—Special Topics in Inorganic Chemistry
CHEM	502—Advanced Inorganic Chemistry
CHEM	503—Organometallic Chemistry
CHEM	511—Special Topics in Analytical Chemistry
CHEM	531—Stereochemistry of Organic Compounds
CHEM	532—Theoretical Organic Chemistry
CHEM	533—Reactions and Reaction Mechanisms in Organic Chemistry
CHEM	534—Special Topics in Organic Chemistry
CHEM	535—Synthetic Organic Chemistry
CHEM	553—Chemical Thermodynamics I
CHEM	554—Chemical Thermodynamics II
CHEM	555—Chemical Kinetics
CHEM	556—Chemical Spectroscopy
CHEM	654—Statistical Thermodynamics
CHEM	657—Special Topics in Physical Chemistry
CHEM	658—Quantum Chemistry I
CHEM	659—Quantum Chemistry II
SCED	674—Instructional Problems in Teaching Science
SCED	676—Construction of Achievement Tests in Science
SCED	777—Evaluation and Testing in Science
SCI	676—History of Science

Doctor of Arts Degree

The objective of the Doctor of Arts program is to prepare versatile and well-informed teachers of chemistry. Emphasis is placed on the training of effective teachers and not on the production of skilled research scientists. A student successfully completing this program will be well qualified to teach chemistry at the junior (community) or senior college level.

Prerequisites:

1. The course in chemistry required for the M.A. degree in chemistry (teaching) at University of Northern Colorado or suitable substitutes.
2. Twelve hours of physics.
3. Mathematics through integral calculus.

40 / DEPARTMENTAL PROGRAM REQUIREMENTS

4. If these requirements are not fulfilled, a student may be admitted on a provisional basis. The deficiencies must be removed as soon as possible or graduate credit will not be allowed.

General Requirements:

ID	702—Seminar in College Teaching
CHEM	390—Chemical Literature
CHEM	599—Seminar in Chemistry (minimum 4 hours, maximum 6 hours)

Major Requirements:

CHEM	451—Physical Chemistry I
CHEM	452—Physical Chemistry II
CHEM	453—Physical Chemistry III
CHEM	454—Physical Chemistry I Laboratory
CHEM	455—Physical Chemistry II Laboratory
CHEM	456—Physical Chemistry III Laboratory

or

CHEM	551—Principles of Physical Chemistry I
CHEM	552—Principles of Physical Chemistry II
CHEM	401—Inorganic Chemistry II
CHEM	414—Instrumental Methods of Analysis
CHEM	532—Theoretical Organic Chemistry
CHEM	553—Chemical Thermodynamics I
CHEM	554—Chemical Thermodynamics II
ID	799—Doctoral Dissertation

Professional Requirements:

SCED	673—Seminar in Science Education Research
	or
SCED	674—Instructional Problems in Teaching Science
SCED	676—Construction of Achievement Tests in Science
SCED	682—Problems in Teaching Chemistry
RSM	604—Descriptive Statistics

Recommended Major Electives:

CHEM	431—Organic Qualitative Analysis
CHEM	457—Selected Topics in Physical Chemistry
CHEM	495—Seminar in Teaching Chemistry
CHEM	501—Special Topics in Inorganic Chemistry
CHEM	502—Advanced Inorganic Chemistry
CHEM	503—Organometallic Chemistry
CHEM	511—Special Topics in Analytical Chemistry
CHEM	531—Stereochemistry of Organic Compounds
CHEM	533—Reactions and Reaction Mechanisms in Organic Chemistry
CHEM	534—Special Topics in Organic Chemistry
CHEM	535—Synthetic Organic Chemistry
CHEM	555—Chemical Kinetics
CHEM	556—Chemical Spectroscopy
CHEM	654—Statistical Thermodynamics
CHEM	657—Special Topics in Physical Chemistry
CHEM	658—Quantum Chemistry I
CHEM	659—Quantum Chemistry II
PHYS	466—Electricity and Magnetism II
PHYS	469—Nuclear Physics I
PHYS	567—Optics II
PHYS	468—Atomic Physics

Recommended Professional Electives:

SCED	672—Science Curriculum in the Secondary School (For candidates who plan to work in secondary schools.)
SCED	673—Seminar in Science Education
	or
SCED	674—Instructional Problems in Teaching Science
*SCED	678—Science Education Seminar
*SCED	777—Evaluation and Testing in Science
RSM	605—Statistical Inference

*These are preferred electives.

Teaching Internship—ID 755, Supervised Practicum in College Teaching—Chemistry. Three to nine hours (depending upon background of candidate) at the University of Northern Colorado or at a junior college under the supervision of the chemistry faculty at the University of Northern Colorado.

It is assumed that a student selecting this curriculum is preparing to teach chemistry or physical science in a secondary school or in a college. The student is also expected to be informed in the field of professional science education and some of the significant research in this area.

Any of the required courses or their equivalents listed above which have already been taken are not to be repeated. Additional work, both in subject matter and professional courses can be taken in place of these courses. If previously taken courses are outdated, a student may be requested to validate them and bring them up-to-date. If required courses have unsatisfied prerequisites, these prerequisites must be made up.

Although the oral examination is primarily on the research work it is not necessarily limited to it. A major comprehensive examination will be written in chemistry.

College Student Personnel Work

Specialist in Education Degree

The Department of College Student Personnel Work offers the opportunity to earn the Specialist in Education Degree. Each person who enters the program is considered on an individual basis. Course work to be taken will be determined by the student's background and experience as well as his area of interest and future plans. The student will be expected to complete a minimal number of courses offered by the department. He also will be encouraged to gain practical experience through internships offered by the department. The student and his adviser will cooperatively plan the program to complete graduate requirements for the Specialist in Education Degree.

Doctor of Philosophy Degree

The program of studies is especially planned for the preparation of persons for college and university positions in all divisions of student personnel work. The rationale underlying the program maintains that persons in student personnel work in higher education need a strong background in liberal arts, a broad understanding of educational psychology, a thorough knowledge of the field of student personnel work, ability to teach college students, and skill in measurement, statistics, and research.

The following is the recommended program:

1. The major is composed of not less than 94 quarter hours credit in course work, and 18 quarter hours credit in original research, for a minimum of 112 quarter hours credit. The major must be accompanied by a graduate minor or a supporting area of not less than 24 quarter hours credit.

2. The total minimum of 136 quarter hours for the degree program is made up as follows:

	<i>Hours Credit</i>
A. Courses in College Student Personnel Work	33
B. Internships in College Student Personnel Work	14
C. Courses in Psychology	24
D. Elective courses in social sciences, natural sciences, humanities, and measurement and statistics	23
E. Doctoral Dissertation	18
Total (minimum) in major	112
Total (minimum) in minor or supporting area.....	24
Total (minimum) Ph.D. Program.....	136

42 / DEPARTMENTAL PROGRAM REQUIREMENTS

Applicants for admission to the program must have a Baccalaureate degree from an accredited institution and prior graduate work. A Master's degree is strongly recommended.

A personal interview is mandatory. Work experience to indicate probable success as a Student Personnel Worker is required. The above criteria for admission will be used to determine whether an applicant will be admitted to the graduate program in CSPW.

A. Courses in College Student Personnel Work

	<i>Hours Credit</i>
CSPW 423—Suicidology: Crisis Intervention	3
CSPW 622—Individual Studies—Graduate	Max. 4
CSPW 650—The College and the Student	3
CSPW 651—Philosophy and History of College Student Personnel Work	3
CSPW 652—Student Housing	3
CSPW 653—College Counseling and Health Services	3
CSPW 654—Admissions and Records	3
CSPW 655—Student Government, Activities and Sponsorship	3
CSPW 656—Placement Service	3
CSPW 657—Financial Aids	3
CSPW 658—Organization and Administration of College Student Personnel Work	3
CSPW 700—Introduction to Doctoral Research	3
CSPW 701—Specialists Degree Practicum	8
CSPW 752—Current Issues in College Student Personnel Work	3
CSPW 753—Research and Evaluation in College Student Personnel Work	3
CSPW 799—Doctoral Dissertation	18

B. Internships in College Student Personnel Work

The student shall select no less than 14 quarter hours of internship credit from the following:

	<i>Hours Credit</i>
CSPW 758—Seminar in College Student Personnel Work	0
CSPW 659—Internship in College Student Personnel Work—Housing	2
CSPW 660—Internship in College Student Personnel Work—Health	2
CSPW 661—Internship in College Student Personnel Work—College Teaching	2
CSPW 662—Internship in College Student Personnel Work—Student Activities	2
CSPW 663—Internship in College Student Personnel Work—Counseling	2
CSPW 664—Internship in College Student Personnel Work—Placement Services	2
CSPW 665—Internship in College Student Personnel Work—Dean's Office	2
CSPW 666—Internship in College Student Personnel Work—Financial Aids	2
CSPW 667—Internship in College Student Personnel Work—Admissions and Records	2
CSPW 668—Internship in Student Personnel Work—Community College	2
CSPW 669—Internship in Student Personnel Work—International Education	2

Each quarter that the student registers for an internship, he must concurrently register for CSPW 758-Seminar in College Student Personnel Work. Interns are required to meet once per week in seminar with the faculty of the major.

C. Courses in Psychology

The student shall select 24 quarter hours of course work from the following groups of courses with one or more courses being selected from each group:

	<i>Hours Credit</i>
PSY 520—General Psychology and Principles of Behavior	3
PSY 540—Psychology of Perception and Learning	3
PSY 655—Mental Hygiene	3
PCG 635—Psychology of Individual Differences	3
PCG 541—Theories of Learning	5
PCG 633—Psychology of Adolescence	3
PCG 543—Theories of Motivation	3
PCG 762—Group Dynamics in Human Relations	3
PSY 558—Abnormal Psychology	3
PCG 507—Counseling Theories	3
PCG 634—Psychology of College Students and Other Adults	3
PCG 612—Introductory Supervised Practice in Counseling	3
PCG 670—Principles and Practices in Testing and Measurement	3

PCG	671—Aptitude and Achievement Analysis	3
PCG	673—Individual Tests of Intelligence	3
PCG	683—Survey of Projective Techniques	3
PCG	782—Introduction to Rorschach Administration and Scoring	3
PCG	783—Projective Technique	3
PCG	712—Analysis of the Individual	3
PCG	—Other Approved Courses	3

D. Elective Courses: A student shall elect 12 quarter hours of courses in statistics unless he is pursuing a minor or supporting area in Statistics and Measurement or unless he is presenting 12 hours or more of statistics in lieu of one research tool. Other electives are selected, with the adviser's approval, from the wide range of college graduate offerings.

E. C.S.P.W. doctoral students must demonstrate competency in two acceptable research tools. These research tools include foreign language(s), applied statistics, information processing, mathematical statistics, and an acceptable collateral field. The collateral field should be related to the student's major work and interests, will be tailored to meet the individual student's educational goals and must include not less than 15 graduate quarter hours. The collateral field of study is to be selected by the student and his major adviser after admittance to CSPW doctoral program.

F. Doctoral Dissertation: Original research in the field of College Student Personnel Work.

Curriculum and Instruction

Master of Arts Degree

Curriculum and Instruction

Intent: Designed to prepare classroom teachers and subject area supervisors as specialists in the instruction of given content area.

Course No.	Course Title	Hours Credit
RSM	600—Introduction to Graduate Study (or departmental substitute)	3
EDCI	661—Secondary Instruction	3
EDCI	662—The Development of Instructional Practice	3
EDCI	666—Foundations for Curriculum Development	3

A minimum of one of the following:

PCG	540—Psychology of Perception and Learning	5
PCG	633—Psychology of Adolescence	3
PCG	541—Theories of Learning	5

Professional Competencies: (required unless candidate had equivalent undergraduate credit).

EDF	485	
	or 585—Philosophy of Education	3
EDEM	510—Introduction to Educational Resources	5
PCG	670—Principles and Practices in Testing and Measurement	3
	or	
RSM	505—Descriptive Statistics	4
PCG	602—Foundations of Guidance	3

Content Area Courses: A minimum of 20 hours selected to develop instructional competency.

Recommended Electives: Determined by candidate's need to strengthen understandings and competencies.

EDAD	520—School Law I	3
EDRD	521—Reading in the Content Fields	3

44 / DEPARTMENTAL PROGRAM REQUIREMENTS

VE	310—Foundations of Vocational and Technical Education	2
EDCI	560	
	or 660—Professional Roles and Responsibilities	3
EDRD	627—Remedial Reading in the Secondary School	4
EDCI	767—Modern Curricular Programs	3
EDCI	768—Advanced Seminar in Curriculum and Instruction	Max. 9
EDEL	612—The Elementary School Curriculum	3
PCG	655—Mental Hygiene	3
RSM	504—Descriptive Statistics	4
EDFE	640—Supervision of Student Field Experience	3

Comprehensive Exam: A formal paper relating to the instruction of the content area, prerequisite to the written examination unless the candidate writes a thesis. A comprehensive written examination relating to the instruction of the subject area.

Junior High School Curriculum and Instruction

Intent: Designed to prepare classroom teachers and subject area supervisors as specialists in the instruction of a given subject area in the junior high school.

Core Requirements: (required of all candidates)

		<i>Hours Credit</i>
RSM	600—Introduction to Graduate Study (or departmental substitute)	3
EDCI	663—Curriculum in the Junior High School	3
EDCI	664—Seminar in Junior High School Instruction	6

A minimum of one of the following:

PCG	540—Psychology of Perception and Learning	5
PCG	633—Psychology of Adolescence	3
PCG	641—Theories of Learning	5

Professional Competencies: (required unless candidate had equivalent undergraduate credit).

EDF	485	
	or 595—Philosophy of Education	3
EDEM	510—Introduction to Educational Resources	5
PCG	602—Foundations of Guidance	3
PCG	670—Principles and Practices in Testing and Measurement	3
RSM	504—Descriptive Statistics	4

Content Area Courses: A minimum of 20 hours to be selected to develop instructional competency.

Recommended Electives: Determined by candidate's need to strengthen understandings and competencies.

EDAD	520—School Law I	3
EDRD	521—Reading in the Content Fields	3
VE	310—Foundations of Vocational and Technical Education	3
EDCI	560	
	or 660—Professional Roles and Responsibilities	3
EDRD	627—Remedial Reading in the Secondary School	4
EDCI	561	
	or 661—Secondary Instruction	3
EDCI	664—Seminar in Junior High School Instruction	6
EDCI	666—Foundations for Curriculum Development	3
EDCI	767—Modern Curricular Programs	3
EDCI	668—Seminar in Curriculum and Instruction (maximum 9 hours)	9
EDEL	612—The Elementary School Curriculum	3
PCG	655—Mental Hygiene	3
RSM	504—Descriptive Statistics	4

Comprehensive Exam: A formal paper relating to the instruction of the subject area in the junior high school, prerequisite to the written examination unless the

candidate writes a thesis. A comprehensive written examination relating to the instruction of the subject area in the junior high school.

Specialist in Education Degree

Curriculum and Instruction: Content Area

Intent: Designed to prepare secondary classroom teachers and content area supervisors as specialists in the instruction of a given content area. The program is predicated on adaptation to the candidate's particular interests and area of specialization.

Core Requirements: (required of all candidates)

		<i>Hours Credit</i>
RSM	700-Introduction to Doctoral Research (or its equivalent).....	3
EDCI	701-Specialist Degree Practicum	8

Areas of Competency: The candidate shall demonstrate competency, *usually* by completion of advanced graduate course work, in each of the following areas. Specific courses noted are *recommended*.

1. Comprehension of historical, philosophical, and cultural factors affecting curriculum, and ability to utilize these in the development of the instructional program.

		<i>Hours Credit</i>
EDCI	661-Secondary Instruction	3
EDCI	662-The Development of Instructional Practice	3
EDCI	663-Curriculum in the Junior High School	3
EDCI	664-Seminar in Junior High School Instruction	Max. 6
EDCI	666-Foundations for Curriculum Development	3
EDCI	767-Modern Curricular Programs	3
EDCI	668-Seminar in Curriculum and Instruction	Max. 9
EDEL	612-The Elementary School Curriculum	3
EDHI	653-The Junior and Community College	3
EDHI	751-The College and University Curriculum	3

2. Comprehension of psychological factors, especially learning theory, human growth and development and mental hygiene, skill in employing classroom guidance techniques, and ability to utilize these in the development of the instructional program.

		<i>Hours Credit</i>
PCG	540-Psychology of Perception and Learning	5
PCG	655-Mental Hygiene	3
PCG	606-Techniques in Group Guidance	3
PCG	633-Psychology of Adolescence	3
PCG	541-Theories of Learning	5

3. Comprehension of the dimensions and structure of a specialized subject field or discipline, and skill in ordering this content into teachable concepts:

Usually a *minimum* of 35 hours of graduate level study in a given content area, including master's preparation.

4. Development of skill in applying various technologies to the development of the instructional program of the school system.

		<i>Hours Credit</i>
EDRD	521-Reading in the Content Fields	3
EDRD	627-Remedial Reading in the Secondary School.....	4
EDEM	510-Introduction to Educational Resources	5
EDEM	520-Design and Construction of Audio-Visual Materials	3
PCG	670-Principles and Practices in Testing and Measurement.....	3
PCG	671-Aptitude and Achievement Analysis	5
PCG	563-Sociodrama	2
PCG	564-Sociometry	2
RSM	504-Descriptive Statistics	4
RSM	505-Statistical Inference	5

46 / DEPARTMENTAL PROGRAM REQUIREMENTS

RSM	603—Analysis of Variance and Covariance	3
EDFE	750—University Roles in EDFE	Max. 8

Comprehensive Exam: A comprehensive written examination over the speciality and the practicum.

General Curriculum Coordination

Intent: Designed to prepare curriculum director for coordination of the instructional program of a school system. While not necessarily intended to meet certification requirements for the superintendency, the program is predicated on adaptation to the candidate's particular area of interest and specialization.

Core Requirements:

		<i>Hours Credit</i>
RSM	700—Introduction to Doctoral Research (or its equivalent).....	3
EDCI	701—Specialist Degree Practicum	8

Areas of Competency: The candidate shall demonstrate competency, *usually* by completion of advanced graduate course work, in each of the following areas. Specific courses noted are *recommended*.

1. Comprehension of historical, philosophical, social and cultural factors affecting curriculum, and ability to utilize these in the development of the instructional program.

		<i>Hours Credit</i>
VE	310—Foundations of Vocational and Technical Education	3
EDCI	661—Secondary Instruction	3
EDCI	662—The Development of Instructional Practice	3
EDCI	663—Seminar in Junior High School Instruction	3
EDCI	664—Curriculum in the Junior High School	max. 6
EDCI	666—Foundations for Curriculum Development	3
EDCI	767—Modern Curricular Programs	3
EDCI	668—Seminar in Curriculum and Instruction	max. 9
EDEL	612—The Elementary School Curriculum	3
EDHI	603—The Junior and Community College	3
EDHI	701—The College and University Curriculum	3

2. Comprehension of psychological factors, especially learning theory, human growth and development and mental hygiene, skill in employing these in the development of the instructional program.

		<i>Hours Credit</i>
PCG	540—Psychology of Perception and Learning	5
PCG	655—Mental Hygiene	3
PCG	633—Psychology of Adolescence	3
PCG	541—Theories of Learning	5
PCG	671—Aptitude and Achievement Analysis	5

3. Comprehension of organizational processes and factors influencing administrative decisions, and skill in ordering and applying these techniques to the administration of a system's instructional program.

		<i>Hours Credit</i>
EDAD	610—School Finance	3
EDAD	620—School Law II	3
EDAD	525—Introduction to Organization and Administration of Public Schools	3
EDAD	670—Elementary School Organization, Administration, and Supervision	4
EDAD	671—Secondary School Organization, Administration, and Supervision.....	4

4. Development of skill in applying various technologies to the development of the instructional program of the school system.

		<i>Hours Credit</i>
EDRD	521—Reading in the Content Fields	3
EDRD	627—Remedial Reading in the Secondary School	4
EDEM	510—Introduction to Educational Resources	5
EDEM	520—Design and Construction of Audio-Visual Materials	3

PCG	563—Sociodrama	2
PCG	564—Sociometry	2
PCG	670—Principles and Practices in Testing and Measurements	3
PCG	671—Aptitude and Achievement Analysis	5
RSM	504—Descriptive Statistics	4
RSM	505—Statistical Inference	5
RSM	603—Analysis of Variance and Covariance	3
RSM	720—Seminar in Dissertation Evaluation	0
EDFE	640—Supervision of the Student Field Experience	3
EDFE	750—University Roles in EDFE	Max. 8

Comprehensive Exam: A comprehensive written examination over the speciality and the practicum.

Doctor of Education Degree

Curriculum and Instruction

Plan I — Generalist in Curriculum Theory

Intent: Designed to prepare candidates to work in curriculum and instruction in the several content areas included in the program of the secondary schools.

Core Requirements:

		<i>Hours Credit</i>
RSM	700—Introduction to Doctoral Research (or equivalent)	3
EDCI	799—Doctoral Dissertation (18 hours). Relating to the development of instructional and curricular programs	18
EDF	785—Philosophical Foundations of Education	3
EDF	765—Sociological Foundations of Education	3
PCG	740—Psychological Foundations of Education	3

Areas of Competency: The candidate shall demonstrate competency, *usually* by completion of advanced graduate course work, in *each* of the following areas. Specific courses, unless noted, are *recommended*.

1. Comprehension of historical, philosophical, social and cultural factors affecting curriculum, and ability to utilize these in the development of instructional programs.

		<i>Hours Credit</i>
EDCI	661—Secondary Instruction	3
EDCI	662—The Development of Instructional Practice	3
EDCI	663—Curriculum in the Junior High School	3
EDCI	664—Seminar in Junior High School Curriculum	3
EDCI	666—Foundations for Curriculum Development	3
EDCI	767—Modern Curricular Programs	3
EDCI	668—Seminar in Curriculum and Instruction	Max. 9
EDCI	768—Advanced Seminar in Curriculum and Instruction	Max. 9
EDEL	612—The Elementary School Curriculum	3
EDHI	653—The Junior and Community College	3
EDHI	751—The College and University Curriculum	3

2. Comprehension of psychological factors, especially learning theory, human growth and development and mental hygiene, skill in employing classroom guidance techniques, and ability to utilize these in the development of the instructional program.

		<i>Hours Credit</i>
PCG	540—Psychology of Perception and Learning	5
PCG	655—Mental Hygiene	3
PCG	606—Theories and Practices in Group Guidance	3
PCG	633—Psychology of Adolescence	3
PCG	741—Seminar in Learning Theories	3

48 / DEPARTMENTAL PROGRAM REQUIREMENTS

3. Comprehension of organizational process and factors influencing administrative decisions, and skill in ordering and applying these techniques to the administration of a school system's instructional program.

	<i>Hours Credit</i>
EDAD 610—School Finance	3
EDAD 620—School Law II	3
EDAD 525—Introduction to Organization and Administration of Public Schools	3
EDAD 630—Problems in Educational Facility Planning	3
EDAD 670—Elementary School Organization, Administration, and Supervision	4
EDAD 671—Secondary School Organization, Administration, and Supervision	4

4. Development of skill in applying various technologies to the development of the instructional program of the school system.

	<i>Hours Credit</i>
RSM 504—Descriptive Statistics	4
RSM 505—Statistical Inference	5
RSM 603—Analysis of Variance and Covariance	3
RSM 720—Seminar in Dissertation Evaluation	0
EDRD 521—Reading in the Content Fields	3
EDRD 627—Remedial Reading in the Secondary School	4
EDEM 510—Introduction to Educational Resources	5
EDEM 520—Design and Construction of Audio-Visual Materials	3
PCG 563—Sociodrama	2
PCG 564—Sociometry	2
PCG 670—Principles and Practices in Testing and Measurement	3
PCG 671—Aptitude and Achievement Analysis	5
EDFE 750—University Roles in EDFE	Max. 8

Support Area: A minimum of 24 quarter hours of graduate level work in a specific area in support of the area of concentration.

Comprehensive Written and Oral Exams: Relating to the development of instructional and curricular programs.

Oral Examination in Defense of the Doctoral Dissertation.

Curriculum and Instruction

Plan II—Specialization in Content

Intent: Designed to prepare candidates to work in curriculum and instruction in a given content area, such as supervisors or coordinators of content area, methods teachers, supervisors of student teaching.

Core Requirements:

	<i>Hours Credit</i>
RSM 700—Introduction to Doctoral Research (or equivalent)	3
EDCI 799—Doctoral Dissertation. Relating to the development of instructional and curricular programs	18
EDF 785—Philosophical Foundations of Education	3
EDF 765—Sociological Foundations of Education	3
PCG 740—Psychological Foundations of Education	3

Areas of Competency: The candidate shall demonstrate competency, usually by completion of advanced graduate course work, in each of the following areas. Specific courses, unless noted, are recommended.

1. Comprehension of historical, philosophical, social and cultural factors affecting curriculum, and ability to utilize these in the development of instructional programs.

DEPARTMENTAL PROGRAM REQUIREMENTS / 49

	<i>Hours Credit</i>
EDCI 661—Secondary Instruction	3
EDCI 662—The Development of Instructional Practice	3
EDCI 663—Curriculum in the Junior High School	3
EDCI 664—Seminar in Junior High School Instruction	Max. 6
EDCI 666—Foundations for Curriculum Development	3
EDCI 767—Modern Curricular Programs	3
EDCI 668—Seminar in Curriculum and Instruction	Max. 9
EDCI 768—Advanced Seminar in Curriculum and Instruction	Max. 9
EDEL 612—The Elementary School Curriculum	3
EDHI 653—The Junior and Community College	3
EDHI 751—The College and University Curriculum	3

2. Comprehension of psychological factors, especially learning theory, human growth and development and mental hygiene, skill in employing classroom guidance techniques, and ability to utilize these in the development of instructional programs.

	<i>Hours Credit</i>
PCG 540—Psychology of Perception and Learning	5
PCG 655—Mental Hygiene	3
PCG 606—Theories and Practices in Group Guidance	3
PCG 633—Psychology of Adolescence	3
PCG 641—Theories of Learning	5

3. Comprehension of organizational process and factors influencing administrative decisions, and skill in ordering and applying these techniques to the administration of a school system's instructional program.

	<i>Hours Credit</i>
EDAD 610—School Finance	3
EDAD 620—School Law II	3
EDAD 525—Introduction to Organization and Administration of Public Schools	3
EDAD 632—Educational Programming and Faculty Planning	3
EDAD 670—Elementary School Organization, Administration, and Supervision	4
EDAD 671—Secondary School Organization, Administration, and Supervision	4

4. Development of skill in applying various techniques to the development of the instructional program of the school system.

	<i>Hours Credit</i>
RSM 504—Descriptive Statistics	4
RSM 505—Statistical Inference	5
RSM 603—Analysis of Variance and Covariance	3
EDRD 521—Reading in the Content Fields	3
EDRD 627—Remedial Reading in the Secondary School	4
EDEM 510—Introduction to Educational Resources	5
EDEM 520—Design and Construction of Audio-Visual Materials	3
PCG 563—Sociodrama	2
PCG 564—Sociometry	2
PCG 670—Principles and Practices in Testing and Measurements	3
PCG 671—Aptitude and Achievement Analysis	5
EDFE 640—Supervision of the Student Field Experiences	3
EDFE 750—University Roles in EDFE	Max. 8

5. **Content Area:** Comprehension of the dimensions and structure of a specialized content field or discipline, and skill in ordering this content into teaching concepts.

Usually a minimum of 50 hours of graduate level study in a given content area including masters' preparation.

NOTE: This competency replaces the typical Support Area of the doctoral program.

Comprehensive Written and Oral Exams: Relating to the instruction of the content area at the appropriate levels.

Oral Examination in Defense of the Dissertation.**Curriculum and Instruction****Plan III—Professional Field Experience**

Intent: Designed to prepare candidates to work in curriculum and instruction in the several content areas such as coordinators, methods teachers, consultants in student teaching.

Core Requirements:

		<i>Hours Credit</i>
RSM	700—Introduction to Doctoral Research (or equivalent)	3
EDCI	799—Doctoral Dissertation. Relating to the development of instructional and curricular programs	18
EDF	785—Philosophical Foundations of Education	3
EDF	785—Sociological Foundations of Education	3
PCG	740—Psychological Foundations of Education	3

Areas of Competency: The candidate shall demonstrate competency, *usually* by completion of advanced graduate course work, in *each* of the following areas. Specific courses, unless noted are *recommended*.

1. Comprehension of factors involved and practices utilized in the development and management of programs in student teaching and other field experiences.

		<i>Hours Credit</i>
EDFE	601—Student Field Experience Practicum	Max. 4
EDFE	622—Independent Study in Student Field Experience	Max. 12
EDFE	640—Supervision of the Student Field Experience	3
EDFE	740—Role of the College Field Consultant	3
EDFE	750—University Roles in EDFE	Max. 8
EDHI	651—Higher Education in the United States	3
EDHI	654—The College and University Teacher	3
EDHI	751—The College and University Curriculum	3

NOTE: This competency replaces the typical Support Area of the doctoral program.

2. Comprehension of historical, philosophical, social and cultural factors affecting curriculum and ability to utilize these in the development of K-12 instructional programs.

		<i>Hours Credit</i>
VE	310—Principles of Vocational and Technical Education	3
EDEL	620—Elementary Curriculum	3
EDCI	661—Secondary Instruction	3
EDCI	662—The Development of Instructional Practice	3
EDCI	664—Seminar in Junior High School Instruction	3
EDCI	666—Foundations for Curriculum Development	3
EDCI	767—Modern Curricular Programs	3
EDCI	668—Seminar in Curriculum and Instruction	Max. 9
EDCI	768—Advanced Seminar in Curriculum and Instruction	Max. 9
EDHI	653—The Junior and Community College	3
EDHI	751—The College and University Curriculum	3

3. Comprehension of psychological factors, especially learning theory, human growth and development and mental hygiene, skill in employing classroom guidance techniques, and ability to utilize these in the development of the instructional program.

		<i>Hours Credit</i>
PCG	540—Psychology of Perception and Learning	5
PCG	655—Mental Hygiene	3
PCG	606—Theories and Practices in Group Guidance	3

PCG	633—Psychology of Adolescence	3
PCG	641—Theories of Learning	5

4. Comprehension of organizational process and factors influencing administrative decisions, and skill in ordering and applying these techniques to the administration of a school system's instructional program.

		<i>Hours Credit</i>
EDAD	610—School Finance	3
EDAD	620—School Law II	3
EDAD	525—Introduction to Organization and Administration of Public Schools	3
EDAD	630—Problems in Educational Facility Planning	3
EDAD	670—Elementary School Organization, Administration, and Supervision	3
EDAD	671—Secondary School Organization, Administration, and Supervision	3

5. Development of skill in applying various technologies to the development of the instructional program of the school system.

		<i>Hours Credit</i>
RSM	504—Descriptive Statistics	4
RSM	505—Statistical Inference	5
RSM	713—Planning and Methodology of Research	3
RSM	720—Seminar in Dissertation Evaluation	0
EDEM	510—Introduction to Educational Resources	4
EDEM	520—Design and Construction of Audio-Visual Materials	3
PCG	670—Principles and Practices of Tests and Measurements	3
PCG	671—Aptitude and Achievement Analysis	5
PCG	563—Sociodrama	2
PCG	564—Sociometry	2
EDRD	521—Reading in the Content Fields	3
EDRD	627—Remedial Reading in the Secondary Schools	3

Comprehensive Written and Oral Exams: Relating to the development of instructional competency, particularly through field experience.

Oral Examination in Defense of the Dissertation.

Curriculum and Instruction

Plan IV—Educational Media

Intent: Designed to prepare candidates as specialists at the school system level in the fields of curriculum and instruction and/or educational media.

General Degree Requirements: Acceptance by the university as a graduate student in the doctoral program and fulfillment of requirements specifically identified in the Graduate School Bulletin. Generally, a minimum of 90 quarter hours of graduate credit above the master's degree.

Core Requirements:

<i>Course No.</i>	<i>Course Title</i>	<i>Hours Credit</i>
RSM	700—Introduction to Doctoral Research (or equivalent)	3
EDCI	799—Doctoral Dissertation. Relating to the development of instructional and curriculum programs	18
EDF	785—Philosophical Foundations of Education	3
PCG	740—Psychological Foundations of Education	3
EDF	765—Sociological Foundations of Education	3

Areas of Competency: The candidate shall demonstrate competency, *usually* by completion of advanced graduate work, in *each* of the following areas. Specific courses unless noted, are *recommended*.

1. Comprehension of the communication skills required of a good teacher and the tools, techniques, and materials essential to good communication.

52 / DEPARTMENTAL PROGRAM REQUIREMENTS

<i>Course No.</i>	<i>Course Title</i>	<i>Hours</i>	<i>Credit</i>
EDEM	460—Television in Education	4	
EDEM	510—Introduction to Educational Resources	5	
EDEM	516—Utilization of Educational Resources	3	
EDEM	520—Design and Construction of A-V Materials	3	
EDEM	575—Organization and Administration of Educational Resource Center	5	
EDEM	610—Instructional Technology, Philosophy, Theory and Practice	3	
EDEM	620—Production of Photographic Teaching Materials	3	
EDEM	650—Philosophy and Principles of Outdoor Education	3	
EDEM	695—Trends and Issues in Educational Media	3	

NOTE: This competency replaces the typical Support Area of the Doctoral Program.

2. Comprehension of historical, philosophical, social and cultural factors affecting curriculum, and ability to utilize these in the development of instructional programs.

<i>Course No.</i>	<i>Course Title</i>	<i>Hours</i>	<i>Credit</i>
EDEL	612—Elementary Curriculum	3	
EDCI	661—Secondary Instruction	3	
EDCI	662—The Development of Instructional Practice	3	
EDCI	663—Curriculum in the Junior High School	3	
EDCI	664—Seminar in Junior High School Instruction	Max. 6	
EDCI	666—Foundations for Curriculum Development	3	
EDCI	767—Modern Curricular Programs	3	
EDCI	668—Seminar in Curriculum and Instruction	Max. 9	
EDHI	653—The Junior and Community College	3	
EDHI	751—The College and University Curriculum	3	

3. Comprehension of psychological factors, especially learning theory, human growth and development and mental hygiene, skill in employing classroom guidance and techniques, and ability to utilize these in the development of the instructional program.

<i>Course No.</i>	<i>Course Title</i>	<i>Hours</i>	<i>Credit</i>
PCG	540—Psychology of Perception and Learning	5	
PCG	655—Mental Hygiene	3	
PCG	606—Theories and Practices in Group Guidance	3	
PCG	633—Psychology of Adolescence	3	
PCG	541—Theories of Learning	5	

4. Comprehension of organizational process and factors influencing administrative decisions, and skill in ordering and applying these techniques to the administration of a school system's instructional program.

<i>Course No.</i>	<i>Course Title</i>	<i>Hours</i>	<i>Credit</i>
EDAD	610—School Finance	3	
EDAD	620—School Law II	3	
EDAD	525—Introduction to Organization and Administration of Public Schools	3	
EDAD	630—Problems in Educational Facility Planning	3	
EDAD	670—Elementary School Organization, Administration, and Supervision	4	
EDAD	671—Secondary School Organization, Administration, and Supervision	4	

5. Development of skill in applying various technologies to the development of the instructional program of the school system.

<i>Course No.</i>	<i>Course Title</i>	<i>Hours</i>	<i>Credit</i>
RSM	504—Descriptive Statistics	4	
RSM	505—Statistical Inference	5	
RSM	713—Planning and Methodology of Research	3	
RSM	720—Seminar in Dissertation Evaluation	0	
PCG	563—Sociodrama	2	
PCG	564—Sociometry	2	
PCG	670—Principles and Practices of Testing and Measurement	3	
PCG	671—Aptitude and Achievement Analysis	5	
EDRD	521—Reading in the Content Fields	3	
EDRD	627—Remedial Reading in the Secondary Schools	4	

Comprehensive Written and Oral Exams: Relating to the development of instructional competency, particularly through field experience.

Oral Examination in Defense of the Dissertation

Supporting Area

Those wishing to use Secondary Curriculum and Instruction as a supporting area in their doctoral programs should take a minimum of 24 quarter hours of advanced graduate work selected with the departmental adviser's approval from the following:

<i>Course No.</i>	<i>Course Title</i>	<i>Hours Credit</i>
EDCI	660—Professional Roles and Responsibilities	3
EDCI	661—Secondary Instruction	3
EDCI	662—The Development of Instructional Practice.....	3
EDCI	663—Curriculum in the Junior High School	3
EDCI	664—Seminar in Junior High School Instruction.....	Max. 6
EDCI	666—Foundations for Curriculum Development	3
EDCI	767—Advanced Curriculum Programs	3
EDCI	668—Seminar in Curriculum and Instruction.....	Max. 9
EDCI	768—Advanced Seminar in Curriculum and Instruction.....	Max. 9

Economics

Master of Arts Degree

A concentration in Economics is offered within the major in Social Science. See Social Science, page 97.

Educational Administration

Generally, degree programs in this department constitute the basis for institutional recommendation for administrative certification in Colorado and, increasingly, in a number of other states as well. Because certification programs are approved annually by the State Board of Education as of October 1, specific requirements may vary slightly from those published in this catalog. Students entering a degree program will be expected to meet the requirements of the officially approved program in effect at the time of their admission.

In all degree programs in this department, the student's adviser has the prerogative of waiving specific course requirements on the basis of the student's previous experience and training.

Master of Arts Degree

Completion of the M.A. degree qualifies for the principal's certificate in Colorado. All M.A. students must meet the following course requirements:

<i>Course No.</i>	<i>Course Title</i>	<i>Hours Credit</i>
EDAD	600—Introduction to Research in Educational Administration	3
	<i>or</i>	
RSM	600—Introduction to Graduate Study	3
EDAD	610—School Finance	3
EDAD	620—School Law II (EDAD 520, School Law I, may be substituted)	3
EDAD	525—Introduction to Organization and Administration of Public Schools	3
EDAD	650—School Personnel Administration	3
	Courses related to design, planning, implementation, and evaluation of curriculum	9

54 / DEPARTMENTAL PROGRAM REQUIREMENTS

1. Sufficient experience to indicate probable success as an administrator is required.

In addition to the above common requirements, each emphasis has unique course requirements, as follows:

Elementary School Administration

Course No.	Course Title	Hours	Credit
EDAD	670—Elementary School Organization, Administration, and Supervision	4	4
PCG	603—Guidance in the Elementary School	3	3
	Electives in Psychology	3-6	3-6

Those who do not have a background of preparation for elementary teaching are required to take four of the following:

Course No.	Course Title	Hours	Credit
EDRD	612—Reading in the Primary Grades	3	3
EDEL	620—Mathematics in the Elementary School	3	3
EDEL	640—English in the Elementary School	3	3
EDEL	650—Social Studies in the Elementary School	3	3
SCED	671—Science Curriculum in the Elementary School	3	3
	Electives to complete graduation requirements		

Junior High School Administration

Course No.	Course Title	Hours	Credit
PCG	602—Foundations of Guidance	3	3
EDCI	664—Seminar in Junior High School Instruction	3	3
EDAD	671—Secondary School Organization, Administration, and Supervision	4	4
	Electives in Psychology	3-6	3-6
	Electives to complete graduation requirements		

Secondary School Administration

Course No.	Course Title	Hours	Credit
PCG	602—Foundations of Guidance	3	3
EDAD	671—Secondary School Organization, Administration, and Supervision	4	4
	Electives in psychology	3-6	3-6
	Electives to complete graduation requirements		

Higher Education Administration

The M.A. program also provides an emphasis for those preparing for administration of higher education, particularly at the community college level. Except for EDAD 625, the common M.A. requirements listed above apply. In addition, the emphasis in higher education has the following specific course requirements.

Course No.	Course Title	Hours	Credit
EDHI	651—Higher Education in the United States	3	3
EDHI	653—The Junior and Community College	3	3
IA	620—Organization and Administration of Industrial Education	3	3
CSPW	655—Student Government, Activities, and Sponsorship	3	3
	or		
CSPW	657—Financial Aids	3	3
	Electives to complete graduation requirements		

Specialist in Education Degree

Elementary School Administration

The following is the required program:

1. Sufficient experience to indicate probable success as an administrator is required.
2. Completion of all specific requirements for the M.A. in Elementary School Administration.

3. Course requirements listed below:

<i>Course No.</i>	<i>Course Title</i>	<i>Hours Credit</i>
RSM	504—Descriptive Statistics	4
RSM	505—Statistical Inference	5
	(EDAD 660 and EDAD 661 may substitute)	
RSM	700—Introduction to Doctoral Research	3
EDAD	630—Problems in Educational Facility Planning	3
EDAD	641—Seminar in Decision Theory	3
EDAD	642—Seminar in Communication Theory	3
EDAD	643—Seminar in Management Systems and Analysis	3
EDAD	701—Specialist Degree Practicum in Administration	8
EDEL	612—The Elementary School Curriculum	3

Three of the following:

<i>Course No.</i>	<i>Course Title</i>	<i>Hours Credit</i>
EDRD	645—Seminar in Analysis of Reading Programs	3
EDEL	625—Seminar in Elementary School Mathematics	3
EDEL	645—Seminar in Elementary School English	3
EDEL	655—Seminar in Elementary School Social Studies	3
SCED	673—Seminar in Science Education Research	3

Two of the following:

<i>Course No.</i>	<i>Course Title</i>	<i>Hours Credit</i>
EDF	765—Sociological Foundations of Education	3
EDF	785—Philosophical Foundations of Education	3
PCG	740—Psychological Foundations of Education	3

4. Electives to complete requirements for graduation, including at least six quarter hours outside the field of education.

Secondary School Administration

The following is the required program:

1. Sufficient experience to indicate probable success as an administrator is required.

2. Completion of all specific requirements for the M.A. in Secondary School Administration.

3. Course requirements listed below:

<i>Course No.</i>	<i>Course Title</i>	<i>Hours Credit</i>
RSM	504—Descriptive Statistics	4
RSM	505—Statistical Inference	5
	(EDAD 660 and EDAD 661 may substitute)	
RSM	700—Introduction to Doctoral Research	3
EDAD	630—Problems in Educational Facility Planning	3
EDAD	641—Seminar in Decision Theory	3
EDAD	642—Seminar in Communication Theory	3
EDAD	643—Seminar in Management Systems and Analysis	3
EDAD	701—Specialist Degree Practicum in Administration	8
	Courses in curriculum	6

Two of the following:

<i>Course No.</i>	<i>Course Title</i>	<i>Hours Credit</i>
EDF	765—Sociological Foundations of Education	3
EDF	785—Philosophical Foundations of Education	3
PCG	740—Psychological Foundations of Education	3

4. Electives to complete requirements for graduation, including at least six quarter hours outside the field of education.

General School Administration

The following is the required program:

1. Sufficient experience to indicate probable success as an administrator is required.

56 / DEPARTMENTAL PROGRAM REQUIREMENTS

2. Completion of the common requirements for the M.A. in administration.
3. Course requirements listed below:

<i>Course No.</i>	<i>Course Title</i>	<i>Hours Credit</i>
RSM	504—Descriptive Statistics	4
RSM	505—Statistical Inference	5
	(EDAD 660 and EDAD 661 may substitute)	
RSM	700—Introduction to Doctoral Research	3
EDAD	630—Problems in Educational Facility Planning	3
EDAD	670—Elementary School Organization, Administration, and Supervision	4
EDAD	671—Secondary School Organization, Administration, and Supervision	4
EDAD	641—Seminar in Decision Theory	3
EDAD	642—Seminar in Communication Theory	3
EDAD	643—Seminar in Management Systems and Analysis	3
EDAD	701—Specialist Degree Practicum	8
	Courses in curriculum	6

Two of the following:

<i>Course No.</i>	<i>Course Title</i>	<i>Hours Credit</i>
EDF	765—Sociological Foundations of Education	3
EDF	785—Philosophical Foundations of Education	3
PCG	740—Psychological Foundations of Education	3
	Two methods courses in elementary education	6

4. Electives to complete requirements for graduation, including at least six quarter hours outside the field of education.

NOTE: Completion of this degree qualifies for the superintendent's certification in Colorado.

NOTE: An alternative to this degree plan is the "EDAD 740 program," consisting of six two-week seminars on campus during the academic year plus one quarter of full-time residence. Admission by invitation of the department. Inquiries should be sent to the department.

School Business Management

This program is designed to prepare persons for careers as school district business officials. Generally, applicants will have preparation and experience in business or in education, but typically not in both. Most candidates, therefore, may be required to take a minimum number of undergraduate courses (in business or in education) to complement previous training and to acquire the necessary competence in this program.

Specific courses should be selected from the following:

<i>Course No.</i>	<i>Course Title</i>	<i>Hours Credit</i>
RSM	700—Introduction to Doctoral Research	3
BUS	340—Introduction to Insurance	3
BUS	388—Systems and Procedures	3
BUS	452—Office Management	3
BUS	456—Business Policies and Management	3
BUS	470—Financial Management	3
BUS	520—Management Accounting	5
BUS	630—Applied Business Law	5
BUS	653—Seminar in Personnel Management	2
BUS	680—Information Processing I	3
BUS	695—Operations Analysis	3
EDAD	610—School Finance	3
EDAD	611—School Budgeting	4
EDAD	612—School Purchasing and Warehousing	4
EDAD	613—Auxiliary Management Services	2
EDAD	620—School Law II	3
EDAD	525—Introduction to Organization and Administration of Public Schools	3
EDAD	630—Problems in Educational Facility Planning	3
EDAD	641—Seminar in Decision Theory	3
EDAD	642—Seminar in Communication Theory	3
EDAD	643—Seminar in Management Systems and Analysis	3
EDAD	701—Specialist Degree Practicum in Administration	8

Doctor of Education Degree

Students in the doctoral program may pursue one of four directions:

1. **General School Administration:** Students preparing for careers at the school district administrative level (e.g., superintendent, assistant superintendent, etc.) should select this emphasis.
2. **Elementary School Administration:** Students preparing for administrative careers in elementary schools (e.g., principal, director of elementary education) should choose this emphasis.
3. **Secondary School Administration:** Students desiring administrative careers in secondary schools (e.g., principal, director of secondary education) should concentrate in this area.
4. **Administration of Higher Education:** Students planning for administrative careers in higher education (e.g., community colleges or universities) should plan programs in this area of concentration.

Each student will plan *his* program in consultation with his adviser, in light of his background and desired area of concentration. The following requirements apply to *all* doctoral students in educational administration:

1. Sufficient experience to indicate probable success as an administrator.
2. Demonstrated competence in the areas represented by the common course requirements of the M.A. and Ed.S. programs in educational administration. (Advisers may require students to make up specific course deficiencies.)
3. These specific courses:

Course No.	Course Title	Hours	Credit
RSM	700—Introduction to Doctoral Research		3
EDAD	641—Seminar in Decision Theory		3
EDAD	642—Seminar in Communication Theory		3
EDAD	643—Seminar in Management Systems and Analysis		3
EDAD	744—Seminar in Administrative Theory and Research		3
EDAD	745—Seminar in Executive Leadership		3
EDAD	746—Cases in Educational Administration (Seminar)		3
EDAD	799—Doctoral Dissertation in Administration	18	
EDF	765—Sociological Foundations of Education		3
EDF	785—Philosophical Foundations of Education		3
PCG	541—Theories of Learning		5
PCG	740—Psychological Foundations of Education		3

4. Additional specific course requirements determined by the area of concentration.
5. Electives to complete graduation requirements, including at least twelve quarter hours of graduate work outside the field of education.

Educational Media

Master of Arts Degree

The purpose of this program is to prepare teachers as supervisors for what has been variously called the comprehensive library, educational media center, instructional materials center or learning resource center. In the small school one person qualified to handle print and non-print material is essential, in the larger systems a degree of specialization is frequently desirable.

Students pursuing the M.A. degree in Educational Media must plan their programs to fulfill the following requirements.

Following the core (required) courses, recommended (elective) courses have been "grouped" to assist the student in determining his program.

EDEM 410, Introduction to Educational Resources and EDEM 330, Instructional Materials—Problems of Organization, Storage and Retrieval or comparable courses are to be taken before or concurrent with entrance in the program.

Course No.	Course Title	Hours	Credit
RSM	600—Introduction to Graduate Study		3
EDEM	601—Practicum		4

58 / DEPARTMENTAL PROGRAM REQUIREMENTS

EDEM	610—Instructional Technology, Philosophy, Theory, and Practice	3
	<i>or</i>	
PCG	541—Theories of Learning	5
EDCI	661—Secondary Instruction, EDCI 663—Curriculum in the Junior High School, EDCI 666—Foundations for Curriculum Development	3
	<i>or</i>	
EDEL	612—The Elementary School Curriculum	3
EDEM	516—Utilization of Educational Resources	3
EDEM	520—Design and Construction of Audio-Visual Materials	3
EDEM	536—Evaluation and Selection of Educational Materials	3
EDEM	575—Organization and Administration of Educational Resource Center	5
EDEM	695—Trends and Issues in Educational Media	3
	<i>Generalist</i>	
EDEM	460—Television in Education	4
EDEM	530—Classification and Cataloging I	3
EDEM	620—Production of Photographic Teaching Materials	3
	Electives	1-3
	<i>Instruction-Generalist</i>	
EDEM	Electives	1-3
	Subject Area Electives	15-20
	<i>Library Science (Speciality)</i>	
EDEM	530—Classification and Cataloging I	3
EDEM	531—Classification and Cataloging II	3
EDEM	534—Reference Materials for Educational Resource Center	3
	Electives	4-6
	<i>Technology (Speciality)</i>	
EDEM	460—Television in Education	4
EDEM	620—Production of Photographic Teaching Materials	3
EDAD	630—School Plant Planning	3
SP	440—Introduction to Television Production	4
	Electives	1-3

Outdoor Education—Environmental Education

The purpose of this program is to prepare teachers in the area of Outdoor Education and Environmental Education. Numerous opportunities are provided for students to actively participate in learning experiences conducted beyond the classroom. Natural and community environmental resources are utilized in providing direct, firsthand learning experiences. Graduate students are provided an opportunity to participate in the outdoor school programs conducted in the Laboratory School, and in Special Education. An opportunity to participate in the Teachers Practicum in Outward Bound is provided. Course offerings, which have significance for this broad area, are offered in many departments of the university. Listed below are specific courses which comprise an areas of emphasis.

<i>Course No.</i>	<i>Course Title</i>	<i>Hours Credit</i>
EDEM	650—Philosophy and Principles of Outdoor Education	3
EDSE	480—Outdoor Education for the Handicapped	3
IS	522—Art and the Environment	3
HPER	460—Outdoor Recreation and Environmental Awareness	4
IS	522—Music and the Environment	3
BIO	501—Environmental Conservation	4
GEOG	574—Seminar in Geographic Education	3
	<i>or</i>	
GEOG	592—Field Course in Geography	10

Electives: Determined by candidate's need to strengthen understandings and competencies.

EDEM	508—Workshop in Outdoor Education	3
ID	508—Workshop in Environmental Studies	3
JOUR	369—Opinion Formation, Propaganda and the Media	3

JOUR	508-Communications and the Environment	3
HPER	550-Environmental Health	3
ID	601-Practicum in Outward Bound	4

Elementary Education and Reading

Graduate Certification in Elementary Education

A student holding a baccalaureate degree in an area other than elementary education who wishes to pursue either the Graduate Certification Program in Elementary Education, or a Master of Arts Degree Program in Elementary Education, Early Childhood, or Elementary Reading, applies to the Graduate School for admission. Upon admission by the Graduate School, professional education courses are evaluated by the College of Education. The Department of Elementary Education and Reading evaluates required subject matter courses and elementary teacher education courses.

The following are required:

1. Subject matter background. Undergraduate or graduate credit in appropriate courses of geography, United States history, mathematics, and music fundamentals.

2. Elementary teacher education courses.

Course No.	Course Title	Hours Credit
*EDEL 320 or 620	Mathematics in the Elementary School	3
*EDEL 330 or 630	Handwriting and Spelling in the Elementary School	2
*EDEL 340 or 640	English in the Elementary School	3
*EDEL 350 or 650	Social Studies in the Elementary School	3
*EDRD	612-Reading in the Primary Grades	3
*EDRD	613-Reading in the Intermediate Grades	3
EDRD 314 or 614	Literature in the Elementary School	2
FA 225 or 625	Art in the Elementary School	2
HPER	288-Physical Education Activities for the Elementary School	2
HPER	301-Health Education in the Elementary School	2
MUS	206-Music Methods and Materials for Elementary Teachers	2
SCED 470 or 671	Science in the Elementary School	3

*Must be taken at the University of Northern Colorado.

3. Professional education courses. See Graduate Academic Information section of this catalog.

4. The following requirements in addition to those stated in the Graduate Academic Information section of this catalog must be completed before student teaching. Completion of EDF 365, PSY 341, and EDFE 360, 361, or 362. Completion of 18 quarter hours in Elementary Teacher Education courses including EDEL 320 or 620, EDRD 612 or 613, and EDFE 360, 361, or 362. EDEL 320 or 620, EDRD 612 or 613, and EDFE 360, 361, or 362 must be completed before applying for student teaching.

Master of Arts Degree

Elementary Education

The following are required:

1. A student whose undergraduate major was not in elementary education must have evaluations by the College of Education and by the Department of Elementary Education and Reading.

2. Core course requirements. EDEL 620, 640, 650, EDRD 645 must be taken at University of Northern Colorado. A student who has recently completed EDEL 320, 340, and 350 at University of Northern Colorado will substitute EDEL 625, 645, and 655 for EDEL 620, 640, and 650.

Course No.	Course Title	Hours Credit
RSM	600-Introduction to Graduate Study	3
EDEL	620-Mathematics in the Elementary School	3

60 / DEPARTMENTAL PROGRAM REQUIREMENTS

EDEL	640—English in the Elementary School	3
EDEL	650—Social Studies in the Elementary School	3
EDRD	645—Seminar in Analysis of Reading Programs	3
SCED	671—Science Curriculum in the Elementary School	3

3. Background course requirements. The adviser may waive the following courses for a student who has had comparable courses on the undergraduate level; however, the student is held for the course content on comprehensive examinations. In reading select either EDRD 612 or 613. The adviser may substitute subject matter courses for education courses if the student has an extensive background in education and a limited background in subject matter.

<i>Course No.</i>	<i>Course Title</i>	<i>Hours Credit</i>
EDEL	630—Handwriting and Spelling in the Elementary School	2
EDRD	612—Reading in the Primary Grades	3
EDRD	613—Reading in the Intermediate Grades	3
EDRD	614—Literature in the Elementary School	2
PCG	670—Principles and Practices in Testing and Measurement	3

4. Subject-matter course requirements. Subject matter courses totaling 15 quarter hours in one or more of the following areas. To be selected in consultation with the adviser. The adviser may substitute education courses for subject-matter courses if the student earned an undergraduate degree in a subject area listed below.

Anthropology	Humanities
Biological Sciences	Philosophy
Chemistry	Mathematics
Earth Science	Music
Economics	Physics
English	Political Science
Fine Arts	Research and Statistical Methodology
Geography	Social Sciences
General Science	Sociology
History	Speech

5. Sufficient electives to complete 45 quarter hours of graduate academic credit.

Elementary Education: Early Childhood Education

The following are required:

1. A student whose undergraduate major was not in elementary education must have evaluations by the College of Education and by the Department of Elementary Education and Reading.
2. A student must have completed two years of classroom teaching experience at nursery school or elementary school level before completion of the program.
3. Required courses.

Block A. Core course requirements.

<i>Course No.</i>	<i>Course Title</i>	<i>Hours Credit</i>
EDEL	648—Psycholinguistics in Early Childhood	3
EDEL	660—Critical Issues in Kindergarten Education	3
EDEL	662—Early Childhood Education	3
EDEL	664—Seminar in Early Childhood Education	3
EDEL	667—Nursery Schools for the Disadvantaged	3
EDRD	612—Reading in the Primary Grades	3
EDRD	642—Teaching the Bicultured to Read	3
PCG	631—Psychology of Early Childhood	3

Block B. A tract of 21 quarter hours is required.

1. Instructional tract. In consultation with adviser, select 21 quarter hours of electives.
2. Research tract. By invitation of adviser, select 21 quarter hours of statistics, thesis, and related courses.

Reading: Elementary

The following are required:

1. A student whose undergraduate major was not in elementary education must have evaluations by the College of Education and by the Department of Elementary Education and Reading.

2. Core course requirements. EDRD 612, 613, 645, 650, 652 must be taken at University of Northern Colorado.

<i>Course No.</i>	<i>Course Title</i>	<i>Hours Credit</i>
RSM	600—Introduction to Graduate Study	3
EDRD	612—Reading in the Primary Grades	3
EDRD	613—Reading in the Intermediate Grades	3
EDRD	614—Literature in the Elementary School	2
EDRD	617—Remedial Reading in the Elementary School	4
EDRD	645—Seminar in Analysis of Reading Programs	3
EDRD	650—Remedial Reading Case Study	3
EDRD	652—Remedial Reading Internship	3

3. Elective courses in reading. A minimum of 30 quarter hours will be earned in core course requirements and elective courses in reading.

<i>Course No.</i>	<i>Course Title</i>	<i>Hours Credit</i>
EDRD	521—Reading in the Content Fields	3
EDRD	620—Developmental Reading in the Secondary School	3
EDRD	640—Linguistic Foundations of Reading Instruction	3
EDRD	642—Teaching the Bicultured to Read	3
EDRD	654—Reading Center Internship: Reading Clinic, College Reading, Adult Literacy	Max. 9
EED	402—Literature and Materials in the Secondary School	5
EED	403—Literature and Materials in the Junior High School	4

4. In consultation with adviser select 15 quarter hours in English and speech courses for an emphasis in developmental reading. For an emphasis in remedial reading select, in consultation with adviser, 15 quarter hours in psychology and special education courses.

Reading: Secondary

The following are required:

1. A student who does not hold certification as a secondary school teacher must have evaluations by the College of Education and by the department in which certification is sought.

2. Core course requirements. EDRD 620, 627, 645, 650, and 652 must be taken at University of Northern Colorado. Select either EED 402 or 403.

<i>Course No.</i>	<i>Course Title</i>	<i>Hours Credit</i>
RSM	600—Introduction to Graduate Study	3
EDRD	521—Reading in the Content Fields	3
EDRD	620—Developmental Reading in the Secondary School	3
EDRD	627—Remedial Reading in the Secondary School	4
EDRD	645—Seminar in Analysis of Reading Programs	3
EDRD	650—Remedial Reading Case Study	3
EDRD	652—Remedial Reading Internship	3
EED	402—Literature and Materials in the Secondary School	5
EED	403—Literature and Materials in the Junior High School	4

3. Elective courses in reading. A minimum of 30 quarter hours will be earned in core course requirements and elective courses in reading. If some of the core courses have been taken previously, the following electives may be substituted.

<i>Course No.</i>	<i>Course Title</i>	<i>Hours Credit</i>
EDRD	612—Reading in the Primary Grades	3
EDRD	613—Reading in the Intermediate Grades	3
EDRD	614—Literature in the Elementary School	2
EDRD	640—Linguistic Foundations of Reading Instruction	3
EDRD	642—Teaching the Bicultured to Read	3

62 / DEPARTMENTAL PROGRAM REQUIREMENTS

EDRD	654—Reading Center Internship: Reading Clinic, College Reading, Adult Literacy	Max. 9
EED	602—Seminar in Literature for Adolescents	4

4. In consultation with adviser select 15 quarter hours in English and speech courses for an emphasis in developmental reading. For an emphasis in remedial reading select, in consultation with adviser, 15 quarter hours in psychology and special education.

Specialist in Education Degree

Reading

The Specialist in Education Degree program is planned for each individual on the basis of his background and experience.

1. Core course requirements.

<i>Course No.</i>	<i>Course Title</i>	<i>Hours Credit</i>
EDRD	654—Reading Center Internship: Reading Clinic, College Reading, Adult Literacy	Max. 9
EDRD	701—Specialist Degree Practicum	8
EDRD	745—Seminar in Reading	3
RSM	504—Descriptive Statistics	4
RSM	505—Statistical Inference	5
RSM	700—Introduction to Doctoral Research	3

2. In consultation with adviser select a minimum of 19 quarter hours in reading, psychology, English, speech, and special education.

Doctor of Education Degree

Elementary Education: Two-Year Program

The following are required:

1. RSM 504, an elementary education course preferably with the adviser, and RSM 700 are required the first quarter, and RSM 505 is required the second quarter on the doctoral program unless exemption is granted by the adviser on the basis of previous course work.

2. Core course requirements. EDEL 625, 645, 655, and EDRD 745 must be taken at University of Northern Colorado.

<i>Course No.</i>	<i>Course Title</i>	<i>Hours Credit</i>
EDEL	625—Seminar in Elementary School Mathematics	3
EDEL	645—Seminar in Elementary School English	3
EDEL	655—Seminar in Elementary School Social Studies	3
EDEL	799—Doctoral Dissertation	18
EDRD	745—Seminar in Reading	3
EDF	765—Sociological Foundations of Education	3
EDF	785—Philosophical Foundations of Education	3
PCG	740—Psychological Foundations of Education	3
RSM	720—Seminar in Dissertation Evaluation	0
SCED	677—Seminar in Modern Developments in School Science	3

3. Background course requirements. The adviser may waive the following courses for a student who has appropriate background; however, with the exception of RSM 700 the student is held for the course content on comprehensive examinations. The adviser may substitute subject matter courses for education courses if the student has an extensive background in education and a limited background in subject matter.

<i>Course No.</i>	<i>Course Title</i>	<i>Hours Credit</i>
EDEL	612—The Elementary School Curriculum	3
EDEL	620—Mathematics in the Elementary School	3
EDEL	630—Handwriting and Spelling in the Elementary School	2
EDEL	640—English in the Elementary School	3
EDEL	650—Social Studies in the Elementary School	3

EDRD	612—Reading in the Primary Grades	3
EDRD	613—Reading in the Intermediate Grades	3
EDRD	614—Literature in the Elementary School	2
EDRD	645—Seminar in Analysis of Reading Programs	3
PCG	670—Principles and Practices in Testing and Measurement	3
RSM	700—Introduction to Doctoral Research	3

4. Subject matter requirements. RSM 504 and 505 are required courses. Subject-matter courses to total 24 quarter hours in one or more of the following areas, to be selected in consultation with the adviser. If a student has earned more than 15 quarter hours of graduate credit in subject matter courses prior to the doctoral program, the adviser may substitute education courses in the amount of such excess of 15 quarter hours.

Course No.	Course Title	Hours	Credit
RSM	504—Descriptive Statistics	4	
RSM	505—Statistical Inference	5	

Anthropology	Humanities
Biological Sciences	Mathematics
Chemistry	Music
Earth Science	Philosophy
Economics	Physics
English	Political Science
Fine Arts	Research and Statistical Methodology
General Science	Social Sciences
Geography	Sociology
History	Speech

5. Sufficient electives to complete 90 quarter hours of graduate credit.

Elementary Education: Three-Year Program

The following are required:

1. First year. Complete the master of arts degree program in elementary education.

2. Second and third years. RSM 504 is required the first quarter of the second year, and RSM 505 is required the second quarter of the second year. EDEL 625, 645, 655, and EDRD 745 must be taken at University of Northern Colorado. A minimum of two of the courses EDHI 651, 654, and 751 is required. A minimum of 24 quarter hours in subject-matter courses including RSM 504 and 505 is required. Sufficient electives to complete 90 quarter hours of graduate credit in the second and third years.

Course No.	Course Title	Hours	Credit
EDEL	625—Seminar in Elementary School Mathematics	3	
EDEL	645—Seminar in Elementary School English	3	
EDEL	655—Seminar in Elementary School Social Studies	3	
EDEL	755—Supervised Practicum in College Teaching	3-9	
EDEL	799—Doctoral Dissertation	18	
EDRD	745—Seminar in Reading	3	
EDHI	651—Higher Education in the United States	3	
EDHI	654—The College and University Teacher	3	
EDHI	751—The College and University Curriculum	3	
EDF	765—Sociological Foundations of Education	3	
EDF	785—Philosophical Foundations of Education	3	
PCG	740—Psychological Foundations of Education	3	
RSM	504—Descriptive Statistics	4	
RSM	505—Statistical Inference	5	
RSM	720—Seminar in Dissertation Evaluation	0	
SCED	677—Seminar in Modern Developments in School Science	3	

Reading: Two-Year Program

The program is based upon certification to teach in the elementary or secondary school and upon the completion of 12 quarter hours of psychology.

The following are required:

64 / DEPARTMENTAL PROGRAM REQUIREMENTS

1. RSM 504 and RSM 700 are required the first quarter, and RSM 505 is required the second quarter on the doctoral program unless exemption is granted by the adviser on the basis of previous course work.

2. In consultation with adviser select 66 quarter hours from among the following courses.

Course No.	Course Title	Hours	Credit
EDRD	521-Reading in the Content Fields	3	
EDRD	614-Literature in the Elementary School	2	
EDRD	617-Remedial Reading in the Elementary School	4	
EDRD	620-Developmental Reading in the Secondary School	3	
EDRD	622-Individual Studies: Reading	4	
EDRD	627-Remedial Reading in the Secondary School	4	
EDRD	637-Developmental and Remedial Reading at the College Level	2	
EDRD	640-Linguistic Foundations of Reading Instruction	3	
EDRD	642-Teaching the Bicultured to Read	3	
EDRD	645-Seminar in Analysis of Reading Programs	3	
EDRD	650-Remedial Reading Case Study	3	
EDRD	652-Remedial Reading Internship	3	
EDRD	654-Reading Center Internship: Reading Clinic, College Reading, Adult Literacy		Max. 9
EDRD	745-Seminar in Reading	3	
EDRD	755-Supervised Practicum in College Teaching	3-9	
EDRD	799-Doctoral Dissertation	18	
EED	402-Literature and Materials in the Secondary School	5	
EED	403-Literature and Materials in the Junior High School	4	
RSM	504-Descriptive Statistics	4	
RSM	505-Statistical Inference	5	
RSM	700-Introduction to Doctoral Research	3	
RSM	720-Seminar in Dissertation Evaluation	0	

3. In consultation with adviser select 24 quarter hours of course work in English, speech, psychology, and special education.

Reading: Three-Year Program

The following are required:

1. First year. Complete a master of arts degree. In consultation with adviser the subject matter courses will be selected from English, speech, psychology, and special education.

2. Second and third years. RSM 504 is required the first quarter of the second year, and RSM 505 is required the second quarter of the second year. In consultation with adviser select a minimum of 90 quarter hours from among the following courses and elective courses.

Course No.	Course Title	Hours	Credit
EDRD	521-Reading in the Content Fields	3	
EDRD	614-Literature in the Elementary School	2	
EDRD	617-Remedial Reading in the Elementary School	4	
EDRD	620-Developmental Reading in the Secondary School	3	
EDRD	622-Individual Studies: Reading	4	
EDRD	627-Remedial Reading in the Secondary School	4	
EDRD	637-Developmental and Remedial Reading at the College Level	2	
EDRD	640-Linguistic Foundations of Reading Instruction	3	
EDRD	642-Teaching the Bicultured to Read	3	
EDRD	645-Seminar in Analysis of Reading Programs	3	
EDRD	650-Remedial Reading Case Study	3	
EDRD	652-Remedial Reading Internship	3	
EDRD	654-Reading Center Internship: Reading Clinic, College Reading, Adult Literacy		Max. 9
EDRD	745-Seminar in Reading	3	
EDRD	755-Supervised Practicum in College Teaching	3-9	
EDRD	799-Doctoral Dissertation	18	
EDHI	651-Higher Education in the United States	3	
EED	402-Literature and Materials in the Secondary School	5	
EED	403-Literature and Materials in the Junior High School	4	
PCG	507-Counseling Theories	3	
PCG	632-Child Psychology	3	
PCG	541-Theories of Learning	5	
PCG	673-Individual Tests of Intelligence	3	
PCG	674-Individual Intelligence Testing: Stanford-Binet	3	

PCG	675—Individual Intelligence Testing: Wechsler Scales	4
RSM	504—Descriptive Statistics	4
RSM	505—Statistical Inference	5
RSM	720—Seminar in Dissertation Evaluation	0

English

Master of Arts Degree

As a minimum requirement, the student will take ID 600, Introduction to Graduate Study (English), and at least five courses numbered in the 600's.

The comprehensive examination, to be taken during the quarter in which the student plans to graduate, will cover a knowledge of English and American literature and literary research.

Doctor of Education Degrees

The English Department offers two programs leading to the doctorate. One of this is the Ed.D. for college teachers of English which is intended for the person who intends to teach at the college or university level. The other is the Ed.D. in English education which is designed to prepare leaders in secondary school English teaching and college teachers of English methods. The requirements for each degree are given below.

The Program for College Teachers of English

1. Admission—A master's degree in English or its equivalent. In addition to the general Graduate School requirements for entrance, the Department of English reserves the right to administer a qualifying examination to any student before admission to the Doctor of Education program for College Teachers of English.

2. The student will demonstrate competency in two research tools as defined in the Graduate Catalog.

3. Course Work—The course work consists of 72 hours chosen from graduate courses in American, English, World literature, and pedagogy. Specifically the course work will be as follows:

The 72 hours of course work beyond the masters will usually be taken in the English Department and will include four areas: (1) a core of studies in English and American literature and language; (2) courses in world literature; (3) colloquiums in various topics that will stem from student and faculty interests and cut across traditional chronological and generic boundaries; (4) a core of pedagogical studies to enhance the teaching ability the student develops in lecturing, reporting, and leading class discussions in the courses in the other three areas.

(1) The core of studies in English and American literature and language will be at least 15 hours, at least one course in English literature, one in American literature, one in a genre, and one in language. This core provides the student with a wide variety of genre, survey, and thematic courses at different levels of specializations that will be the basis for his future teaching and scholarly activities. These hours will be chosen from

•ENG	601—The American Critics	3
•ENG	602—Seminar in Twentieth-Century British and American Poetry	3
•ENG	604—Seminar in Major American Writers I	4
•ENG	605—Seminar in Major American Writers II	4
•ENG	606—Seminar in the English Romantic Movement	4
•ENG	607—Old English	5
•ENG	608—Chaucer and Middle English	5
•ENG	609—Shakespeare Seminar	4
•ENG	610—Milton Seminar	4
•ENG	611—Seminar in Tennyson and Browning	4
•ENG	612—Seminar in Restoration and Eighteenth Century Drama	4
•ENG	613—Literature of the Eighteenth Century	4

66 / DEPARTMENTAL PROGRAM REQUIREMENTS

•ENG	614—Seminar in Victorian Literature	5
•ENG	615—Seminar in the Twentieth-Century British Novel	4
•ENG	616—Modern English Philology and Usage	4
•ENG	619—Seminar in the English Language	5
•ENG	402—The Short Story	3
•ENG	403—Techniques of the Novel	5
•ENG	404—Modern Literature about Childhood and Adolescence	3
•ENG	405—Contemporary American Drama	3
•ENG	407—Forms and Meaning of Poetry	4
•ENG	408—Elizabethan Drama Exclusive of Shakespeare	4
•ENG	409—Literary Criticism	3
•ENG	410—History of Ideas in Literature	3
•ENG	32F—Generative-Transformational Grammar	4
•ENG	418—Grammatical Analysis	3
•ENG	419—Advanced Topics in Syntax	3
•ENG	420—Stylistics	3

(2) The courses in world literature will be at least 6 hours unless the student chooses to use 15 hours as a collateral field in place of one foreign language as one of the research tools; in that case the requirement will be 15 hours. These courses will broaden the student's view of literary studies and enable him to work more easily with courses in the humanities and mixed literatures that are often part of the load of the beginning teacher of undergraduates. These hours will be chosen from

ENG	640—Colloquium in World Literature	4
ENG	641—Seminar in World Poetry	4
ENG	642—Seminar in World Drama	4
ENG	643—Seminar in World Fiction	4
•ENG	603—The Greek Drama	4
•ENG	401—Greek and Comparative Mythology	4
•ENG	406—Modern Drama Since Ibsen	3
•ENG	415—Literature of the Old Testament	3
•ENG	416—Literature of the New Testament	3
•HUM	411—Advanced Course in the Humanities	4

If the student elects the collateral field in world literature as a research tool in place of a second foreign language, the 15 hours of world literature (ENG 641, 642, 643 and a 3 or 4 hour elective in the list of world literature courses) will be in addition to the 72 hours.

Further flexibility can come from a collateral field other than world literature, namely, foreign languages, history, philosophy, or speech with the advice and consent of the student's major professor and the Director of Graduate Studies.

Studies in pedagogy will be required of all students. The student will take three hours of supervised teaching no later than his second quarter in residence. From the written reports of his supervising professor and others from whom he has had classes where lectures, reports, and leading class discussions are part of the work, a committee of those professors will determine how much more guidance he needs in teaching. The hours in pedagogy will be chosen from

EED	755—Supervised Teaching in English	3-9
EED	681—Seminar in the Teaching of Literature	3
•EED	501—The Teaching of Composition	3

4. A dissertation yielding 18 hours of credit is required of each candidate.

Dissertation Activities

The student has the choice of any one of the following three options to satisfy the dissertation requirement.

1. The student may choose any three of the four following:

- A. A study of a scholarly, textual, biographical or pedagogical problem. The emphasis is to be on scholarship, but the student must demonstrate that the problem has some critical or interpretive relevance.
- B. A second study of a single writer, a single work, or a problem in critical theory. The emphasis will be on a critical interpretation and the student will be expected to demonstrate a sound grasp of the historical contexts investing his subject.

- C. A third study in yet another field of English, American, or world literature in translation on a subject agreed to by the candidate and his committee in conference. This paper will be delivered orally to committee members concerned (the entire graduate English faculty being invited) and the collective body of English graduate students in residence. The paper will later be submitted in writing incorporating the various suggestions made by committee members and fellow students.
- D. A creative project such as a novella or collection of poems.

If the student chooses this option, he will have one major faculty adviser who will serve as coordinator of his dissertation activities. A variety of graduate faculty members will serve as additional members on each of three boards with the major adviser remaining constant and maintaining principal responsibility. There must, however, be a minimum of five graduate English faculty members involved on the three boards.

- II. A major creative project such as the writing of a novel or a collection of poetry. A written proposal for the project must be submitted to the entire graduate English faculty and receive majority approval. Final approval rests with the committee constituted in the usual way under Graduate School rules. (A minimum of three members from the major department plus one out-of-department member.)
- III. An exercise in literary criticism.

5. At the termination of the candidate's course work, he will take written and oral examination over his major area.

6. When the dissertation is complete, the student will be examined orally over his research study.

The Program in English Education

1. The requirements for admission are the master's degree in English or its equivalent, including at least 64 hours of English and 40 hours of professional education (including English education) at the undergraduate and/or graduate level.

2. If the student has not had a graduate course in bibliography and methods of research, he will be required to take ID 700, Introduction to Doctoral Research. He will also be required to demonstrate a reading knowledge of one foreign language or have taken at least 20 undergraduate hours of a single foreign language. The student will also take RSM 504, Descriptive Statistics.

3. The program consists of a minimum of 72 hours of course work (including ID 700 and RSM 504) which will be divided almost equally between academic courses in literature and linguistics and courses in education and English education. The specific program will be planned in consultation with the major professor.

4. At the conclusion of his course work, the candidate will take written comprehensive examinations covering his work in English education, English, and education.

5. The candidate will submit a dissertation in some phase of English education for 18 hours credit.

6. After the dissertation has been submitted, the candidate will be examined orally over the contents of his research study.

Fine Arts

Master of Arts Degree

No student will be admitted to a graduate fine arts course on an unclassified basis. This would not apply to a graduate student studying for certification or completing an undergraduate deficiency for a Fine Arts major. It would however, eliminate the senior in his last quarter of study from registering for a graduate course in excess of the requirements for his Bachelor of Arts degree.

Application Procedures

1. Students who have completed an undergraduate Fine Arts major of at least 84 quarter hours and whose grade point average is 2.7, or higher, first make application to:

The Graduate School
University of Northern Colorado
Greeley, Colorado 80639

2. Initial clearance by the Graduate School does not classify a graduate student in the Master of Arts degree program in Fine Arts. This is done by the Department of Fine Arts after the evaluation and acceptance of a portfolio.
 - a. The portfolio must be 10 color slides, of **professional photographic** quality, in the student's proposed area of concentration.
 - b. Black and white photographs are acceptable for sculpture.
 - c. Additional slides, no more than 25 total, in any media may also be submitted as supporting evidence of the student's proficiency in art.
 - d. If the portfolio is approved, the slides will be filed in the department for reference in assessing the student's progress.
3. Each portfolio will be reviewed by an art faculty committee composed of two instructors in the student's proposed area of concentration (please indicate your area of concentration with slides, when applying) and the department chairman. This committee may request additional information it considers relevant to the admission of a student.
 - a. If not accepted, the student will be notified in writing by the department chairman with the reasons for rejection specified.
 - b. A rejected student will have the privilege of presenting another portfolio after one quarter has elapsed.
4. An applicant who does not have an undergraduate major in Fine Arts will be required to complete the basic requirements with a minimum of 84 quarter hours before being considered for admission to the Master of Arts degree program and before he may present a portfolio.
5. Portfolios (slides only and/or photographs for sculpture) should be mailed to:

The Department of Fine Arts
University of Northern Colorado
Greeley, Colorado 80639
PHONE: A/C 303 351-2143

6. Portfolios will be evaluated during the first six weeks of each quarter. *Portfolios must be presented the quarter before a student plans to register.*

Requirements of the Program

1. After the student's portfolio has been evaluated and accepted, he will be assigned an advisor in his field of specialization.
2. Students will be required to complete a minimum of 45 quarter hours including a concentration of 30 quarter hours in a specific area of study and a creative thesis with a research paper related to the thesis project for 10 quarter hours of credit. (Thesis credit may be included as part of the 30 hours concentration). The thesis must include photographs of the completed creative work and be presented to the graduate school for binding. Six hours of art history (credit in art history above 9 hours on the student's undergraduate transcript may be applied toward completing this requirement), ID 600 Introduction to Graduate Study for a total of 3 hours credit must be completed prior to graduation, and 6-12 hours of elective credit.
3. It shall be the joint responsibility of the student and his major advisor to select his committee of at least three faculty, including his advisor, to outline his course of study and to determine the subject for his creative thesis.
4. A student will be allowed to recommend any member of the Fine Arts faculty as one of the members of this committee.
5. Each student will be subject to a graduate review once a quarter by his major committee and the department chairman.
6. The final graduate review, conducted by the student's major committee, will include a one-man exhibit plus an oral examination in lieu of a written comprehensive examination. The student must obtain the unanimous ap-

proval from his committee of his final graduate review before his graduation is approved. The student's final graduate review will be installed in an area designated by the Department of Fine Arts. A written report of the examination shall be filed in the Graduate School Office and established Graduate Council procedures for permission to take the oral examination must be followed. Permit forms must be secured from the Graduate School Office.

7. For specialization in a specific area of study the student may select from the following fine arts disciplines: Art Education, Ceramics, Crafts, Design, Drawing, History of Art, Painting, Printmaking, and Sculpture. Of the 45 quarter hours necessary for completion of the degree 22 must be in courses numbered 500 and above and completed in residence in Greeley.
8. An example from the student's final graduate review will be retained by the Department of Fine Arts for its permanent collection and will be selected by the student's graduate committee.

Foundations of Education

Courses offered by the Department of Foundations of Education are open to all graduate students. Those students pursuing a doctoral degree in any area may take a minor in Foundations of Education as a supporting area.

Minor: Foundations of Education

Alternative A: Emphasis on History and Philosophy of Education

Alternative B: Emphasis on Social Foundations of Education

Specific Course Requirements:

Alternative A: Emphasis on History and Philosophy of Education

<i>Course No.</i>	<i>Course Title</i>	<i>Hours Credit</i>
EDF	485—Philosophy of Education (This course is assumed and required if it does not show on the candidate's transcript).....	3
EDF	475—History of Education in the United States	3
EDF	545—Comparative Education	3
EDF	585—Philosophy of Education (Advanced course)	3
EDF	675—Historical Foundations of Education	3
EDF	785—Philosophical Foundations of Education	3
EDF	566—American Social Problems and Education	3

Recommended Courses:

SP	580—Critical Thinking	3
SP	622—Seminar in General Semantics	3
Total Program: 24 quarter hours minimum.		

Alternative B: Emphasis on Social Foundations of Education

Specific Course Requirements:

<i>Course No.</i>	<i>Course Title</i>	<i>Hours Credit</i>
EDF	785—Philosophical Foundations of Education	3
EDF	765—Sociological Foundations of Education	3
EDF	565—Social and Cultural Differences and Education	3
EDF	655—Anthropological Foundations of Education	3
SOC	650—Seminar in Sociological Theory	3
EDF	566—American Social Problems and Education	3
EDF	567—Strategies for Social Change	3

Recommended Courses:

ANT	620—Spanish—American Culture	3
SOC	537—Seminar in American Society Today	3
SOC	515—The Sociology of Child Development	3

70 / DEPARTMENTAL PROGRAM REQUIREMENTS

SOC	612—Seminar in Social Communication	3
EDF	545—Comparative Education	3
	Total Program: 24 quarter hours minimum.	

Geography

Master of Arts in Social Science (Geography)

For concentrations in Geography, see the course requirements listed under Social Science major page 97.

Doctor of Arts

The objective of the Doctor of Arts program is to prepare versatile and well-informed teachers of geography. Emphasis is placed on the training of effective teachers and not on the production of skilled research geographers. A student successfully completing this program will be well qualified to teach geography at the junior (community) or senior college level.

Prerequisites:

- (1) Meet general Graduate School admission requirements.
- (2) Hold a Master's Degree in one of the Social Sciences.
- (3) Have a minimum of 20 hours in Geography.

Program Requirements:

- (1) Minimum of 48 hours in geography—including the dissertation.
- (2) Minimum of 15 hours of credit in a discipline germane to geography.
- (3) Complete 27 hours of "electives" with approval of adviser.
- (4) ID 702—Seminar in College Teaching.
- (5) GEOG 505—Evolution of Geographic Thought.
- (6) GEOG 600—Introduction to Graduate Study in Geography.
- (7) GEOG 755—Supervised Teaching Internship in Geography. Depending upon the needs of the student credit will be from three to nine hours.
- (8) GEOG 681—Curriculum and Teaching Methodology in Geography.

Health, Physical Education and Recreation

The degree of *Master of Arts* is offered in the following majors:

Health Education
Physical Education
Recreation

The degree of *Specialist in Education* is offered. See the Specialist in Education section of the Graduate Academic Information.

The degree of *Doctor of Education* is offered in the following area of concentration:

Health and Physical Education

Elective hours may be used under advisement to develop emphases in physical education or health education.

Master of Arts Degree

Health Education

The following are the required courses in the major:

DEPARTMENTAL PROGRAM REQUIREMENTS / 71

<i>Course No.</i>	<i>Course Title</i>	<i>Hours</i>	<i>Credit</i>
HPER	503—Drug Abuse Education		3
HPER	506—Contemporary Issues in Sex Education	3	or 4
HPER	507—Public Health Statistics		2
HPER	550—Environmental Health		3
HPER	602—Introduction to Research in HPER		3
HPER	603—Scientific Foundations of Health Education		3
HPER	604—School Health Administration		4
HPER	605—Public Health Problems		4
	Electives (to be selected with advisement to meet the student's professional objectives and complete deficiencies apparent following evaluation of previous college work)		20
			45

Physical Education (Men and Women)

The following are the required courses in the major:

<i>Course No.</i>	<i>Course Title</i>	<i>Hours</i>	<i>Credit</i>
HPER	602—Introduction to Research in Health, Physical Education, and Recreation....		3
HPER	612—Evaluation in Health, Physical Education, and Recreation.....		4
HPER	622—Advanced Physiological Kinesiology		4
HPER	640—Curriculum in Health and Physical Education.....		4
	Electives (to be selected with advisement to meet the student's professional objectives and complete deficiencies apparent following evaluation of previous college work. No more than 6 quarter hours of credit in Advanced Techniques of Teaching or Coaching courses may be counted towards a Master of Arts degree....		30
			45

Recreation

The following are the required courses in the major:

<i>Course No.</i>	<i>Course Title</i>	<i>Hours</i>	<i>Credit</i>
HPER	602—Introduction to Research in Health, Physical Education and Recreation....		3
HPER	610—Evaluation and Research in Parks and Recreation		4
HPER	675—Areas and Facilities in Physical Education and Recreation.....		4
HPER	676—Seminar in Contemporary Problems in Recreation.....		4
HPER	677—Parks and Recreation Management		4
HPER	678—Organization and Operation of Park and Recreation Services		4
	Electives (to be selected with advisement to meet the student's professional objectives and complete deficiencies apparent following evaluation of previous college work)		22
			45

Doctor of Education Degree

Health and Physical Education

1. In addition to the general requirements listed in the front of this bulletin, students seeking a degree in this program must have two years of teaching experience before completion of the degree.

2. The following common courses or their equivalent are required: (When the word equivalent is used it indicates a student possesses the necessary knowledges and competencies, whether acquired through previous course experiences, substitute courses, or by experience. Competency examinations are provided by the School of Health, Physical Education and Recreation for individual student evaluation when requested.)

<i>Course No.</i>	<i>Course Title</i>	<i>Hours</i>	<i>Credit</i>
HPER	702—History of Health, Physical Education and Sport		4
HPER	703—Research Seminar in Health and Physical Education		4
*HPER	704—Problems in Human Movement		4
RSM	504—Descriptive Statistics		4
RSM	505—Statistical Inference		5

72 / DEPARTMENTAL PROGRAM REQUIREMENTS

RSM	603—Analysis of Variance and Covariance	3
ID	799—Doctoral Dissertation	18
	Elective hours will be selected with advisement to attain knowledge and competency in specialty areas related to Health, Physical Education, and Recreation. Ninety hours of course work are considered to be the minimum for the doctoral degree	48
		<hr/> 90

*Graduate students should possess the knowledges related to advanced principles of structural, mechanical, physiological, psychological, and maturational kinesiology before enrolling in HPER 704. For a more detailed description of these knowledges see course descriptions for HPER 620, 621, 622, 623, 624. Students desiring to specialize in Health Education may substitute HPER 624 for HPER 704.

Higher Education

The department of Higher Education courses are open to any graduate student who is interested in Community College, College or University administration or teaching.

Those students pursuing a doctoral degree in any area may take a minor in Higher Education as a supporting area.

Minor: Higher Education

Any five or more of the following courses including EDHI 391:

		<i>Hours Credit</i>
EDHI	651—Higher Education in the United States	3
EDHI	652—Adult Education	3
EDHI	653—The Junior and Community College	3
EDHI	654—The College and University Teacher	3
EDHI	751—The College and University Curriculum	3
EDHI	752—College and University Administration	3
	Electives are chosen by the student and his adviser working jointly.	

Total Program: A minimum of 24 quarter hours.

Suggested electives:

		<i>Hours Credit</i>
CSPW	651—Philosophy and History of College Student Personnel Work	3
CSPW	650—The College and the Student	3
CSPW	658—Organization and Administration of College Student Personnel Work	3
EDFE	750—University Roles in EDFE	3
EDFE	753—Leadership in Student Field Experiences	3

History

Master of Arts Degree

Admission and General Requirements:

Consult the graduate catalog for general Graduate School policies. Graduate credit may be earned only in courses numbered 500 and above, although up to fifteen hours may be earned with departmental approval in courses numbered 300 and 400.

Departmental Requirements:

1. A candidate for the M.A. in History should consult with the chairman of the department as early as possible to plan his course of study and to be assigned an adviser.

2. The candidate's undergraduate and graduate hours of credit in history must total at least 72 hours.

3. A minimum of thirty quarter hours must be earned at the 500 and 600 course level in history.

4. HIST 499: "Introduction to Historical Research," or its equivalent, and HIST 600: "Historiography" (Offered in lieu of ID 600), are required courses for all graduate students in History.

5. A candidate for the M.A. in history should, after consultation with his adviser, adopt one of the following programs:

a. Take and successfully pass written comprehensive examinations in each of three fields of history. Each examination will be of four hours duration, and normally should be taken no earlier than during the fourth quarter of graduate work. The candidate must select one field each from categories I and II; the third field may be chosen from categories I, II, or III. (See below for list of fields.)

b. Write a thesis in addition to taking and passing a written comprehensive examination in each of two fields of history. Each examination will be of four hours duration, and normally should be taken no earlier than during the fourth quarter of graduate work. The candidate will be examined orally by a departmental committee on his thesis, and will be held responsible for a general knowledge of his thesis area. The candidate may not choose as a comprehensive field the area in which he has written his thesis.

The following fields are offered by the department:

Category I: (U.S. History)

1. Early America, 1607-1815
2. The U.S. Middle Period, 1815-1877
3. Recent America, 1877 to the Present
4. U.S. Diplomatic History
5. History of the American West

Category II: (European History)

1. Ancient History
2. Medieval History
3. Renaissance and Reformation
4. Early Modern Europe, 1600-1789
5. Revolutionary Europe, 1789-1870
6. Modern Europe, 1870 to the Present
7. Russia and the Soviet Union

Category III:

1. Asia and the Far East
2. Latin America

Should the candidate fail to pass two or three fields of his comprehensive examination he may be permitted, upon written request of his major adviser, to retake the entire examination. If the candidate fails just one field he may be permitted, upon written request of his major adviser, to retake only that part of the examination he has failed. Failure to pass the second examination will eliminate the student from the degree program. At least one full quarter must elapse before a candidate may retake any comprehensive examination.

6. It is the candidate's responsibility to consult with the professors who will constitute his examining committee.

7. The candidate must apply for and receive from the Graduate Office a permit to take the final comprehensive examination. This permit is to be presented to the adviser before the student may take the examination.

8. A candidate who intends to pursue a doctoral program should consult with his adviser regarding the advisability of writing a master's thesis and preparing himself in a foreign language. Candidates who elect to write a thesis are eligible for consideration for the Oliver M. Dickerson Scholarship which is a \$1000.00 stipend, granted to a master's candidate majoring in history.

Doctor of Arts Degree

The objective of the Doctor of Arts program is to prepare versatile and well-informed teachers of history. Emphasis is placed on the training of effective teachers and not on the production of skilled research historians. A student successfully completing this program will be well qualified to teach history at the junior (community) or senior college level.

1. Applicants for admission to the doctoral degree program in history should normally hold at least a B average in their previous academic work, and distinction in their work in history. In addition to the general Graduate School Admission requirements for entrance, the Department of History reserves the right to administer a qualifying examination to any student before admission to the Doctor of Arts program in History.

2. Besides the general admission requirements for the graduate school, the Department of History also requires the Advanced Test in History. Information about the Graduate Record Examinations, Aptitude Test, and Advanced Test in History may be obtained from the Educational Testing Service, Princeton, New Jersey.

3. During the student's first quarter of residence, he will take an oral examination in History which will serve as a screening examination and as a basis for planning course work for the remainder of his program.

4. The course of study consists of a major of at least 72 quarter hours chosen from graduate courses (numbered 500 or above) in United States, European, Asian, and Latin American History. History 600: "Historiography," offered in lieu of ID 600: "Introduction to Graduate Study," and HIST 499: "Introduction to Historical Research," or its equivalent, are required of all candidates.

5. In addition to the major requirements, the candidate will, with the approval of his major professors, take a minor area outside of history of at least 18 hours, and will demonstrate reading proficiency in two foreign languages, or one foreign language and demonstrated competence in a research tool, e.g. statistics.

6. Each student will be required to complete ID 702, Seminar in College Teaching.

7. Each student will be responsible for taking from 3 to 9 quarter hours of supervised teaching, History 755, in his areas of concentration.

8. A course in Pedagogy, "Seminar in Teaching Community College or College History," History 681, should be taken prior to the candidate's written comprehensive examinations.

9. At the termination of the candidate's work, and with the approval of his adviser, the candidate will take written and oral comprehensive examinations over his major and minor areas.

10. When the dissertation has been completed, the candidate will be examined orally over his research study.

Home Economics

Master of Arts Degree

A first quarter graduate student accepted in a Master of Arts degree program in home economics should consult the department chairman concerning the policies prior to enrollment in courses.

A. Plan of Study

The candidate may earn the Master of Arts Degree in Home Economics by successful completion of the following requirements:

1. Forty-five quarter hours in his chosen program.
2. English usage examination upon recommendation from major advisor.
3. Acceptance of a Master's Project by the faculty advisor with recommendations to the home economics faculty for approval.
4. Satisfactory performance in a written comprehensive examination based upon graduate course work in the home economics department.

B. Requirements**1. Core Courses**

<i>Course No.</i>	<i>Course Title</i>	<i>Hours</i>	<i>Credit</i>
HEC	608—Directions in Home Economics		1
ID	600—Introduction to Graduate Study		3
IS	622—Master's Project		4

2. Subject Matter Programs

A student plans a program to meet his individual needs and interests with an opportunity for alternative programs as follows:

(a) Home Economics Education

12 hrs.—required courses in methods, curriculum, evaluation, supervision, and students with special needs

19 hrs.—recommended electives of graduate number courses from Home Economics subject matter, vocational education and/or occupational education

6 hrs.—chosen electives

OR

(b) Subject Matter Areas

The student may select two subject matter areas of concentration in combination for the Master's Degree:

12 hrs.—graduate number courses in each of two subject matter areas in Home Economics

13 hrs.—electives related to areas of concentration meeting the needs of the student.

C. Areas of Concentration

The student develops areas of concentration by selecting courses from at least two of the following areas of home economics:

Child Development	Housing and Related Arts
Clothing	Nutrition
Consumer Education and Management	Textiles
Food	

<i>Course No.</i>	<i>Course Title</i>	<i>Hours</i>	<i>Credit</i>
HEC	501—Art in Contemporary Living		3
HEC	511—Family Decision Making		2
HEC	513—Managing Personal and Family Resources		3
HEC	515—Consumer Protection		3
HEC	518—Ecology and the Consumer		3
HEC	523—Selected Topics in Family Life		3
HEC	532—Teaching Child Development and Family Relations		3
HEC	533—Advanced Child Development		3
HEC	534—Curriculum Development in Preschool Education		3
HEC	536—Seminar in Child Development		3
HEC	538—Internship in Child Care Centers		3-6
	(may be 2 quarters)		
HEC	539—Issues in Parent Education		3
HEC	543—Preservation of Food		4
HEC	552—Nutrition Education		3
HEC	564—Improvement of Instruction in Home Economics		4
HEC	566—Instructional Aids in Home Economics		4
HEC	572—Applied Home Furnishings		3
HEC	573—House Planning and Materials		3
HEC	577—Interior Design Theories-Practicum		3
HEC	581—Advanced Textiles		3
HEC	591—Personal Improvement of the Teacher		3
HEC	594—Advanced Techniques in Clothing Construction		3
HEC	595—Creative Dress Design		4
HEC	596—Dress Design In Draping		4
HEC	599—Clothing Economics		3
HEC	608—Directions in Home Economics		1
HEC	611—Current Trends in Home Management		3
HEC	642—Principles and Techniques of Food Preparation		4

HEC	648—Family Meal Management	4
HEC	655—Research in Foods	4
HEC	657—Food Economics	3
HEC	659—Seminar in Nutrition	3
HEC	666—Supervision of Student Teaching in Home Economics	3
HEC	667—Teaching Approaches in Home Economics Education	4
HEC	668—Curriculum in Homemaking	3
HEC	669—Evaluation in Homemaking Education	3
HEC	676—Housing and Family Needs	3
HEC	678—Survey of Furniture Design	3
HEC	683—Fabric Analysis	4
HEC	689—Seminar in Clothing and Textiles	3
HEC	694—Advanced Tailoring	3
HEC	695—Advanced Dress Design and Clothing Construction	3
HEC	698—History of Costume	3

Industrial Arts

Master of Arts Degree

Students pursuing the M.A. degree with a major in Industrial Arts must plan their programs to fulfill the following requirements:

1. Each student upon graduation at the master's level is required to have accumulated a total of 75 quarter hours in industrial arts in all his studies (bachelor's and master's) and is encouraged to have at least one course with a passing grade on his transcript at the graduate or undergraduate level in each of the following areas:
 - A. Crafts
 - B. Drafting
 - C. Electricity-Electronics
 - D. Graphic Arts
 - E. Metalwork
 - F. Power
 - G. Wood

Additional course work in history and philosophy, organization and administration, curriculum development, development of instructional materials and evaluation may be required by the department.

2. Upon notification of acceptance by the Graduate School, the department will assign an adviser when requested by the applicant or when the student arrives on campus and registers for course work. The department will assign advisees to professors in the department who have the same area of interest; that is, a person with a metals interest will be assigned to a metals specialist. The advisee's graduate program will be planned by the major adviser and the student within the guidelines listed under number one above. The program will be tailor-made to fit the needs of the student wherever possible. The student will work out a program of studies with his major adviser and may elect areas of specialization from the following list: Crafts, drafting, electricity-electronics, graphic arts, metal, power, wood.
3. The comprehensive examination will be given during the fourth week of the last quarter in residence if possible. This means the third quarter or at a time when a student has completed or is enrolled in at least 40 hours of course work.
4. No master's level student will be allowed to take the comprehensive examination until he has the consent of his major adviser.
5. The purpose of the comprehensive examination is to verify the attainment of the objectives of course work taken. It is used by the major adviser to make a recommendation to the department that the individual completing the examination is informed as to the purposes, philosophy, history, evaluation, and subject-matter areas within industrial arts.
6. If the response to the comprehensive examination is not thought to be of passing quality, a student will be held for an additional 15 quarter hours of work. Courses will be selected by the adviser to strengthen weaknesses brought out by the examination.

Specialist in Education Degree

A program is designed by the student and the adviser to meet the special needs of the person concerned.

Doctor of Education Degree

Students pursuing the Ed.D. degree with a major in industrial arts must plan their programs to fulfill the following requirements:

General Program Requirements

1. The doctor's degree is designed to make the candidates: industrial arts program specialists, administrators, and producers or directors of research in industrial arts education. Its main function is to provide competent college teachers for industrial arts. The program will broaden the student's understanding of the purpose, philosophy, curriculum, administration, and general status of industrial education on a national level. In addition, a field of specialization in industrial arts should be developed to make the candidate an effective teacher in the classroom and laboratory.
2. Advisers will be assigned only when the student arrives on campus and registers for work on his doctoral program.

The department will assign advisees to professors in the department who have the same area of interest; that is, metals emphasis to a metals teacher. The advisee's program will be planned by the major adviser and the student. The program will be tailor-made to fit the needs of the student wherever possible.

3. Candidates concentrating in Industrial Arts Education must complete the basic foundational courses which are: EDF 785, Philosophical Foundations of Education; EDF 765, Sociological Foundations of Education; PCG 740, Psychological Foundations of Education; together with RSM 505 Statistical Inference or equivalent; and RSM 700, Introduction to Doctoral Research.
4. A candidate will complete 48 or more hours in industrial arts. This does not include credit for his research study. In addition to his area of concentration, a student will be required by the department to take a minimum of 24 quarter hours in one supporting area.
5. When the student completes approximately 50 quarter hours of course work (30 hours in IA beyond the masters and 20 hours in his supporting area beyond the masters), the student will take a written examination over his major field and supporting area. He will then be given an oral examination by his committee. This comprehensive examination which is approximately 12 hours in length will be given during the fourth week of each quarter.
6. In addition to all the general requirements for a doctor's degree the student shall:
 - A. Submit a 250 word abstract of the dissertation to the department.
 - B. Submit a black and white 5 x 7 matte finish picture to the department for placing in the gallery of distinguished department graduates.

Specific Course Requirements

1. Build an area of specialization in one of the following areas of industrial arts:
 - Industrial Crafts
 - Drafting
 - Electricity-Electronics
 - Graphic Arts
 - Metals
 - Power
 - Wood
2. Select courses planned in conjunction with the major adviser from the following list:

<i>Course No.</i>	<i>Course Title</i>	<i>Hours</i>	<i>Credit</i>
IA	620—Organization and Administration of Industrial Education	3	3
IA	630—Organization and Administration in Industrial Arts	3	3
IA	631—A Critique of Modern Industrial Education	3	3

78 / DEPARTMENTAL PROGRAM REQUIREMENTS

IA	633—History and Philosophy of Industrial Education	5
IA	634—Industrial Occupations	3
IA	636—Critique for General Shop Organization	3
IA	637—Development of Instructional Materials	3
IA	638—Curriculum Development	3
IA	639—Evaluation Techniques	3
IA	730—Research in Industrial Education	Max. 6

3. Complete 24 hours in a supporting area of concentration outside the area.

Mathematics

Master of Arts Degree

Each degree aspirant should complete two quarters of the algebra sequence, the sequence in introductory analysis, and one of the topology courses. In lieu of ID 600 he should complete three hours of Seminar in Mathematics (MATH 510). Mathematics courses must be numbered 435 or higher. Program may include no more than 15 hours of course work at the 300 or 400 level.

Minimum program45

Master of Arts Degree (Teaching)

Course No.	Course Title	Hours	Credit
MATH	432—Basic Analysis I	4	
	or		
MATH	535—Introductory Analysis I	4	4
MATH	521—Modern Algebra I		4
MATH	525—Linear Algebra		4
MATH	543—Modern Geometry I		4
MED	672—Curriculum in Secondary School Mathematics		4
	(Substitute for ID 600)		
MED	673—Problems in the Teaching of Secondary Mathematics		4
MED	674—Seminar in Teaching Secondary Mathematics		4
	Electives approved by adviser		17
	Minimum program		45

At least 24 hours must be taken in courses in mathematics. The mathematics electives are to be chosen from the following courses: MATH 380, 433, 434, 435, 436, 464, 481, 482, 483, and any mathematics courses numbered 500 or higher.

Doctor of Arts Degree

Mathematics

The objective of the Doctor of Arts program is to prepare versatile, well-informed teachers of mathematics. Emphasis is placed on the training of effective teachers rather than on the production of skilled research mathematicians. A student successfully completing this program will be well qualified to teach mathematics at the junior (community) or senior college level.

Minimum program72

General Requirements:

Each student will be required to complete ID 702, Seminar in College Teaching.

Mathematics Requirements:

Courses must be numbered 435 or higher. Proficiency must be attained in the areas of Modern Algebra, Real Analysis, Mathematical Statistics, Topology, and Complex Analysis. Each student should also acquire additional depth in

at least one of the five basic areas by taking Special Topics courses MATH 611, 629, 639 or 649. Three hours of MATH 510, Seminar in Mathematics, must be taken in lieu of ID 700.

Intern Teaching Requirement:

Each candidate will be required to enroll in up to six hours (depending on previous experience, etc.) of MATH 755, Intern Teaching in Mathematics. The intern teaching will be supervised and evaluated by members of the Graduate Faculty in the Department of Mathematics.

Professional Education Requirement:

MED 681, Seminar in Teaching Community College and College Mathematics, is required of all Doctor of Arts candidates.

Dissertation:

The student in this program is required to write a scholarly dissertation, generally expository in nature.

Comprehensive Examinations:

Written closed book examinations, each approximately four hours in length, will be given in the four basic areas of Modern Algebra, Real Analysis, Complex Analysis, and Topology. An examination in Mathematical Statistics (covering the content of MATH 551, 552, 553, 555, 556) may be taken in lieu of either the Complex Analysis or the Topology examination.

A comprehensive committee must be selected and given notice a minimum of four weeks prior to administration of the examinations.

Doctor of Education Degree

Mathematics Education

The program for the Doctor of Education degree in Mathematics Education is designed to prepare a person for the following positions: master secondary school mathematics teacher, K-12 mathematics curriculum supervisor, supervising teacher of mathematics, college teacher of some lower division mathematics courses and of mathematics education courses including methods courses in teaching arithmetic and secondary mathematics, and mathematics education research positions.

The students in this degree program must pass a qualifying examination of three sections: modern algebra, modern geometry, and analysis. A student may attempt to pass any section of the examination (on advice of his adviser) but he may not take any section of the examination more than three times. Certain well-qualified students may meet this requirement or sections thereof by taking advanced work in these areas (on approval of the adviser). Criteria for such work to serve in lieu of qualifying examination sections include grades of B or higher and the certification of the instructor as to the quality of the work. The doctoral committee may not be appointed until the qualifying examinations have been passed.

The qualifying examinations must be taken at least one quarter prior to taking the comprehensive examinations. The comprehensive examinations may not be taken before the quarter in which the minimal course work requirements will be completed. A student must satisfactorily complete his comprehensive examinations before he may submit an outline for a dissertation to his committee.

The student will plan his program in consultation with his adviser. The student's career objectives will be taken into consideration when the program is being planned.

Mathematics Education Major, Minimum 48 hours

<i>Course No.</i>	<i>Course Title</i>	<i>Hours</i>	<i>Credit</i>
MED	672—Curriculum in Secondary School Mathematics (Substitute for ID 700)	.....	4
MED	772—Theory and Practice of Teaching Mathematics	.....	3

80 / DEPARTMENTAL PROGRAM REQUIREMENTS

MED	773—Seminar in Mathematics Education	3
MED	774—Advanced Seminar in Mathematics Education	3
EDEL	620—Mathematics in the Elementary School	3
EDEL	625—Seminar in Elementary School Mathematics	3
PCG	541—Theories of Learning	5
RSM	603—Analysis of Variance and Covariance	3
MATH	551—Introduction to Mathematical Statistics I	4
MATH	552—Introduction to Mathematical Statistics II	4
MED	678—Special Topics in Mathematics Education	Min. 3
	Electives: may include courses in mathematics education, educa- tion, and psychology, and research and statistical methodology, and must be approved by the candidate's major adviser	Min. 10
		48

Supporting Areas, Minimum 16 hours

The student must select at least one supporting area in which he takes a minimum of 16 quarter hours of course work. Supporting areas may be selected from among the following areas: mathematics, research and statistical methodology, secondary curriculum and instruction, higher education, elementary education, educational administration, special education, and psychology, counseling, and guidance. The course work in the supporting area is to be selected with the approval of the student's major adviser and a faculty member in the supporting area. Courses in the supporting area which also occur as major requirements will apply to the supporting area and appropriate changes will be made in the major requirements.

Minimum total course work: 72 hours.

Music

The degree of *Master of Arts* is offered in the following areas of concentration.

Music Education
Supervision of Music¹
Performance
Choral Literature and Conducting
Theory and Composition

The degree of *Specialist in Education* is offered. See the Specialist in Education section of the Graduate Academic Information.

The degree of *Doctor of Education* is offered in the following area of concentration:

Music Education

Recitals, Concerts and Productions

All graduate students enrolling in the School of Music as majors are expected to attend major recitals and concerts on a regular basis as part of their course program. For specific requirements, see the School of Music *Applied Music and Performance Handbook*.

Applied Music

Credit for all individual music instruction will be entered in the student's registration under the title and course number appearing below:

¹Requires two years of actual teaching experience as a prerequisite.

100 and 200 series—Introductory work in the fundamentals of the chosen performance medium—technical studies and repertoire will be selected according to the student's need. FOR FRESHMEN AND SOPHOMORES.

300 and 400 series—Continuation of technical studies for further development of performance competency. Repertoire from the standard literature will be selected. Voice majors will begin to draw from Italian, German and French sources in the art song, opera and oratorio. FOR JUNIORS AND SENIORS.

600 series—Music study in performance at this level will assume a technical proficiency sufficient for extensive familiarity with the advanced repertoire, drawing upon all periods and styles of solo performance. FOR GRADUATE STUDENTS.*

- 170, 270, 370, 470, 670. INDIVIDUAL PERFORMANCE IN VOICE. *One-three hours credit.*
- 171, 271, 371, 471, 671. INDIVIDUAL PERFORMANCE IN PIANO. *One-three hours credit.*
- 172, 272, 372, 472, 672. INDIVIDUAL PERFORMANCE IN ORGAN. *One-three hours credit.*
- 173, 273, 373, 473, 673. INDIVIDUAL PERFORMANCE IN STRINGS. *One-three hours credit.*
- 174, 274, 374, 474, 674. INDIVIDUAL PERFORMANCE IN WOODWINDS. *One-three hours credit.*
- 175, 275, 375, 475, 675. INDIVIDUAL PERFORMANCE IN BRASS. *One-three hours credit.*
- 176, 276, 376, 476, 676. INDIVIDUAL PERFORMANCE IN PERCUSSION. *One-three hours credit.*
- 177, 277, 377, 477, 677. INDIVIDUAL INSTRUCTION IN COMPOSITION. *One-three hours credit.*
- 178, 278, 378, 478, 678. INDIVIDUAL PERFORMANCE IN HARP. *One-three hours credit.*
- 179, 279, 379, 479, 679. INDIVIDUAL PERFORMANCE IN GUITAR. *One-three hours credit.*

Performance Organizations

630. STRING ENSEMBLE. *One hour credit.*
631. BRASS ENSEMBLE. *One hour credit.*
632. WOODWIND ENSEMBLE. *One hour credit.*
633. PERCUSSION ENSEMBLE. *One hour credit.*
634. PIANO ENSEMBLE. *One hour credit.*
635. GUITAR ENSEMBLE. *One hour credit.*
680. MIXED CONCERT CHOIR. *One hour credit.*
681. UNIVERSITY CHORUS. *One hour credit.*
682. UNIVERSITY SINGERS. *One hour credit.*
683. WOMEN'S CONCERT CHOIR. *One hour credit.*
684. VARSITY MEN'S GLEE CLUB. *One hour credit.*
685. OPERA WORKSHOP. *One hour credit.*
686. CHORUS AND ORCHESTRA WORKSHOP. *One hour credit.*
690. SYMPHONIC WIND BAND. *One hour credit.*

*In some cases, the 100, 200, 300 series may be used to indicate a deficiency in applied music at the graduate level; however 400 may count toward the Master of Arts Degrees in Music Education and Supervision of Music.

82 / DEPARTMENTAL PROGRAM REQUIREMENTS

691. CONCERT BAND. *One hour credit.*
 692. MARCHING BAND. *One hour credit.*
 693. VARSITY BAND. *One hour credit.*
 694. JAZZ ENSEMBLE. *One hour credit.*
 695. UNIVERSITY BRASS CHOIR. *One hour credit.*
 696. UNIVERSITY SYMPHONY ORCHESTRA. *One hour credit.*
 697. CHAMBER ORCHESTRA. *One hour credit.*
 698. LABORATORY ORCHESTRA. *One hour credit.*

Master of Arts Degree

Qualified graduate students are accepted as candidates for degree Master of Arts, in five areas: Music Education, Supervision of Music, Applied Music and Performance, Choral Literature and Conducting, or Theory and Composition.

Advisory tests in music theory, history, literature, education, and writing skills are administered during the first week of graduate study. The course of study for each student is arranged according to his individual needs and desires with the exception of the required courses listed below. If a student scores above a minimum standard determined by the faculty in any one of the area tests of the Advisory Exam, the required course in that particular area may be waived and the student may elect another course with the consent of the adviser. Although considerable latitude is granted the student and his major adviser in designing the course program, it is assumed that competency will include courses in music history, theory, literature, and music education. A comprehensive examination relating to the above areas is administered to candidates during their last quarter in residence (in place of the examination in Music Education, those students in the Applied Music, Choral Literature and Conducting, or Theory and Composition program will be examined in the pedagogical area of their specialization).

Music Education

Required Courses:

Course No.	Course Title	Hours	Credit
MUS	—Music Performance	6	6
	(Maximum of 6 hours credit applicable to the degree program— 3 in applied, 3 in major ensemble performance).		
MUS	502—Eighteenth Century Harmony and Forms	3	3
MUS	600—Introduction To Musical Scholarship	3	3
MUS	615—Seminar in Music Education	3	3
MUS	640—Symphonic Literature	3	3
MUS	650—Music History I	3	3
MUS	651—Music History II	3	3

Additional electives to satisfy degree requirements.

Supervision of Music

Required Courses:

Course No.	Course Title	Hours	Credit
MUS	—Music Performance	6	6
	(Maximum of 6 hours credit applicable to the degree program— 3 in applied, 3 in major organization)		
MUS	502—Eighteenth Century Harmony and Forms	3	3
MUS	600—Introduction To Musical Scholarship	3	3
MUS	612—Supervising Elementary Teaching of Music	3	3
MUS	613—Teacher Education in Music	3	3
MUS	614—Administration and Supervision of the School Music Program	3	3
MUS	615—Seminar in Music Education	3	3
MUS	618—Problems of Instrumental Supervision	3	3
MUS	640—Symphonic Literature	3	3
MUS	650—Music History I	3	3
MUS	651—Music History II	3	3

Additional electives to satisfy degree requirements.

Performance

1. Admission requirements include advisory examinations in several fields and a qualifying examination in performance. Prior to registration a tape of solo performance must be submitted to the Dean of the Music School for distribution and evaluation by the faculty in the performance area. The qualifying examination is to be scheduled and held during the week of registration of the first quarter in residence in this degree program and will be presented for the faculty of the applied music area in which the student performs.

2. No graduate student may register for further courses for graduate credit in music after one quarter of study in residence until he has completed both the qualifying and advisory examinations.

3. On the basis of the qualifying examination and conferences with the faculty jury, the student will be rejected or accepted with or without conditions as a candidate for the Master of Arts degree in Applied Music and Performance.

4. Should the faculty deem it necessary, conditions may be stipulated for remedial work carrying no graduate credit. This may take the form of additional undergraduate hours of applied music, repertoire or diction courses, or formal language courses offered by the Department of Foreign Languages.

5. Of the minimum forty-five hours required for the degree, thirteen must be in the area of performance; six hours of which shall be in individual instruction.

6. A recorded, public recital and correlative paper will constitute four quarter hours of applied major.

7. One quarter prior to the scheduled recital date a portion or all of the proposed program will be performed at a recital hearing before a committee composed of faculty members in the performing area of the student, as well as members from other departments within the School of Music. This hearing will be judged by ballot.

8. Should the recital hearing not be accepted, the candidate may be allowed one other hearing after further prescribed study. The minimum length of additional study will be determined by the committee. At the completion of the prescribed additional study, it will be the student's responsibility to request the second hearing.

9. The Composite grade evaluation of the student's graduate recital and correlative paper shall be determined by a faculty committee called by the chairman of that committee.

10. Candidates must meet undergraduate requirements for the Bachelor of Music degree. Courses taken to meet deficiencies are not applicable towards the Master of Arts degree.

Note: Vocal candidates will be expected to perform one or more art songs, oratorio or operatic arias in Italian, German, French and English for the qualifying examination. This examination will be heard by the voice faculty. At the time of the examination, the student shall present a complete list of repertoire studied prior to application for admission. The vocal candidate may challenge a portion of the language requirement.

Candidates for the degree may be accepted in the areas of voice, keyboard, band and orchestral instruments.

Required Courses:

<i>Course No.</i>	<i>Course Title</i>	<i>Hours</i>	<i>Credit</i>
MUS	—Applied Music	6	
MUS	—Major Performing Organizations	3	
MUS	502—Eighteenth Century Harmony and Forms	3	
MUS	600—Introduction To Musical Scholarship	3	
MUS	601—Practicum (recital and paper)		
<i>or</i>			
MUS	622—Individual Studies (recital and paper).....	4	
MUS	640—Symphonic Literature	3	
MUS	650—Music History I	3	
MUS	651—Music History II	3	

Additional electives to satisfy degree requirements.

Choral Literature and Conducting**Required Courses:**

<i>Course No.</i>	<i>Course Title</i>	<i>Hours</i>	<i>Credit</i>
MUS	-Music Performance (a minimum of 6 hrs-3 in Choral ensemble 3 in voice-maximum of 9 hrs)		
MUS	502-18th Century Harmony and Forms	3	
MUS	523-Advanced Conducting (Choral)	3	
MUS	600-Introduction to Musical Scholarship	3	
*MUS	601, 622-Choral Performance	4	
MUS	649-Seminar in Choral Music	3	
MUS	650-Music History I	3	
MUS	651-Music History II	3	
			28-31

*The MUS 601, 622-Choral Performance will consist of a full length choral concert conducted by the candidate and evaluated by the voice-choral faculty. A correlative paper will also be required. The choir used for this performance will need to be a group rehearsed regularly by the candidate (e.g. High School, college, church) and approved at the time of admission to candidacy by the voice-choral faculty.

A minimum of 9 hours should be chosen from the following courses:

<i>Course No.</i>	<i>Course Title</i>	<i>Hours</i>	<i>Credit</i>
MUS	424-Practicum in Choral Conducting and Performance	3	
MUS	441-Choral Literature to 1750	3	
MUS	442-Choral Literature from 1750	3	
MUS	445-Vocal Repertoire: German Art Song	2	
MUS	447-Vocal Repertoire: French Art Song	2	
MUS	446-Vocal Repertoire: Italian Song	2	
MUS	501-Practical Arranging	3	
MUS	505-Church Music	3	
MUS	635-Stage and Opera Techniques	3	
MUS	653-History of Opera	3	
MUS	664-Principles of the Teaching of Voice	3	
MUS	685-Opera Workshop	3	
MUS	686-Chorus and Orchestra Workshop	3	
Additional electives to satisfy degree requirements.			

Theory and Composition

Students entering this area of emphasis must have the equivalent of the undergraduate program in Theory and Composition as outlined in the University of Northern Colorado Undergraduate Catalog. The student must also submit examples of works he has composed, supported, if possible, by records or tapes.

Required Courses:

<i>Course No.</i>	<i>Course Title</i>	<i>Hours</i>	<i>Credit</i>
MUS	502-Eighteenth Century Harmony and Forms	3	
MUS	503-Nineteenth Century Harmony and Forms	3	
MUS	504-Twentieth Century Harmony and Forms	3	
MUS	600-Introduction to Musical Scholarship	3	
MUS	641-History of Music Theory	3	
MUS	650-Music History I	3	
MUS	651-Music History II	3	
MUS	677-Individual Instruction in Composition	6	
MUS	699-Thesis	6	
MUS	-Major Performing Organizations	3	

36

Additional electives to satisfy degree requirements.

Students who are able to prove genuine competency in any of the required courses listed above may substitute electives chosen in consultation

with the adviser. The following list contains courses which would enhance studies in Theory and Composition.

Suggested Electives:

MUS	501—Practical Arranging	3
MUS	507—Performance Practices	3
MUS	603—Analytical Studies I	3
MUS	604—Analytical Studies II	3
MUS	605—Practicum in Arranging and Performance	3
MUS	640—Symphonic Literature	3
MUS	642—Seminar: Medieval Music	3
MUS	643—Seminar: Renaissance Music	3
MUS	644—Seminar: The Baroque Period	2
MUS	645—Seminar: The Classic Period	2
MUS	646—Seminar: The Romantic Period	2
MUS	647—Seminar: New Music	2
MUS	648—Seminar: Beethoven	2
MUS	649—Seminar: Choral Music	3
MUS	652—Historical Analysis of Music Structure	3

Specialist in Education Degree

A program is designed by the student and the adviser to meet the special needs of the person concerned.

Doctor of Education Degree

Purpose:

To offer a program of graduate study in all substantive areas of music with special concentration in the preparation for professional music personnel in education.

Planning the Course:

Considerable latitude will be granted the student and his major professor in designing the study and course program. It is assumed that competency for the doctorate in music education will include background in: 1) Foundation of the Arts in Education and Society; 2) Musicianship (theory and performance); 3) Music History, Literature and Styles and 4) Improvement of Instruction in Music (Methods, curriculum, supervision and administration).

Requirements:

1. Prior to admission, or during the first quarter on campus, the candidate will write a brief paper for his major professor in which he states his views on:
 - a. Current issues and needs in contemporary education as related to the arts.
 - b. What he would teach in a course in basic music for first-year college music majors.
 - c. Ways for strengthening the program in the arts as a part of the school curriculum, and the community.
2. In addition to the admission requirements of the Graduate School, the applicant is required to take the Graduate Record Examination Advanced Test in Music.
3. An interview will be scheduled during the second quarter of study with a committee of the doctoral faculty representing the School of Music.
4. Performance auditions in one or more areas will be held for each doctoral student by the major adviser and a committee representative of all areas for the purpose of evaluating strengths and for making recommendations for continued study in applied music and participation in musical organizations.

Course Program:

1. A minimum of ninety (90) quarter hours are to be earned in graduate study beyond the master's degree and are distributed as follows:

86 / DEPARTMENTAL PROGRAM REQUIREMENTS

- a. Forty-eight (48) hours in graduate course credit in music.
 - b. Twenty-four (24) hours in graduate course credit in a related or supporting area.
 - c. Eighteen (18) hours in dissertation credit.
2. Required "foundational" courses are:

EDF	785—Sociological Foundations of Education.
PCG	740—Philosophical Foundations of Education.
EDF	765—Psychological Foundations of Education.

3. During the first quarter enrolled in the program it is recommended that the student enroll in the courses listed below. Evidence of work done in the courses is intended to serve as a part of the appraisal of the student for continuation in the program:

- a. MUS 701—Criteria for Music Analysis and Comparison

or

- MUS 652—Historical Analysis of Music Structure
- b. MUS 615—Seminar in Music Education
- c. Applied Music and Performance

4. The candidate will, during his first quarter, elect one course in his area of special interest. If available, this course shall preferably be taught by his major professor. Special interest areas include:

- a. Choral and Vocal Teaching and Conducting
- b. Instrumental Teaching and Conducting
- c. Theory, Composition and Analysis
- d. History, Literature, and Styles
- e. Music in Education

5. In addition to the major the student will reinforce his program with course outside the major totaling twenty-four quarter hours. Such courses must:

- a. Be authorized for doctoral credit by the school or department in which the course is offered;
- b. Carry a prefix other than "music."

With the three require "foundations" courses totaling nine (9) quarter hours an additional fifteen (15) hours of course credit will be elected to complete the supporting or related areas requirement.

Although a program of heterogeneous courses will satisfy the requirement the Music School doctoral faculty recommends that some degree of concentration be reflected in the program as planned by the student and his major professor (for examples of related areas programs see the Guide to the Doctoral Program in Music Education available at the School of Music and the Graduate School offices).

Research and Examination Committees for Doctoral Candidates in Music Education

1. The candidate's major adviser shall be appointed by the Dean of the School of Music in consultation with the Chairman of the Music Education Department.

2. The Examination Committee shall be composed of at least four faculty members of the School of Music, recommended by the major adviser, approved and transmitted by the Dean of the School of Music to the Dean of the Graduate School for appointment.

- a. This committee shall include the major adviser and represent the following departments in the School of Music: 1) Music Education; 2) Music History and Literature; 3) Music Theory and Composition. In addition a faculty representative from a department other than the School of Music shall be appointed by the Dean of the Graduate School.
- b. This committee shall supervise the administration of the written comprehensive examination in consultation with the departments of Music Education, Music History and Literature and Music Theory and Composition who shall design and evaluate the same in their own area.

3. An oral comprehensive examination shall be given by this committee only after successful completion of the written comprehensives. (For additional information see page 25.)

4. The Research and Dissertation Committee shall be composed of at least four faculty members of the School of Music, recommended by the major adviser, approved and transmitted by the Dean of the School of Music to the Dean of the Graduate School for appointment. In addition, a faculty representative from a department other than the School of Music shall be appointed by the Dean of the Graduate School.

- a. This committee must unanimously approve the topic for a dissertation and the topic proposal must be signed by all committee members.
- b. Oral examination in defense of dissertation: See page 25.

Physical Science

Master of Arts Degree (Teaching)

Prerequisites:

1. Chemistry—a student must have completed the prerequisite courses for Physical Chemistry I.

2. Physics—a student must have completed the prerequisite courses for PHYS 462, 561, 468.

3. College Mathematics—two years (through integral calculus).

4. If these requirements are not fulfilled, a student may be admitted on a provisional basis. The deficiencies are to be removed as soon as possible, but graduate credit will not be allowed.

Requirements:

1. A minimum of 45 quarter hours of course work distributed between chemistry, physics, and professional courses.

Required Courses:

PHYS	561—Introduction to Research in Physics	2
CHEM	390—Chemical Literature	1
CHEM	599—Seminar in Chemistry	3
SCED	672—Science Curriculum in the Secondary School	3
SCED	673—Research in Science Education	3
SCED	680—Problems in Teaching Physics	4
	<i>or</i>	
SCED	682—Problems in Teaching Chemistry	4
PHYS	465—Mechanics II	3
PHYS	466—Electricity and Magnetism II	3
PHYS	468—Atomic Physics	5
CHEM	451—Physical Chemistry I and Laboratory (454)	5
CHEM	452—Physical Chemistry II and Laboratory (455)	5
CHEM	453—Physical Chemistry III and Laboratory (456)	5
	<i>or</i>	
CHEM	551—Principles of Physical Chemistry I	6
CHEM	552—Principles of Physical Chemistry II	6 12-15
	Electives selected from physics, chemistry, or professional courses with approval of adviser to complete program to 45 hours.	

 45

Pass a written and oral comprehensive examination covering the subject matter in the graduate program and any other material which may seem pertinent in the opinion of the committee.

Physics

Master of Arts Degree

1. PHYS 661, Graduate Research in Physics (Substitute for ID 600).

2. Successfully complete a minimum of 45 hours in courses numbered 400 or above in physics and related fields. The candidate will select his graduate courses with the aid of his adviser.

3. Register for 10 quarter hours in ID 699. The candidate will submit an acceptable thesis in research work.

4. Pass a written and oral comprehensive examination in the candidate's graduate program.

Master of Arts Degree (Teaching)

1. Required courses:

PHYS	465—Mechanics II
PHYS	466—Electricity and Magnetism II
PHYS	468—Atomic Physics
PHYS	561—Introduction to Research in Physics (Substitute for ID 600)
PHYS	567—Optics II
SCED	672—Science Curriculum in the Secondary School
SCED	673—Research in Science Education

2. Remaining hours in degree requirement will be taken in courses in physics and related fields with the consent of the adviser.

3. Candidate must pass a written comprehensive examination in physics based on the candidate's graduate courses.

Doctor of Education Degree

Physics (Teaching)

1. PHYS 661, Graduate Research in Physics (Substitute for ID 700).

2. Successfully complete a minimum of 72 hours in courses numbered 400 or above in physics and related fields and 18 hours of ID 799. The candidate will select his graduate courses with the approval of his adviser.

Political Science

Master of Arts Degree in Social Science (Political Science)

A concentration in Political Science is offered within the major in Social Science. See Social Science, page 97. Because of special problems in completing the Political Science concentration, any student wishing to major in Political Science must consult with the Chairman of the department before applying for this degree.

Psychology, Counseling and Guidance

Degree programs offered are as follows:

- (1) a Master of Arts in Psychology, Counseling and Guidance;
- (2) a Specialist in Education in School Psychology,
a Specialist in Education in School Counseling, other individually tailored Specialist in Education degrees designed to prepare unique specialists;
- (3) a Doctor of Education in School Psychology, and
a Doctor of Education in Psychology, Counseling, and Guidance.

Programs at the masters degree level may be focused through advisor consultation and course selection on diverse areas in psychology and counseling. The following are the most frequently chosen: secondary and junior college counseling; elementary school counseling; counseling in non-school settings;

and a broad program without counselor training. The doctoral program in Psychology, Counseling and Guidance has sufficient flexibility to permit preparation for a variety of fields, such as counselor education, administration of counseling and guidance services, college instruction, counseling in colleges, and research in psychology and counseling. Specialization in school psychology can be obtained at either the specialist degree or the doctoral degree level.

Two years of teaching experience are required for programs leading to endorsement in school counseling. One year must be completed before admission and the second year before graduation. School psychology programs require two years (of at least nine months each) of any job experience which involved interpersonal interaction and responsibility to a supervisor for job performance. School and/or child related experiences are preferred. Programs in counseling which do not lead to school certification require two years of work experience in related areas prior to admission. Only in a general masters degree program without counselor training would a student be admitted without some previous work experience. Students in non-counseling programs or those not wishing to engage in counseling should indicate this preference when entering the program. At graduation their records will be marked as a non-counseling program.

Students in the counseling masters program normally need more than 45 quarter hours of course work so as: (1) to meet the specific certification requirements for particular states, (2) to reach levels of proficiency required for the department recommendation for certification, and (3) to meet the minimum requirement of 64 quarter hours of graduate and undergraduate credit in the specialization major. Normally a minimum of sixty quarter hours of graduate credit are needed to meet these requirements.

All areas of concentration must be planned with the student's adviser. Copies of programs required for each degree may be obtained from the adviser or from the Psychology, Counseling and Guidance office. Majors in this department are involved in and work with the emotional aspects of persons and groups. The welfare of both the student and the persons with whom they work necessitates a continuous screening of the student on personal characteristics as well as academic achievement.

Candidates for the Master of Arts Degree, the Specialist in Education Degree and the Doctor of Education Degree are required to demonstrate basic proficiency in the following six areas: (1) Counseling and Guidance; (2) General Psychology; (3) Growth and Development; (4) Educational Psychology and Learning; (5) Measurement, Evaluation, and Research; and (6) Personal, Emotional, and Social Adjustment.

Master of Arts Degree

Psychology, Counseling and Guidance: Secondary and Junior College Counselors

The following is a suggested sequence of required courses.

Course No.	Course Title	Hours	Credit
<i>First Quarter</i>			
•PCG	602—Foundations of Guidance	3	
•PCG	604—Occupational Information and Analysis in Vocational Guidance (Secondary-Adult)	3	
•PCG	607—Principles and Practices of Counseling Theories	5	
PCG	661—Orientation to Psychology and the Self	3	
PCG	670—Principles and Practices in Testing and Measurement	3	
<i>Second Quarter</i>			
PCG	540—Psychology of Perception and Learning	5	
	or		
PCG	641—Theories of Learning	5	
•PCG	612—Introductory Supervised Practice in Counseling	6	
•PCG	671—Aptitude and Achievement Analysis	5	
<i>Third Quarter</i>			
•PCG	606—Theories and Practices in Group Guidance	5	
•PCG	608—Organization and Administration of Guidance Services	3	

90 / DEPARTMENTAL PROGRAM REQUIREMENTS

PCG	611—Supervised Practice in Guidance Services	3
PCG	614—Supervised Practice in Counseling with Youth and/or Adults	3
Any three hour non-sequence course		3
<i>Fourth Quarter</i>		
RSM	504—Descriptive Statistics	4
Any non-sequence courses not taken		10
One course is required from each of the following groups.		
PCG	530—Child and Adolescent Psychology)
	or	
PCG	633—Psychology of Adolescence)
	or	
PCG	634—Psychology of College Students and Other Adults)
PCG	650—Psychology of the Healthy Personality)
	or	
PCG	655—Mental Hygiene)

Other courses must be elected from each of the six areas listed above. Students preparing for school counselor certification must complete the starred courses prior to graduation.

Psychology, Counseling and Guidance: Elementary School Counselors

The following is a suggested sequence of required courses.

<i>Course No.</i>	<i>Course Title</i>	<i>Hours Credit</i>
<i>First Quarter</i>		
*PCG	603—Guidance in the Elementary School	3
*PCG	605—Occupational Information for Guidance in Elementary Schools	3
*PCG	607—Principles and Practices of Counseling Theories	5
PCG	661—Orientation to Psychology and the Self	3
PCG	670—Principles and Practices in Testing and Measurement	3
<i>Second Quarter</i>		
PCG	540—Psychology of Perception and Learning)
	or	
PCG	641—Theories of Learning)
*PCG	612—Introductory Supervised Practice in Counseling	6
*PCG	672—Aptitude and Achievement Analysis	5
<i>Third Quarter</i>		
*PCG	606—Theories and Practices in Group Guidance	5
*PCG	608—Organization and Administration of Guidance Services	3
PCG	611—Supervised Practice in Guidance Services	3
PCG	613—Supervised Practice in Counseling with Children	3
Any three hour non-sequence course		3
<i>Fourth Quarter</i>		
RSM	504—Descriptive Statistics	4
Any non-sequence courses not taken		10
One course is required from each of the following groups.		
PCG	530—Child and Adolescent Psychology)
	or	
PCG	631—Psychology of Early Childhood)
	or	
PCG	633—Psychology of Adolescence)
PCG	650—Psychology of the Healthy Personality)
	or	
PCG	655—Mental Hygiene)

Other courses must be elected from each of the six areas listed above. Students preparing for school counselor certification must complete the starred courses prior to graduation.

Specialist in Education Degree

Psychology, Counseling and Guidance: School Counseling for Pre-School Through University and Adults

Upon entrance, a candidate must be able to satisfy degree requirements for the Master of Arts Degree in Psychology, Counseling and Guidance, or its equivalent, or must take additional courses to meet these requirements.

Specific Course Requirements:

Course No.	Course Title	Hours	Credit
PCG	558—Abnormal Psychology	3	3
PCG	632—Child Psychology	3	3
	or		
PCG	633—Psychology of Adolescence	3	3
PCG	634—Psychology of College Students and Other Adults	3	3
PCG	761—Orientation to the Graduate Program and Self	3	3
PCG	762—Group Dynamics in Human Relations	3	3
PCG	780—Introduction to Psychological Research	3	3
PCG	792—Internship	Max. 16	5
RSM	505—Statistical Inference		5

Highly Recommended Courses:

PCG	543—Theories of Motivation	3	3
PCG	647—Learning Disabilities: Diagnosis and Remediation	3	3
PCG	650—Psychology of the Healthy Personality	3	3
PCG	673—Individual Tests of Intelligence	3	3
PCG	674—Individual Intelligence Testing: Stanford-Binet	3	3
PCG	675—Individual Intelligence Testing: Wechsler Scales	4	4
PCG	676—Psychological Testing: Personality	3	3
PCG	742—Seminar in Perceptual Psychology	3	3

Total Program: A minimum of forty-five quarter hours beyond the Master of Arts Degree in Psychology, Counseling and Guidance.

Psychology, Counseling and Guidance: School Psychology

Upon entrance, a candidate must be able to satisfy degree requirements for the Master of Arts Degree in Psychology, Counseling and Guidance, or its equivalent, or must take additional courses to meet these requirements. Undergraduate courses in tests and measurements and in abnormal psychology are prerequisite to the program. Upon satisfactory completion of this program, basic requirements for certification in school psychology will be met.

Specific Course Requirements (including those taken for the Master of Arts Degree in Psychology, Counseling and Guidance):

A. Psychological Foundations

Course No.	Course Title	Hours	Credit
PCG	761—Orientation to the Graduate Program and Self	3	3
PCG	632—Child Psychology	3	3
PCG	641—Theories of Learning	5	5
PCG	651—Theories of Personality	3	3
PCG	762—Group Dynamics in Human Relations	3	3
SOC	310—Social Psychology	3	3
RSM	504—Descriptive Statistics	4	4

B. Psychological Methods and Techniques

PCG	607—Principles and Practices of Counseling Theories	5	5
PCG	612—Introductory Supervised Practice in Counseling	3-6	6
PCG	617—Techniques of Behavior Change	4	4
PCG	674—Individual Intelligence Testing: Stanford-Binet	3	3
PCG	675—Individual Intelligence Testing: Wechsler Scales	4	4
PCG	676—Psychological Testing: Personality	3	3
PCG	677—Psychoeducational Testing	4	4

C. Professional Education:

PCG	647—Learning Disabilities: Diagnosis and Remediation	3
EDSE	602—Education and Psychology of Exceptional Children	3
EDRD	617—Remedial Reading in the Elementary School	4
EDF	495—Philosophy of Education	4
	<i>or</i>	
EDF	585—Philosophy of Education	
	<i>or</i>	
EDF	785—Philosophical Foundations of Education	3

D. Electives—choose from such courses as these (10 hrs.).

EDSE	210—Introduction to Mental Retardation	4
EDSE	604—Appraisal of Exceptional Children	4
EDSE	605—Practicum in Appraising Exceptional Children	4
EDSE	711—Psychological Aspects of Mental Retardation	4
RSM	505—Statistical Inference	5
PCG	542—Experimental Analysis of Behavior	3
PCG	618—Behavior Modification	3
RSM	603—Analysis of Variance and Covariance	3
ANT	600—Introduction to the Concept of Culture	3
PCG	565—The Psychology of Prejudice	3

E. Supervised Field Work

PCG	789—Internship in School Psychology	Max. 16
-----	---	---------

Total Program: A minimum of forty-five quarter hours beyond the Master of Arts Degree in Psychology, Counseling and Guidance.

Doctor of Education Degree

Psychology, Counseling and Guidance

Specific Course Requirements: Usually doctoral students in the area of Psychology, Counseling and Guidance are expected to complete the suggested courses listed below in addition to having completed the courses (or their equivalents) required for the Master of Arts Degree in the area or must take additional courses to meet these requirements. Deviations from this pattern of courses will be made to meet the requirements of any individual specialty within the general area as listed in the description of the doctoral program in Psychology, Counseling and Guidance.

<i>Course No.</i>	<i>Course Title</i>	<i>Hours Credit</i>
PCG	558—Abnormal Psychology	3
PCG	632—Child Psychology	3
	<i>and/or</i>	
PCG	633—Psychology of Adolescence	3
	<i>and/or</i>	
PCG	634—Psychology of College Students and Other Adults	3
PCG	635—Psychology of Individual Differences	3
PCG	641—Theories of Learning	5
PCG	650—Psychology of the Healthy Personality	3
PCG	723—Seminar: Issues in Psychology, Counseling and Guidance	3
PCG	762—Group Dynamics in Human Relations	3
PCG	780—Introduction to Psychological Research	3
PCG	799—Doctoral Dissertation	Max. 18
RSM	505—Statistical Inference	5
RSM	603—Analysis of Variance and Covariance	3

Internship: (12 hrs. minimum; PCG 612 is prerequisite).

PCG	713—Internship in Supervision of Guidance Services	Max. 12
PCG	714—Internship in Supervision of Counseling	Max. 12
PCG	792—Internship	Max. 16
PCG	755—Supervised Practicum in College Teaching	Max. 9
PCG	756—Internship in Supervising College Teaching	3

Highly Recommended Courses:

PCG	543—Theories of Motivation	3
PCG	707—Seminar in Counseling Theories	3

DEPARTMENTAL PROGRAM REQUIREMENTS / 93

PCG	715—Seminar in Counselor Supervision and Theory	3
PCG	721—Development and Philosophy of Ideas in Psychology	5
PCG	722—Trends in Psychology, Counseling and Guidance	3

Each candidate's program of courses, supervised practice, individual studies, and outside readings will be specifically designed to meet his individual needs, to help him develop essential competencies, and to prepare him for the particular types of positions he plans to take upon graduation. The courses thus selected are as essential to a particular candidate's program as the general requirements listed above.

Psychology, Counseling and Guidance: School Psychology

Upon entrance, a candidate must be able to satisfy degree requirements for the Master of Arts Degree in Psychology, Counseling and Guidance, or its equivalent, or must take additional courses to meet these requirements. Undergraduate courses in tests and measurements and in abnormal psychology are prerequisite to the program. Upon satisfactory completion of this program, basic requirements for certification in school psychology will be met.

Specific Course Requirements (including those taken for the Master of Arts Degree in Psychology, Counseling and Guidance):

A. Psychological Foundations

<i>Course No.</i>	<i>Course Title</i>	<i>Hours Credit</i>
PCG	761—Orientation to the Graduate Program and Self	3
PCG	542—Experimental Analysis of Behavior	3
PCG	543—Theories of Motivation	3
PCG	632—Child Psychology	3
PCG	641—Theories of Learning	5
PCG	651—Theories of Personality	3
PCG	624—Human Neuropsychology	4
PCG	742—Seminar in Perceptual Psychology	3
PCG	780—Introduction to Psychological Research	3
RSM	505—Statistical Inference	5
RSM	603—Analysis of Variance and Covariance	3
	<i>or</i>	
RSM	713—Multiple Regression	3

B. Clinical Procedures

PCG	607—Principles and Practices of Counseling Theories	5
PCG	612—Introductory Supervised Practice in Counseling	6
PCG	617—Techniques of Behavior Change	4
PCG	618—Behavior Modification	3
PCG	674—Individual Intelligence Testing: Stanford-Binet	3
PCG	675—Individual Intelligence Testing: Wechsler Scales	4
PCG	677—Psychoeducational Testing	4
PCG	678—Case Study Practicum	1-3
PCG	782—Introduction to Rorschach Administration and Scoring	3
PCG	783—Projective Technique	3

C. Professional Education

PCG	647—Learning Disabilities: Diagnosis and Remediation	3
EDSE	602—Education and Psychology of Exceptional Children	3
EDRD	617—Remedial Reading in the Elementary School	4
EDF	585—Philosophy of Education (or equivalent)	3

D. Supervised Field Work

PCG	789—Internship in School Psychology	8-16
-----	---	------

E. Suggested Electives

PCG	721—Development and Philosophy of Ideas in Psychology	5
PCG	722—Trends in Psychology, Counseling and Guidance	3
PCG	723—Seminar: Issues in Psychology, Counseling and Guidance	3
PCG	758—Advanced Psychopathology	3
PCG	762—Group Dynamics in Human Relations	3
PCG	787—Seminar in School Psychology	3

94 / DEPARTMENTAL PROGRAM REQUIREMENTS

SOC	310—Social Psychology	3
PCG	730—Seminar in Growth and Development	3
PCG	741—Seminar in Learning Theories	3
PCG	742—Seminar in Perceptual Psychology	3
PCG	743—Seminar in Motivation	3
PCG	751—Seminar in Personality Theories	3

Each candidate's program of courses, supervised practice, individual studies, and outside readings will be specifically designed to meet his individual needs, to help him develop essential competencies, and to prepare him for the particular types of positions he plans to take upon graduation. The courses thus selected are as essential to a particular candidate's program as the general requirements listed above.

Research and Statistical Methodology

Beatrice B. Heimerl, Chairman

Professor: Schmid.

Associate Professors: B. Heimerl, Houston.

Assistant Professor: Connett.

Master of Science Degree

Purpose of program:

The M.S. degree program in Research and Statistical Methodology is designed to prepare researchers in education and behavioral sciences for positions as research specialists for school systems, research and development centers, regional educational laboratories, state departments of education, and other agencies engaged in research in behavioral sciences. Emphasis is placed on the application of statistics in educational and behavioral sciences research.

Prerequisites:

Candidates must be graduates of accredited colleges and have the potential for success in graduate study. It is preferred but not essential that candidates have a background in psychology, statistics, or education.

Requirements:

A minimum of 45 quarter hours of graduate credit beyond the bachelor's degree is required. The candidate must pass a written and oral comprehensive examination covering the subject matter in the graduate program. In addition each student is expected to spend a minimum of 40 hours assigned to Bureau of Research or local school systems gaining research experience. An appropriate thesis is optional.

Required Courses:

Course No.	Course Title	Hours	Credit
RSM	504—Descriptive Statistics	4	
RSM	505—Statistical Inference	5	
PCG	540—Psychology of Perception and Learning		
	<i>or</i>		
PCG	541—Theories of Learning	5	
EDF	585—Philosophy of Education (or approved substitute)	3	
RSM	600—Introduction to Graduate Study	3	
RSM	603—Analysis of Variance and Covariance	3	
RSM	613—Multiple Regression	3	
RSM	644—Research Practicum I (Programming)	4	
PCG	670—Principles and Practices in Testing and Measurement	3	
Internship Requirement	.....	No	credit
RSM	699—Thesis (optional)	8	
	Complete program to 45 hours with elective courses approved by the adviser selected from research and statistical methodology, measurement, and academic areas.	4-12	

Doctor of Philosophy Degree

Some credit may be transferred from accredited institutions. In general, a minimum of two years residence is necessary. The Ph.D. program requires proficiency in two research tools, one of which is computer science language.

Objectives: The degree is planned to prepare persons for performing or directing educational research in colleges, universities, school administrative units, and educational and research laboratories. Special emphasis is placed upon computer-orientation and information processing relative to educational problems. Research methodology will emphasize the application of multivariate techniques to educational problems. Topics and applications are: factor analysis, multiple regression models, discriminant function, Bayesian Statistics, and curvilinearity of data.

General degree requirements: A minimum of 90 quarter hours of graduate credit beyond the master's degree. These hours will be distributed among the following areas:

Statistics, information processing, and computer applications to educational problems.
Theory and practices of measurement, psychology, and research methodology.
Research practicum and internship experiences.
Dissertation.
Supporting area (24 hours required).
Non-credit internships.

Required Courses:

<i>Course No.</i>	<i>Course Title</i>	<i>Hours</i>	<i>Credit</i>
RSM	504—Descriptive Statistics	4	
RSM	505—Statistical Inference	5	
RSM	603—Analysis of Variance and Covariance	3	
RSM	613—Multiple Regression	3	
RSM	623—Nonparametric Statistics	3	
RSM	633—Factor Analysis	3	
RSM	643—Seminar: Special Topics	3	
RSM	644—Research Practicum	12	
RSM	673—Advanced Theory of Measurement	3	
RSM	713—Planning and Methodology of Research	3	
RSM	754—Research Practicum	12	
PCG	771—Measurement: Scaling and Related Techniques	3	

A research area will be planned with the student's committee such that the candidate will become competent in research in a subject matter area. Candidates deficient in research tools or area requirements may be required to spend more than two years in the program.

Supporting Areas:

Business Education
College Student Personnel Work
Educational Media
Elementary Education
Foundations of Education
Health, Physical Education and Recreation
Higher Education
Industrial Arts Education
Mathematics
Mathematics Education
Music Education
Psychology, Counseling and Guidance
Reading
Science
Science Education
Social Science

Science Education

Master of Arts Degree

General Requirements:

SCED	673—Seminar in Science Education Research	3
	(Substitutes for ID 600)	

Major Requirements: Minimum 16 quarter hours

SCED	671—Science Curriculum in the Elementary School (May be waived for secondary majors by petition to Science Education Department).....	3
SCED	672—Science Curriculum in the Secondary School	3
SCED	674—Instructional Problems in Teaching Science	3
SCED	676—Construction of Achievement Tests in Science.....	3
SCED	678—Science Education Seminar (minimum 2 hours, maximum 6 hours).....	2-6
RSM	604—Descriptive Statistics	4

Recommended Electives: Minimum 3 quarter hours

SCED	568—Instructional Materials in the Teaching of Science	3
SCED	675—Development of Scientific Inquiry Abilities of Children Through Science	4
SCED	679—Science Curriculum in the Junior High School	3
SCED	680—Problems in Teaching Physics	4
SCED	681—Problems in Teaching Biology	4
SCED	682—Problems in Teaching Chemistry	4
SCI	678—History of Science	3
SCI	679—Philosophy of Science	3
RSM	505—Statistical Inference	5
SCED	601—Practicum (maximum 8 hours)	
	or	
SCED	622—Individual Studies (maximum 8 hours)	4-8
SCED	699—Thesis	15

Supporting Area Requirements: Minimum 23 quarter hours

One of the following subject matter areas: Biology, Botany, Chemistry, Earth Sciences, General Science, Physics (5 hours of mathematics may be included), Physical Science, Zoology.

A major in science education assumes that the student is preparing for a position of science supervisor in an elementary school, junior high school, or senior high school, is increasing his competence for secondary instruction, or is preparing for junior college teaching. He must know sufficient science to be able to direct intelligently a program and help the teachers. His training therefore must be sufficient to make possible intelligent supervision and curriculum planning.

A minimum of 23 quarter hours of the master's degree work in a science education degree must be in science subject matter and be in courses acceptable for and applicable to the master's degree. The choice of the subject matter field is to be made by the candidate with approval of the major adviser. Specific courses will be prescribed by the subject matter department. Grades of B or better in these courses will satisfy the subject matter requirement.

A comprehensive examination will be written in the major area, science education.

It shall be the prerogative of the adviser to invite certain candidates to write a thesis or do practicums in partial fulfillment of the requirements for the degree.

Students working for advanced degrees are expected to plan a personal, well-balanced reading and study program and are expected to be acquainted with major research in their field.

Specialist in Education Degree

A program in science education is designed by the student and the adviser to meet the special needs of the prospective candidate for this degree.

Possible areas of specialization are:

Supervision and Administration of Science Instruction K-14
 Junior College or Community College Instruction
 Elementary Science Specialization
 Testing and Evaluation in the Sciences K-14
 Curriculum Development in Science K-14
 Other areas of specific interest and concern to the student and adviser

Doctor of Education Degree

The Science Education Department, through five program components offers a flexible curriculum from which each student in consultation with the faculty will design his own program. The components are:

1. Science Education course work
2. Science course work
3. Professional experience
4. Research and publication
5. Analysis and evaluation

The Requirements:

In assembling his particular program, the student will include:

1. 90 quarter hours beyond the master's degree. Credit may be assigned to activities selected within the *Experience* component.
2. Three consecutive quarters on campus.
3. An initial analysis (part of component 5) to identify strengths and weaknesses to guide in developing the program.
4. Activities from each of the five components, the amount and nature being dependent upon the student's needs and goals. Those selected within the course work and experience components must result in an approximate balance between science education and science. Significant projects or experiences may be substituted with faculty approval for the dissertation as part of component four.
5. A final competency based evaluation of growth (part of component 5).

The Procedure:

The student with his adviser will develop a program during his first quarter on campus. The program will be reviewed by the faculty and upon approval, the student will select a faculty advisory board consisting of three from Science Education and one from another department. Subsequent program changes will be handled through the advisory board. Details of the program are available through advisement with faculty of the Science Education Department.

Social Sciences

Master of Arts Degree

1. The faculty of the departments in the social science areas offer a Master of Arts degree in social sciences, with areas of concentration in anthropology, economics, geography, history, political science, sociology.

2. The purpose of the degree is to develop scholarship in depth in one of the areas of the social sciences. The program may be designed for use as a terminal degree or as a foundation for doctoral study.

3. A minimum of twenty-four hours must be earned in the area of concentration.

4. The major in the social sciences must take ID 600, Introduction to Graduate Study, 3 hours, or the departmental substitution for this course, during his first quarter in residence.

5. Each student's program is worked out individually in conference with his adviser.

6. By permission of the department, a student may submit a thesis as a part of his work.

7. A comprehensive examination is given.

Doctor of Education

Areas: Anthropology, Economics, Geography, Political Science, Sociology, History.

Purpose:

To prepare superior teachers for schools, heads of departments of the Social Sciences, and coordinators and supervisors of Social Sciences instruction in the schools.

ADMISSION TO CANDIDACY

Prerequisites: A master's degree in the Social Sciences (including history) including not fewer than 12 quarter hours in each of seven areas of the Social Sciences, a teaching certificate and two years of successful teaching experience in a school accredited by one of the regional accrediting agencies. (A committee will interpret the application of the 12 quarter hour requirements in each individual case. A student may take approved courses to remove deficiencies.)

EXAMINATIONS

Exploratory Examination—taken during first quarter in residence, oral.

Qualifying Examination—oral; when deficiencies have been resolved and student is prepared to demonstrate minimum proficiency in seven social science fields.

Comprehensive Examination—Written and oral; when course work is completed and three fields have been adequately mastered.

ADVISER

The Chairman of the Social Science Doctoral Committee will serve as the student's adviser until he has completed his *Exploratory Examination*.

Sociology

Master of Arts Degree

A concentration in Sociology is offered within the major in Social Science. See Social Science, page 97.

Special Education and Rehabilitation

The campus Special Education School, a cooperative project of the Greeley Public Schools and University of Northern Colorado, provides a laboratory in which students may observe and do student teaching. At the present time, this laboratory school enrolls mentally retarded, physically handicapped, acoustically handicapped, emotionally disturbed, and visually handicapped children. The Special Education facility also includes a speech and hearing clinic which provides complete audiometric evaluations as well as speech correction services; an apartment classroom; and provision for testing and measuring exceptional children.

A graduate program is offered to prepare rehabilitation counselors.

Master of Arts Degree

Special Education: Audiology

The following is the required program:

DEPARTMENTAL PROGRAM REQUIREMENTS / 99

<i>Course No.</i>	<i>Course Title</i>	<i>Hours</i>	<i>Credit</i>
EDSE	565—Aphasia	3	3
EDSE	663—Language Disorders of Children	3	3
EDSE	573—The Auditory Mechanism	3	3
EDSE	575—Auditory Disorders in Children	3	3
EDSE	576—Electrophysiological Audiometry	3	3
EDSE	577—Rehabilitation of the Acoustically Handicapped	3	3
EDSE	600—Introduction to Graduate Study	3	3
EDSE	651—Advanced Problems in Speech for the Hearing Impaired	3	3
EDSE	674—Internship in Audiology	Max. 15	3
EDSE	675—Differential Diagnosis of Auditory Problems	3	3
EDSE	679—Seminar in Audiology	3-9	3-9

In addition to the above-listed requirements the student and his advisor shall select additional courses to complete a minimum of 55 hours. The student must also complete supervised practicum experiences totaling a minimum of 275 clock hours with diversified types of disorders both diagnostically and in aural rehabilitation among various age ranges of persons having these disorders. The following courses are highly recommended as electives:

EDSE	690—Counseling the Handicapped	3	3
RSM	504—Descriptive Statistics	4	4
EDSE	591—Community Resources for Rehabilitation, Guidance, and Counseling	3	3
EDSE	592—Vocational Placement and Adjustment of the Disabled in Rehabilitation	3	3
EDSE	451—Speech Development for the Hearing Impaired	3	3
EDSE	452—Language Development for the Hearing Impaired	3	3

The above requirements assume an adequate undergraduate background in Speech Pathology, Speech Science, Phonetics, Language Development, and Audiology. Adequacy will be judged by review of undergraduate transcripts and will be based primarily on the A.B. degree requirements of the University of Northern Colorado.

Special Education: Speech Pathology

The following is the required program:

<i>Course No.</i>	<i>Course Title</i>	<i>Hours</i>	<i>Credit</i>
EDSE	565—Aphasia	3	3
EDSE	600—Introduction to Graduate Study	3	3
EDSE	661—Cerebral Palsy	3	3
EDSE	663—Language Disorders of Children II	3	3
EDSE	664—Practicum in Speech Pathology	Max. 15	3
EDSE	666—Cleft Palate	3	3

The student and his adviser shall select additional courses to complete a minimum of 55 quarter hours which must allow the student to meet National and State of Colorado academic standards. The student must also have completed supervised practicum experience totaling a minimum of 275 clock hours with diversified types of disorders and age ranges of persons having these disorders. If a teaching certificate is desired, educational requirements described in the undergraduate bulletin must be met. The following courses are highly recommended as electives:

EDSE	561—Voice Disorders II	3	3
EDSE	660—Articulation Disorders II	3	3
EDSE	662—Stuttering II	3	3
EDSE	665—Seminar in Clinical Experiences	3	3
EDSE	667—Seminar in Speech and Hearing Science	3-6	3
EDSE	668—Seminar in Speech Pathology	3-9	3-9
EDSE	669—Community Rehabilitation Resources in Speech Pathology and Audiology	3	3
RSM	504—Descriptive Statistics	4	4

The above requirements assume an adequate undergraduate background in Speech Pathology, Speech Science, Phonetics, Neurology, Language Development and Audiology. Adequacy will be review of undergraduate transcripts and will be based primarily on the A.B. Requirements of University of Northern Colorado.

Special Education: Teaching the Acoustically Handicapped

The following is the required program:

<i>Course No.</i>	<i>Course Title</i>	<i>Hours</i>	<i>Credit</i>
EDSE	575—Auditory Disorders in Children	3	3
EDSE	600—Introduction to Graduate Study	3	3
EDSE	602—Education and Psychology of Exceptional Children	3	3
EDSE	650—Advanced Problems in Teaching the Hearing Impaired	3	3
EDSE	651—Advanced Problems in Speech for the Hearing Impaired	3	3
EDSE	652—Linguistic Approach to Language for the Hearing Impaired	3	3
EDSE	654—Practicum with the Hearing Impaired	Max. 15	3
EDSE	659—Seminar in Education of the Hearing Impaired	3	3
	Electives in Special Education	9	
	Minimum MA Program	45	

Note:

The following required prerequisite courses must also be completed prior to admittance to candidacy for the MA degree in Acoustically Handicapped: EDSE 350, 356, 357, 358, 370, 451, 452, 453, 455, 456, EDRD 310, 411, 420 and EDEM 410.

The student shall hold a valid teaching certificate or complete the course work necessary for certification in Pre-School, or Elementary, or a specific area of secondary education.

Special Education: Teaching Mentally Retarded Children

<i>Course No.</i>	<i>Course Title</i>	<i>Hours</i>	<i>Credit</i>
EDSE	310—Introduction to Mental Retardation	4	4
EDSE	412—Curriculum Development and Methodology for Mentally Retarded: Elementary Level	4	4
EDSE	413—Curriculum Development and Methodology for Mentally Retarded: Secondary Level	4	4
EDSE	562—Speech Correction and Improvement in the Classroom	3	3
EDSE	600—Introduction to Graduate Study	3	3
EDSE	602—Education and Psychology of Exceptional Children	3	3
EDSE	606—Principles and Practices of Measurement of the Handicapped	3	3
EDSE	614—Practicum with the Mentally Retarded	Max. 15	3

Elective Courses (*strongly recommended)

•EDSE	302—Counseling Parents of Exceptional Children	3	3
•EDSE	311—Education of Trainable Mentally Retarded	4	4
EDSE	330—Care and Pathology of the Physically Handicapped	3	3
EDSE	350—Pathology and Introduction to Education of the Hearing Impaired	3	3
EDSE	511—Vocational Preparation of the Mentally Retarded	3	3
•EDSE	540—Survey of Education of the Visually Handicapped	3	3
EDSE	590—Introduction to Vocational Rehabilitation Counseling	3	3
EDSE	603—Administration and Supervision of Special Education	3	3
•EDSE	604—Appraisal of Exceptional Children	4	4
•EDSE	612—Advanced Curriculum Development	4	4
EDRD	617—Remedial Reading in the Elementary School	4	4
PCG	530—Child and Adolescent Psychology	3	3
PCG	558—Abnormal Psychology	3	3
PCG	655—Mental Hygiene	3	3
MUS	328—Music for the Exceptional Child	3	3

Total Program : 45 quarter hours minimum.

Special Education: Teaching Physically Handicapped Children

The following is the required program:

<i>Course No.</i>	<i>Course Title</i>	<i>Hours</i>	<i>Credit</i>
EDSE	310—Introduction to Mental Retardation	4	4
EDSE	330—Care and Pathology of the Physically Handicapped	3	3
EDSE	331—Problems of Teaching the Physically Handicapped	3	3
EDSE	562—Speech Correction and Improvement in the Classroom	3	3
EDSE	600—Introduction to Graduate Study	3	3
EDSE	602—Education and Psychology of Exceptional Children	3	3

DEPARTMENTAL PROGRAM REQUIREMENTS / 101

EDSE	606—Principles and Practices of Measurement of the Handicapped	3
EDSE	631—Advanced Problems in Teaching Children with Physical Defects	3
EDSE	634—Practicum with Physically Handicapped	Max. 15

Elective Courses: (*Strongly Recommended)

EDSE	302—Counseling Parents of Exceptional Children	3
•EDSE	311—Education of Trainable Mentally Retarded	4
EDSE	320—Introduction to the Education of Socially and Emotionally Disturbed Children	3
EDSE	350—Pathology and Introduction to the Education of the Hearing Impaired	3
EDSE	412—Curriculum Development and Methodology for Mentally Retarded: Elementary Level	4
EDSE	511—Vocational Preparation of the Mentally Retarded	3
•EDSE	540—Survey of Education of the Visually Handicapped	3
•EDSE	603—Administration and Supervision of Special Education	3
•EDSE	604—Appraisal of Exceptional Children	4
EDSE	661—Cerebral Palsy	3
EDSE	693—Medical Aspects of Disabilities	3
EDRD	617—Remedial Reading in the Elementary School	4
PSY	330—Child and Adolescent Psychology	3
PSY	558—Abnormal Psychology	3
PCG	655—Mental Hygiene	3
HPER	269—Recreation for the Handicapped	3
MUS	326—Music for the Exceptional Child	3

Total Program: 45 quarter hours minimum.

Special Education: Teaching Socially and Emotionally Disturbed Children

The following is the required program:

<i>Course No.</i>	<i>Course Title</i>	<i>Hours</i>	<i>Credit</i>
EDSE	310—Introduction to Mental Retardation		4
EDSE	320—Introduction to the Education of Socially and Emotionally Disturbed Children		3
EDSE	326—Introduction to Teaching Learning Disabled Children		3
EDSE	421—Behavior Management in the Classroom		3
EDSE	600—Introduction to Graduate Study		3
EDSE	602—Education and Psychology of Exceptional Children		3
EDSE	606—Principles and Practices of Measurement of the Handicapped		3
EDSE	621—Methods of Teaching Classes of Socially and Emotionally Disturbed Children		3
EDSE	623—Sociological and Cultural Aspects of Socially and Emotionally Disturbed Children		3
EDSE	624—Seminar in Education of the Emotionally Disturbed		3
EDSE	625—Practicum with the Socially and Emotionally Disturbed		Max. 15

Elective Courses: (*Strongly Recommended)

•EDSE	302—Counseling Parents of Exceptional Children	3
EDSE	490—Introduction to Vocational Rehabilitation Counseling	3
•EDSE	562—Speech Correction and Improvement in the Classroom	3
EDSE	603—Administration and Supervision of Special Education	3
EDSE	604—Appraisal of Exceptional Children	4
EDSE	663—Language Disorders of Children	3
PSY	530—Child and Adolescent Psychology	3
PSY	340—Psychology of Perception and Learning	5
PCG	507—Counseling Theories	3
PCG	558—Abnormal Psychology	3
PCG	563—Sociodrama	2
PCG	624—Human Neuropsychology	4
•PCG	632—Child Psychology	3
•PCG	635—Psychology of Individual Differences	3
•PCG	641—Theories of Learning	5
•PCG	647—Learning Disabilities: Diagnosis and Remediation	3
PCG	650—Psychology of the Healthy Personality	3
PCG	651—Theories of Personality	3
PCG	655—Mental Hygiene	3
PCG	762—Group Dynamics in Human Relations	3
EDRD	617—Remedial Reading in the Elementary School	4
EDRD	650—Remedial Reading Case Study	3

102 / DEPARTMENTAL PROGRAM REQUIREMENTS

MUS	326—Music for the Exceptional Child	3
SOC	515—The Sociology of Child Development	3
*SOC	625—Seminar in the Sociology of Mental Health and Illness	3

Total Program: 45 quarter hours minimum.

Special Education: Learning Disabilities

The following is the required program:

Course No.	Course Title	Hours	Credit
EDSE	310—Introduction to Mental Retardation	4	
EDSE	320—Introduction to the Education of Socially and Emotionally Disturbed Children	3	
EDSE	326—Introduction to Teaching Learning Disabled Children	3	
EDSE	369—Neurological Basis for Speech and Hearing	3	
EDSE	421—Behavior Management in the Classroom	3	
EDSE	600—Introduction to Graduate Study	3	
*EDSE	602—Education and Psychology of Exceptional Children	3	
EDSE	604—Appraisal of Exceptional Children	3	
EDSE	606—Principles and Practices of Measurement of the Handicapped	3	
EDSE	627—Methods of Teaching Learning Disabled Children	3	
EDSE	628—Seminar in Education of Learning Disabled	3	
EDSE	629—Practicum with Learning Disabled Children	Max. 15	
PSY	340—Psychology of Perception and Learning	5	
PCG	647—Learning Disabilities: Diagnosis and Remediation	3	
EDRD	617—Remedial Reading in the Elementary School	4	

*Prerequisite course. If not previously taken, it should be enrolled in the first quarter. Does not count toward master's degree.

Special Education: Teaching the Visually Handicapped

The following is the required program:

Course No.	Course Title	Hours	Credit
EDSE	540—Survey of Education of the Visually Handicapped	3	
EDSE	542—Principles of Education of the Partially Seeing	3	
EDSE	543—Beginning Braille	3	
EDSE	544—Elementary Methods for the Blind	3	
EDSE	545—Secondary Methods for the Blind	3	
EDSE	600—Introduction to Graduate Study	3	
EDSE	602—Education and Psychology of Exceptional Children	3	
EDSE	606—Principles and Practices of Measurement of the Handicapped	3	
EDSE	641—Structure and Function of the Eye	3	
EDSE	643—Advanced Braille	3	
EDSE	644—Practicum with Visually Handicapped	Max. 15	
EDSE	645—Principles of Orientation and Mobility for the Blind	3	

The balance of the program may be elected from the following:

EDSE	302—Counseling Parents of Exceptional Children	3
EDSE	310—Introduction to Mental Retardation	4
EDSE	490—Introduction to Vocational Rehabilitation Counseling	3
EDSE	646—The Multi-Impaired Blind Child	3
PSY	530—Child and Adolescent Psychology	3
PSY	340—Psychology of Perception and Learning	5
PCG	602—Foundations of Guidance	3
PCG	632—Child Psychology	3
PCG	633—Psychology of Adolescence	3

Total Program: 45 quarter hours minimum.

Special Education: Rehabilitation Counseling

(Up to 75 quarter hours)
(no teaching certificate required for admission)
(no teaching certificate available upon graduation)

The following program is required:

Course No.	Course Title	Hours	Credit
EDSE	490—Introduction to Vocational Rehabilitation Counseling	3	
EDSE	591—Community Resources for Rehabilitation, Guidance, and Counseling	3	
EDSE	592—Vocational Placement and Adjustment of the Disabled in Rehabilitation	3	
EDSE	595—Seminar: Introduction to Employment Counseling	3	
*EDSE	600—Introduction to Graduate Study	3	
EDSE	606—Principles and Practice of Measurement of the Handicapped	3	
EDSE	607—Special Problems in Diagnosis and Evaluation of the Handicapped	3	
EDSE	690—Counseling the Handicapped	3	
EDSE	691—Principles and Techniques of Rehabilitation Counseling	3	
EDSE	692—Psychological Aspects of Rehabilitation	3	
EDSE	693—Medical Aspects of Disabilities	3	
EDSE	694—Supervised Clinical Practice in Rehabilitation Counseling	Max. 15	
EDSE	695—Seminar in Rehabilitation: Rehabilitation Plan Formulation	3	
PCG	507—Counseling Theories	3	
PCG	558—Abnormal Psychology	3	
PCG	612—Introductory Supervised Practice in Counseling	3	
*EDSE	689—Interpretation and Evaluation of Behavioral Research may be substituted for EDSE 600.		

Recommended Electives:

EDSE	302—Counseling Parents of Exceptional Children	3	
EDSE	310—Introduction to Mental Retardation	4	
EDSE	330—Care and Pathology of the Physically Handicapped	3	
EDSE	350—Pathology and Introduction to Education of the Hearing Impaired	3	
EDSE	491—Interviewing Techniques in Social and Rehabilitation Services	3	
EDSE	492—Casework Techniques in the Social and Rehabilitation Services.....	3	
EDSE	511—Vocational Preparation of the Mentally Retarded	3	
EDSE	540—Survey of Education of the Visually Handicapped	3	
EDSE	698—Principles of Employment Counseling	3	
PCG	565—Psychology of Prejudice	3	
PCG	602—Foundations of Guidance	3	
PCG	604—Occupational Information and Analysis in Vocational Guidance	3	
PCG	650—Psychology of the Healthy Personality	3	
PCG	651—Theories of Personality	3	
PCG	655—Mental Hygiene	3	
PCG	673—Individual Tests of Intelligence	3	
PCG	675—Individual Intelligence Testing: Wechsler Scales	4	

Specialist in Education Degree

A specialized program leading toward a Specialist Degree in Education may be designed for those students with a Master's Degree who meet Graduate School Admission Requirements.

Doctor of Education Degree

A program leading toward a Doctor of Education Degree in Special Education may be designed for those students with a Master's Degree who meet Graduate School Admission Requirements.

A degree in Special Education with emphasis in teacher education (preparation for university teaching), administration, or research may be planned on an individual basis to suit the specific needs of each doctoral student. Students may elect, in joint planning with their adviser, emphases in the above three sub-areas in any combination which appears appropriate to past experience and training and to future professional goals. A more specific general special education doctoral program is in the developmental stage within the School of Special Education and Rehabilitation, but in the interim, individual programs, subject to the approval of the major adviser and the department chairman will permit highly flexible educational programming. In addition, the following areas of concentration are offered as guidelines for those who wish to pursue the doctorate in relation to a specific categorical area. These too may be modified by the adviser to meet the individual needs of the student.

Special Education: Administration

For the preparation of personnel in the area of administration of special education:

Core Requirements:

<i>Course No.</i>	<i>Course Title</i>	<i>Hours</i>	<i>Credit</i>
EDSE	603—Administration and Supervision of Special Education	3	
EDSE	703—Problems Seminar in Special Education		Max. 6
EDSE	704—Trends in Special Education		Max. 6
EDSE	705—Internship in Special Education	15	
EDSE	799—Doctoral Dissertation		18

Note:

Students majoring in administrative aspects of special education must achieve certification level competency in two areas of special education.

In addition to the core requirements, course work and/or experiences in all areas of special education and rehabilitation offered by the University of Northern Colorado are required to complete the doctoral program. This may be accomplished by taking courses numbered 500 and above in the following special education and rehabilitation areas:

- | | |
|---|------------------------------|
| a. General & Administration | f. Acoustically Handicapped |
| b. Mentally Retarded | g. Speech Pathology |
| c. Emotionally Disturbed and Socially Maladjusted | h. Audiology |
| d. Physically Handicapped | i. Gifted |
| e. Visually Handicapped | j. Vocational Rehabilitation |

The total program of the doctorate shall consist of a minimum of 90 hours beyond the master's degree. Students will receive a breadth of course work in various areas of exceptionalism. Their program shall also include a required minor or supporting area in administration to be selected from the following:

<i>Course No.</i>	<i>Course Title</i>	<i>Hours</i>	<i>Credit</i>
EDAD	610—School Finance	3	
EDAD	620—School Law II	3	
EDAD	525—Introduction to Organization and Administration of Public Schools	3	
EDAD	626—Philosophy and Techniques of Public Relations	3	
EDAD	630—Problems in Educational Facility Planning	3	
EDAD	670—Elementary School Organization, Administration and Supervision	4	
	<i>or</i>		
EDAD	671—Secondary School Organization, Administration and Supervision	4	
EDAD	744—Seminar in Administrative Theory and Research	3	
EDFE	650—Supervision of Student Field Experiences	3	

Required Statistics Courses:

All students completing the doctorate in Special Education: Administration shall demonstrate competency in statistical analysis and design of research studies relating to administrative and organizational problems. A minimum of two courses in statistics will be required, consistent with the student's present level of statistical competency. The following two courses are representative of those which might be required.

<i>Course No.</i>	<i>Course Title</i>	<i>Hours</i>	<i>Credit</i>
RSM	505—Statistical Inference	5	
RSM	603—Analysis of Variance and Covariance	3	

Special Education: Crippled and other Health Impaired

All candidates seeking the Doctor of Education degree with the area of concentration in special education are required to take specified courses or their equivalents as certified by the major professor. These courses are included in the following areas:

1. Learning difficulties of crippled and health impaired children.
2. Theories of curriculum development, teaching methods and teaching tools with application for the crippled and severely handicapped.
3. Habilitation of the crippled and severely handicapped.
4. Counseling exceptional children and their parents.
5. The role of the consultant and resource person in special education.
6. The use of diagnostic procedures and tools in evaluating crippled, cerebral palsied, multi-handicapped, and other health impaired children.
7. Human growth and development.
8. Associated anomalies in crippled and health impaired children.
9. Theories and principles of research with application.
10. Administration and supervision.

The transcripts of each candidate whose area of concentration is special education are evaluated and the candidate is required to take work in supporting areas according to his educational and professional experience. The recommended supporting areas are educational psychology, elementary education, or administration and supervision. Practicum and field experiences are required in the area of the crippled and other health impaired. A laboratory school for some of these experiences is operated on campus.

Specific Course Requirements:

1. Courses required at M.A. level.

<i>Course No.</i>	<i>Course Title</i>	<i>Hours Credit</i>
EDSE	330—Care and Pathology of the Physically Handicapped	3
EDSE	331—Problems in Teaching the Physically Handicapped	3
EDSE	562—Speech Correction and Improvement in the Classroom	3
EDSE	600—Introduction to Graduate Study	3
EDSE	602—Education and Psychology of Exceptional Children	3
EDSE	631—Advanced Problems in Teaching Children with Physical Defects	3
EDSE	634—Practicum with Physically Handicapped	Max. 5
EDSE	693—Medical Aspects of Rehabilitation	3

2. Courses required beyond Masters for Doctor of Education Degree in Special Education with emphasis on Crippled and Other Health Impaired Children.

<i>Course No.</i>	<i>Course Title</i>	<i>Hours Credit</i>
EDSE	302—Counseling Parents of Exceptional Children	3
EDSE	511—Vocational Preparation of the Mentally Retarded	3
EDSE	601—Practicum	Max. 4
EDSE	603—Administration and Supervision of Special Education	3
EDSE	604—Appraisal of Exceptional Children	4
EDSE	605—Practicum in Appraising Exceptional Children	3
EDSE	611—Psychological Aspects of Mental Retardation	4
EDSE	700—Introduction to Doctoral Research	3
EDSE	702—Research Seminar in Special Education and Rehabilitation	3
EDSE	703—Problem Seminar in Special Education	3
EDSE	704—Trends in Special Education	3
EDSE	705—Internship in Special Education	Max. 15
EDSE	799—Doctoral Dissertation	Max. 18
PCG	541—Theories of Learning	5
PCG	551—Theories of Personality	3
PCG	624—Human Neuropsychology	4
PCG	632—Child Psychology	3
PCG	673—Individual Tests of Intelligence	4
PCG	674—Individual Intelligence Testing: Stanford-Binet	3
PCG	771—Measurement: Scaling and Related Techniques	3
RSM	504—Descriptive Statistics	4
RSM	505—Statistical Inference	5
RSM	603—Analysis of Variance and Covariance	3
RSM	623—Nonparametric Statistics	3
RSM	673—Advanced Theory of Measurement	3

3. Elective courses:

<i>Course No.</i>	<i>Course Title</i>	<i>Hours</i>	<i>Credit</i>
EDSE	350—Pathology and Introduction to Education of the Hearing Impaired	3	3
EDSE	490—Introduction to Vocational Rehabilitation Counseling	3	3
EDSE	580—Education of Children with Special Abilities	3	3
EDSE	592—Vocational Placement and Adjustment of the Disabled in Rehabilitation... 3	3	3
EDSE	610—Sociological and Educational Aspects of Mental Retardation	4	4
EDSE	646—The Multi-Impaired Blind Child	3	3
EDSE	660—Articulation Problems II	3	3
EDSE	661—Cerebral Palsy	3	3
EDAD	610—School Finance	3	3
EDAD	625—Introduction to Organization and Administration of Public Schools	3	3
EDEL	620—Mathematics in the Elementary School	3	3
EDEL	640—English in the Elementary School	3	3
EDEL	650—Social Studies in the Elementary School	3	3
EDRD	612—Reading in the Primary Grades	3	3
PCG	507—Counseling Theories	3	3
PCG	558—Abnormal Psychology	3	3
PCG	604—Occupational Information and Analysis in Vocational Guidance	3	3
PCG	635—Psychology of Individual Differences	3	3
PCG	762—Group Dynamics in Human Relations	3	3
PCG	783—Projective Techniques	3	3
RSM	613—Multiple Regression	3	3
RSM	713—Planning and Methodology of Research	3	3

Special Education: Emotionally Disturbed

All candidates seeking the Doctor of Education degree with the area of concentration in special education are required to take specified courses or their equivalents as certified by the major professor. These courses are included in the following areas.

1. Learning difficulties of emotionally disturbed children.
2. Theories of curriculum development, teaching methods and teaching tools with application for the emotionally disturbed.
3. Counseling exceptional children and their parents.
4. The role of the consultant and the resource person in special education.
5. The use of diagnostic procedures and tools in evaluating the emotionally disturbed.
6. Human growth and development.
7. Theories and principles of research with applications.
8. Administration and supervision.

A prior concentration of course work in areas relating to the emotionally disturbed is assumed, two years of professional experience with emotionally disturbed children is required. A student deficient in course work in the area will be held responsible for completion of those courses which constitute the core of the graduate teacher certification program relating to the emotionally disturbed.

The transcripts of each candidate whose area of concentration is special education are evaluated, and the candidate is required to take work in supporting areas according to his educational and professional experience. The recommended supporting areas are educational psychology, elementary education, or administration and supervision. Practicum and field experience are required in the area of the emotionally disturbed. Laboratory classes for some of these experiences are operated on campus.

Specific Course Requirements:

<i>Course No.</i>	<i>Course Title</i>	<i>Hours</i>	<i>Credit</i>
EDSE	320—Introduction to the Education of Socially and Emotionally Disturbed	3	3
EDSE	602—Education and Psychology of Exceptional Children	3	3
EDSE	603—Administration and Supervision of Special Education	3	3
EDSE	604—Appraisal of Exceptional Children	4	4
EDSE	621—Methods of Teaching Classes of Socially and Emotionally Maladjusted Children	3	3
EDSE	623—Sociological and Cultural Aspects of Socially and Emotionally Disturbed Children	3	3
EDSE	624—Seminar in Education of Emotionally Disturbed	3	3
EDSE	625—Practicum with the Socially and Emotionally Disturbed	Max. 15	15
EDSE	700—Introduction to Doctoral Research	3	3

EDSE	702—Research Seminar in Special Education and Rehabilitation	3
EDSE	703—Problem Seminar in Special Education	3
EDSE	704—Trends in Special Education	3
EDSE	799—Doctoral Dissertation	18
PCG	541—Theories of Learning	5
PCG	558—Abnormal Psychology	3
PCG	632—Child Psychology	3
PCG	647—Learning Disabilities: Diagnosis and Remediation	3
PCG	651—Theories of Personality	3
PCG	671—Aptitude and Achievement Analysis	5
PCG	673—Individual Tests of Intelligence	3
PCG	674—Individual Intelligence Testing: Stanford-Binet	3
PCG	771—Measurement: Scaling and Related Techniques	3
RSM	504—Descriptive Statistics	4
RSM	505—Statistical Inference	5
RSM	508—Workshop	1-3
RSM	603—Analysis of Variance and Covariance	3
RSM	673—Advanced Theory of Measurement	3
RSM	713—Planning and Methodology of Research	3
EDRD	617—Remedial Reading in the Elementary School	4
EDRD	650—Remedial Reading Case Study	3

Specific Course Requirements:

The total program for the doctorate requires a minimum of 90 hours beyond the Master's Degree. The above required courses total in excess of 90 hours, but a prior concentration of course work in the area is assumed. This course work may in effect reduce the number of required hours to a total of 90.

Specific additional elective courses may be written into the doctoral program by the adviser on an individual basis, taking into consideration prior education and experience.

Elective Courses:

<i>Course No.</i>	<i>Course Title</i>	<i>Hours</i>	<i>Credit</i>
EDSE	490—Introduction to Vocational Rehabilitation Counseling	3	
EDSE	580—Education of Children with Special Abilities	3	
EDSE	692—Psychological Aspects of Disability	3	
EDRD	612—Reading in the Primary Grades	4	
EDEL	620—Mathematics in the Elementary School	3	
EDEL	640—English in the Elementary School	3	
EDEL	650—Social Studies in the Elementary School	3	
EDF	765—Sociological Foundations of Education	3	
EDF	785—Philosophical Foundations of Education	3	
MUS	326—Music for the Exceptional Child	3	
PCG	530—Child and Adolescent Psychology	3	
PCG	340—Psychology of Perception and Learning	3	
PCG	551—Theories of Personality	3	
PCG	624—Human Neuropsychology	4	
PCG	635—Psychology of Individual Differences	3	
PCG	782—Introduction to Rorschach Administration and Scoring	3	
PCG	783—Projective Techniques	3	
SOC	515—The Sociology of Child Development	3	
SOC	625—The Sociology of Mental Health and Illness	3	

Special Education: Mental Retardation

Elective Courses:

All candidates seeking the Doctor of Education degree with the area of concentration in special education are required to take specific courses or their equivalents as certified by the major professor. These courses are included in the following areas.

1. Learning difficulties of retarded children.
2. Theories of curriculum development, teaching methods and teaching tools with application for mentally retarded.
3. Habilitation of the mentally retarded.
4. Counseling exceptional children and their parents.
5. The role of the consultant and the resource person in special education.

6. The use of diagnostic procedures and tools in evaluating the mentally retarded.
7. Human growth and development.
8. Associated anomalies in mentally retarded children.
9. Theories and principles of research with applications.
10. Administration and supervision.

The transcripts of each candidate whose area of concentration is special education are evaluated and the candidate is required to take work in supporting areas according to his educational and professional experience. The recommended supporting areas are educational psychology, elementary education, or administration and supervision. Practicum and field experiences are required in the area of the mentally retarded. Laboratory schools for some of these experiences are operated on campus.

Specific Course Requirements:

Course No.	Course Title	Hours	Credit
EDSE	511—Vocational Preparation of Mentally Retarded	.....	3
EDSE	601—Practicum	.....	4
EDSE	604—Appraisal of Exceptional Children	.....	4
EDSE	605—Practicum in Appraising Exceptional Children	.....	3
EDSE	610—Sociological and Educational Aspects of Mental Retardation	.....	4
EDSE	611—Psychological Aspects of Mental Retardation	.....	4
EDSE	612—Advanced Curriculum Development	.....	4
EDSE	614—Practicum with the Mentally Retarded	.....	Max. 15
EDSE	700—Introduction to Doctoral Research	.....	3
DSE	702—Research Seminar in Special Education and Rehabilitation	.....	3
EDSE	703—Problem Seminar in Special Education	.....	3
EDSE	704—Trends in Special Education	.....	3
EDSE	799—Doctoral Dissertation	.....	18
PCG	632—Child Psychology	.....	3
PCG	641—Theories of Learning	.....	5
PCG	651—Theories of Personality	.....	3
RSM	504—Descriptive Statistics	.....	4
RSM	505—Statistical Inference	.....	5
RSM	713—Planning and Methodology of Research	.....	3

Elective Courses:

Course No.	Course Title	Hours	Credit
EDSE	490—Introduction to Vocational Rehabilitation Counseling	.....	3
EDSE	603—Administration and Supervision of Special Education	.....	3
EDAD	610—School Finance	.....	3
EDAD	625—Introduction to Organization and Administration of Public Schools	.....	3
EDF	785—Philosophical Foundations of Education	.....	3
EDRD	612—Reading in the Primary Grades	.....	3
EDEL	620—Mathematics in the Elementary School	.....	3
EDEL	640—English in the Elementary School	.....	3
EDEL	650—Social Studies in the Elementary School	.....	3
PCG	507—Counseling Theories	.....	3
PCG	558—Abnormal Psychology	.....	3
PCG	604—Occupational Information and Analysis in Vocational Guidance	.....	3
PCG	635—Psychology of Individual Differences	.....	3
PCG	671—Aptitude and Achievement Analysis	.....	5
PCG	673—Individual Tests of Intelligence	.....	4
PCG	674—Individual Intelligence Testing: Stanford-Binet	.....	3
PCG	771—Measurement: Scaling and Related Techniques	.....	3
PCG	782—Introduction to Rorschach Administration and Scoring	.....	3
PCG	783—Projective Technique	.....	3
RSM	603—Analysis of Variance and Covariance	.....	3
RSM	613—Multiple Regression	.....	3
RSM	623—Nonparametric Statistics	.....	3
RSM	673—Advanced Theory of Measurement	.....	3

Special Education: Rehabilitation Counseling

(no teaching certificate required)

All doctoral students in the area of Rehabilitation Counseling, in addition to having completed the Master's Degree in the area, need approximately two

years' work experience in rehabilitation or related field (evaluated by the rehabilitation staff) prior to awarding the degree, with a minimum of one year appropriate work experience subsequent to the Master's Degree.

<i>Course No.</i>	<i>Course Title</i>	<i>Hours Credit</i>
EDSE	611—Psychological Aspects of Mental Retardation	4
EDSE	696—Seminar in Rehabilitation: Professional Problems	3
EDSE	697—Seminar in Administration and Supervision of Vocational Rehabilitation Programs	3
EDSE	700—Introduction to Doctoral Research	3
EDSE	702—Research Seminar in Special Education and Rehabilitation	3
EDSE	755—Supervised Practicum in College Teaching	Max. 9
EDSE	756—Internship In Supervising College Teaching	3
EDSE	794—Advanced Practicum	Max. 8
EDSE	799—Doctoral Dissertation	18
PCG	671—Aptitude and Achievement Analysis	5
PCG	712—Analysis of the Individual	3
RSM	504—Descriptive Statistics	4
RSM	505—Statistical Inference	5
RSM	603—Analysis of Variance and Covariance	3
RSM	713—Planning and Methodology of Research	3

Recommended Electives:

<i>Course No.</i>	<i>Course Title</i>	<i>Hours Credit</i>
EDSE	592—Vocational Placement and Adjustment of the Disabled in Rehabilitation....	3
EDSE	595—Seminar: Introduction to Employment Counseling	3
EDSE	692—Psychological Aspects of Disability	3
EDSE	695—Seminar in Rehabilitation: Rehabilitation Plan Formulation	3
EDSE	698—Principles of Employment Counseling	3
PCG	543—Theories of Motivation	3
PCG	558—Abnormal Psychology	3
PCG	624—Neuropsychology	4
PCG	641—Theories of Learning	5
RSM	543—Data Processing in Education	3
RSM	613—Multiple Regression	3
RSM	623—Nonparametric Statistics	3
RSM	633—Factor Analysis	3
RSM	673—Advanced Theory of Measurement	3

Special Education: Speech Pathology

All candidates seeking the Doctor of Education degree with the area of concentration in special education are required to take specified courses or their equivalents as certified by the major professor. The student should gain an understanding of the various barriers that serve as factors in disturbed communication. Of major consideration is the nature of the relationship of the individual to his methods for assessing and manipulating defective factors involved in the dynamics of speech in communication. To gain such understanding and the skills relating to habilitation and rehabilitation, the student together with his adviser, should select a balanced program from among those pertinent.

The student shall be expected to demonstrate an understanding of those problems in communication dealt with in the following courses:

I. Speech Pathology

	<i>Hours Credit</i>
A. Completion of EDSE 660 series, EDSE 561, EDSE 565	49
B. EDSE 761—Seminar: Language Problems	3
C. EDSE 762—Seminar: Communication Barriers	3
D. EDSE 763—Internship in Speech Diagnosis	3
E. EDSE 764—Internship in Communication Barriers	3

II. Audiology

- A. The student should demonstrate an understanding of the process of hearing, problems of hearing and the habilitation and rehabilitation of the hearing handicapped. Such understanding and skill can be gained through a study of the courses outlined for the Master of Arts Degree in Audiology.

110 / DEPARTMENTAL PROGRAM REQUIREMENTS

In addition to the areas of concentration in Speech Pathology and Audiology, the student should select supporting courses from such other areas as the following. The courses listed are meant to be suggestions rather than requirements.

III. Special Education

Course No.	Course Title	Hours Credit
EDSE 302	Counseling Parents of Exceptional Children	3
EDSE 603	Administration and Supervision of Special Education	3
EDSE 604	Appraisal of Exceptional Children	3
EDSE 702	Research Seminar in Special Education and Rehabilitation	3
EDSE 703	Problem Seminar in Special Education	3
EDSE 704	Trends in Special Education	3

IV. Personal, Emotional and Social Adjustment

PCG 507	Counseling Theories	3
PCG 558	Abnormal Psychology	3
PCG 563	Sociodrama	2
PCG 650	Psychology of the Healthy Personality	3
PCG 651	Theories of Personality	3
PCG 683	Survey of Projective Techniques	3
PCG 758	Advanced Psychopathology	3
PCG 762	Group Dynamics in Human Relations	3

V. Measurement, Evaluation and Research

PCG 673	Individual Tests of Intelligence	4
PCG 674	Individual Intelligence Testing: Stanford-Binet	3
RSM 504	Descriptive Statistics	4
RSM 505	Statistical Inference	5
RSM 623	Nonparametric Statistics	3
RSM 713	Planning and Methodology of Research	3

VI. Growth and Development

	Hours Credit
PCG 530—Child and Adolescent Psychology	3
PCG 624—Human Neuropsychology	4
PCG 632—Child Psychology	3
PCG 633—Psychology of Adolescence	3
PCG 635—Psychology of Individual Differences	3
PCG 641—Theories of Learning	5

VII. Physics

PHYS 462—Electronics I	4
------------------------------	---

Special Education: Visually Handicapped

All candidates seeking the Doctor of Education degree with the area of concentration in special education are required to take specified courses or their equivalents as certified by the major professor. These courses are organized to develop competencies and understandings in the following areas:

1. Curriculum development, methodology and learning difficulties of visually handicapped children.
2. Diagnosis, growth, development and associated anomalies of visually handicapped children.
3. Administration, supervision, and consultative services in special education.
4. Rehabilitation, counseling and research in special education.

A prior concentration of course work in vision is assumed; two years of professional experience with visually impaired children are required. A student deficient in course work in vision will be held responsible for completion of those courses which constitute the core of the graduate teacher certification program in vision.

Background Requirements:

EDSE	540—Survey of Education of the Visually Handicapped	3
EDSE	542—Principles of Education of the Partially Seeing	3
EDSE	543—Beginning Braille	3
EDSE	544—Elementary Methods for the Blind	3
EDSE	545—Secondary Methods for the Blind	3
EDSE	641—Structure and Function of the Eye	3
EDSE	643—Advanced Braille	3
EDSE	644—Practicum with Visually Handicapped	Max. 15
EDSE	645—Principles of Orientation and Mobility for the Blind	3
EDSE	646—The Multi-Impaired Blind Child	3
EDSE	741—Seminar in Visually Handicapped	3

Required Course Work:

EDSE	603—Administration and Supervision of Special Education	3
EDSE	604—Appraisal of Exceptional Children	4
EDSE	605—Practicum in Appraising of Exceptional Children	3
EDSE	700—Introduction to Doctoral Research	3
EDSE	702—Research Seminar in Special Education and Rehabilitation	3
EDSE	703—Problems Seminar in Special Education	3
EDSE	704—Trends in Special Education	3
EDSE	799—Doctoral Dissertation	18
PCG	541—Theories of Learning	5

Electives shall be completed from the following: The selection shall represent broad coverage of various disability areas selected through advisement upon the basis of past professional and academic exposure.

EDSE	310—Introduction to Mental Retardation	4
EDSE	311—Education of Trainable Mentally Retarded	4
EDSE	330—Care and Pathology of the Physically Handicapped	3
EDSE	331—Problems of Teaching the Physically Handicapped	3
EDSE	350—Pathology and Introduction to Education of the Hearing Impaired	3
EDSE	412—Curriculum Development and Methodology for Mentally Retarded: Elementary Level	4
EDSE	413—Curriculum Development and Methodology for Mentally Retarded: Secondary Level	4
EDSE	562—Speech Correction and Improvement in the Classroom	3
EDSE	580—Education of Children with Special Abilities	3
EDSE	590—Introduction to Vocational Rehabilitation Counseling	3
EDSE	692—Psychological Aspects of Disability	3
EDSE	693—Medical Aspects of Disabilities	3
EDF	765—Sociological Foundations of Education	3
EDF	785—Philosophical Foundations of Education	3
PCG	602—Foundations of Guidance	3
PCG	651—Theories of Personality	3
PCG	673—Individual Tests of Intelligence	3
PCG	674—Individual Intelligence Testing: Stanford-Binet	3

The total program of the doctorate shall consist of a minimum of 90 hours beyond the master's degree and shall include the following minor area of concentration: The required minor in Research and Measurement shall include a minimum of 27 hours from the following:

PCG	671—Aptitude and Achievement Analysis	5
PCG	771—Measurement: Scaling and Related Techniques	3
RSM	504—Descriptive Statistics	4
RSM	505—Statistical Inference	5
RSM	603—Analysis of Variance and Covariance	3
RSM	613—Multiple Regression	3
RSM	623—Nonparametric Statistics	3
RSM	633—Factor Analysis	3
RSM	673—Advanced Theory of Measurement	3
RSM	713—Planning and Methodology of Research	3

Speech Communication and Journalism

Master of Arts Degree

Speech Communication

The student should formulate his program in consultation with his adviser in accordance with the following Core Program and an elected cognate. In addition the student is expected to develop competency in research techniques (i.e., rhetorical criticism, empiricism, experimentation, etc.) and to take advantage of opportunities to gain experience in special activities related to the graduate environment. All candidates are expected to take ID 600 and prove English proficiency.

The following are the requirements for the Speech Communication major:

1. Student must complete Speech Communication Core totaling 18 quarter hours.

2. Student must complete one cognate area totaling at least 12 quarter hours.

3. Student shall have the option of two plans for completing the minimum M.A. requirements.

Plan A requires a minimum of 45 quarter hours, 39 of which must be in Speech Communication courses.

Plan B requires a minimum of 39 quarter hours in Speech Communication courses plus a 6-15 hour thesis.

4. Student must take a written and/or oral assessment examination during his first quarter on campus. The purpose of this examination is twofold: to determine any subject matter deficiencies, and to help the adviser in giving direction to graduate students. If the examination does reveal deficiencies, the adviser *can add* requirements to a student's program.

5. Student may count in his degree program up to 6 quarter hours of work in courses numbered in the 400's. Graduate credit will be given in the 400 level courses only with the permission of the department offering the course and of the student's major adviser. Graduate credit will not be given for courses numbered below the 400 level.

Speech Core: Courses required for all M.A. candidates. Courses may be substituted through adviser's consent according to individual program.

Course No.	Course Title	Hours Credit
ID	600—Introduction to Graduate Study	3
SP	601—Seminar in Experimental Research in Communication	3
SP	620—Communication Theory	3
SP	660—Classical Rhetoric	3
SP	664—Seminar in Rhetorical Criticism	3
SP	680—Teaching College Basic Speech	3
		18

Rhetoric and Public Address Cognate: (12 hours of the following are required).

Course No.	Course Title	Hours Credit
SP	452—American Public Address to 1865	3
SP	453—American Public Address 1865-1945	3
SP	454—American Public Address 1945 to Present	3
SP	580—Critical Thinking	3
SP	650—British Public Address	3
SP	654—Seminar in Public Address	3
SP	661—Medieval and Renaissance Rhetoric	3
SP	662—Modern Rhetoric	3

Communication Theory Cognate: (12 hours of the following are required).

Course No.	Course Title	Hours Credit
SP	420—General Semantics	4
SP	421—Seminar in Speech Communication	3

SP	460-Persuasion	3
SP	520-Psychology of Speech	3
SP	522-Interpersonal Communication Practice (a)	3
SP	522-Interpersonal Communication Practice (b)	3
SP	524-Seminar in Organizational Communication	3
IS	622-Individual Study	1-4
SP	624-Seminar in General Semantics	3
SP	666-Seminar in Persuasion	3

Speech Education Cognate: (12 hours of the following are required).

<i>Course No.</i>	<i>Course Title</i>	<i>Hours Credit</i>
SP	441-Advanced Television Production	3
SP	470-Choral Reading	3
SP	490-Workshop in Speech Communication	3
SP	532-Phonetics	3
SP	570-Advanced Oral Interpretation	4
SP	584-Speech Education Seminar	3
SP	586-Seminar in the Direction of Forensics	3

Specialist in Education Degree

Speech Communication

The program anticipates the development of a new type of position—**Communication Specialist**—prepared in many aspects of communication, able to effect marked changes in patterns of instruction and to place new emphasis upon team approaches to solving speech communication problems.

Students with the help of their advisers will select courses and plan experiences most appropriate to the degree objective and will be allowed some flexibility in developing the program. A minimum degree requirement, similar to other specialist programs, is spelled out in a separate communication available in the Department Chairman's Office.

Journalism

(See requirements in the Specialist in Education Section.)

Information Specialist for Public Schools, Colleges, Universities, Business, Industry, and Government

This program is designed to prepare personnel to do most types of public relations work in the public schools, colleges, and universities and many types of work in business, industry, and government. The program is also designed to prepare journalism teachers for the public schools and two-year colleges.

In addition to courses, qualified students will serve as interns in the university's Department of Public Affairs and Contracts. The students will work in publications, news (newspaper, radio, TV), speakers bureau, and the office of development (fund raising).

Students admitted to the program should have completed undergraduate or graduate courses in newswriting and other selected courses in journalism. It is preferable that candidates also have some practical experience in journalism either as teachers or with commercial media.

Students will select courses for a broad general background plus an area of specialization. Courses would be chosen from such areas as public relations, graphic arts, photography, advertising, public opinion and pressure groups, methods of teaching journalism, speech, semantics, philosophy of education, group dynamics, school administration, higher education, psychology.

Theatre Arts

Master of Arts Degree

The degree program should be planned with the major adviser to achieve a balanced emphasis in at least two of the following areas: History of the Theatre,

Acting and Directing, Technical Theatre, and Educational Theatre. It is highly advisable for the student to develop a supporting area in speech or dramatic literature. A minimum of 45 hours is required for the Master of Arts Degree program. At least 22 of these hours must be in courses numbered 500 or above (open only to graduate students). Twenty-four hours of the degree program must be in the major area. The accumulated undergraduate and graduate credits in the major field shall be no less than 64 hours.

Upon the recommendation of the student's adviser, a thesis may be submitted in partial fulfillment of the degree program. Proven English proficiency is imperative.

With the approval of the student's adviser 12-15 hours of 300 and 400 level courses may be taken for graduate credit. These courses do not apply to the 500 level requirements above.

Vocational Education

General Information. The Department of Vocational Education at the University of Northern Colorado is approved by the State Board's Occupational Education Division to prepare vocational teachers, counselors, and administrators.

Credential Renewal Requirements. All vocational teachers must complete nine quarter credit hours in each five-year period in courses approved by the State Board for Community Colleges and Occupational Education. The nine quarter credit hours may be acquired as follows: (1) approved university courses; (2) approved work experience; (3) attendance at approved seminars or workshops including the annual vocational workshop.

Graduates seeking a vocational administrative or supervisory position must have completed 27 quarter hours in vocational education, with 18 of these hours to be taken in State Board approved supervision and administration courses.

Individuals seeking State approval for a specific position in vocational education may obtain the State Form 104 from the department's office, McKee Hall, Room 318.

Services and Publications. The "Center for Career Development" is the supporting preservice and inservice arm of vocational education at the University of Northern Colorado. The "Center" acquires and disseminates information in the form of curriculum materials, research findings, and instructional media related to the present and emerging occupational fields. The "Center" is also involved in research projects and serves as a division of the Colorado Research Coordinating Unit and provides consultative and contractual services. Information on materials available through the "Center" can be secured by writing the Coordinator of the Center for Career Development, Department of Vocational Education, University of Northern Colorado.

Degree Planning and Career Guidance. Graduates needing assistance in planning an advanced degree program with an emphasis in vocational education may contact one of the Program Specialists in vocational education, the Field Service Coordinator, or the Chairman of the Department. The following courses have been approved by the State Board and provide areas of emphasis in vocational education.

<i>Course No.</i>	<i>Course Title</i>	<i>Hours</i>	<i>Credit</i>
VE	500—Organization and Administration of Health Occupations	3	
VE	506—Clinical Learning Experiences in Allied Health Programs	3	
VE	507—Accreditation and Regulatory Practices in Health Occupations	3	
VE	508—Workshops in Vocational Education	Max. 9	
VE	509—Seminars in Vocational Education	Max. 8	
VE	520—Methods in Vocational Education	3	
VE	521—Equipment—Selection and Maintenance	2	
VE	524—Task Analysis and Program Development	5	
VE	550—Seminar on Evaluation—Constructs and Concerns	3	
VE	551—Student and Program Evaluation Seminar	3	

DEPARTMENTAL PROGRAM REQUIREMENTS / 115

VE	610—Advanced Seminar on Foundations of Vocational Education	3
VE	612—Cooperative Vocational Education—Graduate Seminars	Max. 6
VE	613—Secondary School Vocational Education Programs	3
VE	614—Post-Secondary and Adult Vocational Education Programs	3
VE	615—Seminar in Current Vocational Education Literature	2
VE	616—Seminar on Trends, Problems, Issues in Vocational and Technical Education	2
VE	622—Individual Studies in Vocational Education	Max. 6
VE	626—Multimedia Curriculum Construction for Vocational and Technical Programs	3 or 6
VE	627—Development of Instructional Materials Seminar (and Related Field Practicum)	3
VE	628—Development of Learning Skill Centers for Occupational Training	3
VE	630—Exemplary Programs in Vocational-Technical Education for Learners with Special Needs	3
VE	640—Career Development (For Vocational Counselor Credential)	3
VE	642—Curriculum Restructuring for Career Development—K through 14	5
VE	644—Career Guidance, Counseling, and Placement (Secondary and Adult) (for Vocational Counselor Credential)	3
VE	648—Computer Assisted Programs for Counselors and Vocational Educators	3
VE	649—Manpower Development and Utilization	3
VE	660—Seminar in Conference Planning	2
VE	661—Conference Leading—Laboratory Experience	2
VE	662—Seminar in Fiscal Planning and Budgetary Systems	3
VE	663—Seminar in Facilities and Equipment Planning	3
VE	664—Administration and Supervision of Cooperative Vocational Education Programs	3
VE	665—Administration and Supervision Seminar on Secondary Vocational Programs	3
VE	666—Administration and Supervision Seminar on Community College and Vocational-Technical Post-Secondary School Programs	3
VE	670—Seminar in Vocational Research—Part I	2
VE	671—Seminar in Vocational Research—Part II	2
VE	672—Seminar in Vocational Research—Part III	2
VE	673—Writing Vocational Education Proposals/Projects for State and Federal Funds	Max. 8
VE	675—Directed Laboratory Experiences in Vocational Research	12
VE	685—Laboratory Experiences in Vocational and Technical Education	Max. 12
VE	691—Practicums in Vocational and Technical Education	3 or 6
VE	692—Directed Occupational Observation Experiences	Max. 8
VE	696—Directed Occupational Internship	Max. 12
VE	755—Supervised Practicum in College Teaching	Max. 9
VE	756—Internship in Supervising College Teaching	3
VE	790—Doctoral Supervised Field Experience in Vocational-Technical Education Administration and Supervision	15

Zoology

Degrees in zoology are administered by the Department of Biological Sciences.

Master of Arts Degree

Minimal Requirements:

BIO	691—Seminar in Biological Sciences	3
BIO	694—Foundations of Biological Research	3
	(Substitute for ID 600)	
	(Should be taken as soon as possible after beginning of graduate program)	
	Course of study as determined by the Biological Science Advisory Committee in consultation with the student	
	(This includes up to 8 hours ID 699)	39

45

Thesis required.

Proficiency in chemistry through general biochemistry is strongly recommended for this degree.

Master of Arts Degree (Teaching)*Minimal Requirements:*

BIO	691—Seminar in Biological Sciences	3
BIO	694—Foundations of Biological Research	3
	(Substitute for ID 600)	
	(Should be taken as soon as possible after beginning of graduate program)	
BIO	697—Graduate Research	2
	(Should be taken as soon as possible after beginning of graduate program)	
	Course of instruction as determined by the Biological Science Advisory Committee in consultation with the student. (This includes up to 8 hours ID 699)	37
		<hr/> 45

Proficiency in chemistry through general biochemistry is required for this degree.

GRADUATE COURSE DESCRIPTIONS

AEROSPACE STUDIES**Air Force ROTC for Graduate Students:**

The University of Northern Colorado offers through the Air Force ROTC curriculum a two year program for graduate students. For details the student should contact the professor of Aerospace Studies.

Graduate credit may be obtained for the following Aerospace Studies courses listed in the Undergraduate catalog: AS 300, AS 301, and AS 302, under the following stipulations:

"No graduate student may count in his degree program more than fifteen (15) hours of work in courses numbered in the 300's and/or 400's (courses open to juniors and seniors). The work will be applicable to the graduate student's degree program only if written permission to use the course(s) has been obtained from the chairman of the department offering the course and from the student's major adviser prior to his enrollment in the course."

ANTHROPOLOGY

ANT 537. SEMINAR IN CULTURAL ANTHROPOLOGY. *Three to nine hours credit.*

Prerequisites, two courses in cultural anthropology or permission of the instructor. Investigation of specific ethnographic cultural areas, or particular aspects of culture-economic systems, social organization, culture change, political behavior, urban affairs, cognition, etc. Specific geographical areas and/or topics will be selected in terms of current student interest.

ANT 538. SEMINAR IN NORTH AMERICAN INDIANS. *Three to nine hours credit.*

Prerequisites, two area courses in cultural anthropology or permission of the instructor. The study of specific North American Indian culture areas. Emphasis will vary each offering depending upon student interest. Special attention given to culture history and modern cultural patterning.

ANT 540. ARCHAEOLOGY—FIELD PROBLEMS. *Two to eight hours credit.*
Prerequisite, ANT 241 (Archaeology—Field Methods) or permission of the instructor. Advanced training in archaeological field techniques, involving survey and excavation methods. Student will be expected to assist in supervision of elementary course, or undertake specific individual archaeological investigations. Courses involves off-campus archeological research.

ANT 541. INDEPENDENT RESEARCH—ARCHAEOLOGY. *Three to nine hours credit.*

Prerequisites, two courses in archaeology and permission of the instructor. Independent library or field research in archaeology according to student's particular interest, in consultation with instructor.

ANT 555. PROBLEMS IN SOUTHWEST ARCHAEOLOGY. *Three hours credit.*

Prerequisite, ANT 340 (Archaeology of the Southwest) or permission of the instructor. Examination of special problems in the prehistory and early historic development of cultures in the Greater Southwest. Subject emphasis will vary from year to year, according to student interest, but in all cases will involve analysis of published materials and a critical survey of relevant archaeological data.

ANT 556. PROBLEMS IN PLAINS ARCHAEOLOGY. *Three hours credit.*

Prerequisite, ANT 240 (Archaeology of North America) or permission of the instructor. Examination of special problems in the prehistory and early historic development of cultures in The Great Plains. Subject emphasis will vary from year to year, according to student interest, but in all cases will involve analysis of published materials and a critical survey of relevant archaeological data.

ANT 557. PROBLEMS IN EASTERN U.S. ARCHAEOLOGY. *Three hours credit.*

Prerequisite, ANT 240 (Archaeology of North America) or permission of the instructor. Examination of special problems in the prehistory and early historic development of Cultures in the Eastern Woodland area of the United States. Subject emphasis will vary from year to year, according to student interest, but in all cases will involve analysis of published materials and a critical survey of relevant archaeological data.

ANT 558. SEMINAR IN NEW WORLD ARCHAEOLOGY. *Three to nine hours credit.*

Prerequisites, two courses in archaeology or permission of the instructor. Detailed investigation into the archaeology of a particular geographical area in the New World, or chronological period, or specific artifactual materials. Subject to be selected in terms of current student interest.

ANT 559. SEMINAR IN OLD WORLD ARCHAEOLOGY. *Three to nine hours credit.*

Prerequisites, two courses in archaeology or permission of the instructor. Detailed investigation into the archaeology of a particular geographical area in the Old World, or chronological period, or specific artifactual materials. Subject to be selected in terms of current student interest.

ANT 567. SEMINAR IN ANTHROPOLOGICAL LINGUISTICS. *Three to nine hours credit.*

Prerequisite, one course in linguistics, or permission of the instructor. An examination of a particular aspect of anthropological linguistics—syntax, phonetics, semantics, field methods, or specific linguistic stocks of the New or Old World.

ANT 577. SEMINAR IN PHYSICAL ANTHROPOLOGY. *Three to nine hours credit.*

Prerequisites, two courses in physical anthropology, or permission of the instructor. A detailed study of a particular area of interest within the field of physical anthropology—osteology, biometrics, anthropometry, genetics, racial problems, etc. Subject to be selected in terms of current student interest.

ANT 600. INTRODUCTION TO THE CONCEPT OF CULTURE. *Three hours credit.*

Seminar on the development and uses of the concept of culture as an important working tool for understanding and interpreting the varieties of human culture. This course is designed for students on an advanced level who need a concept of Cultural Anthropology. May not be taken by students who have had ANT 100.

ANT 620. SPANISH-AMERICAN CULTURE. *Three hours credit.*

Prerequisite, ANT 600 or equivalent. The Spanish culture as it was brought to the Americas and a study of the resulting amalgamation that produced the Spanish-American and Mexican-American cultures of today.

ANT 622. INDIVIDUAL STUDIES. *Four hours credit maximum.*

Qualified graduate students outline and spend a minimum of 25 clock hours per quarter hour on a problem. Two copies of a well-written paper must be filed with the instructor before credit is given.

ASTRONOMY

AST 599. SPECIAL TOPICS IN ASTRONOMY. *One to four hours credit.*

Prerequisite: Consent of instructor. An opportunity for students to explore areas of astronomy which are beyond the scope of existing departmental offerings. Specific topics to be treated will be determined by the interests of the students and the instructor.

BIOLOGY

BIO 501. ENVIRONMENTAL CONSERVATION. *Four hours credit. (Three hours lecture, two hours field work.)*

Principles of forest, wildlife, water, soil, air, mineral, wilderness, and urban management to ensure a quality environment for man. A two-day field trip into the Rocky Mountain National Park area will be required. Offered summers. Credit not allowed if the student has taken BIO 401.

BIO 506. RADIATION BIOLOGY. *Five hours credit. (Three hours lecture, four hours laboratory.)*

Prerequisite, BIO 101, 102, 103, CHEM 130 or 332, recommended CHEM 281, PHYS 150 or 262. A course dealing with the use of radiation-measuring devices, radioisotope-handling techniques, and the physiological effects of beta, gamma, and neutron irradiation on plants and animals.

BIO 530. POPULATION BIOLOGY. *Two hours credit. (One hour lecture, three hours laboratory.)*

Prerequisites, BIO 101, 102, 103. This course is designed to consider the many-faceted aspects of population especially as they relate to man. Major topics to be included are: population genetics, population density, and population control. Laboratory activities will include a study of the effects of competition of populations and a survey of common inherited traits which may be influenced by environmental modifications. NSF Institute.

BIO 531. HUMAN GENETICS AND EUGENICS. *Three hours credit.*

Prerequisite, BIO 231. A survey of the principles of human heredity together with a consideration of their significance in the problems of the world today. The importance of human genetics in marriage counseling and in medical or legal practice is included.

BIO 533. CYTOLOGY. *Five hours credit. (Four hours lecture, three hours laboratory.)*

Prerequisites, BIO 101, 102, 103. Advanced study of cells with special reference

to morphology, cytochemistry and physiology. This study will include the cytoplasmic organelles and the nucleus.

BIO 536. EVOLUTION AND SPECIATION. *Three hours credit.*

Prerequisite, BIO 336 or 231. The current concepts, evidences of species will be explored. The impact of recent genetic discoveries and the relationship of radiation to mutogenic changes with the probable origin of some of man's useful domestic plants and animals will be examined. Concepts of species, subspecies, populations and environmental communities will be discussed.

BIO 541. ECOSYSTEM MODIFICATION. *Three hours credit.*

Prerequisites, BIO 101, 102, 103. Lectures and laboratory sessions will be concerned with Man's ecosystems and how he has and is modifying them. Topics to be included are: identification and description of various ecosystems, pathways and modifications of energy through ecosystems and the modifications of ecosystems resulting from different forms of pollution such as the use of herbicides and pesticides. NSF Institute.

BIO 542. ANALYSIS AND ALTERATION OF ECOSYSTEMS. *Three hours credit.*

A study of the structure, function, and analysis of various ecosystems and also the influence of man's activities on community structure and the flow of materials and energy through such ecosystems. The effects of pollution and the use of pesticides will be stressed.

BIO 545. ENVIRONMENTAL POLLUTION. *Four hours credit.*

Prerequisites, BIO 101, 102, 103. This course is designed to focus attention on the pollution threat to our environment. Techniques and aquatic tests will be used which will enable the participant to handle laboratory studies related to microbiology and water quality standards. Air pollution experiments and physiological and ecological tolerance to noise, herbicides, pesticides would be included in this course. NSF Institute.

BIO 561. PATHOGENIC MICROBIOLOGY. *Five hours credit. (Three hours lecture, four hours laboratory.)*

Prerequisites, BIO 101, 102, PHYS 150, CHEM 281, and BIO 261 or 361, or consent of the instructor and the Chairman of the Biological Science Department. A study of the pathogenic bacteria, viruses, rickettsiae, fungi and protozoa, primarily in man and higher vertebrates, including the infectious processes, host resistance, mechanisms of transmission, virulence, chemotherapy and methods of detection and isolation. This course is suggested for upper division undergraduates and teachers and graduate students interested in the medical and public health aspects of microbiology.

BIO 562. IMMUNOLOGY AND SEROLOGY. *Five hours credit. (Three hours lecture, four hours laboratory.)*

Prerequisites, BIO 261 or 361, or equivalent; CHEM 281 or equivalent; or consent of instructor. A study of the immunological phenomenon including serological procedures, organism virulence, pathogenicity, natural and acquired immunity, immunization and immunochemical techniques including electrophoresis, agar gel diffusion, immuno-electrophoresis and immunofluorescent microscopy. This course is designed for graduate students and teachers in the biological sciences and for professional medical and allied science technicians interested in updating or reviewing their knowledge in this area.

BIO 563. VIROLOGY. *Five hours credit. (Three hours lecture, four hours laboratory.)*

Prerequisites, BIO 261 or 361 or equivalent; CHEM 281, PHYS 150 or equivalent, or consent of instructor. A study of the virales including the ecology, structure, classification, genetics, pathogenicity and methods of detection and isolation of animal, plant and bacterial viruses. This course is suggested for graduate students and teachers of biology as well as professional people in the medical sciences interested in the viruses.

BIO 591. SOCIAL IMPLICATIONS OF BIOLOGY SEMINAR. *One hour credit.*

Prerequisites, BIO 101, 102, 103. A study of the current research and literature dealing with the social implications of biology. The seminar will include special lectures presented by staff and guest speakers. The discussion periods will be devoted to problems of teaching relevant and social biology. NSF Institute.

BIO 631. PROBLEMS IN HUMAN GENETICS. *Three hours credit.*

Prerequisite, BIO 231 or equivalent. A consideration of current problems in human genetics, including such topics as human abnormalities due to chromosome aberrations, the influence of environmental factors such as drugs and radiation on future generations, social problems arising from application of genetic discoveries and eugenic effects of present genetic trends. Class discussions and reports on current findings in the field of human genetics.

BIO 642. HUMAN ECOLOGY. *Three hours credit.*

The thrust of this course is to view ecology and populations in the perspective of developments of science and technology and their impact on man.

BIO 646. AQUATIC ECOLOGY AND WATER POLLUTION. *Four hours credit. (Three hours lecture, three hours laboratory.)*

Prerequisites, BIO 346, CHEM 333 or equivalent. This course deals with various aspects of physical, chemical or biological limnology in pollution. Comparative ecological studies of chemistry, physics, and biology of lentic and lotic environments with special reference to population dynamics and pollution of the surrounding habitats. Water quality investigations and research techniques will be the major portion of the laboratory and field program.

BIO 681. EFFECTIVE TEACHING (FORUM). *Three hours credit. (Maximum nine hours credit.)*

This seminar course is designed to present and discuss the problems faced by the college level biology teacher in effectively teaching biology. Discussions include course organization, effective sequence of topics, and the use of teaching aids.

BIO 691. SEMINAR IN BIOLOGICAL SCIENCES. *One hour credit.*

Prerequisites, BIO 101, 102, 103. A study of current research and literature in a field of biological interest. One quarter each will be devoted to botany, zoology, and biological science. The field will be selected by the biology department.

BIO 694. FOUNDATIONS OF BIOLOGICAL RESEARCH. *Three hours credit.*

Prerequisites, BIO 101, 102, 103. An introduction to the philosophy and methods of research in the biological sciences. Required of all first-year graduate students in biological science.

BIO 695. CONCEPTUAL SCHEMES OF SCIS. *Four hours credit.*

Prerequisite, Cooperative College-School Science Institute Member. A course covering the content necessary for effective teaching of the following SCIS units: Material Objects, Organisms, Life Cycles and Interaction and Systems. In addition, the major concepts presented in the upper SCIS units will also be discussed.

BIO 696. SCIS IMPLEMENTATION SEMINAR. *One hour credit.*

Prerequisite, Cooperative College-School Science Institute Member. Co-requisites, BIO 695, SCED 694. This course is designed to help elementary teachers with problems encountered with implementing the SCIS program in their school. Problems with methodology and content will be discussed.

BIO 697. GRADUATE RESEARCH. *Maximum ten hours credit.*

Prerequisite, consent of instructor. Qualified graduate students outline and spend a minimum of 25 clock hours per quarter hour of credit on a research problem. A well-written report must be submitted to the instructor before credit can be given.

BIO 755. DOCTORAL SUPERVISED TEACHING. *Two hours credit. (Maximum nine hours credit.)*

Supervised experiences in college level biological science teaching. Emphasis will be placed on course outline development, testing, evaluation and development of effective teaching techniques.

BOTANY**BOT 510. TAXONOMY OF GRASSES.** *Three hours credit. (Two hours lecture, three hours laboratory.)*

Prerequisites, BIO 101, 102, BOT 310. Identification of native and introduced grasses with emphasis on the historical development of important economic species. Study of grass morphology, the major grass tribes and their evolution.

BOT 521. PLANT ANATOMY. *Five hours credit. (Three hours lecture, four hours laboratory.)*

Prerequisites, BIO 101, 102. A study of the anatomy of plants with emphasis on the seed plants. Careful consideration is given to the various tissues as to their origin, development, and structure as related to their function. Some consideration is given to the evolution of tissues in plants.

BOT 543. PHYSIOLOGICAL PLANT ECOLOGY. *Five hours credit. (Three hours lecture, six hours laboratory.)*

Prerequisite, BOT 340. A study of the interrelations between the individual plant and the environment including soil, climatic and biotic factors. The responses of plants to such factors are studied primarily under the controlled conditions of the greenhouse and the growth chamber.

BOT 545. PLANT GEOGRAPHY. *Three hours credit.*

Prerequisite, BOT 310 or 340. A study of the floras of the past and present, and of the factors that have affected their distribution.

BOT 556. PLANT GROWTH AND DEVELOPMENT. *Four hours credit. (Three hours lecture, three hours laboratory.)*

Prerequisites, BIO 101, 102. A study of the growth cycles of plants in the laboratory and field as the cycle may be affected by external and internal conditions. The effect of auxins is a principal feature of the laboratory work as these compounds condition general growth, curvatures and movements. Practical problems connected with fruit setting, defoliation, herbicides, and other physiological phenomena are considered.

BOT 561. PLANT PATHOLOGY. *Five hours credit. (Three hours lecture, six hours laboratory.)*

Prerequisite, BOT 323, 350, recommended BOT 424. A study of the recognition of plant diseases, the physical and biochemical processes involved in establishment of disease and their prevention and control.

BOT 654. MINERAL NUTRITION OF PLANTS. *Three hours credit.*

A study of the supply, uptake, distribution, metabolism and recycling of essential mineral nutrients by plants. Some nonessential elements found in plants will also be considered.

BOT 655. PLANT WATER RELATIONS. *Three hours credit.*

A study of the properties, uptake, distribution, metabolism and loss of water by plants.

BOT 656. PLANT METABOLISM. *Three hours credit.*

Prerequisites, BIO 101, 102, CHEM 281. An intensive study of the metabolic activities of the plant from those of the organelles of the individual cell to those of the integrated organs of the entire higher plant.

BUSINESS

All business courses ending in the ten numbers as designated in the categories below belong to that business area of study:

- 1- 9 General courses
- 10-19 Secretarial courses
- 20-29 Accounting courses
- 30-39 Business Law courses
- 40-49 Insurance courses
- 50-59 Management courses
- 60-69 Marketing courses
- 70-79 Finance courses
- 80-89 Data Processing & Computer courses
- 90-99 Quantitative (mathematical) courses

BUS 505. CONSUMER BEHAVIOR. *Three hours credit.*

A course designed to look into the theories of consumer behavior and what the consumer can do to improve his position in the American economy. Consumption in general, national income, and government protection of the consumer are general topics discussed.

BUS 508. WORKSHOP. *Maximum of nine hours credit.*

Special workshops or short courses in various content area of business will be offered during summers and other quarters as the need and opportunity arises. These workshops will stress specialized areas of various departments in business. Not more than three workshops may be applied to any one degree.

BUS 520. MANAGEMENT ACCOUNTING. *Five hours credit.*

The use of accounting for control and planning will be emphasized after a review unit on accounting principles. Case problems will be used.

BUS 521. SEMINAR IN FINANCIAL ACCOUNTING THEORY I. *Three hours credit.*

Prerequisite, consent of instructor. A study of the development and present status of financial accounting theory with emphasis on current literature in this area.

BUS 522. SEMINAR IN FINANCIAL ACCOUNTING THEORY II. *Three hours credit.*

Prerequisite, consent of instructor. A study of the development and present status of financial accounting theory. Emphasizes significant contributions made to financial accounting theory by individuals in the accounting profession.

BUS 523. CONTEMPORARY READINGS IN ACCOUNTING. *Two hours credit.*

A study of current publications in accounting. Emphasis will be given to articles on tax, theory, auditing, systems, managerial accounting, and management services.

BUS 527. SEMINAR IN AUDITING PROBLEMS. *Four hours credit.*

This course will include a detailed study of current auditing procedures and the application of these procedures in actual auditing problems and cases. It will include a study of audit report writing.

BUS 540. RISK AND INSURANCE MANAGEMENT. *Three hours credit.*
Prerequisite, consent of instructor. This course is designed to help the student

understand the relationship between risk and insurance with an emphasis on proper selection of insurance types as they relate to coverage needed.

BUS 570. BUSINESS FINANCIAL POLICY. *Three hours credit.*

Prerequisite, BUS 470. A continuation of BUS 470. The problems of financing business enterprises are studied, primarily by the case method.

BUS 600. INTRODUCTION TO GRADUATE STUDY. *Three hours credit.*

An orientation to graduate study in general and the nature and methods of research in particular. Required of all first-year graduate students.

BUS 601. FOUNDATIONS OF BUSINESS. *Three hours credit.*

A study of the major ideas sustaining business enterprise in the Western World. Discussion of the various factors which influence the modern business world: philosophical, political, economic, and social. Primarily a readings and discussion course for graduate students to provide a background for other business content courses.

BUS 603. SOCIAL ISSUES IN BUSINESS. *Three hours credit.*

After a brief discussion of the historical development of social responsibility and the modern corporation, the major emphasis in the course will deal with an analysis of the social problems of poverty, civil rights, ecology, and consumerism and how they affect business today. Cases will be used to illustrate the various social issues and what business can do.

BUS 630. APPLIED BUSINESS LAW. *Five hours credit.*

A review in depth with the use of text and cases. Topics will be selected from broad areas of business law. The course is extended to additional areas of business law as time permits.

BUS 650. ADMINISTRATIVE THEORY. *Three hours credit.*

Prerequisite, consent of instructor. This course involves research and seminars on the principles and advanced theory of business functions and the relationship of the common elements of those functions to the responsibilities of top management for planning, organizing, and controlling the operations of a business.

BUS 653. SEMINAR IN PERSONNEL MANAGEMENT. *Two hours credit.*

Prerequisite, consent of instructor. Examination of managerial policies and practices. Students are introduced to a range of personnel management topics on the current scene. Treatment is given to organization and environmental change including interpersonal relations and managerial effectiveness. Project work may be undertaken.

BUS 656. SEMINAR IN BUSINESS POLICY. *Three hours credit.*

Integrates the various functional areas of business in terms of policy level decision making. Also emphasized is the development of corporate strategy from the standpoint of central management.

BUS 660. SEMINAR IN MARKETING. *Three hours credit.*

Prerequisite, BUS 260. A critique of the current theories in marketing from an historical perspective and an analysis of their applicability to marketing strategy. Contributions made by "outside" disciplines will be emphasized.

BUS 661. MARKETING AND PUBLIC POLICY. *Three hours credit.*

Prerequisites, BUS 362 and 462 or consent of instructor. A seminar course dealing with the effect of government on marketing policy. Governmental controls will be discussed and analyzed along with various marketing policies. Class composition will help to determine the specific topics discussed.

BUS 665. ADVANCED MARKETING MANAGEMENT. *Three hours credit.*

Prerequisites, BUS 362, 460, 462 or consent of instructor. A seminar course for graduate students designed to study the techniques available to solve marketing management problems.

BUS 670. SEMINAR IN FINANCIAL MANAGEMENT. *Three hours credit.*
Prerequisites, BUS 221 and consent of instructor. (Not open to finance majors.)
Reading and research pertaining to problems and theories of financial management.

BUS 680. INFORMATION PROCESSING. *Four hours credit. (Laboratory arranged.)*

Prerequisite, consent of instructor. This course is designed to familiarize students with the basic concepts of information retrieval and processing. The student adapts his knowledge of manual methods to mechanical and electronic information processing. The course is concerned with terminology, concepts, hardware, documentation, computer languages, and applications.

BUS 681. PROGRAMMING TECHNIQUES AND APPLICATIONS. *Four hours credit. (Laboratory arranged.)*

Prerequisite, Consent of instructor. Students will learn FORTRAN programming techniques with emphasis on problems and applications related to research in the student's major field of interest. Special emphasis will be given to programs for research projects.

BUS 682. SEMINAR IN MANAGEMENT INFORMATION SYSTEMS. *Four hours credit. (Laboratory arranged.)*

Prerequisite, Consent of instructor. Students are concerned about concepts and methods in design establishment and maintenance of the data base for a management information system. Treatment of topics on analysis and design of information systems and application to problem situations.

BUS 695. SEMINAR IN BUSINESS DECISION THEORY. *Three hours credit.*

Prerequisite, BUS 295 or consent of instructor. A course to orient the manager in the principles, theory, and scope of analysis of business problems utilizing mathematical concepts. The course includes the selection of variables, formulation of the problem in mathematical and statistical terms, solution, and test of the results.

BUSINESS TEACHER EDUCATION

BUED 566. DEVELOPMENT OF DISTRIBUTIVE EDUCATION INSTRUCTIONAL MATERIALS. *Two hours credit.*

This course is designed to offer a brief analysis of instructional materials, their courses, and how to use them. Students will develop materials for use in their own instructional programs.

BUED 580. WORKSHOP IN BUSINESS TEACHING. *Maximum of nine hours credit.*

Through cooperative effort, problems in business education will be solved. Not more than three workshops may be applied to any one degree.

BUED 581. WORKSHOP IN DISTRIBUTIVE EDUCATION. *Maximum of nine hours credit.*

An intensive course designed primarily for distributive education coordinators. Not more than three workshops may be applied to any one degree.

BUED 653. IMPROVEMENT OF INSTRUCTION IN BOOKKEEPING AND ACCOUNTING. *Two hours credit.*

The instruction in this course is planned primarily for those who have had experience teaching bookkeeping or accounting. Objectives, content, good teaching practices, and evaluation as well as the specific teaching problems of the members of the class are emphasized.

BUED 655. IMPROVEMENT OF INSTRUCTION IN DISTRIBUTIVE EDUCATION. *Three hours credit.*

Important procedures and effective techniques used in teaching high school co-

operative classes in the distributive occupations and in evening classes for employed sales and supervisory personnel.

BUED 656. IMPROVEMENT OF INSTRUCTION IN SHORTHAND. *Two hours credit.*

Primarily for experienced teachers who have had an undergraduate methods course in shorthand. Emphasis is upon research in learning and on applications of this research to the teaching of shorthand.

BUED 657. IMPROVEMENT OF INSTRUCTION IN TYPEWRITING AND OFFICE PRACTICE. *Three hours credit.*

Primarily for experienced teachers who have had an undergraduate methods course in typewriting. Emphasis is upon research in learning and application of this research to the teaching of typewriting and office practice.

BUED 658. IMPROVEMENT OF INSTRUCTION IN BASIC BUSINESS. *Two hours credit.*

This course emphasizes the teaching of general business with some emphasis on the teaching of business law, consumer education, and advanced general business. Individual and group work on objectives, content, teaching practices, and evaluation.

BUED 670. ADMINISTRATION AND SUPERVISION OF BUSINESS PROGRAMS. *Three hours credit.*

This course deals with the problems of administrators and supervisors who are interested in business education as well as heads of departments of business education.

BUED 671. TESTS AND MEASUREMENTS IN BUSINESS COURSES. *Three hours credit.*

A study of the uses of tests in business education, procedures of test construction and analysis, with emphasis on classroom tests and methods of evaluation of students. A study is also made of prognostic tests, vocational aptitude tests, and published achievement tests.

BUED 672. CURRICULUM CONSTRUCTION FOR BUSINESS TEACHERS. *Five hours credit.*

High school curricula and courses of study in business subjects will be planned and developed in this course. The history, present status, philosophy, and trends of curriculum construction will be discussed.

BUED 673. CURRENT PROBLEMS IN BUSINESS TEACHING. *Three hours credit.*

Current problems in business education are studied and discussed by individuals, committees, and the class.

BUED 674. COOPERATIVE PROGRAMS IN BUSINESS. *Two hours credit.*

The aim of the course is to define cooperative programs in business education, to describe the typical types, to explore basic philosophies, and to clarify the nature and scope of cooperative programs by portraying its development in schools.

BUED 701. SEMINAR IN ANALYSIS OF RESEARCH IN BUSINESS TEACHING. *Five hours credit.*

A critical analysis of research in business education with particular attention given to research techniques as well as to the finding of research studies. Emphasis is placed upon evaluation of research and on determining further needed research.

BUED 702. ISSUES AND TRENDS IN BUSINESS TEACHING. *Three hours credit.*

A seminar course designed to have individual and group analysis and discussion of the various issues in business education. Implications for business education of trends in the field will be explored.

BUED 703. POST HIGH SCHOOL BUSINESS TEACHING. *Three hours credit.*

A course planned for those teaching or planning to teach business or business education in post high school institutions—public and private business schools, junior colleges, and colleges educating business teachers. Curriculum and instructional practices and problems are emphasized.

BUED 704. READINGS IN BUSINESS TEACHING. *Three hours credit.*
Prerequisite, BUED 701. Research findings and their implications for curriculum development and the teaching-learning process in the various areas of business education will form the basis for discussion in seminars.

CHEMISTRY

CHEM 501. SPECIAL TOPICS IN INORGANIC CHEMISTRY. *Three hours credit. (Maximum six hours.)*

Prerequisite, CHEM 301. This course provides a critical review of current topics in inorganic chemistry.

CHEM 502. ADVANCED INORGANIC CHEMISTRY. *Three hours credit.*
Prerequisite, CHEM 401. Presented in this course is the descriptive chemistry of typical inorganic elements and compounds. Relationships within the periodic classification will be stressed and correlation of the chemistry of the various substances will be related to theoretical concepts treated in CHEM 401.

CHEM 503. ORGANOMETALLIC CHEMISTRY. *Three hours credit.*
Prerequisite, CHEM 301. An introduction to organometallic systems will be presented. Included in this course will be a comprehensive study of the preparation, properties and practical utility of both main group and transition metal organometallic compounds.

CHEM 511. SPECIAL TOPICS IN ANALYTICAL CHEMISTRY. *Two hours credit. (Maximum six hours credit.)*

Prerequisites, CHEM 311, 451. This course will cover special topics dealing with analytical chemistry in the areas of quantitative organic chemistry, electrochemistry and optical methods as research tools in inorganic chemistry.

CHEM 530. ORGANIC CHEMISTRY. *Five hours credit. (Four hours lecture, three hours laboratory.)*

Prerequisite, CHEM 130. A course in organic chemistry for students who have had an introductory course in organic chemistry. Aliphatic and aromatic organic compounds are treated with regard to theory and application. Offered summers only.

CHEM 531. STEREOCHEMISTRY OF ORGANIC COMPOUNDS. *Three hours credit.*

Prerequisite, CHEM 334. An advanced study of the structure of organic compounds and the influence of structure on organic reactions.

CHEM 532. THEORETICAL ORGANIC CHEMISTRY. *Three hours credit.*
Prerequisites, CHEM 334, 452. An advanced study of organic compounds in which resonance, transition-state theory, molecular-orbital theory, and aromaticity are discussed.

CHEM 533. REACTIONS AND REACTION MECHANISMS IN ORGANIC CHEMISTRY. *Three hours credit.*

Prerequisites, CHEM 334, 452. An advanced study of the reactions of organic compounds, and the inductive, resonance, and steric effects which influence their reaction mechanisms.

CHEM 534. SPECIAL TOPICS IN ORGANIC CHEMISTRY. *Two hours credit. (Maximum six hours credit.)*

Prerequisite, CHEM 334 or consent of instructor. This course is an advanced study of current advances in some selected area of chemistry, for example, carbohydrates, heterocyclic compounds, steroids, natural products, etc. The course pri-

marily covers nomenclature, synthesis, reactions, and recent research in specialized fields.

CHEM 535. SYNTHETIC ORGANIC CHEMISTRY. *Three hours credit.*

Prerequisite, CHEM 334. An advanced study of synthetic organic chemistry covering recent developments, methods, and the reaction mechanisms.

CHEM 551. PRINCIPLES OF PHYSICAL CHEMISTRY I. *Six hours credit.*

(Five hours lecture, three hours laboratory.)

Prerequisites, one year general chemistry, one year general physics, an introduction to differential and integral calculus, and an introduction to organic chemistry. This course will cover those topics normally taught in an introduction to physical chemistry but with less emphasis on rigorous mathematical proofs and more emphasis on those topics now taught as part of high school chemistry courses. Correlation of our present knowledge of the structure of matter. This course is designed primarily for candidates for teaching degrees.

CHEM 552. PRINCIPLES OF PHYSICAL CHEMISTRY II. *Six hours*

credit. (Five hours lecture, three hours laboratory.)

Prerequisite, CHEM 551. A continuation of CHEM 551.

CHEM 553. CHEMICAL THERMODYNAMICS I. *Two hours credit.*

Prerequisite, One year of physical chemistry. An advanced study of the fundamental laws of thermodynamics of closed systems and the calculation of the thermodynamic quantities for these systems. Mathematical treatment is stressed.

CHEM 554. CHEMICAL THERMODYNAMICS II. *Two hours credit.*

Prerequisite, CHEM 553. A continuation of CHEM 553 with emphasis on the laws of thermodynamics of open systems and the calculation of the thermodynamic quantities for these systems. Mathematical treatment is stressed.

CHEM 555. CHEMICAL KINETICS. *Three hours credit.*

Prerequisite, CHEM 453. A consideration of the factors involved in the rate of chemical reactions and the mechanism by which they occur. These concepts are examined from experimental and theoretical points of view.

CHEM 556. CHEMICAL SPECTROSCOPY. *Three hours credit.*

Prerequisites, CHEM 414, 453. Designed to amplify the spectroscopy portion of CHEM 414, this course deals primarily with the application and theory of this important tool in chemical analysis. Emission and absorption spectroscopy are considered but the primary emphasis is on infrared methods. A short section on nuclear magnetic resonance is included.

CHEM 591. STRUCTURE OF MATTER. *Five hours credit.* (NSF Summer Institute.)

This course is designed to review and expand the modern concepts of the structure of matter emphasizing the use of the Periodic Table in correlating and predicting properties of matter. The electron orbitals of atoms will be discussed in connection with electrovalent, covalent, and metallic bond formation. The effect of bond types on the physical and chemical properties of matter will be discussed.

CHEM 592. FUNDAMENTALS OF ORGANIC CHEMISTRY. *Four hours*

credit. (Four hours lecture, three hours laboratory.) (NSF Summer Institute.)

This course is introductory to the chemistry of carbon. The nomenclature of carbon compounds, the common functional groupings, the chemical characteristics of these groupings together with modern theoretical aspects will be studied.

CHEM 593. INTRODUCTORY QUANTITATIVE ANALYSIS. *Four hours*

credit. (Four hours lecture, three hours laboratory.) (NSF Summer Institute.)

This basic course will present the fundamentals of analysis emphasizing the important role of analysis in chemistry. Modern instruments will be used whenever possible.

CHEM 599. SEMINAR IN CHEMISTRY. *One hour credit. (Maximum six hours credit.)*

This course gives the graduate student an opportunity to report on some topic of interest treated in recent literature, as well as profit by the reports of others.

CHEM 654. STATISTICAL THERMODYNAMICS. *Three hours credit.*

Prerequisite, CHEM 553. A course which deals with mathematical probability, fundamentals of statistical mechanics, Boltzmann statistics, partition functions, equilibrium constants in terms of partition functions, heat capacities of gases and solids, and Bose-Einstein and Fermi-Dirac statistics.

CHEM 657. SPECIAL TOPICS IN PHYSICAL CHEMISTRY. *Two hours credit. (Maximum six hours.)*

Prerequisite, CHEM 453 or 552. Advanced topics in physical chemistry are discussed including states of matter and changes in state, kinetic-molecular theory, electro-chemistry, molecular structure, heterogeneous catalysis, macromolecules, and nuclear, radiation and photochemistry.

CHEM 658. QUANTUM CHEMISTRY I. *Two hours credit.*

Prerequisite, One year of physical chemistry. An examination of the principles of quantum mechanics and their application to simple physical and atomic systems. Emphasis is placed on the development of wave mechanics and its treatment of the hydrogen-like atom.

CHEM 659. QUANTUM CHEMISTRY II. *Two hours credit.*

Prerequisite, CHEM 658. A continuation of CHEM 658 with an emphasis on the application of quantum mechanics to various atomic and molecular systems.

COLLEGE STUDENT PERSONNEL WORK

CSPW 622. INDIVIDUAL STUDIES. *Maximum of four hours credit per quarter.*

An individual learning experience is provided to CSPW students in an area of student personnel or higher education not regularly covered in academic courses.

CSPW 650. THE COLLEGE AND THE STUDENT. *Three hours credit.*

Seminar in the nature of needs of the young adult as a college student with particular reference to the college environment as it relates to the student.

CSPW 651. PHILOSOPHY AND HISTORY OF COLLEGE STUDENT PERSONNEL WORK. *Three hours credit.*

Seminar in the philosophy, principles and functions of student personnel work in higher education.

CSPW 652. STUDENT HOUSING. *Three hours credit.*

Seminar in the organization, practices and problems of student housing services in colleges and universities.

CSPW 653. COLLEGE COUNSELING AND HEALTH SERVICES. *Three hours credit.*

Seminar in the organization, practices and problems of student counseling service, including health counseling, in higher education.

CSPW 654. ADMISSIONS AND RECORDS. *Three hours credit.*

The organization, practices and problems of the services of admissions and records in colleges and universities.

CSPW 655. STUDENT GOVERNMENT, ACTIVITIES AND SPONSORSHIP. *Three hours credit.*

The organization, practices and problems of student government and activities in college.

CSPW 656. PLACEMENT SERVICE. *Three hours credit.*

The organization, practices, and problems of job placement services in higher education.

CSPW 657. FINANCIAL AIDS. *Three hours credit.*

The philosophy, organization and practices of administering financial aids in higher education.

CSPW 658. ORGANIZATION AND ADMINISTRATION OF COLLEGE STUDENT PERSONNEL WORK. *Three hours credit.*

Seminar in the organizational and administrative practices of systems for providing student personnel services in higher education.

CSPW 659. INTERNSHIP IN COLLEGE STUDENT PERSONNEL WORK-HOUSING. *Two hours credit.***CSPW 660. INTERNSHIP IN COLLEGE STUDENT PERSONNEL WORK-HEALTH.** *Two hours credit.***CSPW 661. INTERNSHIP IN COLLEGE STUDENT PERSONNEL WORK-COLLEGE TEACHING.** *Two hours credit.***CSPW 662. INTERNSHIP IN COLLEGE STUDENT PERSONNEL WORK-STUDENT ACTIVITIES.** *Two hours credit.***CSPW 663. INTERNSHIP IN COLLEGE STUDENT PERSONNEL WORK-COUNSELING.** *Two hours credit.***CSPW 664. INTERNSHIP IN COLLEGE STUDENT PERSONNEL WORK-PLACEMENT SERVICES.** *Two hours credit.***CSPW 665. INTERNSHIP IN COLLEGE STUDENT PERSONNEL WORK-DEAN'S OFFICE.** *Two hours credit.***CSPW 666. INTERNSHIP IN COLLEGE STUDENT PERSONNEL WORK-FINANCIAL AIDS.** *Two hours credit.***CSPW 667. INTERNSHIP IN COLLEGE STUDENT PERSONNEL WORK-ADMISSIONS AND RECORDS.** *Two hours credit.***CSPW 668. INTERNSHIP IN COLLEGE STUDENT PERSONNEL WORK-COMMUNITY COLLEGE PERSONNEL WORK.** *Two hours credit.***CSPW 669. INTERNSHIP IN COLLEGE STUDENT PERSONNEL WORK-INTERNATIONAL EDUCATION.** *Two hours credit.*

Each internship listed above consists of practical experience and training for a minimum of six hours per week for one quarter. The internship is designed to provide an over-view of the basic service which can be related to a general understanding of college student personnel work. A weekly seminar is held for all interns and must be taken concurrently with each internship.

CSPW 700. INTRODUCTION TO DOCTORAL RESEARCH. *Three hours credit.*

A seminar for the introduction to research and advanced study in College Student Personnel Work.

CSPW 701. SPECIALIST'S DEGREE PRACTICUM. *Eight hours credit.*

Project or supervised professional activity, required of all candidates for the Specialist in Education degree.

CSPW 752. CURRENT ISSUES IN COLLEGE STUDENT PERSONNEL WORK. *Three hours credit.*

Seminar in the current problems and issues affecting student personnel work in higher education. Prerequisite: Permission of the instructor.

CSPW 753. RESEARCH AND EVALUATION IN COLLEGE STUDENT PERSONNEL WORK. *Three hours credit.*

Seminar in the problems of evaluating student personnel services in higher education, a critical examination of the research that has been reported, and consideration of needed research. Prerequisites: RSM 504 and 505 or premission of the instructor.

CSPW 758. SEMINAR IN COLLEGE STUDENT PERSONNEL WORK. *No credit.*

Registration in the seminar must be concurrent with registration in each internship experience taken to satisfy degree requirements. The interns will meet once per week in seminar with the faculty of the major.

CSPW 799. DOCTORAL DISSERTATION. *Eighteen hours credit.*

Required of all doctoral candidates.

EARTH SCIENCE

ESCI 500. EARTH SCIENCE RESEARCH. *Three hours credit.*

Prerequisite, consent of instructor. An introduction to the nature and methods of research in the earth sciences. The student will select a topic for intensive investigation. Required of all first-year graduate students.

ESCI 504. MINERALS AND ROCKS. *Three hours credit.*

A practical course dealing with the origin, classification, recognition, and uses of minerals and rocks. A field trip and some outside reading will be required. Not open to earth science majors or minors.

ESCI 591. BASIC CONCEPTS OF EARTH SCIENCE I. *Three hours credit.*

Prerequisite, Official acceptance as a participant in NSF-sponsored in-service institute. Basic concepts in meteorology and oceanography and methods of teaching them in the secondary school will be emphasized in this in-service institute course.

ESCI 592. BASIC CONCEPTS IN EARTH SCIENCE II. *Three hours credit.*

Prerequisite, Official acceptance as a participant in NSF-sponsored in-service institute. Basic concepts in geology and methods of teaching them in the secondary school will be emphasized in this in-service institute course.

ESCI 593. BASIC CONCEPTS OF EARTH SCIENCE III. *Three hours credit.*

Prerequisite, Official acceptance as a participant in NSF-sponsored in-service institute. Basic concepts in astronomy and methods of teaching them in the secondary school will be emphasized in this in-service institute course.

ESCI 599. SPECIAL TOPICS IN EARTH SCIENCE. *Three hours credit.*

Prerequisite, consent of instructor. An opportunity for students to explore earth science topics of special interest beyond the scope of existing departmental offerings. Specific topics to be treated will be determined by the interests of the students and the instructor.

ECONOMICS

ECON 502. ADVANCED ECONOMICS. *Five hours credit.*

Prerequisite, ECON 100. The purpose of this course is to provide a summary exposition of contemporary economic theory for those students intending to undertake other graduate courses in economics. Emphasis upon value and distribution theory. It is assumed that students will have had an introductory course in economics.

ECON 610. ECONOMETRICS. *Five hours credit.*

Prerequisite, ECON 100. This is a course characterized by two essential qualities: (1) economic relationships are expressed in mathematical form, (2) numerical estimates are made making use of techniques based upon the theory of probability; the course shall be concerned with econometric models requiring specification, estimation, verification, and prediction.

ECON 650. SEMINAR IN MODERN MICROECONOMIC THEORY. *Three hours credit.*

Prerequisites, ECON 200, 470, or the consent of the instructor. This course will cover some aspects of modern economic theory including old and new welfare economics, linear programming, game theory, theories of imperfect competition.

ECON 652. SEMINAR IN INTERNATIONAL ECONOMICS. *Three hours credit.*

Prerequisite, ECON 100. This course will be primarily concerned with current issues facing nations engaged in international trade. Specific interest will be directed toward problems facing the United States in the world economy.

ECON 660. SEMINAR IN ECONOMIC HISTORY. *Three hours credit.*

Prerequisites, ECON 100, 462, 200, 390, or the consent of the instructor. This course is primarily concerned with the study of economic history by the application of modern analytical tools of economic research. Methodology of historical analysis will be coupled with limited and guided research. Regular meetings will be held for purposes of criticism and guidance.

ECON 665. SEMINAR IN LABOR ECONOMICS. *Three hours credit.*

Prerequisites, ECON 100, 305, 200, or consent of the instructor. The purpose of this course is to pursue guided research in the areas of labor economics and labor-management problem areas. Selected readings are considered along with critical discussions and research papers in the growing body of data relative to this area of economics.

ECON 672. SEMINAR IN GOVERNMENT AND BUSINESS. *Three hours credit.*

Prerequisites, ECON 100, 200, 377, or the consent of the instructor. This course is aimed at aiding the student in research in the area of government regulation of business in the modern economy of the United States. Regular meetings will be held to evaluate progress in research work and to discuss points of interest in the related readings.

ECON 675. SEMINAR IN NATIONAL INCOME ANALYSIS. *Three hours credit.*

Prerequisites, ECON 200, 350, or consent of the instructor. This course will be an examination of modern macroeconomic theories. Some of the topics will be general equilibrium analysis, modern quantity theory, and post-Keynesian theory.

ECON 677. SEMINAR IN BUSINESS CYCLE THEORIES AND GROWTH THEORIES. *Three hours credit.*

Prerequisites, ECON 200, 455, or consent of the instructor. This course should follow ECON 675 in a student's program. Topics will include multiplier-accelerator models, Harrod-Domar models, Golden Age growth models, and some classical models.

ECON 679. SEMINAR IN DEVELOPMENTAL ECONOMICS. *Three hours credit.*

Prerequisites, ECON 100, 390, or consent of the instructor. The purpose of this course is to pursue limited research in the areas of developmental economics and regional economics. Both evolving national economies and regional economic data of advanced economies are considered. Regular meetings are held to outline and present papers for discussion and criticism.

ECON 680. SEMINAR IN MONEY AND BANKING. *Three hours credit.*

Prerequisites, ECON 202, 200, 350, or consent of the instructor. An examina-

tion of the possibilities of monetary regulation of an economy. Emphasis will be on modern controversy.

ECON 685. SEMINAR IN PUBLIC FINANCE. *Three hours credit.*

Prerequisites, ECON 200, 241, or consent of the instructor. The course will examine the role of government in the determination of the allocation of resources, distribution of income, and the level of employment in a modern economy.

ECON 690. SEMINAR IN AGRICULTURAL ECONOMICS. *Three hours credit.*

Prerequisites, ECON 100, 200, 370, or consent of the instructor. This course is concerned with directed research and use of empirical data in the area of the economics of agriculture and land economics. Regular meetings will be held for purposes of criticism and guidance in readings and research.

EDUCATIONAL ADMINISTRATION

EDAD 510. SPECIAL RESOURCES FOR FINANCING EDUCATION. *Three hours credit.*

This course acquaints the student with various special funding programs available to schools and colleges: e.g., the numerous federal aid and foundation grant programs. The course also helps the student develop proficiency in proposal writing. Qualified seniors may enroll with instructor's permission.

EDAD 520. SCHOOL LAW I. *Three hours credit.*

This course gives primary emphasis to the law as it affects classroom teachers and building principals, with special attention to liability for personal injury, discipline, and teacher rights and responsibilities.

EDAD 525. INTRODUCTION TO ORGANIZATION AND ADMINISTRATION OF PUBLIC SCHOOLS. *Three hours credit.*

Introduces the student to administrative problems and provides an overview of our educational system at federal, state and local levels. The purpose of the course is to relate the key issues at each level to the roles of educational personnel.

EDAD 600. INTRODUCTION TO RESEARCH IN EDUCATIONAL ADMINISTRATION. *Three hours credit.*

Content includes an orientation to graduate study and writing the nature and methods of research, and procedures for analyzing and evaluating recent research in the field of educational administration. This course required of all first-year graduate students majoring in educational administration. It should be taken during the first quarter of graduate study.

EDAD 608. WORKSHOP IN ADMINISTRATION. *One to three hours credit.*

This course is concerned with the instructional problems of the participants, insofar as these problems pertain to one or more of the many facets of educational administration. Each workshop will have a sub-title and no student may repeat a given sub-title for credit.

EDAD 610. SCHOOL FINANCE. *Three hours credit.*

This course deals with the financial implications of the educational program. Budgeting, management of funds, fiscal policies, and the business management function in the school are included in this course.

EDAD 611. SCHOOL BUDGETING. *Four hours credit.*

Prerequisite, EDAD 610. Emphasis will be placed on budgetary knowledge necessary for the school business manager. Although attention will be given to theoretical concepts in budgeting, this course will focus on the mechanical procedures of planning, preparing, presenting, and evaluating the budget.

EDAD 612. SCHOOL PURCHASING AND WAREHOUSING. *Four hours credit.*

Prerequisite, EDAD 610. This course covers the techniques of specification writing, purchasing, receiving, storing, distributing, and accounting of supplies and equipment used in the operation and maintenance of schools.

EDAD 613. AUXILIARY MANAGEMENT SERVICES. *Two hours credit.*
Prerequisite, EDAD 610. This course covers the problems and procedures of school transportation, school lunch programs, and other auxiliary services.**EDAD 620. SCHOOL LAW II.** *Three hours credit.*

This course relates statutory provisions and court decisions to legal problems affecting the organization and administration of public and private school systems. Special attention is given to legal aspects of contract disputes, personnel problems, and school district management.

EDAD 621. THE LAW AND HIGHER EDUCATION. *Three hours credit.*
This course relates common law principles to the legal problems which affect higher education. Specific attention is given to the rights and responsibilities of students, faculty, and other employees; to contractual problems; and to problems of governance.**EDAD 622. INDIVIDUAL STUDIES IN EDUCATIONAL ADMINISTRATION.** *Maximum of four hours credit.*

Qualified graduate students outline and spend a minimum of 25 clock hours per quarter hour on a problem. A copy of a well-written paper must be filed before credit is given with the instructor.

EDAD 626. PHILOSOPHY AND TECHNIQUES OF PUBLIC RELATIONS. *Three hours credit.*

This course is designed primarily for central office personnel to help them: (a) develop a philosophy of public relations, (b) learn how to establish a functional program involving citizens and educators, and (c) become acquainted with skills and techniques essential to school and community understanding.

EDAD 630. PROBLEMS IN EDUCATIONAL FACILITY PLANNING. *Three hours credit.*

This is a survey course, introducing the student to population projection and community survey techniques, school site selection criteria, the fiscal aspects of facility planning, the development of education specifications, and the roles of various persons in the facility planning process.

EDAD 631. METHODOLOGY OF COMPREHENSIVE FACILITY PLANNING. *Three hours credit.*

This course is offered for the specialist in facility planning. It focuses on the methodology of demographic studies and population projections, the problems of projecting financial resources and planning debt amortization schedules, and techniques for evaluating existing school facilities.

EDAD 632. EDUCATIONAL PROGRAMMING AND FACILITY PLANNING. *Three hours credit.*

This course is offered for the specialist in facility planning. It concentrates on the development and writing of educational specifications for educational facilities, emphasizing the implications of trends in curriculum and teaching methodology.

EDAD 633. EDUCATIONAL FACILITY DESIGN AND CONSTRUCTION. *Three hours credit.*

This course is offered for the specialist in facility planning. It focuses on architectural considerations in facility design, a comparative analysis of various structural systems and materials, and the functional design of educational furniture and technological equipment.

EDAD 640. SEMINAR ON THE PRINCIPALSHIP. *Two hours credit.*

This course focuses on typical problems of the building principal, on methods of identifying and weighing alternative solutions, and in the implications of decision

theory for the building principal. Open only to M.A. students in educational administration.

EDAD 641. SEMINAR IN DECISION THEORY. *Three hours credit.*
This seminar surveys research on decision-making in small groups, factors influencing group behavior, and the role of the group leaders. The nature of rational or "scientific" decision-making is emphasized.

EDAD 642. SEMINAR IN COMMUNICATION THEORY. *Three hours credit.*

This seminar deals with theories of communication and recent research in the field, focusing on the implications of communication theory for problems in public understanding and internal organization relationships. Experience in public opinion sampling and analysis is an integral part of this course.

EDAD 643. SEMINAR IN MANAGEMENT SYSTEMS AND ANALYSIS. *Three hours credit.*

This course focuses on systems-theory and its implications for the analysis and direction of education organizations and their functioning. Special attention is given to the application of automated data processing techniques to the solution of management problems in education, as well as the relationships between organizational structure, decision responsibility, and information flow.

EDAD 650. SCHOOL PERSONNEL ADMINISTRATION. *Three hours credit.*
This course presents an overview of the historical evolution of personnel administration in non-education agencies and focuses attention on school personnel tasks: staff selection, in-service training, performance evaluation, and professional negotiations.

EDAD 660. MANAGEMENT RESEARCH AND STATISTICAL ANALYSIS. *Four hours credit.*

This course introduces the student to basic concepts of descriptive and inferential statistics and their application to management problems in education. Topics include measures of central tendency, measures of variability, normal curve, correlation, and regression.

EDAD 661. MANAGEMENT RESEARCH AND COMPUTER UTILIZATION I. *Four hours credit.*

Prerequisite, EDAD 660. This course deals with the concepts of design and inferential statistics and their application to management problems in education. Students learn how to prepare management data for computer processing and analysis. Topics include t-Tests, single and multiple-classification analysis of variance, analysis of covariance, and non-parametric statistics.

EDAD 662. MANAGEMENT RESEARCH AND COMPUTER UTILIZATION II. *Four hours credit.*

Prerequisites, EDAD 660, EDAD 661. This course emphasizes program preparation and/or selection for computer analysis of management data. A variety of problems are analyzed via the computer.

EDAD 670. ELEMENTARY SCHOOL ORGANIZATION, ADMINISTRATION, AND SUPERVISION. *Four hours credit.*

Designed to meet the needs of those who desire acquaintance with major responsibilities of leadership in the elementary school. The areas of elementary school organization and administrative relationships, supervision skills and techniques, administering pupil personnel, administering special services, and the management of school building supplies and equipment.

EDAD 671. SECONDARY SCHOOL ORGANIZATION, ADMINISTRATION, AND SUPERVISION. *Four hours credit.*

Designed to assist secondary school administrators and supervisors to acquire information about acceptable solutions to some of the major problems in the secondary school. Consideration is given to the duties and responsibilities of the principal, the nature and role of supervision in the educational program and other pertinent topics.

EDAD 680. INTERNSHIP IN EDUCATIONAL ADMINISTRATION. *Maximum of six hours credit.*

Selected graduate students work on part- or full-time administrative assignments in school districts or collegiate institutions, under the joint supervision of the college and the administrative staff of the agency involved. Registration by departmental invitation only.

EDAD 699. THESIS IN ADMINISTRATION. *Maximum of fifteen hours credit.*
Optional for M.A. students in educational administration on recommendation of the major adviser.**EDAD 701. SPECIALIST DEGREE PRACTICUM IN ADMINISTRATION.** *Eight hours credit.*

The practicum involves a study of a problem which has significance to the student's employing district or institution, culminating in a written report of the investigation. Required of all candidates for the Specialist in Education degree in educational administration.

EDAD 740. EXPERIMENTAL PROGRAM IN SCHOOL ADMINISTRATION. *Maximum of twenty-four hours credit.*

Areas of concern will include communications, curriculum, finance, organization and staffing, role perception and role expectation, problem solving, and decision making. Seminars will include extended readings, class sessions, and field investigations. A series of six consecutive seminars designated as I, II, III, IV, V, and VI, will be offered for four hours credit each.

EDAD 744. SEMINAR IN ADMINISTRATIVE THEORY AND RESEARCH. *Three hours credit.*

This seminar is required of all specialist and doctoral majors in educational administration during their first quarter and is available to other advanced graduate students. Content includes a systematic comparison of various theories of organizational and administrative behavior, a survey of recent research in the field of administration, and an overview of research methodology as related to problems in administration.

EDAD 745. SEMINAR IN EXECUTIVE LEADERSHIP. *Three hours credit.*
This course emphasizes research on effective styles of leadership behavior, especially in educational institutions, with particular attention given to leadership for curriculum evaluation and instructional improvement.**EDAD 746. CASES IN EDUCATIONAL ADMINISTRATION (SEMINAR).** *Three hours credit.*

This course provides the advanced student in educational administration an opportunity for organizing and synthesizing his knowledge of the behavioral sciences and philosophy and applying it to the solution of practical problems in educational administration.

EDAD 780. ANALYSIS OF ORGANIZATIONAL MANAGEMENT SYSTEMS: PRACTICUM. *Four hours credit.*

Students assist selected educational agencies in solving problems of administrative structure and staffing, allocation of decision responsibility, internal information flow, policy development, and organizational function. The practicum gives students experience in the application of organization theory to problems of administrative structure. Permission of instructor.

EDAD 781. DEVELOPMENT OF INFORMATION SYSTEMS: PRACTICUM. *Four hours credit.*

Students assist selected educational agencies and their communities in the solution of communication problems through the application of communication theory. Emphasis is on analysis of communication networks, information flow, message content, and public opinion structure. Permission of instructor.

EDAD 782. DEVELOPMENT OF FACILITY PLANS: PRACTICUM. *Four hours credit.*

Students assist selected educational agencies in projecting long-term facility needs,

developing plans to meet those needs, and preparing educational specifications for particular construction projects. The practicum gives students practical experience in the solution of facility planning problems. Permission of instructor.

EDAD 783. LONG-RANGE PROGRAM PLANNING AND BUDGETING: PRACTICUM. *Four hours credit.*

Students assist selected educational agencies in the development of long-range plans for program improvement, program budgeting, and cost analysis of existing budgets. Emphasis is on the application of cost-benefit analysis techniques and development of program-planning-budgeting systems. Permission of instructor.

EDAD 784. OPERATIONS ANALYSIS FOR EDUCATIONAL AGENCIES: PRACTICUM. *Four hours credit.*

Students assist selected educational agencies in measuring total operational effectiveness of the organization, analyzing the contribution of each organizational component to total organizational effectiveness and efficiency, and applying the techniques of operations research to the management of the educational enterprise. Permission of instructor.

EDAD 799. DOCTORAL DISSERTATION IN ADMINISTRATION. *Eighteen hours credit.*

Required of all doctoral candidates in educational administration.

NOTE: It is recommended that seminars be taken in sequence.

EDUCATIONAL CURRICULUM AND INSTRUCTION

EDCI 508. WORKSHOP. *One to three hours credit.*

This course is concerned with the instructional problems of the participants; however, the problems attacked would vary from time to time according to the experts conducting the workshop. Each workshop will have a sub-title and no sub-title may be repeated for credit.

EDCI 551. PROBLEMS IN TEACHING MINORITY GROUPS. *Three hours credit.*

An in-depth study of minority groups—with special emphasis on the psychological, educational and social needs of the Mexican-American school child of the Southwest. An attempt will also be made to acquaint educators with teaching methods and techniques that seem to work with minority children.

EDCI 560. PROFESSIONAL RESPONSIBILITIES OF TEACHERS. (PTE) *Maximum of three hours credit.*

Designed to provide a basic understanding of the roles and responsibilities within the education profession. Includes consideration of professional organizations, teacher rights and responsibilities, personnel policies and working conditions. *Enrollment limited to beginning teachers.*

EDCI 561. SECONDARY INSTRUCTION. (PTE) *Three hours credit.*

Designed to provide a comprehensive understanding of basic instructional practices and trends in the secondary school. Includes determining instructional goals, selecting and organizing appropriate learning experiences, evaluation, marking and reporting, classroom management, and extra class activities. *Enrollment limited to beginning teachers.*

EDCI 601. PRACTICUM. *Maximum of fifteen hours credit.*

Open only by invitation to resident graduate students. Supervised professional activity in the student's area of interest. Two copies of a well-written paper must be filed with the instructor before credit is given.

EDCI 622. INDIVIDUAL STUDIES. *Maximum of four hours credit.*

Qualified undergraduate students outline and spend a minimum of 25 clock hours

per quarter hour on a problem. Two copies of a well-written paper must be filed before credit is given, one with the instructor and one with the chairman of the department.

EDCI 651. TEACHING MINORITY GROUPS. *Three hours credit.*

An in-depth study of minority groups with special emphasis on the economically deprived Spanish-American and Afro-Americans in the Southwest.

EDCI 652. HISTORY, PHILOSOPHY AND ORGANIZATION OF THE NONGRADED SCHOOL. *Three hours credit.*

A course designed to provide teachers and administrators with directed study of the curriculum associated with the Nongraded Movement. Emphasis is placed on organizational structure from kindergarten through the senior high school. Theory and practice of systems are considered in terms of the child and his several abilities.

EDCI 660. PROFESSIONAL ROLES AND RESPONSIBILITIES. *Maximum of three hours credit.*

Designed to provide a comprehensive understanding of the role and responsibilities within the education profession. Provides an opportunity to examine specific issues in personnel policies and working conditions.

EDCI 661. SECONDARY INSTRUCTION. *Three hours credit.*

Designed to provide a comprehensive understanding of basic instructional practices and trends in the secondary school. Includes determining instructional goals, selecting and organizing appropriate learning experiences, evaluation, marking and reporting, and extra class activities.

EDCI 662. THE DEVELOPMENT OF INSTRUCTIONAL PRACTICE. *Three hours credit.*

Appraises the development of instructional practices through the subsequent stages of American educational growth to the present. Emphasizes the analysis of outcomes of this growth in terms of particular instructional programs: formal discipline, unfoldment, Pestalozzianism, Herbartianism, connectionism, Progressivism, reflective teaching.

EDCI 663. CURRICULUM IN THE JUNIOR HIGH SCHOOL. *Three hours credit.*

A survey of traditional and recent curriculum organization in the junior high school with reference to the needs of the young adolescent and the special requirements of the school.

EDCI 664. SEMINAR IN JUNIOR HIGH SCHOOL INSTRUCTION. *Maximum six hours credit.*

A series of seminar experiences designed to provide (1) an overview of the problems of organizing, administering, and supervising the junior high school program, and (2) an opportunity for intensive concentration in a specific area of the curriculum.

EDCI 666. FOUNDATIONS FOR CURRICULUM DEVELOPMENT. *Three hours credit.*

Includes the theory and practice of curriculum development as determined by social and cultural change, learning theory, and the nature of knowledge. The process of curriculum planning and the design of the curriculum are considered.

EDCI 668. SEMINAR IN CURRICULUM AND INSTRUCTION. *Maximum of nine hours credit.*

Includes a series of seminar experiences dealing with the following areas: (1) current educational trends and issues; (2) the improvement of instructional programs; (3) individual depth study of research and experimentation in instruction.

EDCI 767. MODERN CURRICULAR PROGRAMS. *Three hours credit.*

Prerequisite EDCI 666. Describes the emerging curricula in the major areas of the school program K-12. Appraises these programs against criteria drawn from the foundation areas.

EDCI 768. ADVANCED SEMINAR IN CURRICULUM AND INSTRUCTION. *Maximum nine hours credit.*

Prerequisite EDCI 666, EDCI 767. Includes a series of seminar experiences dealing with: (1) foundational areas of curriculum; (2) theories of instruction; and (3) individual depth study of research and experimentation in curriculum and instruction.

EDCI 769. CURRICULUM ANALYSIS AND DESIGN PROCESSES. *Three hours credit.*

Prerequisite EDCI 666. Appraises select emerging curricular programs against criteria drawn from various processes. Emphasis is placed on variations of systematic analysis. Current factors which also receive attention are national assessment, behavioral objectives, performance criteria, accountability, cognitive, affective and psychomotor domains, as well as other topics which influence the emergence of various curricular patterns.

EDCI 701. SPECIALIST DEGREE PRACTICUM. *Eight hours credit.*

Project or supervised professional activity, required of all candidates for the Specialist in Education degree.

EDCI 799. DOCTORAL DISSERTATION. *Eighteen hours credit.*

Required of all doctoral candidates. An individual in depth research and report on a topic selected by the writer and approved by the doctoral committee assigned to work with the candidates.

EDUCATIONAL FIELD EXPERIENCES

EDFE 501. EDUCATIONAL FIELD EXPERIENCES STUDIES. *One to four hours credit. May be repeated.*

Consent of instructor. Educational field studies in the school setting which may be individual or team oriented and are to be focused on a practical and relevant assessment of needs in regard to the use of aides, student teachers and/or interns. S-U final mark.

EDFE 508. WORKSHOP IN EDUCATIONAL FIELD EXPERIENCES. *Three to eight hours credit.*

Prerequisite, by invitation. An opportunity to study problems related to educational field experiences at all levels. The area to be covered in any one workshop will be determined by the workshop sub-title. No sub-title may be repeated for credit. S-U final mark.

EDFE 553. ADVANCED STUDENT TEACHING: ELEMENTARY. *Three to eighteen hours credit. PTE*

Opportunity for a student who has had student teaching, intern or provisional field experience to meet certification needs or to receive additional field experience upon EDFE staff recommendation. Could be a partial term classroom experience during any of the four college quarters. Focuses on up-dating and refining classroom methods in the elementary classroom. S-U final mark.

EDFE 563. ADVANCED STUDENT TEACHING: SECONDARY. *Three to eighteen hours credit. PTE.*

Designed to meet certification or recommended additional field experience needs of secondary students after regular student teaching, interning or actual provisional teaching experiences. Could be a partial term classroom experience during any of the four college quarters. S-U final mark.

EDFE 601. STUDENT FIELD EXPERIENCES PRACTICUM. *One to four hours credit. May be repeated.*

Supervised, professional activities in Student Field Experiences culminating in a comprehensive written report. Open only by invitation. S-U final mark.

EDFE 610. PRACTICUM IN ETHNIC STUDIES. *Fifteen hours credit.*

Individually arranged field experiences under supervision of university and

school or community staff. A variety of sites are available year-round such as: special campus programs, child care centers, inner-city schools, youth camps, penal institutions, Indian reservations, community colleges, etc. S-U final mark.

EDFE 622. INDEPENDENT STUDY IN STUDENT FIELD EXPERIENCES. *One to four hours credit.* May be repeated.

Independent study to continue in-depth research or application of topics presented in EDFE graduate courses 640, 740, 750 or to pilot projects in conjunction with Professional Field Experience doctorate. S-U final mark.

EDFE 640. SUPERVISION OF THE STUDENT FIELD EXPERIENCE. *Three hours credit.*

Seminar to aid in the development of individual supervisory guidelines. Focus is on classroom supervisory techniques for use with student teachers and interns. Of special interest to cooperating teachers and school administrators. S-U final mark.

EDFE 740. PUBLIC AND NON-PUBLIC SCHOOL ROLES IN EDUCATIONAL FIELD EXPERIENCES. *Three hours credit.*

A seminar devoted to the description and analysis of roles: teachers, administrators, support personnel, pupils and patrons. S-U final mark.

EDFE 750. UNIVERSITY ROLES IN EDUCATIONAL FIELD EXPERIENCES. *Three hours credit.*

A seminar which focuses on the functions of the teacher education institution and its role as it extends its curriculum into the field experience phases of the student's program. S-U final mark.

EDUCATIONAL MEDIA

EDEM 500. STILL PHOTOGRAPHY FOR TEACHERS. *Two hours credit.*

Teachers are introduced to the basic techniques of photography. Primary emphasis will be on taking and using of photographs and slides to aid communication. A minimum background in darkroom procedures is provided. S-U final mark.

EDEM 508. WORKSHOP. *One to three hours credit.*

This course is concerned with the instructional problems of the participants; however, the problems attacked would vary from time to time according to the experts conducting the workshop. The nature of the workshop might cover such areas as Administration, Individualized Instruction, Outdoor Education, Production, etc. Each workshop will have a sub-title and no sub-title may be repeated for credit.

EDEM 516. UTILIZATION OF EDUCATIONAL RESOURCES. *Three hours credit.*

Considers the selection and utilization of appropriate instructional materials for each of the following situations: (1) individual (self) instruction, (2) small group instruction, and, (3) large group instruction.

EDEM 520. DESIGN AND CONSTRUCTION OF AUDIO-VISUAL MATERIALS. *Three hours credit.*

Provides experience in the production of teaching materials using equipment and facilities available to most teachers. Includes preparation and mounting of pictures and the production of graphic materials, slides and recordings.

EDEM 530. CATALOGING AND CLASSIFICATION I. *Three hours credit.*

Study of the purpose, theory and principles of classification and cataloging, including the Dewey Decimal, Library of Congress, and other classification schedules. Also includes fundamental concepts of administering a cataloging unit.

EDEM 531. CATALOGING AND CLASSIFICATION II. *Three hours credit.*

Continues work on the fundamentals of classification by both the L.C. and Dewey systems. Considers construction of a suitable catalog for the school resource

center. It will include all necessary processes from the time the materials are acquired until they are ready for circulation.

EDEM 534. REFERENCE MATERIALS FOR EDUCATIONAL RESOURCE CENTER. *Three hours credit.*

A discussion of suitable reference materials for elementary and secondary school resource centers. Covers selection of principles and use of reference materials.

EDEM 536. EVALUATION AND SELECTION OF EDUCATIONAL MATERIALS. *Three hours credit.*

Discussion of book selection principles and book selection aids for school libraries. Covers reading levels and interests of children and young people. Course discusses suitable trade book materials for both elementary and high school libraries.

EDEM 575. ORGANIZATION AND ADMINISTRATION OF EDUCATIONAL RESOURCE CENTER. *Five hours credit.*

The course treats a variety of aspects, problems and projects associated with the administration of print and non-print media with emphasis in the building and district levels.

EDEM 601. PRACTICUM. *Maximum of four hours credit.*

Open only by invitation to resident graduate students. Supervised professional activity in the student's major field, approximately two hours per day. One copy of a well-written paper must be filed with the instructor before credit is given.

EDEM 610. INSTRUCTIONAL TECHNOLOGY: PHILOSOPHY, THEORY AND PRACTICE. *Three hours credit.*

Graduate students are provided the opportunity to develop a philosophical and theoretical foundation of instructional technology and to translate it into practice.

EDEM 620. PRODUCTION OF PHOTOGRAPHIC TEACHING MATERIALS. *Three hours credit.*

Provides experience in the more complex production techniques. The course will emphasize three major aspects of production: (1) scripting a production, (2) filmstrip and slide set techniques, and (3) motion picture production techniques. Actual production experience will be gained through laboratory experiences and required individual projects.

EDEM 622. INDIVIDUAL STUDIES. *Maximum of four hours credit.*

Qualified graduate students outline and spend a minimum of 25 clock hours per quarter hour on a problem. One copy of a well-written paper must be filed with the instructor before credit is given. Does not satisfy the 300 requirement unless the student is in full-time residence at UNC during the quarter the course is taken.

EDEM 650. PHILOSOPHY AND PRINCIPLES OF OUTDOOR EDUCATION. *Three hours credit.*

Designed to acquaint teachers and administrators with the breadth, depth, and scope of outdoor education. The interdisciplinary approach involving instructors from the Laboratory School and academic areas of the college, will be followed. Direct experiences are provided through observation and participation in day-long and week-long outdoor school programs.

EDEM 695. TRENDS AND ISSUES IN EDUCATIONAL MEDIA. *Three hours credit.*

This course will identify and discuss recent developments in educational technology and methodology. Studies in the field of communication theory, media utilization, and information storage and retrieval will be reviewed. The implications to in-school utilization, production and administration of educational media will be considered.

EDEM 699. CREATIVE PROJECT. *Maximum of fifteen hours credit.*

Intended primarily for educational media majors or those using media as a supporting area. Involves the production of materials to be used in instruction or communication. A descriptive written report is also required.

EDEM 701. SPECIALIST DEGREE PRACTICUM. *Eight hours credit.*

Project or supervised professional activity, required of all candidates for the Specialist in Education degree.

ELEMENTARY EDUCATION AND READING**EDEL 508. ELEMENTARY EDUCATION WORKSHOP.** *One-three hours credit.*

An opportunity to study problems in elementary education. The area to be covered in any one workshop will be determined by the workshop sub-title. No sub-title. may be repeated for credit.

EDEL 601. PRACTICUM. *Maximum of four hours credit.*

Open only by invitation to resident graduate students. Supervised professional activity in elementary education, approximately two hours per day. A well-written paper must be filed with the instructor before credit is given.

EDEL 612. THE ELEMENTARY SCHOOL CURRICULUM. *Three hours credit.*

Surveys and appraises the various types of curriculum organization applicable to the elementary school. Also considers basic curriculum problems in selected subject matter areas.

EDEL 615. SEMINAR IN ELEMENTARY EDUCATION: PLANNING FOR CHANGE. *Three hours credit.*

A series of seminar experiences designed to provide (1) an overview of innovations, problem areas, and trends in elementary education, and (2) an opportunity for serious study and research related to a problem relevant to the student.

EDEL 620. MATHEMATICS IN THE ELEMENTARY SCHOOL. *Three hours credit.*

A detailed consideration of problems concerned with selection of what to teach, the grade placement of content, methods and materials of teaching, and means of evaluating achievement in mathematics.

EDEL 622. INDIVIDUAL STUDIES. *Maximum of four hours credit.*

Qualified graduate students outline and spend a minimum of 25 clock hours per quarter hour on a problem. A well-written paper must be filed with the instructor before credit is given. Does not apply toward Graduate School requirements in courses numbered 500 or above unless the student is in full-time residence at UNC during the quarter the course is taken.

EDEL 625. SEMINAR IN ELEMENTARY SCHOOL MATHEMATICS. *Three hours credit.*

Prerequisite, EDEL 320 or 620. This seminar covers important problems in the teaching and supervision of mathematics in the elementary school. Course content may vary from year to year according to the needs of the students enrolled.

EDEL 630. HANDWRITING AND SPELLING IN THE ELEMENTARY SCHOOL. *Two hours credit.*

A comprehensive consideration of content, methods and materials, and evaluation in teaching handwriting and spelling. Research data in handwriting and spelling are reviewed.

EDEL 640. ENGLISH IN THE ELEMENTARY SCHOOL. *Three hours credit.*

A detailed consideration of problems concerned with selection of what to teach, the grade placement of content, methods and materials of teaching, and means of evaluating achievement in English.

EDEL 645. SEMINAR IN ELEMENTARY SCHOOL ENGLISH. *Three hours credit.*

Prerequisite, EDEL 340 or 640. This seminar course considers a few of the problems in the teaching and supervision of English and varies somewhat in content from year to year according to the interests of students.

EDEL 648. PSYCHOLINGUISTICS IN EARLY CHILDHOOD. *Three hours credit.*

This course is designed to acquaint the student with language development of the young child. Attention will be devoted to oral and written language, vocabulary development, and listening skills.

EDEL 650. SOCIAL STUDIES IN THE ELEMENTARY SCHOOL. *Three hours credit.*

A detailed consideration of problems concerned with selection of what to teach, the grade placement of content, methods and materials of teaching, and means of evaluating achievement in social studies.

EDEL 655. SEMINAR IN ELEMENTARY SCHOOL SOCIAL STUDIES. *Three hours credit.*

Prerequisite, EDEL 350 or 650. This seminar covers important problems in the teaching and supervision of social studies in the elementary school. Problems pertaining to content, unit procedures, problem-solving activities, pupil-teacher planning, and evaluation are considered. Course content may vary from year to year according to the needs of the students enrolled.

EDEL 660. CRITICAL ISSUES IN KINDERGARTEN EDUCATION. *Three hours credit.*

This course is designed to acquaint the student with trends and issues concerning the kindergarten child, the kindergarten curriculum, and sound kindergarten educational policies in general.

EDEL 662. EARLY CHILDHOOD EDUCATION. *Three hours credit.*

This course is designed to provide the student with a background in research concerning the young child from nursery school through the 2nd grade.

EDEL 664. SEMINAR IN EARLY CHILDHOOD EDUCATION. *Three hours credit.*

Prerequisite, EDEL 662. This seminar is designed to provide an opportunity for the student to explore research in the area of early childhood education and to give the student an opportunity to observe and discuss children in a classroom situation from nursery school through 2nd grade level.

EDEL 667. NURSERY SCHOOLS FOR THE DISADVANTAGED. *Three hours credit.*

This course is designed to acquaint the student with the nursery school child, the nursery school curriculum, and organization of nursery school programs.

EDEL 699. THESIS. *Maximum of fifteen hours credit.*

Optional for Master of Arts programs on recommendation of the major adviser.

EDEL 701. SPECIALIST DEGREE PRACTICUM. *Eight hours credit.*

Project or supervised professional activity, required of all candidates for the Specialist in Education degree.

EDEL 755. SUPERVISED PRACTICUM IN COLLEGE TEACHING. *Maximum of nine hours credit.*

This course provides experiences in observation and supervised practice in college teaching for doctoral candidates planning to teach on the college or university level. Observations and the teaching experiences will be used as a basis for the analysis of learning experiences.

EDEL 799. DOCTORAL DISSERTATION. *Eighteen hours credit.*

Required of all doctoral candidates.

EDRD 508. READING WORKSHOP. *One-three hours credit.*

The sub-title will indicate whether the workshop is for elementary or secondary teachers. Topics related to remedial reading (diagnosis, causation, and remediation).

tion), word perception, study skills, reading in the content fields, and trends and issues will be treated in various workshops. No sub-title may be repeated for credit.

EDRD 521. READING IN THE CONTENT FIELDS. *Three hours credit.*

A course designed to assist teachers in the content areas to teach subject matter in such a way as to utilize and further develop fundamental reading. Special consideration will be given to effective reading skills, vocabulary development in specific subject areas, and study skills.

EDRD 601. PRACTICUM. *Maximum of four hours credit.*

Open only by invitation to resident graduate students. Supervised professional activity in reading, approximately two hours per day. A well-written paper must be filed with the instructor before credit is given.

EDRD 612. READING IN THE PRIMARY GRADES. *Three hours credit.*

The nature of reading, the pertinent research in the field, the curriculum in reading from the preparatory period through the primary grades, the selection of effective materials of teaching methods and techniques of teaching, and the use of various types of tests will be studied.

EDRD 613. READING IN THE INTERMEDIATE GRADES. *Three hours credit.*

The purpose of this course is to emphasize the specific reading skills taught in the intermediate grades. These skills are identified and discussed in terms of instructional materials, methods, and evaluation procedures. The management of the reading program in the intermediate grades also receives attention in this course.

EDRD 614. LITERATURE IN THE ELEMENTARY SCHOOL. *Two hours credit.*

Consideration will be given to locating and evaluating children's books and to the method of organizing, teaching, and evaluating a literature program.

EDRD 617. REMEDIAL READING IN THE ELEMENTARY SCHOOL. *Four hours credit.*

Prerequisite, EDRD 612 or 613 or equivalent. This course is designed to give the classroom teacher, administrator, or reading specialist insight concerning the problems of the educationally retarded reader in the elementary school. Course content includes diagnosis, causation, and remediation. Two hours weekly are spent in the Oral Reading Diagnostic Laboratory.

EDRD 620. DEVELOPMENTAL READING IN THE SECONDARY SCHOOL. *Three hours credit.*

A detailed consideration of problems concerned with selecting what to teach, the grade placement of content, methods and materials of teaching, and means of evaluating achievement in reading in the junior and senior high schools.

EDRD 622. INDIVIDUAL STUDIES. *Maximum of four hours credit.*

Qualified graduate students outline and spend a minimum of 25 clock hours per quarter hour on a problem. A well-written paper must be filed with the instructor before credit is given. Does not apply toward Graduate School requirement of courses numbered 500 or above unless the student is in full-time residence at UNC during the quarter the course is taken.

EDRD 627. REMEDIAL READING IN THE SECONDARY SCHOOL. *Four hours credit.*

A course designed to give the classroom teacher, administrator or reading specialist insight concerning problems of the remedial reader in the secondary school. Causation, diagnosis, and remediation are considered in lecture sections. Two hours weekly are spent in the Oral Reading Diagnostic Laboratory.

EDRD 637. DEVELOPMENTAL AND REMEDIAL READING AT THE COLLEGE LEVEL. *Two hours credit.*

A detailed consideration of problems concerned with selecting what to teach, the placement of content, methods and materials of teaching, and means of diagnosis and evaluation of reading achievement of college students.

EDRD 640. LINGUISTIC FOUNDATIONS OF READING INSTRUCTION.

Three hours credit.

A detailed consideration of the phonic structure of the English language, vocabulary development, sentence, and intonation patterns. Emphasis is on developing teacher competence in understanding linguistic foundations of reading instruction.

EDRD 642. TEACHING THE BICULTURED TO READ. *Three hours credit.*

Prerequisite: EDRD 612 or 613 or 620 or equivalent. To prepare classroom teachers, reading specialists, or administrators with the abilities and knowledge necessary for the direction of instruction in reading for the bicultured and educationally deprived. Consideration is given to techniques, approaches, materials, measurement, as well as general psychological and sociological aspects of the bicultured.

EDRD 645. SEMINAR IN ANALYSIS OF READING PROGRAMS. *Three hours credit.*

Prerequisite, EDRD 310 or 411 or 612. A seminar in which specific criteria for evaluating reading programs are examined and applied to determine the effectiveness and suitability of reading programs for meeting the needs of those requiring instruction in reading.

EDRD 650. REMEDIAL READING CASE STUDY. *Three hours credit.*

Prerequisite, EDRD 617 or 627. This practicum consists of tutoring an individual remedial reader for four hours per week. The fifth hour per week is spent in a seminar reviewing case studies and diagnostic and remedial techniques. Observations of tutoring are followed by individual and group conferences with the students.

EDRD 652. REMEDIAL READING INTERNSHIP. *Three hours credit.*

Prerequisite, EDRD 617 or 627. This practicum consists of serving as intern with a remedial reading teacher working with a small group of remedial reading students four hours weekly. Close supervision is given to diagnostic and remedial procedures by the remedial teacher and college staff. Observations of teaching are followed by individual and group conferences.

EDRD 654. READING CENTER INTERNSHIP: READING CLINIC, COLLEGE READING, ADULT LITERACY. *Maximum nine hours credit.*

Prerequisite, EDRD 617 or 627. Separate practicums in reading clinic, college reading, or teaching illiterate adults may be taken for three credits each. Course work consists of tutoring college students, illiterate adults, or severely retarded readers, or supervising clinicians or conducting diagnostic service.

EDRD 699. THESIS. *Maximum of fifteen hours credit.*

Optional for Master of Arts program on recommendation of the major adviser.

EDRD 701. SPECIALIST DEGREE PRACTICUM. *Eight hours credit.*

Project or supervised professional activity, required of all candidates for the Specialist in Education degree.

EDRD 745. SEMINAR IN READING. *Three hours credit.*

Prerequisite, EDRD 645. This seminar considers the trends and issues in teaching reading through an analysis of historical and current research in reading. Topics covered will vary from year to year according to the interests of the students.

EDRD 755. SUPERVISED PRACTICUM IN COLLEGE TEACHING. *Maximum of nine hours credit.*

This course provides experiences in observation and supervised practice in college teaching for doctoral candidates planning to teach on the college or university level. Observations and the teaching experiences will be used as a basis for the analysis of learning experiences.

EDRD 799. DOCTORAL DISSERTATION. *Eighteen hours credit.*

Required of all doctoral candidates.

ENGLISH**ENG 508. WORKSHOP IN ENGLISH.** *Three hours credit.*

A series of workshops dealing with specialized English courses. Subjects covered may deal with any area of English or English Education as deemed proper. The subject to be completed in any one workshop will be determined by the subtitle. No subtitle may be repeated for credit.

ENG 601. THE AMERICAN CRITICS. *Three hours credit.*

A seminar for graduate students in theory and practice of criticism of literature in America. The major critics and the recognizable "schools" are analyzed.
credit.

ENG 602. SEMINAR IN TWENTIETH CENTURY BRITISH AND AMERICAN POETRY. *Three hours credit.*

A history of recent poetry in English from the Imagists to the present.

ENG 603. THE GREEK DRAMA. *Four hours credit.*

A study of the dramas of Aeschylus, Sophocles, Euripides and Aristophanes to note the development of dramatic technique and the developing ideas from the beginnings of classicism, through the golden age, to decadence.

ENG 604. SEMINAR IN MAJOR AMERICAN WRITERS I. *Four hours*

A study of selected American writers with special emphasis on their relation to the currents of American thought. Reports by each member of the class will be determined by the interest of the student.

ENG 605. SEMINAR IN MAJOR AMERICAN WRITERS II. *Four hours credit.*

A study of selected later American writers with special emphasis on their relation to the currents of American thought. Reports by each member of the class will be determined by the interest of the student.

ENG 606. SEMINAR IN ENGLISH ROMANTIC MOVEMENT. *Four hours credit.*

The origin, purpose and nature of the Romantic Movement. A study of two or more of the following authors: Blake, Wordsworth, Coleridge, Shelley, Keats, Byron, Lamb, Hazlitt and DeQuincey.

ENG 607. OLD ENGLISH. *Five hours credit.*

Anglo-Saxon grammar and vocabulary. Reading of important documents from the period—Alfred's Translations, Charters and Historical Documents, Anglo-Saxon poetry, etc. Emphasis on background for contemporary language.

ENG 608. CHAUCER AND MIDDLE ENGLISH. *Five hours credit.*

Writings of Geoffrey Chaucer (especially *The Canterbury Tales* and *Troilus and Criseyde*) in Middle English; selected writings to illustrate both the literary qualities and linguistic aspects of Middle English.

ENG 609. SHAKESPEARE SEMINAR. *Four hours credit.*

Detailed study of three of the great plays, introduction to Shakespearean scholarship, and a review of Shakespearean criticism.

ENG 610. MILTON SEMINAR. *Four hours credit.*

A study of Milton's major prose and poetry.

ENG 611. SEMINAR IN TENNYSON AND BROWNING. *Four hours credit.*

A review of the shorter poems of both men and a special stress on some of the longer works (*Maud*, *Idylls of the King*, *The Ring and the Book*) and an introduction to the critical writings about Tennyson and Browning.

ENG 612. SEMINAR IN RESTORATION AND EIGHTEENTH CENTURY DRAMA. *Four hours credit.*

A study of the types of plays written between 1660 and 1800, with particular

attention to heroic tragedy, comedy of manners, and sentimental drama, as represented by such writers as Dryden, Wycherley, Etherege, Otway, Congreve, Steele, Addison, Goldsmith, and Sheridan.

ENG 613. LITERATURE OF THE EIGHTEENTH CENTURY. *Four hours credit.*

A study of the leading writers of the eighteenth century, with emphasis being placed on the works of Pope, Swift, Boswell, and Johnson as major figures of the century. Major ideas emanating from the century will also be stressed.

ENG 614. SEMINAR IN VICTORIAN LITERATURE. *Five hours credit.*

A graduate course, for intensive individual research into the problems of the Victorian era that bear upon major British writers; the relations between the literature and developments in politics, philosophy, religion, art, science, publication and the like that give distinctive meaning to the term "Victorian."

ENG 615. SEMINAR IN THE TWENTIETH CENTURY BRITISH NOVEL. *Four hours credit.*

A survey of the historical and aesthetic development of the novel in Great Britain during the twentieth century.

ENG 616. MODERN ENGLISH PHILOLOGY AND USAGE. *Four hours credit.*

Prerequisite, ENG 320. An examination of the bases of current English usage, designed to acquaint the student with such matters as sound changes, theories of correctness in grammar and pronunciation, and current discoveries or tendencies in linguistic science.

ENG 619. SEMINAR IN THE ENGLISH LANGUAGE. *Five hours credit.*

The course is an advanced study of the evolution of English from its known beginnings in the Indo-European Family of Languages to the present, concentrating on the major morphological, phonological, syntactical changes which characterize this evolution.

ENG 640. COLLOQUIUM IN WORLD LITERATURE. *Three-nine hours credit.*

The study in translation of one great work of non-English or American literature or of a small group of such masterpieces which are closely related either in form or idea. The selections vary with the needs of the students and the interest of the instructor.

ENG 641. SEMINAR IN WORLD POETRY. *Four hours credit.*

A study of selected epics and lyrics in translation to illustrate a generic approach to poetry beyond Britain and the United States.

ENG 642. SEMINAR IN WORLD DRAMA. *Four hours credit.*

A study of selected plays in translation to illustrate a generic approach to drama beyond Britain and the United States.

ENG 643. SEMINAR IN WORLD FICTION. *Four hours credit.*

A study of selected short stories and novels in translation to illustrate a generic approach to fiction beyond Britain and the United States.

ENGLISH EDUCATION

EED 501. THE TEACHING OF COMPOSITION. (PTE or certification at the undergraduate level) *Four hours credit.*

Methods of improving composition. The organization of paragraph and theme. The improvement of sentence structure.

EED 601. RECONSTRUCTING THE ENGLISH CURRICULUM. (PTE or certification at the undergraduate level) *Four hours credit.*

A study of the place of English in the curriculum of the secondary school, with a consideration of appropriate materials and their placement.

EED 602. SEMINAR IN LITERATURE FOR ADOLESCENTS. (PTE or certification at the undergraduate level) *Four hours credit.*

A concentrated study of and first-hand acquaintance with books written for adolescents, with emphasis upon junior novels and junior biographies. Consideration of reading guidance based upon student interests and needs. Development of criteria for evaluating literature for adolescents.

EED 681. SEMINAR IN THE TEACHING OF LITERATURE. *Three hours credit.*

A seminar in the study of the methods of teaching literature at the college level. Theories of literature, explications, and literary analysis.

EED 755. SUPERVISED TEACHING OF ENGLISH: LITERATURE AND COMPOSITION. *Three to nine hours credit.*

Student will prepare and teach classes under the supervision of instructors chosen or designated in order to give practice in and to evaluate teaching.

FINE ARTS

***FA 500. INTERPRETIVE DRAWING.** *Three hours credit.*

Prerequisite: FA 400. Study from nature, still-life, imagination. Emphasis on individual interpretation, pictorial composition, personal imagery.

***FA 502. LIFE DRAWING.** *Three hours credit.*

Prerequisites: FA 402. Study from life emphasizing individual interpretation, personal imagery, multifigure composition.

***FA 503. WATERCOLOR PAINTING.** *Three hours credit.*

Prerequisite: FA 403. Experimentation in various watercolor painting methods with special emphasis on individual expression and composition.

FA 504. ART MATERIALS AND TECHNIQUES FOR THE SECONDARY SCHOOL. *Two hours credit.*

A survey and demonstration of new ideas in art techniques and materials essential to a secondary school art program with student participation in selected areas.

***FA 505. PROBLEMS IN ADVANCED DESIGN.** *Three hours credit.*

Prerequisite: FA 405. Practical application of design theories with emphasis on individual student experiences.

FA 506. SPECIAL PROBLEMS IN ART EDUCATION. *Three hours credit.*

Supervised research and reporting of student designed and originated problems in art education.

***FA 507. SCULPTURE: METHODS AND MATERIALS.** *Three hours credit.*

Prerequisites: FA 258, 307, 407. Theoretical and practical experience in traditional and experimental approaches to making sculpture. Emphasis on aesthetic and functional considerations.

***FA 508. SCULPTURE STUDIO.** *Three hours credit.*

Prerequisites: FA 258, 308, 408. Individual application of design and technical skills in making sculpture. Emphasis on significant form and expression.

***FA 509. INTERMEDIATE PRINTMAKING.** *Three hours credit.*

Prerequisites: FA 409. Advanced creative work in selected printmaking. Experimental methods of etching print.

- *FA 510. ADVANCED INTAGLIO AND RELIEF PRINTMAKING.** *Three hours credit.*
Prerequisite: FA 410. Advanced individual development in creative color printmaking. Media and procedures within the general area of intaglio relief, and monoprint will be chosen or devised.
- *FA 515. CRAFT DESIGN ON FABRICS.** *Three hours credit.*
Prerequisite: FA 415. Emphasis on experimenting with trends of design application on fabrics.
- *FA 516. CRAFT EXPRESSION IN CONSTRUCTION.** *Three hours credit.*
Prerequisite: FA 216. Concentrated expression in selected craft media for creative construction.
- *FA 517. POTTERY.** *Three hours credit.*
Prerequisite: FA 417. Advanced throwing on the potter's wheel. Emphasis on advanced pottery forms such as bottles, tea pots, and matched sets.
- *FA 518. HAND LOOM WEAVING TECHNIQUES.** *Three hours credit.*
Prerequisite: FA 418. An experimental approach to the problems in contemporary weaving forms.
- *FA 519. SILK SCREEN PRINTING PROCESS.** *Three hours credit.*
Prerequisites: FA 419. Advanced study of photographic techniques in silk screen printing. Study of post design and advertising post silkscreen printing.
- *FA 520. OIL PAINTING STUDIO.** *Three hours credit.*
Prerequisite: FA 420. Advanced study in oil painting to provide the student with more time to develop individual expression and mastery of the medium.
- FA 522. READINGS IN ART EDUCATION.** *Three hours credit.*
A survey of selected contemporary literature on present day art education.
- *FA 525. FIGURE PAINTING STUDIO.** *Three hours credit.*
Prerequisites: FA 220, 302. Painting from the human figure.
- FA 526. LEARNING EXPERIENCES IN ELEMENTARY ART EDUCATION.** *Three hours credit.*
Research and creative experience in the various art activities of the elementary school art education program.
- *FA 527. CERAMIC DESIGN.** *Three hours credit.*
This course is primarily concerned with innovative approaches to the design, forming, glazing and firing of ceramic objects.
- *FA 531. WORKSHOP IN FINE ARTS.** *Three hours credit.*
Workshops in specialized areas of Fine Arts conducted by specialists in the field. The subject to be completed in any one workshop will be determined by sub-title. No sub-title may be repeated for credit.
- *FA 533. MIXED MEDIA PAINTING STUDIO.** *Three hours credit.*
Prerequisite: FA 433. Experimental approaches to problems in painting emphasizing a variety of media and techniques.
- *FA 537. GLAZE FORMULATION.** *Three hours credit.*
Prerequisite: Experience with glaze and clay body formulation. A study of problems and their solutions relating to glazes and clay bodies. Emphasis will be placed on glaze fit to clay bodies and the correction of glaze flaws.
- *FA 540. CRAFT STUDIO.** *Three hours credit.*
An in-depth workshop in one specific craft technique, developing skills and individual expression. Will be listed under separate sub-heading each session.

FA 550. ART IN RECREATION. *Three hours credit.*

Basic art and crafts as they relate to the field of recreation. Emphasis on selection and care of tools, materials and facilities.

***FA 559. INTAGLIO AND RELIEF PRINTMAKING.** *Three hours credit.*
Prerequisites: FA 459. Advanced problems in intaglio printmaking including advanced technical processes and monoprint mixed media. Emphasis on fine print quality and the color process.

***FA 570. JEWELRY DESIGN AND SILVERSMITHING.** *Three hours credit.*
Prerequisite: Experience in basic jewelry design. An individual approach to involve casting problems and flat ware production.

***FA 600. INTERPRETIVE DRAWING.** *Three hours credit.*
Prerequisite: Basic interpretive drawing. Study from nature, still-life, imagination. Emphasis on personal imagery.

FA 601. SUPERVISION OF ART. *Three hours credit.*
An exploration of the expanding role of art education in the total school program and a critical study of the role of the art supervisor and supervisory techniques.

***FA 602. LIFE DRAWING.** *Three hours credit.*
Prerequisite: Basic background in life drawing. Study from life emphasizing personal imagery.

***FA 603. WATERCOLOR.** *Three hours credit.*
Prerequisite: Basic background in water mediums. Individual painting problems in water mediums including: caseins, polymers and watercolor.

***FA 605. PROBLEMS IN ADVANCED DESIGN.** *Three hours credit.*
Prerequisite: Experience in basic design organization. Practical application of design theories with emphasis on individual student experiences.

***FA 606. SPECIAL PROBLEMS IN ART EDUCATION.** *Three hours credit.*
Supervised research and reporting of student designed and originated problems in art education.

***FA 607. SCULPTURE: METHODS AND MATERIALS.** *Three hours credit.*
Prerequisite: Experience in basic sculpture techniques. Theoretical and practical experience in traditional and experimental approaches to making sculpture. Emphasis on aesthetic and functional considerations.

***FA 608. SCULPTURE STUDIO.** *Three hours credit.*
Prerequisite: Experience in basic sculpture techniques. Individual application of design and technical skills in making sculpture. Emphasis on significant form and expression.

***FA 609. INTERMEDIATE PRINTMAKING.** *Three hours credit.*
Selected printmaking media based upon the analysis of the history and philosophies of printmaking from its inception through contemporary concepts.

***FA 610. ADVANCED INTAGLIO AND RELIEF PRINTMAKING.** *Three hours credit.*
Prerequisites: FA 510. Individual investigation, advanced intaglio and relief printmaking and experimental methods of intaglio printmaking.

***FA 615. CRAFTS: DESIGN ON FABRICS.** *Three hours credit.*
Prerequisite: Experience in fabric design techniques. Craftsmanship and aesthetic quality in individual expressions of advanced textile design and application.

***FA 616. CRAFTS EXPRESSION IN CONSTRUCTION.** *Three hours credit.*
Prerequisite: Experience with basic craft media. Advanced study of the trends

in craft expressions with special interest in combining materials. Emphasis on form and creative expression.

***FA 617. POTTERY.** *Three hours credit.*

A synthesis of the ceramic processes. A high level of individual craftsmanship and aesthetic quality will be stressed in the forming, firing and glazing techniques.

***FA 618. HANDLOOM WEAVING TECHNIQUES.** *Three hours credit.*

Prerequisite: A broad basic weaving knowledge. Inventive and contemporary approach to weaving with individual involvement in form and craftsmanship.

***FA 619. SILK SCREEN PRINTING PROCESS.** *Three hours credit.*

Prerequisites: FA 519. Individual investigation, research, silkscreen printing. Emphasis on mixed media with photographs and with silkscreen printing.

***FA 620. OIL PAINTING STUDIO.** *Three hours credit.*

Prerequisite: Experience in basic painting. Advanced study in oil painting to provide the student with more time to develop individual expression and mastery of the medium.

FA 624. ELEMENTARY ART. *Three hours credit.*

Practical creative experiences in a variety of art media. To be taken concurrently with FA 625.

FA 625. METHODS OF TEACHING ART IN THE ELEMENTARY SCHOOL. *Two hours credit.*

Includes philosophy, teaching techniques, procedures, materials and evaluation. A brief experience in an elementary classroom provided where possible. To be taken concurrently with FA 624.

***FA 627. CERAMIC DESIGN.** *Three hours credit.*

An analysis of design elements and principles in relation to various contemporary approaches used by educators and studio artists. Emphasis will be placed on student involvement with innovative ceramic processes and their application to his idiom of expression.

FA 628. THE CURRICULUM IN ART EDUCATION. *Three hours credit.*

A review of the best literature on the content and organization of the curriculum in general education, and the professional literature in art education. Analysis and evaluation of courses of study, the building of curriculums and significant units for teaching art.

FA 629. ART FOR THE EXCEPTIONAL CHILD. *Three hours credit.*

Experiences with materials and techniques in the arts are integrated with consideration of the aesthetic therapeutic value of creative activities for the exceptional child. The opportunity is provided for the student to become involved in a practical situation as well as additional research in the area.

FA 630. SEMINAR IN ELEMENTARY ART. *Two hours credit.*

Research, participation, and presentation by students aimed at developing a personal philosophy for elementary art education.

***FA 633. MIXED MEDIA PAINTING STUDIO.** *Three hours credit.*

Prerequisite: Experience in mixed media painting. Experimental approaches to problems in painting emphasizing a variety of media and techniques.

***FA 659. INTAGLIO AND RELIEF PRINTMAKING.** *Three hours credit.*

Prerequisites: FA 559. Individual investigation, relation of aesthetic concepts to practical two and three dimensional problems in intaglio printmaking; etching, engraving, aquatint and innovational techniques and materials.

***FA 670. JEWELRY DESIGN AND SILVERSMITHING.** *Three hours credit.*

Prerequisite: FA 570. An advanced course for the experienced student to explore individual problems in creative jewelry design.

FOREIGN LANGUAGES

FL 510. LINGUISTICS. *Three hours credit.*

A brief survey of the world's chief languages, their geographical distribution, main cultural features and appearance. In more details, classification of the Indo-European languages, with particular stress on historical development, basic grammatical structure, resemblances, differences and relationships of English, French, German and Spanish.

FL 531. THE TEACHING OF FOREIGN LANGUAGES. *Four hours credit.*

Prerequisite, two years of foreign language. A study of problems in the teaching of foreign languages at the secondary and elementary school levels. Includes development of content for course of study, organization of learning materials, procedures in teaching, testing and evaluating.

FL 532. TEACHING FOREIGN LANGUAGE IN THE ELEMENTARY SCHOOL. *Three hours credit.*

Especially for teachers of the elementary school level, but including all levels of instruction. A study of today's practical values, aims, methods, approaches, procedures, and means and materials for attaining success in teaching modern foreign languages.

FRENCH

FR 590. FRENCH FOR READING KNOWLEDGE I. *No credit.*

Prerequisite, none. The course will be conducted to help graduate students prepare for the Ph.D. language reading examination in French. The basic grammatical structures of the language will be introduced from a traditional viewpoint.

GERMAN

GER 500. PROBLEMS IN ORAL GERMAN. *Three hours credit.*

Prerequisite, three years college German or permission of instructor. To provide advanced oral training. Stress will be on sharpening the pronunciation, comprehension and fluency of conversational ability of the student. Individual problems will be discussed and aided by means of drills, tape work in the language laboratory and outside help.

SPANISH

SPAN 500. PROBLEMS IN ORAL SPANISH. *Three hours credit.*

Prerequisite, two years of college Spanish beyond first year, or permission of instructor. A course designed to provide advanced oral training; to help students with persistent individual problems in spoken Spanish to overcome those difficulties.

SPAN 590. SPANISH FOR GRADUATE STUDENTS. *No credit.*

Prerequisite, none. A course to enable doctoral candidates in other fields to pass the Ph.D. language reading examination in Spanish.

FOUNDATIONS OF EDUCATION

EDF 508. WORKSHOP IN FOUNDATIONS OF EDUCATION. *Three hours credit.*

An opportunity to study problems in foundations of education. The area to be covered in any one workshop will be determined by the workshop sub-title. No sub-title may be repeated for credit.

EDF 545. COMPARATIVE EDUCATION. *Three hours credit.*

The philosophy and practices of education in foreign countries, usually including education in Germany, France, Russia, Norway, Great Britain, China, Australia, Canada, Mexico and certain South American countries.

EDF 546. COMPARATIVE STUDIES IN INTERNATIONAL EDUCATION. *Twelve hours credit.*

A comparative study of selected countries in Asia and the Pacific will be made on campus and be followed by travel to those countries. Schools and universities will be visited and an opportunity will be provided to make a comparison of the countries visited with educational programs in the United States.

EDF 565. SOCIAL AND CULTURAL DIFFERENCES IN EDUCATION. *Three hours credit.*

A multidisciplinary approach to the analysis of educational problems arising from social and cultural differences in the school population. Problems are both defined and analyzed. Solutions are investigated in the light of formulations from social philosophy, anthropology, psychology, history and economics.

EDF 566. AMERICAN SOCIAL PROBLEMS AND EDUCATION. *Three hours credit.*

Analysis of contemporary problems confronting American society and assessment of their implications for the educational institution. Focus will center upon the problems posed by race relations, alienation, educational power structure, and technology.

EDF 567. STRATEGIES FOR SOCIAL CHANGE. *Three hours credit.*

The role of education and other social institutions as they relate to education will be examined to determine areas in which change is appropriate and feasible in order to achieve the legitimate goals of equality and freedom in America. Various strategies for social change will be analyzed and developed with the goal of increasing effective individual and group participation in the social processes of a democratic society.

EDF 585. PHILOSOPHY OF EDUCATION. *Three hours credit.*

Educational aims, values and criteria, democracy and education, different systems of educational philosophy, the nature of thinking, method and subject matter are considered.

EDF 622. INDIVIDUAL STUDIES. *Maximum of four hours credit.*

Qualified students outline and spend a minimum of 25 clock hours per quarter hour on a problem. Two copies of a well-written paper must be filed before credit is given, one with the instructor and one with the chairman of the department.

EDF 655. ANTHROPOLOGICAL FOUNDATIONS OF EDUCATION. *Three hours credit.*

An analysis of contemporary American Education using anthropological concepts and methods of research. Special emphasis is placed upon the concepts of culture, subculture, enculturation and acculturation as they relate to educational problems and issues.

EDF 675. HISTORICAL FOUNDATIONS OF EDUCATION. *Three hours credit.*

This course is designed to study important historical and philosophical backgrounds for the integration of present day educational issues.

EDF 690. ADVANCED TOPICS IN FOUNDATIONS OF EDUCATION. *Three hours credit.*

An opportunity for advanced study of topics in foundations of education. These topics may derive from a need generated by other advanced courses in foundations of education or from the need of a particular student or group of students. The area to be covered in any one course will be determined by the course sub-title. No sub-title may be repeated for credit.

EDF 765. SOCIOLOGICAL FOUNDATIONS OF EDUCATION. *Three hours credit.*

A study of education in relation to the sociological realities of American and world societies, contemporary and primitive.

EDF 785. PHILOSOPHICAL FOUNDATIONS OF EDUCATION. *Three hours credit.*

A study of the educational aims and values of various cultures which have given direction to peoples in different societies. An integration of classical philosophies with educational philosophies culminating in a statement of practical educational aims and objectives.

EDF 786. SEMINAR IN EXISTENTIALISM AND EDUCATION. *Three hours credit.*

An examination of existential thought and the conceptual and pedagogical problems it poses. The role of existentialist thought in the development of the behavioral sciences is examined.

GEOGRAPHY**GEOG 505. THE EVOLUTION OF GEOGRAPHIC THOUGHT.** *Three hours credit.*

Discussions and studies of the comparative development of the philosophies and operative thought of geographers, both past and contemporary, in different countries by analyzing and appraising available geographic literature. Particular emphasis will be placed upon themes and topics significant to the growth of modern American Geographic Philosophy.

GEOG 570. SEMINAR IN POLITICAL GEOGRAPHY. *Three hours credit.*

This is a problems course in which the student will organize, conduct, present and defend research relating to selected topics. Considerable attention will also be directed toward discussion and analysis of geographic theory and methodology as it applies to the particular problems being investigated.

GEOG 571. SEMINAR IN URBAN GEOGRAPHY. *Three hours credit.*

This is a problems course in which the student will organize, conduct, present and defend research relating to selected topics. Considerable attention will also be directed toward discussion and analysis of geographic theory and methodology as it applies to the particular problems being investigated.

GEOG 572. SEMINAR IN PHYSICAL GEOGRAPHY. *Three hours credit.*

This is a problems course in which the student will organize, conduct, present and defend research relating to selected topics. Considerable attention will also be directed toward discussion and analysis of geographic theory and methodology as it applies to the particular problems being investigated.

GEOG 573. SEMINAR IN ECONOMIC GEOGRAPHY. *Three hours credit.*

This is a problems course in which the student will organize, conduct, present and defend research relating to selected topics. Considerable attention will also be directed toward discussion and analysis of geographic theory and methodology as it applies to the particular problems being investigated.

GEOG 574. SEMINAR IN GEOGRAPHIC EDUCATION. *Three hours credit.*

This is a problems course in which the student will organize, conduct, present and defend research relating to selected topics. Considerable attention will also be directed toward discussion and analysis of geographic theory and methodology as it applies to the particular problems being investigated.

GEOG 575. SEMINAR IN QUANTITATIVE GEOGRAPHY. *Three hours credit.*

This is a problems course in which the student will organize, conduct, present and defend research relating to selected topics. Considerable attention will also be directed toward discussion and analysis of geographic theory and methodology as it applies to the particular problems being investigated.

GEOG 576. SEMINAR IN SETTLEMENT GEOGRAPHY. *Three hours credit.*
This is a problems course in which the student will organize, conduct, present and defend research relating to selected topics. Considerable attention will also be directed toward discussion and analysis of geographic theory and methodology as it applies to the particular problems being investigated.

GEOG 577. SEMINAR IN AGRICULTURAL GEOGRAPHY. *Three hours credit.*

This is a problems course in which the student will organize, conduct, present and defend research relating to selected topics. Considerable attention will also be directed toward discussion and analysis of geographic theory and methodology as it applies to the particular problems being investigated.

GEOG 578. SEMINAR IN RESEARCH METHODOLOGY. *Three hours credit.*

This is a problems course in which the student will organize, conduct, present and defend research relating to selected topics. Considerable attention will also be directed toward discussion and analysis of geographic theory and methodology as it applies to the particular problems being investigated.

GEOG 580. SEMINAR IN LATIN AMERICA. *Three hours credit.*

This is a problems course in which the student will organize, conduct, present and defend research relating to selected topics. Considerable attention will also be directed toward discussion and analysis of geographic theory and methodology as it applies to the particular problems being investigated.

GEOG 581. SEMINAR IN AFRICA. *Three hours credit.*

This is a problems course in which the student will organize, conduct, present and defend research relating to selected topics. Considerable attention will also be directed toward discussion and analysis of geographic theory and methodology as it applies to the particular problems being investigated.

GEOG 582. SEMINAR IN THE SOVIET UNION. *Three hours credit.*

This is a problems course in which the student will organize, conduct, present and defend research relating to selected topics. Considerable attention will also be directed toward discussion and analysis of geographic theory and methodology as it applies to the particular problems being investigated.

GEOG 583. SEMINAR IN EUROPE. *Three hours credit.*

This is a problems course in which the student will organize, conduct, present and defend research relating to selected topics. Considerable attention will also be directed toward discussion and analysis of geographic theory and methodology as it applies to the particular problems being investigated.

GEOG 584. SEMINAR IN ASIA. *Three hours credit.*

This is a problems course in which the student will organize, conduct, present and defend research relating to selected topics. Considerable attention will also be directed toward discussion and analysis of geographic theory and methodology as it applies to the particular problems being investigated.

GEOG 585. SEMINAR IN ANGLO-AMERICA. *Three hours credit.*

This is a problems course in which the student will organize, conduct, present and defend research relating to selected topics. Considerable attention will also be directed toward discussion and analysis of geographic theory and methodology as it applies to the particular problems being investigated.

GEOG 586. SEMINAR IN AUSTRALIA AND THE PACIFIC. *Three hours credit.*

This is a problems course in which the student will organize, conduct, present and defend research relating to selected topics. Considerable attention will also be directed toward discussion and analysis of geographic theory and methodology as it applies to the particular problems being investigated.

GEOG 592. FIELD COURSES IN GEOGRAPHY. *Three to fifteen hours credit.*

Study and application of the techniques used in the solving of geographic problems in the field, together with the effective presentation of the results of such studies.

GEOG 681. CURRICULUM AND TEACHING METHODOLOGY IN GEOGRAPHY. *Three hours credit.*

This is a seminar class designed to allow students the opportunity to appraise and become familiar with the various tools, techniques and methodologies applicable to teaching college geography.

GEOG 755. SUPERVISED TEACHING INTERNSHIP IN GEOGRAPHY. *Three hours credit. (Maximum nine hours credit.)*

Working under the special guidance of a particular professor the student will be required to prepare lectures, organize class discussions, utilize various teaching techniques and generally show instructional competency in the classroom situation.

GEOLOGY**GEOL 500. SURVEY OF GEOLOGY.** *Six hours credit. (Four hours lecture, six hours laboratory.)*

This course is designed primarily for graduate students who have a good background in science, but no credit in geology. Earth materials, aggradational and degradational processes, and Earth history will be investigated at depth and at an accelerated rate. Offered summers only.

GEOL 530. IGNEOUS AND METAMORPHIC PETROLOGY. *Four hours credit. (Three hours lecture, three hours laboratory.)*

Prerequisite, GEOL 320 or consent of instructor. Igneous and metamorphic rocks and processes: plutonism, volcanism, origin of magmas, phase relationships of minerals, regional aspects of plutonism and metamorphism.

GEOL 565. STUDIES IN PLEISTOCENE GEOLOGY. *Two hours credit.*

Prerequisite, GEOL 464 or consent of instructor. Current topics in Pleistocene geology will be explored in a seminar format. Activities may include field trips and special projects. Specific topics and activities will be determined by the instructor and current needs of the students.

GEOL. 567. VOLCANIC GEOLOGY. *Four hours credit. (Three hours lecture, three hours laboratory.)*

Prerequisite, GEOL 420 or consent of instructor. A study of volcanoes, and volcanic processes and products. Emphasis on the origin, classification, and interpretation of volcanic rocks and ejecta, and volcanic structures and landforms.

GEOL 570. GEOTECTONICS. *Three hours credit.*

Prerequisite, GEOL 370 or consent of instructor. The Rigid Plate Theory of Global Tectonics has been called the most significant development in the Earth Sciences since Darwin's Theory of Evolution. The course will investigate the development, mechanisms, and significance of plate-tectonics: continental drift, paleomagnetism, sea-floor spreading, plate motions, tectonism, volcanism, eugeosynclines.

GEOL 580. ADVANCED FIELD GEOLOGY. *Eight hours credit.*

Prerequisites, consent of instructor. This course is designed for graduate students who wish to gain experience in geological field work. The student will spend approximately five weeks at a field camp in the Rocky Mountain area, which will be operated in cooperation with another college or university. In the field he will investigate stratigraphic and structural problems of a designated area, and he will make a geologic map of the area. Offered summers only.

GEOL 595. THE FABRIC OF GEOLOGY. *Three hours credit.*

Prerequisite: consent of instructor. This course is designed for graduate students who have a good foundation in geology. Certain geologic concepts will be introduced by means of a basic textbook, which will be supplemented by wide reading of the geologic literature.

GEOL 599. SPECIAL TOPICS IN GEOLOGY. *One to four hours credit.*

Prerequisite: Consent of instructor. An opportunity for students to explore areas of geology which are beyond the scope of existing departmental offerings. Specific topics to be treated will be determined by the interests of the students and the instructor.

HEALTH, PHYSICAL EDUCATION AND RECREATION

HPER 503. DRUG ABUSE EDUCATION. *Three hours credit.*

An analysis of pharmacological, psychological, sociological and legal implications of drug and alcohol use, misuse and abuse, emphasizing current research and effective teaching methods and materials.

HPER 505. DEGENERATIVE AND CHRONIC DISEASE AND DISABILITY. *Three hours credit.*

This course is designed to provide the student with current scientific findings and orient him to the present research being conducted regarding degenerative, chronic disease and disability. An in-depth study will be conducted by each student into some facet of degenerative, chronic disease.

HPER 506. CONTEMPORARY ISSUES IN SEX EDUCATION. *Four hours credit.*

A critical analysis of current trends and basic issues of sex education including philosophy, principles, methods and current problems.

HPER 507. PUBLIC HEALTH STATISTICS. *Two hours credit.*

An introduction to public health statistics including an historical overview of public health: collection and classification of data; rates and other indices; measures of central tendency and dispersion; tests of significance; use of vital statistics in planning, conducting and evaluating public health programs.

HPER 508. WORKSHOP IN HEALTH, PHYSICAL EDUCATION AND RECREATION. *Three hours credit.*

Designed to provide opportunities for study in the problem areas of the participants; however, the problems attacked would vary from time to time according to the experts conducting the workshop. The nature of the workshop might cover such areas as administration, curriculum, new programs and techniques, etc. Each workshop will have a sub-title; and no sub-title may be repeated by a student for credit.

HPER 530. RECREATION AND THE AGING PROCESS. *Three hours credit.*

The role of recreation as it relates to understanding and working with older persons. Emphasis will be on program planning for the older adult in retirement (in the Community, Senior Centers, Nursing Homes).

HPER 531. HEALTH ASPECTS OF GERONTOLOGY. *Three hours credit.*

This course is designed to acquaint the student with current scientific findings and present theories regarding the aging process. An in-depth study will be conducted by each student into some facet of aging.

HPER 545. ADVANCED TECHNIQUES IN TEACHING GYMNASTIC ACTIVITIES. *Two hours credit.*

Designed to assist the high school or college teacher with special problems in teaching and officiating gymnastic activities.

HPER 546. ADVANCED TECHNIQUES IN TEACHING INDIVIDUAL SPORTS. *Two hours credit.*

Designed to assist the high school or college teacher with special problems in teaching and officiating individual sports.

HPER 547. ADVANCED TECHNIQUES IN TEACHING TEAM SPORTS. *Two hours credit.*

Designed to assist the high school or college teacher with special problems in teaching and officiating team sports.

HPER 548. ADVANCED TECHNIQUES IN TEACHING DANCE ACTIVITIES. *Two hours credit.*

Special problems and procedures for teaching social, square and folk dance. For the advanced physical education major student.

HPER 550. ENVIRONMENTAL HEALTH. *Three hours credit.*

A study of the relationships of environmental problems to man's health and welfare for the advanced student. Source of these problems, their recognition and control, as well as current research studies will be included.

HPER 560. SCIENTIFIC PRINCIPLES OF COACHING. *Four hours credit.*

Primarily for the athletic coach to assist him in teaching and coaching the usual major sports of the school competitive sports program. Designed to establish on a sound scientific basis the mechanical principles involved in developing techniques for sport competition.

HPER 565. ADVANCED TECHNIQUES IN TEACHING FOOTBALL TO MEN. *Two hours credit.*

Designed to assist the in-service teacher of major sports for men with special problems in the field of football, including organization, strategy, personnel.

HPER 566. ADVANCED TECHNIQUES IN TEACHING BASKETBALL TO MEN. *Two hours credit.*

Designed to assist the in-service teacher of major sports for men with special problems in the field of basketball, including organization, strategy, personnel.

HPER 580. ADVANCED PREVENTION, CARE AND REHABILITATION OF ATHLETIC INJURIES. *Three hours credit.*

Prerequisite, HPER 380 or equivalent. Advanced study in the prevention, care, and rehabilitation of athletic injuries. Designed to aid the student and coach in analyzing, evaluating and applying current techniques and practices in relation to injuries in the school athletic program.

HPER 602. INTRODUCTION TO RESEARCH IN HEALTH EDUCATION, PHYSICAL EDUCATION, AND RECREATION. *Three hours credit.*

(Required of all health education, physical education, and recreation majors at the Master of Arts level). An introduction as well as some application of the strategy and methods of research to problem solving in health education, physical education, and recreation.

HPER 603. SCIENTIFIC FOUNDATIONS OF HEALTH EDUCATION. *Three hours credit.*

Designed to increase the graduate student's awareness of important health facts and principles as these apply to the quantitative and qualitative improvement of individual, family, community and world health.

HPER 604. SCHOOL HEALTH ADMINISTRATION. *Four hours credit.*

Designed to acquaint administrators, supervisors, and health educators with the planning and organizational aspects of the total school health program. Special attention is given to administrative and supervisory problems in health and safety instruction, health services and guidance, and healthful school living.

HPER 605. PUBLIC HEALTH PROBLEMS . *Four hours credit. (Three hours lecture, two hours field experience.)*

This course encompasses basic facts and principles of public health at the local, state, national, and international levels including the relationships between public health departments, voluntary agencies, and the school health program.

HPER 610. EVALUATION AND RESEARCH IN PARKS AND RECREATION. *Four hours credit.*

A course designed to acquaint the graduate student with the types, methods, and areas of evaluation and research in the field of parks and recreation services. The student will be required to accomplish an actual evaluation in public recreation setting.

HPER 612. EVALUATION IN HEALTH, PHYSICAL EDUCATION AND RECREATION. *Four hours credit.*

Prerequisite, HPER 426. Designed to give the graduate student a sound background in the tools, techniques, and methods of evaluation. Special emphasis is given to the construction of both written and activity tests as well as the use of other evaluative tools.

HPER 620. ADVANCED ANATOMICAL KINESIOLOGY. *Four hours credit.*

Prerequisite, HPER 220. An advanced study of the structural components of human movement with special attention being given to the analysis of movement problems.

HPER 621. ADVANCED MECHANICAL KINESIOLOGY. *Four hours credit.*

Prerequisite, HPER 220, 620. An advanced study of the mechanical components of human movement with special attention being given to the analysis of movement problems.

HPER 622. ADVANCED PHYSIOLOGICAL KINESIOLOGY. *Four hours credit.*

Prerequisites, HPER 220, 221, 222. An advanced study of the physiological components of human movement with special attention being given to the analysis of movement problems.

HPER 623. ADVANCED PSYCHOLOGICAL KINESIOLOGY. *Four hours credit.*

Prerequisite, HPER 223. An advanced student of the neuropsychological components of human movement with special attention being given to the analysis of movement problems.

HPER 624. ADVANCED MATURATIONAL KINESIOLOGY. *Four hours credit.*

Prerequisites, HPER 622, 623. An advanced study of the maturational components of human movement with special attention being given to the analysis of movement problems.

HPER 625. LABORATORY TECHNIQUES IN KINESIOLOGICAL RESEARCH. *Three hours credit. (Two hours lecture, two hours laboratory.)*

Prerequisite, HPER 222 or equivalent. An advanced course in the study and research of motor performance designed to provide the scientific background and laboratory experience essential for an understanding of the organismic responses associated with muscular activity. Students will have the opportunity to conduct experiments on selected topics.

HPER 640. CURRICULUM IN HEALTH AND PHYSICAL EDUCATION. *Four hours credit.*

The principles underlying curriculum construction, the various elements making up a curriculum, and experience in building a curriculum in either the field of health or physical education.

HPER 644. SUPERVISION OF PHYSICAL EDUCATION AND RECREATION. *Four hours credit.*

Concepts, principles, organization, and techniques of supervision for use by superintendents, supervisors, and teachers in the construction or supervision of programs in physical education and recreation.

HPER 650. SEMINAR IN HEALTH, PHYSICAL EDUCATION, AND RECREATION. *Two to four hours credit. (Each two hours of credit will require one additional laboratory hour of schedule time.)*

Designed for in-depth study by graduate students. Presents contemporary topics under the guidance of qualified graduate faculty and consultants. Topics such as Professional Preparation, Programming, or Contemporary Problems in one of the three areas might be listed as subtitles when this course is scheduled. Class may be repeated providing different subtitles are scheduled.

HPER 653. INTRODUCTION TO AIR POLLUTION. *Three hours credit.*

Effects of atmospheric pollutants, including types, sources, controls, sampling procedures and analysis, and legal aspects, upon man and the environment.

HPER 660. ADMINISTRATIVE INTERRELATIONSHIPS IN HEALTH, PHYSICAL EDUCATION AND RECREATION. *Four hours credit.*

The purpose of this course is to develop a better understanding of and skill in the administrative process as applied to the numerous interrelationships involved in the operation of programs of health, physical education and recreation.

HPER 670. SOCIOLOGY OF SPORTS AND PHYSICAL EDUCATION. *Three hours credit.*

Designed to introduce the advanced graduate student to the inter-relatedness of sports, society, and physical education.

HPER 675. AREAS AND FACILITIES IN PHYSICAL EDUCATION AND RECREATION. *Four hours credit.*

Major problems involved in the planning, construction, and maintenance of varied types of physical education and recreation areas and facilities. Technical aspects of construction and maintenance will be emphasized.

HPER 676. SEMINAR IN CONTEMPORARY PROBLEMS IN RECREATION. *Four hours credit.*

Detailed study of important problems in the area of leisure and recreation in America.

HPER 677. PARKS AND RECREATION MANAGEMENT. *Four hours credit.*

A course designed to prepare the graduate student in the more complex areas of present-day management, including federal grants, budgets, consultation, workshops, professional certification, and legislation.

HPER 678. ORGANIZATION AND OPERATION OF PARK AND RECREATION SERVICES. *Four hours credit.*

Designed to prepare the graduate student to effectively organize and train the staff and to operate the programs and facilities which are unique to park and recreation services. Special attention will be given to employment practices and staff supervision and to the financing, scheduling, and maintaining of program-facility operations in the field of park and recreation services.

HPER 690. ISSUES AND TRENDS IN HEALTH EDUCATION, PHYSICAL EDUCATION AND RECREATION. *Four hours credit.*

A course designed to provide detailed examination of the forces affecting the allied fields of Health Education, Physical Education, and Recreation. A study, in depth, of problems will be expected of each student according to his area of specialization.

HPER 702. HISTORY OF HEALTH, PHYSICAL EDUCATION, AND SPORT. *Four hours credit.*

The purpose of this course is to study the changing concepts of physical education throughout its history; to identify and analyze the forces which have influenced the program; and to determine the role which physical education should play in America today.

HPER 703. RESEARCH SEMINAR IN HEALTH AND PHYSICAL EDUCATION. *Four hours credit.*

Designed to serve the needs of doctoral candidates planning to conduct research in health education, physical education, or allied areas. Presents techniques and procedures in research and aids in the development of the required research outline for the doctoral degree.

HPER 704. PROBLEMS IN HUMAN MOVEMENT. *Four hours credit.*

Prerequisite, possession of the knowledges related to advanced principles of structural, mechanical, physiological, psychological, and maturational kinesiology (see course descriptions for HPER 620, 621, 622, 623, and 624). Individual and group study of problems related to the scientific variables of human movement.

HIGHER EDUCATION

EDHI 651. HIGHER EDUCATION IN THE UNITED STATES. *Three hours credit.*

An overview of the history, philosophies, curricula, organization and administration of American colleges and universities with emphasis on their present status and problems.

EDHI 652. ADULT EDUCATION. *Three hours credit.*

A survey of the field of adult education with special emphasis on history, philosophy, functions, institutions, and methods.

EDHI 653. THE JUNIOR AND COMMUNITY COLLEGE. *Three hours credit.*

The history, functions, present status, and problems of the junior college and the community college.

EDHI 654. THE COLLEGE AND UNIVERSITY TEACHER. *Three hours credit.*

Presents college teaching as a profession including selection and preparation of instructors and the status, services and rewards of the profession. Also concerned with the application of psychology to college teaching, problems in improving college instruction, and the research function of the college instructor.

EDHI 751. THE COLLEGE AND UNIVERSITY CURRICULUM. *Three hours credit.*

Outlines the major curricular offerings of American colleges and universities including general education, liberal arts education, vocational and professional education including teacher preparation and the academic administration involved in building and improving a curriculum.

EDHI 752. COLLEGE AND UNIVERSITY ADMINISTRATION. *Three hours credit.*

Describes the organization and administration of American higher education. Includes administrative problems concerned with faculty policy, finance, student personnel, publications, and instruction. Takes up government and administration at all levels from the departmental offices to the board of trustees.

HISTORY

HIST 510. SEMINAR IN UNITED STATES DIPLOMATIC HISTORY. *Three hours credit.*

The course will examine in depth important issues in American foreign policy from the founding of the nation to the present day.

HIST 515. SEMINAR IN AMERICAN COLONIAL HISTORY. *Three hours credit.*

This course is designed for the student who wishes to deepen his knowledge of the history of Colonial America through directed research.

HIST 518. SEMINAR IN THE JACKSONIAN ERA: 1815-1850. *Three hours credit.*

An intensive survey of the social, economic, and political developments of the Middle Period of American history. Major themes are the advent of industrialism, democracy, Manifest Destiny, and the genesis of a bitter sectional controversy.

HIST 522. SEMINAR IN THE AMERICAN CIVIL WAR. *Three hours credit.*

Slavery in America, the crises of the 1850's and the election of 1860, secession, conflict between the states, the Emancipation Proclamation, the reconstruction of the defeated South.

HIST 528. SEMINAR IN SOUTHWEST HISTORY. *Three hours credit.*

In this course Spanish and Anglo historical developments in Texas, New Mexico, Arizona, Southern California and Southern Colorado will be traced from the Coronado expedition in the sixteenth century to the present. Although the settlement period will be stressed, the political, social and economic developments since 1890 also will be analyzed.

HIST 532. SEMINAR IN THE POPULIST—PROGRESSIVE AGE: 1887-1920. *Three hours credit.*

A study of the Populist and Progressive periods in America with particular attention given to developments in the Rocky Mountain West. Research in primary sources located in nearby libraries and archives will be stressed as well as familiarization with the secondary sources in the university library.

HIST 536. SEMINAR IN THE EMERGENCE OF INDUSTRIAL AMERICA. *Three hours credit.*

A study of the emergence of industrialism in America during the latter part of the nineteenth century and the first decade of the twentieth century with emphasis on the technology and entrepreneurial methods of the new industrial order and the political and social problems created by the industrial transformation.

HIST 541. SEMINAR IN RECENT AMERICAN HISTORY. *Three hours credit.*

The objective of this seminar is to allow the student who has become familiar with the chronological sequence of events in American history to examine in depth the most significant topics, issues, and trends in the evolution of American society.

HIST 543. SEMINAR ON FRANKLIN D. ROOSEVELT AND THE NEW DEAL. *Three hours credit.*

A study of the political, social, economic and diplomatic history of the 1932-1945 era.

HIST 546. SEMINAR IN AMERICAN INTELLECTUAL HISTORY. *Three hours credit.*

A study of the intellectual aspects of characteristic institutions and the changing modes of thought in American life from the colonial period to the present day. The relationship of intellectual life to social and economic conditions is stressed.

HIST 550. GRADUATE READINGS COURSE IN THE SOCIAL SCIENCES AND HISTORY. *Four hours credit.*

This course is designed to give doctoral candidates who are deficient in the social sciences an opportunity to acquire a basic amount of knowledge and understanding of our cultural heritage and of the political, social, and economic problems that

confront America and the rest of the world. Possible solutions to contemporary problems are examined. This course is not applicable to a graduate degree in History or the Social Sciences.

HIST 555. SEMINAR IN LATIN AMERICAN HISTORY. *Three hours credit.*

To acquaint the graduate student with the historiography of and the state of research on Latin America. May be taken twice for credit as the colonial period will be considered one year and the national period the next.

HIST 560. SEMINAR IN ANCIENT HISTORY. *Three hours credit.*

A graduate course in ancient history designed to acquaint the student with select problems and sources in either Ancient, Greek, or Roman history.

HIST 565. SEMINAR IN MEDIEVAL HISTORY. *Three hours credit.*

A graduate course designed to acquaint the student with select problems in Medieval history. The course will emphasize techniques of research, and conception and organization of a historical problem.

HIST 568. SEMINAR IN RENAISSANCE AND REFORMATION HISTORY. *Three hours credit.*

A graduate seminar designed to acquaint the student with select problems and interpretations in Renaissance-Reformation history.

HIST 570. SEMINAR IN THE FRENCH REVOLUTION AND NAPOLEON. *Three hours credit.*

A graduate course designed to introduce the student to some of the main problems and interpretations of the French Revolution. Emphasis will be placed on technique of research, conception and organization of a historical problem.

HIST 578. SEMINAR IN MODERN GERMAN HISTORY. *Three hours credit.*

An intensive study of selected aspects of 20th century Germany will be undertaken, based on readings and directed research.

HIST 581. SEMINAR IN RUSSIAN HISTORY. *Three hours credit.*

The research assignment is to acquaint students with translated primary sources and secondary materials. The lectures on the writing of history in Russia are designed to illustrate various problems of Russian history. Tape recorded lectures of Soviet professors are analyzed to illustrate current interpretations of history.

HIST 584. SEMINAR IN EUROPEAN IDEOLOGIES. *Three hours credit.*

Traces the history of three European ideologies, namely, socialism, communism, and fascism, from the beginning of the 19th century to the present. These will be related to their interaction with liberalism, nationalism and democracy.

HIST 588. SEMINAR IN MODERN EUROPEAN INTELLECTUAL HISTORY. *Three hours credit.*

An intellectual history of modern Europe tracing the ideas of man from the age of the Enlightenment through the main currents of thought in the contemporary world, with emphasis on the transmission of the ideas of the great social thinkers.

HIST 590. SEMINAR IN JAPANESE HISTORY. *Three hours credit.*

The course deals with intellectual, social and institutional trends in Japanese history up to and including the modern period.

HIST 594. SEMINAR IN CHINESE HISTORY. *Three hours credit.*

The course deals with intellectual, social and institutional trends in Chinese history up to and including the modern period.

HIST 600. HISTORIOGRAPHY. *Three hours credit.*

Required of all graduate students majoring in history. An examination of the great historians and the major schools of historical interpretation from classical Greece to the twentieth century.

HIST 610. READINGS IN AMERICAN DIPLOMATIC HISTORY. *Three hours credit.*

This readings course will enable the advanced graduate student to deepen his knowledge of United States diplomatic history through a program of directed readings.

HIST 620. READINGS IN EARLY AMERICAN HISTORY. *Three hours credit.*

This readings course is designed to enrich the student's knowledge of early American history by allowing him to read and evaluate selected works from the literature of the field.

HIST 622. INDIVIDUAL STUDIES. *Maximum four hours credit.*

Qualified graduate students outline and spend a minimum of 25 clock hours per quarter on a problem. A well-written paper must be filed with the instructor and chairman before credit is given. Does not satisfy the 500 requirement unless the student is in full time residence at UNC during the quarter the course is taken.

HIST 624. READINGS IN THE JACKSONIAN ERA: 1815-1850. *Three hours credit.*

An analysis of significant works from the bibliography of the Jacksonian Era of American history.

HIST 626. READINGS IN THE AMERICAN CIVIL WAR AND RECONSTRUCTION. *Three hours credit.*

An analysis of significant works from the bibliography of the Civil War era.

HIST 680. READINGS IN MODERN EUROPEAN HISTORY. *Three hours credit.*

An analysis of selected works concerning a selected topic in modern European history.

HIST 681. SEMINAR IN TEACHING COMMUNITY COLLEGE OR COLLEGE HISTORY. *Three hours credit.*

This seminar course is designed to introduce doctoral students to the nature of the historian's craft, and to analyze new materials, methods and trends in the teaching of history at the community college and senior college levels. Required of all Doctor of Arts candidates.

HIST 755. SUPERVISED TEACHING IN HISTORY. *Three to nine hours credit.*

This course provides classroom teaching experience at the college level. The student will work with and be supervised by regular members of the Graduate faculty in history in lecture presentation and techniques designed to develop positively the instructor-student relationship. Required for all Doctor of Arts candidates.

HOME ECONOMICS

HEC 501. ART IN CONTEMPORARY LIVING. *Three hours credit.*

A consideration of the general scope of design as well as a study of artistic philosophies relative to developing design awareness and appreciation.

HEC 511. FAMILY DECISION MAKING. *Two hours credit.*

A study of the concept of decision making in management for family living and the factors which affect it. Case studies will be used to analyze managerial and consumer problems.

HEC 513. MANAGING PERSONAL AND FAMILY RESOURCES. *Three hours credit.*

Designed to provide the student with a general background of management

in terms of individual and family goals with emphasis directed toward the importance of decision-making in the judicious use of resources.

HEC 515. CONSUMER PROTECTION. *Three hours credit.*

Information concerning local, state and federal organizations and agencies and their functions, including existing laws and pending legislation written for the protection of the consumer.

HEC 518. ECOLOGY AND THE CONSUMER. *Three hours credit.*

A course designed to study the present and future ecologic crisis as it affects the life of the American consumer. Practical solutions for environmental problems will be investigated. Topics to be covered will include water and air pollution, food contamination, recycling, population growth, conservation of natural resources, noise pollution, radioactive pollution, and the role of the individual and government in the environmental crisis.

HEC 523. SELECTED TOPICS IN FAMILY LIFE. *Three hours credit.*

A study of the family in present day America. Considers functions of the family and forces affecting it; variations in family values and practices; roles, adjustments, relations and problems of adult and child members. Designed for teachers of adolescents and adults.

HEC 532. TEACHING CHILD DEVELOPMENT AND FAMILY RELATIONS. *Three hours credit.*

Prerequisite, an undergraduate class in Child Development and one in Family Relations. An overview of materials available to teachers, examination of variations in teaching technique and method, particularly related to Child Development and Family Relations and planning and evaluation of lessons.

HEC 533. ADVANCED CHILD DEVELOPMENT. *Three hours credit.*

Prerequisite, equivalent of HEC 331 or 333. An intensive study in the application of principles of child development and child guidance. Examination, analysis, and integration of current research findings as they apply to child growth and development will be a major emphasis.

HEC 534. CURRICULUM DEVELOPMENT IN PRESCHOOL EDUCATION. *Three hours credit.*

Prerequisite, HEC 334 or consent of instructor. Taken in conjunction with HEC 538. Comparison, evaluation and application of various preschool curricula in a laboratory situation. Examination of research in preschool curricula; and a study of developmental testing.

HEC 536. SEMINAR IN CHILD DEVELOPMENT. *Three hours credit.*

Prerequisite, HEC 333. Discussions and analysis of current readings in Child Development.

HEC 538. INTERNSHIP IN CHILD CARE CENTERS. *Three to six hours credit.*

Prerequisites, HEC 333, 334, 335, 533 or equivalent experience in preschool teaching. Taken in conjunction with HEC 534. Application of child development principles in teaching experience with preschool children. Experience in planning the program, preparing materials and assume all teaching responsibilities.

HEC 539. ISSUES IN PARENT EDUCATION. *Three hours credit.*

An examination of current problems facing parents: with suggestions for solutions based on critical reading and discussion. Special emphasis is placed on comparative techniques in child rearing.

HEC 543. PRESERVATION OF FOOD. *Four hours credit. (Two hours lecture, four hours laboratory.)*

Principles and techniques of food preservation. Current trends in food preservation will be studied and evaluated.

HEC 552. NUTRITION EDUCATION. *Three hours credit.*

Study of the sources of nutrients in food and their relationship to health with application to needs of individuals and different age groups. Approaches to teaching nutrition in the elementary and secondary schools are emphasized. This course is designed primarily for graduate students who have a minimum background in nutrition.

HEC 564. IMPROVEMENT OF INSTRUCTION IN HOME ECONOMICS. *Four hours credit.*

This course is planned primarily for an advanced student who wishes to improve competence in teaching home economics in junior and senior high school and in higher education. Various methods of teaching home economics are examined and evaluated.

HEC 566. INSTRUCTIONAL AIDS IN HOME ECONOMICS. *Four hours credit.*

A student develops and uses criteria in evaluating teaching materials and aids. This includes selecting, organizing, and storing of aids. Visual aids and devices used in teaching various phases of homemaking are planned and prepared. Printed materials are evaluated.

HEC 572. APPLIED HOME FURNISHINGS. *Three hours credit. (One hour lecture, four hours laboratory.)*

A study of various projects which will give a student experience in the application of art principles to interior decorations. Individual and/or class projects such as the construction of draperies, bedspreads and slipcovers.

HEC 573. HOUSE PLANNING AND MATERIALS. *Three hours credit.*
Prerequisite, HEC 271. Basic planning principles, construction details as well as structural aspects of the house are emphasized.**HEC 577. INTERIOR DESIGN THEORIES-PRACTICUM.** *Three hours credit. (Two hours lecture, two hours laboratory.)*

Prerequisite, HEC 271. Actual involvement in the design of full-scale living spaces and their furnishing in order to facilitate recognition and manipulation of the plastic elements as used in interiors-line, form, color, texture and space.

HEC 581. ADVANCED TEXTILES. *Three hours credit. (Two hours lecture, two hours laboratory.)*

A study of recent developments in the world of textiles including characteristics of new and modified fibers, new construction techniques used in fabrication, textured yarns, and modern finishes. The role of the consumer in purchasing and using new fabrics will be stressed. Consumer protection laws will be examined.

HEC 591. PERSONAL IMPROVEMENT OF THE TEACHER. *Three hours credit.*

Positive mental health and expressive personality traits will be stressed, with emphasis given to individual concerns.

HEC 594. ADVANCED TECHNIQUES IN CLOTHING CONSTRUCTION. *Three hours credit. (Two hours lecture, two hours laboratory.)*

Prerequisites, HEC 192, 293. This course is planned for graduate students with a background knowledge of the fundamentals of clothing construction. Opportunity will be presented to develop greater skill in construction processes, fitting techniques and alteration of ready-to-wear.

HEC 595. CREATIVE DRESS DESIGN. *Four hours credit. (Two hours lecture, four hours laboratory.)*

Prerequisites, HEC 191, 192, 293. Basic problems in draping on dress forms and in the drafting of flat patterns. Opportunity is provided for creative designs for different figure types in a variety of textured fabrics. Some consideration is given also to the design of simple decorative details and appropriate accessories.

HEC 596. DRESS DESIGN IN DRAPING. *Four hours credit. (Two hours lecture, four hours laboratory.)*

Prerequisite, HEC 395. Creative experiences in dress design through draping fabric on a form which the student makes to her own measurements. Basic problems in draping construction are emphasized. One original garment is completed.

HEC 599. CLOTHING ECONOMICS. *Three hours credit.*

A study of family and individual clothing problems: standardization, labeling, consumer protection, recent textile developments, consumer purchasing surveys, customs and whole production methods. The relationship of fashion to manufacturing and consumption of clothing.

HEC 608. DIRECTIONS IN HOME ECONOMICS. *One hour credit.*

Analysis of the home economics profession with emphasis on review and discussion of current programs in relation to philosophy and purposes as a foundation for graduate study.

HEC 611. CURRENT TRENDS IN HOME MANAGEMENT. *Three hours credit.*

A study of new developments in relation to management in the home and their application in a changing society.

HEC 642. PRINCIPLES AND TECHNIQUES OF FOOD PREPARATION.
Four hours credit. (Two hours lecture, four hours laboratory.)

A study of the scientific principles which are basic to protein, fat, and carbohydrate cookery. The principles involved in hydration, crystallization, leavening, emulsion and other cookery problems will be included. The relationship between techniques of food preparation and principles involved will be stressed.

HEC 648. FAMILY MEAL MANAGEMENT. *Four hours credit. (Two hours lecture, four hours laboratory.)*

An intensified survey of basic concepts related to food study. Aesthetic, economic and scientific aspects of food selection, preparation and service as it applies to the home.

HEC 655. RESEARCH IN FOODS. *Four hours credit. (Two hours lecture, four hours laboratory.)*

Prerequisites, HEC 141, 242, CHEM 104. To be taken concurrently with CHEM 315—Food Analysis. Study of the recent findings in food research. Opportunity is given for individual investigation in various problems of food preparation. Valid techniques of experimentation are stressed.

HEC 657. FOOD ECONOMICS. *Three hours credit.*

A study of family and world food problems: the influence of food on world conditions, work of the Food and Agriculture Organization of the United Nations (FAO), problems of food production, marketing, consumer practices and consumer protection in the United States, the cost of meeting nutrition needs of the American family.

HEC 659. SEMINAR IN NUTRITION. *Three hours credit.*

A study focusing on recent research which provides new scientific information in nutrition and new approaches to effective application of nutrition knowledge. Emphasis on review of current literature with discussion and evaluation. Special individual and group reports on topics selected according to needs and interests of the students.

HEC 666. SUPERVISION OF STUDENT TEACHING IN HOME ECONOMICS. *Three hours credit.*

The qualifications, objectives and responsibilities of the supervising teacher are analyzed. Supervision techniques and the evaluation of the development of the student teacher are stressed.

HEC 667. TEACHING APPROACHES IN HOME ECONOMICS EDUCATION. *Four hours credit.*

Modern trends in homemaking education will be evaluated. Needs of the

individual teacher are studied and assistance is given in working out practical solutions. Common problems are considered by the entire group.

HEC 668. CURRICULUM IN HOMEMAKING. *Three hours credit.*

This course helps teachers improve their ability to plan functional programs in homemaking and to solve curriculum problems. Implications of social and economic conditions, research findings, trends in education and current issues are determined. Current methods of program planning are studied.

HEC 669. EVALUATION IN HOMEMAKING EDUCATION. *Three hours credit.*

A study of principles and procedures in appraising student achievement of educational goals. Emphasis on evaluation as an integral part of the teaching and learning process. Experience provided in developing procedures and instruments for use in teaching situations.

HEC 676. HOUSING AND FAMILY NEEDS. *Three hours credit.*

A study of the relationship of family values and socio-economic factors as they relate to: apartment, single family structure, low income dwellings, housing for the aged. Consideration will be given to problems involving land use, urban sprawl and urban renewal.

HEC 678. SURVEY OF FURNITURE DESIGN. *Three hours credit.*

Prerequisite, HEC 271. A study of the dominant influences and characteristics of historical and modern furniture, ornamental and architectural design.

HEC 683. FABRIC ANALYSIS. *Three hours credit. (One hour lecture, four hours laboratory.)*

A study which affords a student the opportunity of carrying out some visual and manual experiments that will correlate the fundamental facts and concepts of textile fibers with their behavior in use and care, and to assist in applying this knowledge as a teacher and as a consumer.

HEC 689. SEMINAR IN CLOTHING AND TEXTILES. *Three hours credit.*

Discussion and interpretation of current literature and research in the fields of textiles and clothing as a means of developing increased understanding of the selection, use and care of modern textile products.

HEC 694. ADVANCED TAILORING. *Three hours credit. (Two hours lecture, two hours laboratory.)*

Prerequisite, HEC 494 or consent of the instructor. A study of advanced tailoring techniques suitable for use on modern fabrics. The planning and construction of a tailored garment will be done to meet individual needs of a student.

HEC 695. ADVANCED DRESS DESIGN AND CLOTHING CONSTRUCTION. *Three hours credit. (Two hours lecture, two hours laboratory.)*

Prerequisites, HEC 192, 293, 395, or 595. Individual patterns designed from the basic block made in HEC 395 or HEC 595 are used in constructing garments. Fitting problems and construction techniques of the entire class will be used to provide breadth of learning experiences. This will provide a student opportunity to develop more knowledge and skills in these areas of clothing construction.

HEC 698. HISTORY OF COSTUME. *Three hours credit.*

A study of the development of costume through the ages and its influence on the designs of present day clothing. The development of costumes in the couturier houses of Europe and America is considered.

HUMANITIES (Administered by English Department)

HUM 501. GREEK CULTURE. *Fifteen hours credit.*

Five weeks study of Greek art, mythology, and literature on the campus. This will be followed by four weeks in Athens, Delphi, the Peloponnesus and Crete

with lectures by outstanding authorities in aspects of Greek culture at the appropriate sites.

HUM 503. GRADUATE READINGS COURSE IN THE HUMANITIES.
Three hours credit.

This course is designed to acquaint graduate students with some of the major concepts, terms, and creative figures in the fields of literature, art, painting, and music. This course not applicable to a graduate degree in Humanities.

HUM 508. WORKSHOP IN THE HUMANITIES. *Four to twelve hours credit.*
The Workshop in the Humanities is a multi-disciplined approach to the study of man—his culture, literature, philosophy, history, and arts. Depending upon the interests of the instructor and the students, the approach may differ; for example, it may be thematic, historical, stylistically analytic, or other.

INDUSTRIAL ARTS

IA 508. WORKSHOP. *One to six hours credit.*

This course is concerned with the instructional problems of the participants; however, the problems attacked would vary from time to time according to the experts conducting the workshop. Each workshop will have a sub-title and no sub-title may be repeated for credit.

IA 511. PROBLEMS IN BINDERY ORGANIZATION. *Three hours credit.*
Organization of a bindery relating to the library, classroom, and as a general shop unit. Development of courses to meet individual needs.

IA 516. LEATHERCRAFT. *Three hours credit.*
Development of the basic skills in leathercraft, including designing, tooling, carving, and constructing leather projects for the industrial arts programs, such as general shop, camp activities, and recreation programs.

IA 533. MATERIALS OF INDUSTRY. *Three hours credit.*
A study of the origin of the materials used in industrial arts classes and processes involved in the manufacture of each material. Ways of presenting the related information and consumer knowledge of each material are considered.

IA 538. CURRENT THEORY AND PRACTICE IN THE ARTS. *Three hours credit.*
Current controversial issues which confront the teachers of the arts. Problems of standardization, laboratory organization, administrative and community attitudes, and correlation with other departments.

IA 540. GRAPHIC ARTS DESIGN AND LAYOUT. *Three hours credit.*
A study of the origin, development and application of the principles of design in the field of typography. Special emphasis is on the selection and use of type and illustrations for printing layout.

IA 541. COPY PREPARATION AND CAMERA PROCEDURES. *Three hours credit.*
Copy preparation for all the printing processes. Use of hot, cold, and photo type. Paste up procedures, camera techniques, and press production.

IA 542. INTRODUCTION TO COLOR PHOTOGRAPHY. *Three hours credit.*
Study and application of color slide photography as a tool of graphic communication. Emphasis upon the transformation of photographic ideas into effective graphic representations.

IA 543. COLOR SEPARATION FOR PHOTOMECHANICAL REPRODUCTION. *Three hours credit.*
Fundamentals of subtractive color theory as used in separating color copy. Handling of transparent and reflection copy. Special proofing, plate making and press operation.

IA 544. PHOTOGRAPHY IN EDUCATION. *Three hours credit.*

Study and application of still picture utilization as an educational tool. Production and evaluation of black and white and color photographs used to augment instruction in the classroom.

IA 550. CONTEMPORARY FURNITURE DESIGN AND FABRICATION. *Three hours credit.*

A brief introduction of recognized periods of furniture design leading to the present concept of functionalism and the techniques of applying contemporary design.

IA 556. ADVANCED UPHOLSTERY. *Two hours credit.*

The use of special techniques and materials relating to upholstery. The study of upholstery and its place in the public school shop.

IA 557. CONSTRUCTION PROBLEMS IN WOOD. *Three hours credit.*

For advanced woodworking students with special emphasis on construction problems relating to the building trades.

IA 563. DESCRIPTIVE GEOMETRY. *Three hours credit.*

A study and an analysis of the space relationships of points, lines, and planes that precedes design. Emphasis is placed on orthographic projection, auxiliary view techniques, and revolution. In addition, time will be spent on practical applications of engineering and mathematical problems.

IA 564. INDUSTRIAL ARTS DESIGN. *Three hours credit.*

Principles of design as they apply to the several areas of industrial arts.

IA 565. TECHNICAL ILLUSTRATION. *Three hours credit.*

The technical illustrator's tools, skills, standards, and opportunities. A study of and practice in lettering, axonometric, oblique, and perspective drawings. Special treatments, including cutaway and exploded assemblies, shades and shadows.

IA 570. ADVANCED GENERAL METALWORK. *Three hours credit.*

An advanced study in bench metalwork, sheet metalwork, forge and foundry work.

IA 571. ADVANCED METAL CRAFT TECHNIQUES. *Three hours credit.*

Advanced metal tooling, etching, engraving, wire crafts, copper jewelry, forming, raising and spinning. Problems of organization and teaching techniques.

IA 572. ADVANCED WELDING. *Three hours credit.*

The processes and principles of welding including oxy-acetylene, arc, TIG and MIG welding. Consideration given to principles of teaching, course content, welding supplies and equipment suitable for the teaching of welding at the secondary and junior college levels.

IA 573. ADVANCED LAPIDARY AND SILVER CRAFTS. *Three hours credit.*

Advanced techniques in silver with emphasis on the lost wax process, enameling, lapidary, plating and jewelry.

IA 574. MACHINE TOOL TECHNOLOGY. *Two hours credit.*

The operation of machine tools including milling machines, grinding machines, engine lathes and turret lathes, including emphasis on testing and precision measurement.

IA 575. ADVANCED MACHINE TOOL TECHNOLOGY. *Three hours credit.*

The operation and maintenance of machine tools, precision measurement and metals testing techniques, and instructional methods applicable to the secondary and junior college levels.

IA 581. PROBLEMS IN TEACHING GENERAL SHOP ELECTRICITY.

Three hours credit.

A course designed for industrial arts teachers who need to review and upgrade their understanding of modern developments in electronics. Emphasis also placed on laboratory organization and equipment problems related to the electronics area.

IA 582. ELECTROMAGNETIC AND ELECTRONIC INSTRUMENTS. *Two hours credit.*

A study of the fundamental types of DC and AC generators and motors used in electricity. Theories of inductance, capacitance and resonance are covered. Emphasis also placed on electronic measuring instruments and devices such as oscilloscopes, meter movements and semi-conductor theory.

IA 615. INDUSTRIAL CRAFTS. *Three hours credit.*

Design, construction and demonstration experiences in the craft areas of graphic arts, leather, metal, plastics, wood, similar areas and materials as they apply to industrial arts shop, general shops, school crafts and club activities, and recreational craft programs.

IA 618. PLASTICS TECHNOLOGY. *Three hours credit.*

Introduction to the industrial processes of the plastic industry with emphasis on molding, casting, thermoforming processes and fabrication.

IA 619. PLASTIC PROBLEMS AND DESIGN. *Three hours credit.*

A study of the various plastic processes and materials including reinforcing, lamination, expandable and foaming materials. Emphasis on the development of molds, forms, aids, resource materials and projects.

IA 620. ORGANIZATION AND ADMINISTRATION OF INDUSTRIAL EDUCATION. *Three hours credit.*

A study of the purposes and programs of industrial education in secondary schools, including industrial arts and vocational-industrial education. Special emphasis on the program of vocational-industrial education as provided through the Smith-Hughes Act and other pieces of federal legislation.

IA 630. ORGANIZATION AND ADMINISTRATION IN INDUSTRIAL ARTS. *Three hours credit.*

Designed for teachers, supervisors and administrators of industrial arts. Emphasis placed on shop planning, teacher and school liability, shop organization and operation, accounting procedures, maintenance problems and purchase and replacement of equipment and supplies.

IA 631. A CRITIQUE OF MODERN INDUSTRIAL ARTS. *Three hours credit.*

A study of industrial arts philosophies, objectives, content, methods and evaluation with emphasis upon current and future implications for industrial arts education.

IA 632. SEMINAR IN INDUSTRIAL ARTS. *Three hours credit.*

An opportunity for students doing independent research to report and receive criticism.

IA 633. HISTORY AND PHILOSOPHY OF INDUSTRIAL EDUCATION. *Five hours credit.*

A study of the origin and development of the proposals and movements in industrial education together with a consideration of the philosophical thought of selected leaders.

IA 634. INDUSTRIAL OCCUPATIONS. *Three hours credit.*

A study of industrial occupations as related to vocational, technical, and industrial arts education. It will include types of occupations, entrance requirements, sources of training, and other related information which would be of benefit to the industrial education teacher.

IA 636. CRITIQUE FOR GENERAL SHOP ORGANIZATION. *Three hours credit.*

Philosophy of the program, objectives, techniques of teaching and organization of general shops. Special problems of instruction and administration are also considered.

IA 637. DEVELOPMENT OF INSTRUCTIONAL MATERIALS. *Three hours credit.*

Visual aids, instruction sheets, charts, graphs, and other instructional devices are planned and developed. The student will select, plan and construct, where appropriate, various instructional aids.

IA 638. CURRICULUM DEVELOPMENT. *Three hours credit.*

Designed for industrial arts teachers, supervisors and administrators who need an understanding of content, objectives, and equipment to conduct classes of industrial arts in the public schools and colleges. Emphasis placed on objectives, methods of selecting course content, equipment, and research completed in this area.

IA 639. EVALUATION TECHNIQUES. *Three hours credit.*

Problems in measuring industrial arts achievement. A study of the purposes of evaluation and the kind and types of instruments used. Interpretation of data leading to the improvement of instruction.

IA 643. ORGANIZATION OF THE GRAPHIC ARTS LABORATORY. *Three hours credit.*

The techniques and objectives of the graphic arts; their historical development and place in our cultural background; art in printing; shop planning, equipment and management; course content and organization.

IA 644. PROBLEMS OF DESIGN IN THE GRAPHIC ARTS. *Three hours credit.*

Centered around graphic arts problems found in individual projects, with an emphasis upon teaching students to recognize, appreciate and use the principles of design on the printed page.

IA 651. ORGANIZATION OF THE WOOD SHOP. *Three hours credit.*

Critical study of current practices. A "refresher" course for teachers who have been away from the field. Includes techniques in both bench and machine work.

IA 652. PROBLEMS IN WOODWORKING. *Three hours credit.*

A study of the problems the specialized teacher of woodworking in secondary schools must meet.

IA 662. PROBLEMS IN DRAFTING AND PLANNING. *Three hours credit.*

Objectives, course content, and teaching procedures of all units in drafting. Problems are set up in terms of individual needs.

IA 674. ORGANIZATION OF THE METAL SHOP. *Three hours credit.*

Includes objectives, course content, shop organization, evaluation and problems of teaching the various phases of metalwork.

IA 675. PROBLEMS OF THE METAL SHOP. *Three hours credit.*

Advanced study in the organization of both unit and general metal shops and shop practice handled on the seminar basis, giving the graduate students an opportunity to work on problems in the field.

IA 680. ELECTRONICS. *Five hours credit.*

Problems in the teaching of electronics in industrial arts departments of the public schools and colleges. Course organization and content, methods of presentation, and laboratory equipment problems are considered.

IA 681. INDUSTRIAL ELECTRONICS. *Two hours credit.*

A study of selected materials, components and circuits involved in electronic devices in industry. Special emphasis will be given to basic theory of operation

and possible applications of electronic equipment. Deals with fuel cells, solar cells, facsimile reproduction, photo-electrical devices, computers, radar, high frequency heating, motor controls, electronic counters and timers, resistance welding, electroluminescence lighting, and integrated circuits.

IA 682. BASIC RADIO (AM-FM). *Three hours credit.*

A study of the characteristics of the AM and FM radio and problems involved in servicing. The procedures, techniques, and problems of making and repairing printed circuits in electronic equipment are considered. Study of circuitry and alignment of AM-FM radio receivers and transmitters.

IA 690. POWER FUNDAMENTALS. *Three hours credit.*

An advanced study of energy sources and the machines that convert into useful work. Emphasis placed on two-cycle and four-cycle engines and their principles of operation.

IA 695. PROBLEMS IN TEACHING POWER. *Three hours credit.*

Objectives, course content and teaching procedures in all units in power and power transmission. Problems are set up on the basis of individual needs.

IA 730. RESEARCH IN INDUSTRIAL EDUCATION. *Maximum of six hours credit.*

A series of three courses designed to (1) study the results of research in education, their implication to industrial arts (2) to identify and isolate the major problems facing research in industrial arts (3) and to discuss the various means of designing, interpreting and reporting research information in industrial arts. This sequence is recommended for the doctoral students who are in residence working on their dissertations.

INDIVIDUAL STUDIES

IS 622. INDIVIDUAL STUDIES. *Maximum of four hours credit.*

Qualified graduate students outline and spend a minimum of 25 clock hours per quarter hour on a problem. Two copies of a well-written paper must be filed with the instructor before credit is given. Does not satisfy the 500 level requirement unless the student is in full-time residence at UNC during the quarter the course is taken.

INTERDISCIPLINARY NEW AND EXPERIMENTAL COURSES

198-798 New and Experimental Courses—Courses using department prefix or ID prefix numbered 198, 298, 398, 498, 598, 698 or 798 are new or experimental courses which have been approved through proper university procedures but in which action was not completed in time for publication in the current catalog. The course will be designated by title and a course description will be published in the subsequent catalog under the appropriate department with a different assigned number. Cross reference may be made by checking identical titles. Distinction of each course will be made by title as is the case for designating workshops.

In the case of the School of Educational Change and Development, the school will maintain files of all course description for SECD courses ending in "98."

ID 508. WORKSHOP. *One to ten hours credit.*

This course is concerned with the instructional problems of the participants; however, the problems attacked would vary according to the experts conducting the workshop. The nature of the workshop might cover such areas as Admin-

istration, Reading, Kindergarten, and Curriculum. Each workshop will have a sub-title and no sub-title may be repeated for credit.

ID 600. INTRODUCTION TO GRADUATE STUDY. *Three hours credit.*

An orientation to graduate study in general and the nature and methods of research in particular. Required of all first-year graduate students (except for those departments which have substitutes for this course). Should be taken during the first quarter of graduate work.

ID 601. PRACTICUM. *Maximum of four hours credit.*

Open only by invitation to resident graduate students. Supervised professional activity in the student's major field, approximately two hours per day. Two copies of a well-written paper must be filed with the instructor before credit is given.

ID 691. CREATIVE PROJECT. *Maximum of fifteen hours credit.*

With the approval of the major adviser and the Dean of the Graduate School, a creative project in educational media, fine arts, literature, or music may be prepared as the equivalent of a thesis.

ID 697. CREATIVE PROJECT. *Maximum of fifteen hours credit.*

With the approval of the major adviser and the Dean of the Graduate School, a creative project in educational media, fine arts, literature, or music may be prepared as the equivalent of a thesis.

ID 699. THESIS. *Maximum of fifteen hours credit.*

Required of Master of Arts candidates in the Arts and Sciences programs Botany, Chemistry, Physics, Zoology. Optional for all other Master of Arts programs on recommendation of the major adviser.

ID 700. INTRODUCTION TO DOCTORAL RESEARCH. *Three hours credit.*

An introduction to research and advanced study. Required of all specialist and doctoral candidates (except for those departments which have substitutes for this course).

ID 701. SPECIALIST DEGREE PRACTICUM. *Eight hours credit.*

Project or supervised professional activity, required of all candidates for the Specialist in Education degree (except for those departments which have substitutes for this course).

ID 702. SEMINAR IN COLLEGE TEACHING. *Three hours credit.*

Course includes an examination of current issues in higher education, of the role of a faculty member in a collegiate setting, of the psychology of learning, and of typical instructional problems. This course is required of all Doctor of Arts candidates and should be taken during the first year of doctoral study.

ID 755. SUPERVISED PRACTICUM IN COLLEGE TEACHING. *Maximum of nine hours credit.*

This course provides experiences in observation and supervised practice in college teaching for doctoral candidates planning to teach on the college or university level. Observations and the teaching experiences will be used as a basis for the analysis of learning experiences.

ID 756. INTERNSHIP IN SUPERVISING COLLEGE TEACHING. *Three hours credit.*

This course is designed for doctoral candidates preparing for college teaching. It provides experiences in working with the regular staff members engaged in the supervision of college and university teaching experiences. Particular attention is centered on the various aspects of the teaching-learning process and on analysis of self growth.

ID 799. DOCTORAL DISSERTATION. *Six to eighteen hours credit.*

Required of all doctoral candidates.

JOURNALISM

JOUR 501. PHOTOJOURNALISM WORKSHOP. *Three hours credit.*

Advanced camera skills, communicating with pictures. Composition and enlarging techniques. Production of the student's portfolio of various picture situations.

JOUR 505. WORKSHOP FOR SCHOOL PUBLICATION SPONSORS. (PTE)

Three hours credit.

Acquaint students with role of publications as media for internal and external publics; study and experience procedures of doing school newspapers, annuals, handbooks, and radio programs.

JOUR 544. COMMUNITY RELATIONS. *Three hours credit.*

Presents a view of community relations which is based on the concept of changing institutions in a changing society; examines the communicative, sociological, and psychological factors which create and influence public and personal opinion. It shows how skills and techniques may be developed and utilized in a sound community relations program.

JOUR 591. NEWSWRITING WORKSHOP. *Three hours credit.*

Specialized writing in areas such as editorial, depth stories, features, and sports. Designed primarily for graduate students who wish to up-date writing skills and learn new procedures required by media.

JOUR 595. PHILOSOPHY AND PROCEDURES OF PUBLIC RELATIONS.

Three hours credit.

Advanced study in the refinements of public relations; development of practical projects that can be utilized in public school, higher education, government, business.

JOUR 598. PUBLIC RELATIONS WORKSHOP. *Three hours credit.*

Practice of public relations principles and methods for the school man and businessman.

MATHEMATICS

MATH 510. SEMINAR IN MATHEMATICS. *One hour credit. (Maximum six hours credit.)*

Study and discussion of topics from mathematics.

MATH 521. MODERN ALGEBRA I. *Four hours credit.*

Prerequisite, MATH 323 or equivalent. A study of abstract algebra with emphasis on group theory, ring theory, polynomial rings, principal ideal rings, vector spaces, modules and selected topics.

MATH 522. MODERN ALGEBRA II. *Four hours credit.*

Prerequisite, MATH 521 or equivalent. A continuation of MATH 521.

MATH 525. LINEAR ALGEBRA. *Four hours credit.*

Prerequisite, MATH 322. A further treatment of linear algebra, based on the first work of modern algebra. The course will complement the study of Matrices in MATH 325, Elementary Linear Algebra. The content includes a study of vector spaces, linear transformations, and characteristic roots.

MATH 535. INTRODUCTORY ANALYSIS I. *Four hours credit.*

Prerequisite, MATH 234. The first course of a sequence of three courses designed to study the foundations of analysis. The sequence will include the following topics: the real numbers, basic point set topology, theorems on continuity, differentiation and integration, sequences and series of functions, the inverse and implicit function theorems. The sequence of courses is especially recommended for those students intending to do graduate work in mathematics.

MATH 536. INTRODUCTORY ANALYSIS II. *Four hours credit.*
Prerequisite, MATH 535. Continuation of MATH 535.

MATH 537. INTRODUCTORY ANALYSIS III. *Four hours credit.*
Prerequisite, MATH 536. Continuation of MATH 536.

MATH 540. INTRODUCTION TO TOPOLOGY. *Four hours credit.*
Prerequisites, MATH 202, 234. Elementary point set topology. General topological spaces with emphasis on metric spaces.

MATH 543. MODERN GEOMETRY I. *Four hours credit.*
Prerequisite, Graduate standing in mathematics. A first course in a two-course sequence which will emphasize new topics in present-day geometry. This emphasis will be partly Euclidean in nature and partly non-Euclidean. Special emphasis will be placed upon the foundations of geometry along with the different geometries which can be developed from this foundation. Topics to be covered are foundations of geometry, transformation, types of geometry, and selected Euclidean topics.

MATH 544. MODERN GEOMETRY II. *Four hours credit.*
Prerequisite, MATH 543. A continuation of MATH 543. This course will continue to emphasize types of geometry with special emphasis being placed on non-Euclidean topics. Special types to be covered include absolute geometry, parabolic geometry, elliptic geometry and differential geometry.

MATH 551. INTRODUCTION TO MATHEMATICAL STATISTICS I.
Four hours credit.
Prerequisite, MATH 250. Distributions of discrete and continuous random variables; moments and moment generating functions; marginal and conditional distributions; distributions of functions of random variables; t , F , and Chi-square distributions.

MATH 552. INTRODUCTION TO MATHEMATICAL STATISTICS II.
Four hours credit.
Prerequisite, MATH 551. Interval estimation; point estimation and maximum likelihood procedures; distributions of order statistics, stochastic convergence, central limit theorem and limiting distribution theory; sufficient statistics and completeness property.

MATH 553. INTRODUCTION TO MATHEMATICAL STATISTICS III.
Four hours credit.
Prerequisite, MATH 552. Tests of hypotheses, analysis of variance, non-central t , F , and Chi-square distributions, multivariate normal distribution.

MATH 555. PROBABILITY THEORY. *Four hours credit.*
Prerequisite, MATH 250. Chebyshev's inequality, laws of large numbers, sums of independent random variables, central limit theorem, sequence of random variables, different modes of convergence, and probability generating functions.

MATH 556. AN INTRODUCTION TO STOCHASTIC PROCESSES. *Four hours credit.*
Prerequisite, MATH 555. Definition of stochastic processes, probability laws of stochastic processes, Weiner process, Poisson process, covariance stationary process and Markov chain.

MATH 564. TOPICS IN THE HISTORY OF MATHEMATICS. *Three hours credit.*
Prerequisite, consent of instructor. The student will explore a period of time, an area of mathematics, and/or a group of mathematicians. Consult instructor for emphasis.

MATH 585. NUMERICAL ANALYSIS I. *Two hours credit.*
Prerequisite, MATH 133 or consent of instructor. This is a course in mathematics covering three areas of numerical analysis: elementary number theory, nonlinear algebra and polynomial analysis. Other areas of numerical analysis may be covered depending on student backgrounds. Digital computing, flow charting

and programming will be used by those students having this type of background, but students interested in pure mathematics will be welcome and will not be required to use computers in any way.

MATH 586. NUMERICAL ANALYSIS II. *Two hours credit.*

Prerequisite, MATH 133 or consent of instructor. MATH 585 is not a prerequisite to MATH 586. Three more areas of numerical analysis will be covered in this course: linear equations, interpolation and numerical integration. Like MATH 585, the content of MATH 586 may be changed to suit the students. Computer programming is not a prerequisite.

MATH 587. NUMERICAL ANALYSIS III. *Two hours credit.*

Prerequisite, MATH 133 or consent of instructor. MATH 585 or 586 is not prerequisite to MATH 587. Several additional areas of numerical analysis will be covered. These are: boundary value problems, approximation of functions, solution of ordinary differential equations, quadrature analysis and Monte Carlo Methods. Computer programming will be used but not required.

MATH 591. THEORY OF NUMBERS. *Four hours credit.*

Prerequisite, MATH 322. Foundations of arithmetic and algebra, including the fundamental laws, the linear Diophantine equation, properties of integers and the properties of linear and quadratic congruences.

MATH 601. FOUNDATIONS OF MATHEMATICS. *Three hours credit.*

A study of the logical and set theoretical foundations of modern mathematics including the axiomatic features of mathematics such as consistency, independence, and completeness. Some special topics are the Axiom of Choice, Zermelo's Well-Ordering Theorem, and Transfinite Cardinal and Ordinal Numbers.

MATH 611. SPECIAL TOPICS. *Three hours credit. (Maximum eighteen hours credit.)*

Prerequisite, approval of the instructor. Advanced topics in the areas of analysis, algebra, topology and statistics. Specific topics to be covered will be determined at the instructor's discretion and by the current needs of the students. Such topics as functional analysis, advanced differential equations, algebraic topology and others may be covered.

MATH 620. THEORY OF FIELDS. *Four hours credit.*

Prerequisite, MATH 523 or equivalent. Adjunction. Separable and inseparable extensions. Modular fields. Galois theory. Transcendental extensions. Additional topics selected from ordered fields, fields with valuation, theory of elimination.

MATH 626. THEORY OF RINGS. *Four hours credit.*

Prerequisite MATH 523 or equivalent. A graduate course designed to complement graduate courses in modern algebra and extend the development of ring theory in ideals, endomorphisms, the Jacobson radical, and other topics.

MATH 628. THEORY OF GROUPS. *Four hours credit.*

Prerequisites, MATH 523 or equivalent. This is an extension of the study of group theory begun in modern algebra into selected elementary areas including permutation groups, abelian groups and Sylow's theorems.

MATH 629. SPECIAL TOPICS IN ALGEBRA. *Three hours credit. (Maximum eighteen hours credit.)*

Prerequisite, approval of the instructor. Advanced topics in the area of algebra. Specific topics to be covered will be determined by the instructor's discretion and the current needs of the student. Such topics as representation theory, commutative algebra, homological algebra and category theory may be covered.

MATH 632. COMPLEX VARIABLE I. *Three hours credit.*

Prerequisite, MATH 433 or 536. The first course of a sequence of three courses which will cover the basic theory of functions of a complex variable. The course will cover the following topics: complex number and their algebra, analytic functions, Cauchy Riemann conditions, and differential calculus of analytic functions.

MATH 633. COMPLEX VARIABLE II. *Three hours credit.*

Prerequisite, MATH 632. A second course in a sequence of three courses. The topics to be considered in this course are elementary functions of a complex variable and their inverses, residues and poles of a function of a complex variable and their application to evaluating real integrals.

MATH 634. COMPLEX VARIABLE III. *Three hours credit.*

Prerequisite, MATH 633. The third course in a sequence of three courses. From the background established in the first two courses several advanced topics and applications will be considered. These will include conformal mapping and applications (to solutions of differential equations) and the concept of analytic continuation.

MATH 635. REAL ANALYSIS I. *Three hours credit.*

Prerequisite, MATH 433 or 536. Elements of set theory and its application to classical integration theory and classical Banach spaces.

MATH 636. REAL ANALYSIS II. *Three hours credit.*

Prerequisite, MATH 635. An introduction to general topology and to the theory of general Banach spaces.

MATH 637. REAL ANALYSIS III. *Three hours credit.*

Prerequisite, MATH 636. A treatment of general measure and integration theory.

MATH 639. SPECIAL TOPICS IN ANALYSIS. *Three hours credit. (Maximum eighteen hours credit.)*

Prerequisite, approval of the instructor. Advanced topics in analysis and functional analysis. Specific topics to be covered will be determined by the instructor's discretion with an attempt to meet the current needs of the students. Such topics as functional analysis, integral operators, differential equations, measure theory, spectral theory, etc., may be covered.

MATH 646. GENERAL TOPOLOGY I. *Three hours credit.*

Prerequisites, MATH 433 or 536. Point set and algebraic topology.

MATH 647. GENERAL TOPOLOGY II. *Three hours credit.*

Prerequisite, MATH 646. A continuation of MATH 646.

MATH 648. GENERAL TOPOLOGY III. *Three hours credit.*

Prerequisite, MATH 647. A continuation of MATH 647.

MATH 649. SPECIAL TOPICS IN TOPOLOGY. *Three hours credit. (Maximum eighteen hours credit.)*

Prerequisite, approval of the instructor. Advanced topics in general and algebraic topology, specific topics covered will be determined by the instructor and current needs of the students. Topics may include algebraic topology, homotopy theory, knot theory, dimension theory and topological groups.

MATH 755. INTERN TEACHING IN MATHEMATICS. *Two hours credit. (Maximum six hours credit.)*

This course is designed primarily for Doctor of Arts candidates preparing for a career in college or community college teaching of mathematics. It provides experience in supervised practice in college teaching of mathematics. Attention is centered on the various aspects of the teaching-learning process and on analysis of self-growth.

MATHEMATICS EDUCATION

MED 577. MATHEMATICS TEACHERS' WORKSHOP. *Three hours credit. (Maximum eighteen hours credit.)*

Provision is made for students to work on problems related to elementary, junior high, senior high, or junior college mathematics. No more than nine hours may be applied on any one graduate degree.

MED 672. CURRICULUM IN SECONDARY SCHOOL MATHEMATICS.
Four hours credit.

A study of the mathematics curriculum in grades 7-14 with emphasis on committee and commission reports, changes in textbooks, and modern curricular programs in both large and small secondary schools.

MED 673. PROBLEMS IN THE TEACHING OF SECONDARY MATHEMATICS.
Four hours credit.

Prerequisites, MATH 322, MED 672. Content, special problems, and modern trends in algebra will be studied. Emphasis will be placed upon new approaches and content.

MED 674. SEMINAR IN TEACHING SECONDARY MATHEMATICS.
Four hours credit.

Prerequisites, MATH 341, MED 672. Content, special problems, and modern trends in geometry and trigonometry will be studied. Emphasis will be placed upon new approaches and content.

MED 678. SPECIAL TOPICS.
Three hours credit. (Maximum eighteen hours credit.)

Prerequisites and topics will be announced in the schedule of classes. No more than nine hours may be applied on any one graduate degree.

MED 681. SEMINAR IN TEACHING COMMUNITY COLLEGE AND COLLEGE MATHEMATICS.
Three hours credit.

The work of this course will include readings in mathematics education with emphasis on higher education, practice in the use of various teaching techniques, discussion of professional responsibilities and other activities designed to assist the prospective college mathematics teacher.

MED 772. THEORY AND PRACTICE OF TEACHING MATHEMATICS.
Three hours credit.

Prerequisite, MED 672. Current practices used in the classroom will be related to the various theories of learning. Emphasis will be placed upon recent developments.

MED 773. SEMINAR IN MATHEMATICS EDUCATION.
Three hours credit.

Prerequisites, MED 772, RSM 605. The first of two courses which will examine the completed research in mathematics education and the various recommendations for improving the teaching of mathematics. Needed research will be identified.

MED 774. ADVANCED SEMINAR IN MATHEMATICS EDUCATION.
Three hours credit.

Prerequisite, MED 773. A continuation of MED 773.

MED 775. SEMINAR IN LITERATURE FOR MATHEMATICS EDUCATION.
Two hours credit. (Maximum six hours credit.)

This is a concentrated study of recent literature in the field of mathematics education. Literature will be identified, read, and critically discussed by the participants.

METEOROLOGY

MET 500. SURVEY OF METEOROLOGY.
Five hours credit. (Four hours lecture, three hours laboratory.)

This course will consider the basic principles of atmospheric science with a non-mathematical approach. Topics of weather observation and prediction, physical basis for cloud formation, radiational heating and cooling, wind circulation, condensation and precipitation processes will be considered. A laboratory of three hours per week will be required for work with meteorological instruments, maps, and charts. Projects will be required. Arranged primarily for graduate students. Offered summers only.

MET 536. BIOMETEOROLOGY. *Three hours credit.*

Prerequisite, MET 100 or 202 or 500. The relationship between living organisms and the atmospheric environment. Radiation, temperature, moisture, wind and the energy budget of particular systems form the basis of discussion of a variety of topics, including air pollution and artificial control of plant and animal environments.

MET 599. SPECIAL TOPICS IN METEOROLOGY. *One to four hours credit.*

Prerequisite: Consent of instructor. An opportunity for students to explore areas of meteorology which are beyond the scope of existing departmental offerings. Specific topics to be treated will be determined by the interests of the students and the instructor.

MUSIC

MUS 501. PRACTICAL ARRANGING. *Three hours credit.*

Prerequisite, MUS 303. A project course in arranging for school instrumental and vocal groups. Projects include arranging for small ensembles in both standard and unusual combinations, transcription of instrumental and vocal descants for the enrichment of song literature.

MUS 502. EIGHTEENTH CENTURY HARMONY AND FORMS. *Three hours credit.*

A study of eighteenth century harmonic practice and tonality concepts. Binary, ternary, variation, rondo, and sonata principles in historical perspective as exemplified in music of the Classic Period.

MUS 503. NINETEENTH CENTURY HARMONY AND FORMS. *Three hours credit.*

Harmonic materials of the nineteenth century, beginning with a brief review of secondary sevenths, diminished sevenths, and continuing with augmented chords, ninth chords, modulation, sequence, and the whole tone scale. Study of simple part forms—song form with trio, rondo forms, variations and the sonata allegro—as used in the nineteenth century. Analysis of compositions in all major forms. Original compositions in shorter forms.

MUS 504. TWENTIETH CENTURY HARMONY AND FORMS. *Three hours credit.*

This course is concerned with new compositional techniques employed in twentieth century music as revealed in new concepts of melody, harmony, rhythm and form. When possible, this course should be combined with MUS 647. Seminar: New Music.

MUS 505. CHURCH MUSIC. *Three hours credit.*

This course gives a brief survey of music in the history of the Christian church. The philosophy of church music and its real function in worship is studied. The administration of the total music program in the church is outlined. Suitable materials for all occasions are evaluated and classified.

MUS 506. ARTS AND IDEAS FOR TEACHERS. *Three hours credit.*

An integrated study of humanistic values in the arts through active involvement that nurtures understanding, aesthetic, and creative growth.

MUS 507. PERFORMANCE PRACTICES. *Three hours credit.*

A study of musical performance from the Renaissance Era (ca. 1450) through the Classical Era (ca. 1825). Discussion of musical instruments, and thorough bass practices. The interpretation of ornamentation.

MUS 508. MUSIC WORKSHOP. *One to four hours credit.*

Workshops are conducted by authorities nationally known in their fields of specialization. The purpose of the workshop is to provide information about current important ideas in each field of knowledge.

MUS 509. ELECTRONIC MUSIC. *Three hours credit.*

The course is comprised of a description of the materials used in electronic music and of the techniques and equipment that are employed to transform and organize these materials into compositions. Emphasis is placed on the relation of electronic music to established musical concepts.

MUS 523. ADVANCED CONDUCTING. *Three hours credit.*

Prerequisites, MUS 320, 321, 322 or 314, 323 and 324. A laboratory course in advanced problems of instrumental or choral conducting. Supervised conducting experience is provided.

MUS 545. THE HISTORY AND LITERATURE OF JAZZ. *Three hours credit.*

An in-depth study of the history and literature of jazz music from its beginnings to the present. This course is open to graduate and qualifying senior music majors only.

MUS 546. MUSIC IN AMERICA. *Three hours credit.*

A comprehensive study of the music of our country and the people who have produced it, tracing the development of vocal and instrumental music from the time of the Puritans and Pilgrims to today. Some topics are folk music, symphony orchestra, jazz, and new film music.

MUS 600. INTRODUCTION TO MUSICAL SCHOLARSHIP. *Three hours credit.*

An introduction to problems facing the graduate student in music. This will include methods for dealing with such problems as: attitudes and aims of the musical scholar, studies in bibliography, reference materials, sources, editions, and editing procedures. Included will be oral and written reports, reviews, outline procedures for term papers, articles, and thesis. Required of all Master of Arts candidates in music and should be taken during the first quarter of graduate work.

MUS 601. PRACTICUM IN MUSIC. *One to four hours credit.*

For course description refer to page 175.

MUS 602. INTRODUCTION TO BIBLIOGRAPHIC METHOD. *Three hours credit.*

A comprehensive study of basic reference materials in music through the collection, examination and documentation of information. The course will investigate general as well as music library materials.

MUS 603. ANALYTICAL STUDIES I. *Three hours credit.*

Prerequisite, mastery of traditional harmony. Studies in analyzing the structure of music to 1700.

MUS 604. ANALYTICAL STUDIES II. *Three hours credit.*

Prerequisite, mastery of traditional harmony. Studies in the analysis of music structure from 1700 to 1830.

MUS 605. PRACTICUM IN ARRANGING AND PERFORMANCE. *Three hours credit.*

Prerequisite, MUS 702. This course will deal with transcribing, editing, and performing of valuable music from unusable original forms to useful available material for pedagogic, historic and concert occasions. Stylistic practices will be given major consideration. Music of the Baroque and Pre-Baroque eras will be the chief sources of material.

MUS 609. GRADUATE STUDIES IN ELEMENTARY SCHOOL MUSIC. *Three hours credit.*

This course is designed to broaden individual perspective with regard to the content, the materials, the methodology, and the philosophy of teaching and learning general music in elementary schools. Graduate standing and previous school music teaching experience are prerequisites to enrollment in the class.

MUS 610. PSYCHOLOGY OF MUSIC. *Three hours credit.*

The subjects included in this course are measurements of musical talent, tests and measurements in music, the psychology of musical listening and musical performance.

MUS 611. TEACHING SECONDARY SCHOOL MUSIC. *Three hours credit.*

Previous teaching experience important. A study of the total instructional use of music in the junior and senior high school, with special emphasis on the integration of related humanities in the general music classes and in the performing group rehearsals.

MUS 612. SUPERVISING ELEMENTARY TEACHING OF MUSIC. *Three hours credit.*

Procedures for supervising the music program in the elementary grades, cooperative curriculum building, planning courses of study and units of work, the induction of the beginning teacher, human relations, and in-service education of the classroom music teacher.

MUS 613. TEACHER EDUCATION IN MUSIC. *Three hours credit.*

The teacher education program in music including both the pre-service education of the elementary classroom teacher, the teacher's college music curriculum, the junior college, and the music program in general education.

MUS 614. ADMINISTRATION AND SUPERVISION OF THE SCHOOL MUSIC PROGRAM. *Three hours credit.*

A course designed to acquaint the school administrator with the problems of the administration and supervision of the school music program through the high school level. The content includes the place of music in the school program, music equipment, schedules, budget, instructional problems, and public relations in music.

MUS 615. SEMINAR IN MUSIC EDUCATION. *Three hours credit.*

A review and criticism of the evolution of philosophical and psychological thought which has influenced music education.

MUS 616. PROBLEMS OF INSTRUMENTAL SUPERVISION. *Three hours credit.*

A discussion and study of the problems of instrumental supervision based upon an analysis of the professional problems found to exist in the field of teaching instrumental music.

MUS 617. IMPROVEMENT OF INSTRUCTION IN INSTRUMENTAL MUSIC. *Three hours credit.*

A study of the instrumental approach in the development of pitch, rhythm, melody and sight reading. Special emphasis will be given to the development of instrumental performance and musicianship.

MUS 618. AESTHETICS AND CRITICISM. *Three hours credit.*

A study of the standard literature of aesthetics. A consideration of art in its relation to experience with specific reference to the function of music in an educational program.

MUS 622. INDIVIDUAL STUDIES IN MUSIC. *One to four hours credit.*

For course description refer to page 175.

MUS 630. STRING ENSEMBLE. *One hour credit.***MUS 631. BRASS ENSEMBLE.** *One hour credit.***MUS 632. WOODWIND ENSEMBLE.** *One hour credit.***MUS 633. PERCUSSION ENSEMBLE.** *One hour credit.***MUS 634. PIANO ENSEMBLE.** *One hour credit.*

MUS 635. GUITAR ENSEMBLE. *One hour credit.*

MUS 640. SYMPHONIC LITERATURE. *Three hours credit.*

A study of the literature for the symphony orchestra from the time of Haydn and Mozart to the writings of present-day composers, leading to an understanding and appreciation of the larger works in music.

MUS 641. HISTORY OF MUSIC THEORY. *Three hours credit.*

A study of the theory of music, musical composition, pedagogy and performance from the earliest times to the present.

MUS 642. SEMINAR: MEDIEVAL MUSIC. *Three hours credit.*

A study of musical style in its historical, theoretical and practical aspects during the Middle Ages.

MUS 643. SEMINAR: RENAISSANCE MUSIC. *Three hours credit.*

A study of musical style in its historical, theoretical and practical aspects during the Renaissance.

MUS 644. SEMINAR: THE BAROQUE PERIOD. *Two hours credit.*

Music from 1600 to 1750. Beginning and development of opera from its Florentine beginnings through Venetian, Neapolitan and French styles; growth of chamber, orchestral and solo instrumental music; religious vocal music; principal forms, including sonata, suite, concerto, concerto grosso, oratorio, motet, fugue, toccata, prelude. Emphasis placed on composition of Handel and J. S. Bach.

MUS 645. SEMINAR: THE CLASSIC PERIOD. *Two hours credit.*

Historical and cultural influences bearing upon the emergence of eighteenth century classicism in music. The composers, representative works, forms, styles, and media of the Classic Era. Haydn, Mozart, and Beethoven and their treatment of the sonata principle.

MUS 646. SEMINAR: THE ROMANTIC PERIOD. *Two hours credit.*

The course will be devoted to the analysis of representative music works of the Romantic period; scores and recorded music will be studied. Related literary movements will be discussed and research projects will be carried out concerning the aesthetic theories and musical criticism of the time.

MUS 647. SEMINAR: NEW MUSIC. *Two hours credit.*

This course is primarily concerned with new content and new media as revealed in music of the twentieth century. Literature and biography will be stressed in this course while the actual technical practices of modern composers will be more thoroughly investigated in the companion course, MUS 504, Twentieth Century Harmony and Forms.

MUS 648. SEMINAR: BEETHOVEN. *Two hours credit.*

The life and works of Beethoven. Readings will be assigned as a basis for study and discussion of Beethoven's life and times. Special topics will be developed by individual students. A general review of the composer's complete works will be complemented by score and record study and analysis of representative compositions.

MUS 649. SEMINAR: CHORAL MUSIC. *Three hours credit.*

A seminar designed to allow discussion of a variety of subjects related to choral literature. Individual projects will be assigned calling for creative research.

MUS 650. MUSIC HISTORY I. *Three hours credit.*

Music history from the Greek Period to the end of the Baroque. The course is designed as a comprehensive review for the new graduate student with emphasis on styles and characteristics of Gregorian Chant, early polyphony, and the music of the Renaissance and Baroque Periods.

MUS 651. MUSIC HISTORY II. *Three hours credit.*

Tracing the historical development of music from the Classic Period to the present

day and presenting a review of the stylistic characteristics of the music of the Classical, Romantic, Impressionistic and Modern Schools.

MUS 652. HISTORICAL ANALYSIS OF MUSIC STRUCTURE. *Three hours credit.*

Prerequisites, MUS 240, 241, 242. A detailed study of the structure of music from the period of plain song to the works of Palestrina. A thorough study of the cadential, harmonic, melodic and rhythmic changes which take place in this period.

MUS 653. HISTORY OF OPERA. *Three hours credit.*

A survey of the history of opera from 1600 to the present. This will include a study of the aesthetic climate, stylistic, musical and dramatic development and methods of character delineation within the various periods of music history.

MUS 654. HISTORY OF MENSURAL NOTATION. *Three hours credit.*

A study of ensemble notational procedures from 1200 to 1600.

MUS 660. INSTRUMENTAL TECHNIQUES AND MATERIALS (STRINGS). *Three hours credit.*

A discussion and presentation of the methods used in string class, violin, viola, and cello teaching and private lessons and a study of the materials used in class teaching. Continued proficiency in actual performance by student.

MUS 661. INSTRUMENTAL TECHNIQUES AND MATERIALS PERCUSSION). *Two hours credit.*

A course designed for graduate students that will enable them to explore advanced techniques, methods and materials related to all of the percussion instruments.

MUS 662. INSTRUMENTAL TECHNIQUES AND MATERIALS (WOODWINDS). *Five hours credit.*

Prerequisite, MUS 361, 362, or 363. This course provides an opportunity for the graduate student to study the techniques peculiar to instruments of the woodwind family; to gain additional proficiency in playing; to study teaching materials suitable for both individual and group instruction; and to become familiar with the standard solo and small ensemble literature for these instruments.

MUS 663. INSTRUMENTAL TECHNIQUES AND MATERIALS (BRASS). *Five hours credit.*

Prerequisite, MUS 364 or 365. An advanced course in the techniques, theories and problems of teaching and playing brass instruments.

MUS 664. PROBLEMS IN THE TEACHING OF VOICE. *Three hours credit.*

A survey of the development of singing through the centuries, classifying the known theories and teaching concepts. Correlation of available sources of bibliographic information provides a core of organized information and orientation for research in this and related fields. The student should have had the study of voice as his undergraduate area of applied music emphasis.

MUS 666. COMPARATIVE PIANO TEACHING METHODS AND MATERIALS. *Three hours credit.*

A review of past and present piano methods, combined with the fundamentals of piano teaching and playing. Demonstrations of methods and techniques.

MUS 669. INDIVIDUAL PERFORMANCE IN VOICE FOR NON-VOICE MAJORS. *One hour credit.*

Instruction will concentrate on the fundamental principals of voice production, such as proper breathing for singing, diction, resonance, etc. Development of rhythmic and melodic accuracy will receive primary consideration. Work on the fundamentals of good singing will be carried through the entire program.

MUS 670. INDIVIDUAL PERFORMANCE IN VOICE. *One-three hours credit.*

- MUS 671. INDIVIDUAL PERFORMANCE IN PIANO.** *One-three hours credit.*
- MUS 672. INDIVIDUAL PERFORMANCE IN ORGAN.** *One-three hours credit.*
- MUS 673. INDIVIDUAL PERFORMANCE IN STRINGS.** *One-three hours credit.*
- MUS 674. INDIVIDUAL PERFORMANCE IN WOODWINDS.** *One-three hours credit.*
- MUS 675. INDIVIDUAL PERFORMANCE IN BRASS.** *One-three hours credit.*
- MUS 676. INDIVIDUAL PERFORMANCE IN PERCUSSION.** *One-three hours credit.*
- MUS 677. INDIVIDUAL INSTRUCTION IN COMPOSITION.** *One-three hours credit.*
- MUS 678. INDIVIDUAL PERFORMANCE IN HARP.** *One-three hours credit.*
- MUS 679. INDIVIDUAL PERFORMANCE IN GUITAR.** *One-three hours credit.*

MUS 680. MIXED CONCERT CHOIR. *One hour credit.*

Membership in the concert choir is limited to approximately 60 singers. This organization performs a wide range of choral literature from the classics to the music of contemporary composers. The organization is recognized widely for its excellence as a choral performing group. It is in demand throughout the region for concert appearances.

MUS 681. UNIVERSITY CHORUS. *One hour credit.*

Membership to the group of some 70 singers is open to all university students on an audition basis. The chorus performs concerts of its own on campus as well as joining with the Concert Choir in large works for chorus and orchestra.

MUS 682. UNIVERSITY SINGERS. *One hour credit.*

A select group of approximately 35 voices open by audition only. The repertoire for this group is extremely varied, ranging from motets of the Renaissance to contemporary songs to the Bach b-minor mass.

MUS 683. WOMEN'S CONCERT CHOIR. *One hour credit.*

The women's choir is open to all women students who enjoy singing the literature for women's voices. This group performs for many local community and university events. Elementary education majors are especially urged to apply for membership.

MUS 684. VARSITY MEN'S GLEE CLUB. *One hour credit.*

Membership is open to the entire male student body. A love of singing is the main requirement for registration. No formal audition is necessary. The Varsity Men's Glee Club affords an opportunity for men from all schools and divisions to participate in the great tradition of men's ensemble singing while performing a wide range of literature before university and community and audiences.

MUS 685. OPERA WORKSHOP. *One to three hours credit.*

Workshop offering practical experience in production of a musico-dramatic show. Techniques of acting, singing, directing, and other facets necessary for preparation of a show for public performance will be offered.

MUS 686. CHORUS AND ORCHESTRA WORKSHOP. *One hour credit.*

Conducted by authorities nationally known in their fields of specialization. The purpose of the workshop is to provide information about current important ideas in each field of knowledge.

MUS 690. SYMPHONIC WIND BAND. *One hour credit.*

The Symphonic Wind Band is limited in enrollment to approximately 80 members. This organization performs the best literature available for the band. Over the years this UNC band has become known throughout the region for its excellence as a concert organization. The Symphonic Wind Band presents many concerts during the year, and takes an annual tour.

MUS 691. CONCERT BAND. *One hour credit.*

The Concert Band is open to all band performers who wish a more limited band experience than is provided by the Symphonic Wind Band. This band studies, rehearses, and presents advanced forms of concert band literature.

MUS 692. MARCHING BAND. *One hour credit.*

Open to all students regardless of major field who have had high school band experience. A study and practice of the fundamentals of drill and presentation of marching maneuvers and pageants at athletic events. Required during Fall Quarter for men in the instrumental music education program or in Symphonic Wind Band, Concert Band or Varsity Band.

MUS 693. VARSITY BAND. *One hour credit.*

Open to all students regardless of major who have had high school band experience. To provide music for athletic and university functions. To read material suitable for use by high school band.

MUS 694. JAZZ ENSEMBLE. *One hour credit.*

The instrumentation in a Jazz Ensemble is designed for brass, woodwind and rhythm players. This unit is concerned with jazz idiom music: show music, dance music, and concert jazz. The goal of this type of ensemble is to give the student a thorough training in preparation for teaching at both the secondary and college levels. Members of the Jazz Ensemble who are music majors must be enrolled in a major ensemble.

MUS 695. UNIVERSITY BRASS CHOIR. *One hour credit.*

A select performing ensemble of 15 to 20 brass students with added percussionists when necessary. Concentration is upon familiarization of literature for the brass instrumental media as well as upon development of musical sensitivity, phrasing, style and intonation.

MUS 696. UNIVERSITY SYMPHONY ORCHESTRA. *One hour credit.*

The University Symphony Orchestra is open to all students by audition. The organization performs and reads the standard repertoire of the modern symphony orchestra. Quarterly concerts are given on campus in addition to one tour taken yearly. The orchestra also participates in a Spring Quarter chorus and orchestra event.

MUS 697. CHAMBER ORCHESTRA. *One hour credit.*

A select group of approximately 20 string students chosen by audition from the membership of the Symphony Orchestra. The Orchestra performs and reads literature from the Baroque to the present day, specializing in materials specifically designed for chamber orchestra.

MUS 698. LABORATORY ORCHESTRA. *One hour credit.*

A laboratory course to provide practice orchestra experience on stringed instruments. Orchestral materials and the use of them for continued development of string students will be discussed and demonstrated.

MUS 699. THESIS. *Maximum of fifteen hours credit.*

For course description refer to page 173.

MUS 700. RESEARCH SEMINAR IN MUSIC EDUCATION. *Three hours credit.*

Analysis of studies in music education; writing and research techniques for dissertations and field studies; a survey of critical problems in music education; the preparation of the research outline.

MUS 701. SPECIALIST DEGREE PRACTICUM. *Eight hours credit.*
For course description refer to page 173.

MUS 702. CRITERIA FOR MUSIC ANALYSIS AND COMPARISON. *Four hours credit.*

MUS 702 is designed as an introductory course to acquaint the candidate with the subtleties of analytical and comparative music problems.

MUS 755. SUPERVISED PRACTICUM IN COLLEGE TEACHING. *Maximum of nine hours credit.*

For course description refer to page 173.

MUS 756. INTERNSHIP IN SUPERVISING COLLEGE TEACHING. *Three hours credit.*

For course description refer to page 173.

MUS 799. DOCTORAL DISSERTATION. *Eighteen hours credit.*

For course description refer to page 173.

NURSING

NURS 401. PUBLIC HEALTH SCIENCES AND RESOURCES. *Three hours credit.*

A general study of concepts derived from the field of Public Health which includes an introduction to Public Health Administration, environmental sanitation, biostatistics, and epidemiology. Concurrent with NURS 400.

NURS 404. TRENDS IN NURSING. *Three hours credit.*

Prerequisites, NURS 302, 303, 304 or permission of instructor. A study of trends, problems and issues in present-day nursing. Historical and contemporary social forces are studied in relation to their influence on the development of nursing. Emphasis is on the responsibilities of the professional nurse in an increasingly complex system of health and medical care.

OCEANOGRAPHY

OCN 500. SURVEY OF OCEANOGRAPHY. *Five hours credit.*

This course is arranged primarily for teachers and graduate students. Considers the basic principles of oceanology with a non-mathematical approach. Physical features of the oceans and sea water, ocean currents, geological features of the sea floor, oceanic life, food and mineral resources, recent technological developments, and international political implications of the oceans. Offered on campus in summers only.

OCN 530. PHYSICAL OCEANOGRAPHY. *Four hours credit. (Three hours lecture, two hours laboratory.)*

Prerequisites, OCN 201 or OCN 500 or consent of instructor. A study of the physical features of the world's oceans. Observations and instrumentation, waves, tsunamis, tides, water masses and ocean circulation, currents, and ocean-atmosphere relationships.

OCN 599. SPECIAL TOPICS IN OCEANOGRAPHY. *One to four hours credit.*

Prerequisite: Consent of instructor. An opportunity for students to explore areas of oceanography which are beyond the scope of existing departmental offerings. Specific topics to be treated will be determined by the interests of the students and instructor.

PHYSICS

PHYS 561. INTRODUCTION TO RESEARCH IN PHYSICS. *Two hours credit. (Maximum six hours credit.)*

Prerequisites, PHYS 365, 566. A course to introduce the various aspects of research in physics. Emphasis will be placed on laboratory techniques used in obtaining data. Informal student seminars will be held and at termination of course, the student will submit a written report on this research involved.

PHYS 562. ELECTRONICS II. *Three hours credit. (Two hours lecture, three hours laboratory.)*

Prerequisite, PHYS 462. A study of electronic theory and application to include multistage and power amplifiers, methods of pulse and wave shaping, and electronic switching and timing systems. Transistor theory as well as tube theory will be emphasized.

PHYS 563. NUCLEAR MEASUREMENTS. *Two hours credit.*

Prerequisite, PHYS 569. This is a laboratory course in which various nuclear phenomena are studied in the laboratory. Some of the experiments to be performed include G-M measurement techniques, gamma ray spectrum, absorption of alpha, beta, and gamma rays, half-life measurements.

PHYS 564. THERMODYNAMICS. *Four hours credit.*

Prerequisites, PHYS 255, 267, MATH 234. An introduction to heat and thermodynamics. This course covers thermodynamic systems, equations of state, the first and second laws of thermodynamics and an introduction to kinetic theory.

PHYS 567. OPTICS II. *Four hours credit. (Three hours lecture, three hours laboratory.)*

Prerequisites, PHYS 267 and MATH 234. This course is an introduction to the advanced study of light. Topics to be studied in this course include geometrical optics, reflections, thin and thick lenses, optical instruments, wave theory of light, interference, diffraction and the electromagnetic nature of light.

PHYS 575. MECHANICS III. *Three hours credit.*

Prerequisites, PHYS 565, MATH 234. First course in a sequence of three courses. Particle and rigid body motion are treated by the methods of vector calculus, calculus of variations, and matrix algebra. Included are the La-Grangian and Hamiltonian formulations, small oscillations, rigid body motion, and relativistic mechanics.

PHYS 576. ELECTRICITY AND MAGNETISM III. *Three hours credit.*

Prerequisites, PHYS 566, MATH 234. Second course in a sequence of three courses. Static charge distributions in space, upon conductors, or in dielectrics, motion of charges and the magnetic field arising from such motion, electromagnetic induction, electromagnetic radiation, and magnetic properties of matter are examined by advanced mathematical techniques.

PHYS 577. INTRODUCTION TO THEORETICAL PHYSICS. *Four hours credit.*

Prerequisites, PHYS 567, 575, 576. Mathematical formalism and electromagnetic theory are utilized to analyze and connect the topics of Fresnel diffraction, dispersion, reflection, ordinary and double refraction, polarization, absorption, and scattering.

PHYS 578. WAVE MECHANICS I. *Four hours credit.*

Prerequisites, PHYS 565, 468, and MATH 530. This course is an introduction to quantum mechanics and the quantum theory. Some of the topics to be covered include Planck's radiation theory, the Bohr postulates, the correspondence principle, de Broglie waves, the Schrodinger wave equation, and the uncertainty principle.

PHYS 622. INDIVIDUAL STUDIES. *Maximum of four hours credit.*

Qualified graduate students outline and spend a minimum of 25 clock hours per quarter hour on a problem. Two copies of a well-written paper must be filed

before credit is given, one with the instructor and one with the chairman of the department.

PHYS 661. GRADUATE RESEARCH IN PHYSICS. *Two hours credit. (Maximum six hours credit.)*

A course designed to familiarize the student with research in physics. It involves investigation of physics journals, study of physics research problems, and research of a subproblem in physics culminating in an oral and written report.

PHYS 669. WAVE MECHANICS II. *Three hours credit.*

Prerequisite, PHYS 578. A continuation of Wave Mechanics I. Topics to be covered include the three dimensional wave equation, eigenvalues and eigenfunctions, operators and expectation values, time dependent and time independent perturbation theory.

PHYS 678. NUCLEAR PHYSICS II. *Three hours credit.*

Prerequisite, PHYS 569. A graduate course in theoretical nuclear physics. Topics include elementary quantum theory, particle and photon interactions, theory of alpha, beta, and gamma decay, the shell and liquid drop models of the nuclear atom.

PHYS 690. HARVARD PROJECT PHYSICS INSTITUTE. *Twelve hours credit. (Six hours lecture, eighteen hours laboratory.)*

This is a course to prepare high school teachers of physics to teach the Harvard Project Physics (HPP) course to high school students. The necessary physics background and the content of the HPP course will be emphasized.

PHYS 691. HARVARD PROJECT PHYSICS I. *Three hours credit. (Two hours lecture, three hours laboratory.)....*

This is the first of three courses to train teachers in Harvard Project Physics. The concentration will be on the instructional materials and content of units I and II of the HPP courses.

PHYS 692. HARVARD PROJECT PHYSICS II. *Three hours credit. (Two hours lecture, three hours laboratory.)*

This is the second of three courses to train teachers in Harvard Project Physics. The concentration will be on the instructional materials and content of units III and IV of the HPP courses.

PHYS 693. HARVARD PROJECT PHYSICS III. *Three hours credit. (Two hours lecture, three hours laboratory.)*

This is the third of three courses to train teachers in Harvard Project Physics. The concentration will be on the instructional materials and content of units V and VI of the HPP courses.

POLITICAL SCIENCE

PSCI 500. CONSTITUTIONAL LAW. *Five hours credit.*

Prerequisite, PSCI 100 or equivalent. The major sections and clauses of the Constitution as developed and interpreted by the courts and by leading writers in the field of constitutional law.

PSCI 510. SEMINAR IN COMPARATIVE POLITICS. *Three hours credit.*

Prerequisites, PSCI 210 and PSCI 410, 411 or 412. Methodological problems of comparative politics; cross-national comparisons on formal political institutions, political groups, decision-making processes, and the machineries of popular control; interpretation of contemporary political forces, processes, and systems in terms of key analytical concepts; research and reports on selected topics.

PSCI 520. SEMINAR IN INTERNATIONAL POLITICS. *Three hours credit.* Research and reports on selected topics. The recent theoretical developments in the field of international relations will be stressed.

PSCI 550. RESEARCH AND INQUIRY IN POLITICAL SCIENCE. *Three hours credit.*

A study in the use of the scientific method in political science. The course will trace the history of epistemology, the development of methods of physical science, and the development of methods in the social sciences.

PSYCHOLOGY, COUNSELING AND GUIDANCE

PCG 507. COUNSELING THEORIES. *Three hours credit. Fall, Winter, Summer.*

A study of the place of counseling in the guidance program and a critical analysis of the theoretical approaches used in conducting counseling interviews. Opportunity provided to practice in the application of the various approaches.

PCG 508. WORKSHOP. *One to three hours credit.*

This course is concerned with the instructional problems of the participants; however, the problems attacked would vary from time to time according to the experts conducting the workshop. The nature of the workshop might cover such areas as Administration, Reading, Kindergarten, Curriculum, etc. Each workshop will have a sub-title and no sub-title may be repeated for credit.

PCG 520. GENERAL PSYCHOLOGY AND THE PRINCIPLES OF BEHAVIOR. *Three hours credit. Spring, Summer.*

Prerequisite, previous work in psychology or previous course. A course in psychology designed to help students develop a basic understanding of human behavior. Principles of psychology are developed and applied in the areas of perception and cognition, maturation, motivation, learning, emotions, and personal and social adjustment.

PCG 530. CHILD AND ADOLESCENT PSYCHOLOGY. *Three hours credit. Winter, Spring, Summer.*

A course designed to assist prospective teachers to understand and guide the physical, mental, social, and emotional development of children and youth. Total psychological development from infancy to maturity is emphasized.

PCG 540. PSYCHOLOGY OF PERCEPTION AND LEARNING. *Five hours credit. Fall, Winter, Summer.*

Considers basic theoretical and research evidence concerning learning and perception. Attitudes and understandings are developed concerning the application of psychological principles to the educative process. The relationship between human learning and perceptual-cognitive processes is explored.

PCG 541. THEORIES OF LEARNING. *Five hours credit. Fall, Winter, Summer.*

The several theories of learning are examined critically for the purpose of developing a working control of the learning process by the student.

PCG 542. EXPERIMENTAL ANALYSIS OF BEHAVIOR. *Three hours credit. Winter, Summer.*

Prerequisite, 15 hours in Psychology, majors only. Students will examine the theoretical basis for individual organism research and the principles of learning that underlie such an approach. The students will be required to participate in a conditioning laboratory to develop competence in techniques.

PCG 543. THEORIES OF MOTIVATION. *Three hours credit. Winter, Summer.*

Prerequisites, PCG 540 or 541. A consideration of the topics of physiological drives, learned needs, reinforcement, sensory cues, behavior cycles, and social motives with special emphasis on the implication for the study of human behavior.

PCG 551. THEORIES OF PERSONALITY. *Three hours credit.*

For students not majoring in PCG. The course explores the psychological factors underlying personality development and adjustment and concentrates on the theories by which personality structure is explained.

PCG 558. ABNORMAL PSYCHOLOGY. *Three hours credit. Fall, Spring, Summer.*

Prerequisites, PSY 350 or PCG 651 or PSY 255 or PCG 655. The Course is designed to give an understanding of abnormal behavior, its causes, symptoms, characteristics, classifications and preventions.

PCG 563. SOCIODRAMA. *Two hours credit. Winter, Summer.*

How to use sociodrama. The topics studied are producing a sociodrama, purposes of the sociodrama, types and use of the sociodrama.

PCG 564. SOCIOMETRY. *Two hours credit. Spring, Summer.*

The measurement of interpersonal relations in small groups; measurement of social status, social adjustment, leadership and morale. Sociometric organization of elementary and secondary school classrooms.

PCG 565. PSYCHOLOGY OF PREJUDICE. *Three hours credit. Taught every quarter.*

A course designed to assist students to understand in depth the basic causes of prejudice and the learning of prejudicial behavior. Experiences are provided for greater understanding of people and the processes for diminishing the degree of prejudice by the individual.

PCG 600. INTRODUCTION TO GRADUATE STUDY. *Three hours credit. Spring.*

An orientation to graduate study in general and the nature and methods of research in particular. Required of all first-year students. Should be taken during the first quarter of graduate work.

PCG 601. PRACTICUM. *Maximum of four hours credit. Taught every quarter.*

Open only by invitation to resident graduate students. Supervised professional activity in the student's major field, approximately two hours per day. Two copies of a well-written paper must be filed before credit is given, one with the instructor and one with the Dean of the Graduate School.

PCG 602. FOUNDATIONS OF GUIDANCE. *Three hours credit. Fall, Spring, Summer.*

Introductory course for professional guidance workers. A study of individual and society needs for guidance and the development of a guidance point of view. Includes purposes and scope of guidance service, concepts, principles, personnel, and basic elements of such services.

PCG 603. GUIDANCE IN THE ELEMENTARY SCHOOL. *Three hours credit. Fall, Spring, Summer.*

A study of the principles of guidance and their application at the elementary level. Emphasis is upon the functioning of the guidance worker in meeting children's needs.

PCG 604. OCCUPATIONAL INFORMATION AND ANALYSIS IN VOCATIONAL GUIDANCE. (Secondary-Adult). *Three hours credit. Fall, Summer.*

(For VOC Counselor Certification, VE 640 prerequisite.) Analysis of vocational theory, society, changing value structure, and career development; critical examination of classifications of the world of work; investigation of labor forces and employment trends; exploration of basic principles related to educational-vocational planning; experiences in using, reviewing and evaluation of occupational information materials and sources.

PCG 605. OCCUPATIONAL INFORMATION FOR GUIDANCE IN ELEMENTARY SCHOOLS. *Three hours credit. Fall, Summer.*

A study of the nature, scope and rationale for occupational information in the

guidance and counseling of elementary school children. The course covers theories and philosophies of occupational choices, methods and techniques in collecting and analyzing occupational information for guidance of young children, K-6.

PCG 606. THEORIES AND PRACTICES IN GROUP GUIDANCE. *Five hours credit. Winter, Spring, Summer.*

Prerequisite, PSY 201 or PCG 602 or 603. A study of information needed and methods used by home or guidance personnel who help students in groups, with educational planning, vocational choice and interpersonal relations.

PCG 607. PRINCIPLES AND PRACTICES OF COUNSELING THEORIES. *Five hours credit. Fall, Winter, Summer.*

A course for students majoring in PCG. A study of the place of counseling in the guidance program and a critical analysis of the theoretical approaches used in conducting counseling interviews. Opportunity is provided to practice in the application of the various approaches.

PCG 608. ORGANIZATION AND ADMINISTRATION OF GUIDANCE SERVICES. *Three hours credit. Spring, Summer.*

The organization and administration of guidance services in the public school system with emphasis being placed on types of organizations, use of records, in-service training of workers, evaluation roles of various staff members, preparation of budgets, and use of community resources.

PCG 609. GUIDANCE WORKSHOP. *Maximum of six hours credit.*

This course is designed to provide concentration of time and study in a special problem in guidance. The needs and interests of class members will help determine the course content and class activities.

PCG 610. GUIDANCE INSTITUTE. *Maximum of fifteen hours credit.*

A course designed to meet the needs of teachers and counselors wishing to upgrade their proficiencies in guidance activities.

PCG 611. SUPERVISED PRACTICE IN GUIDANCE SERVICES. *Three hours credit. Fall, Winter, Spring.*

Prerequisite, PCG 612. Qualified graduate students majoring in Psychology, Counseling and Guidance engage in guidance activities under the supervision of one or more members of the staff. A typewritten report analyzing the experience must be submitted to the supervisors for approval and then filed in the Graduate School Office.

PCG 612. INTRODUCTORY SUPERVISED PRACTICE IN COUNSELING. *Six hours credit. Taught every quarter.*

Prerequisite, PCG 607 or equivalent. The course provides supervised experiences in counseling and interview analysis. Counselees consist of class members, college students, and other adults. Typescripts, tapes, teletapes, feedback from counselees and supervisors, and weekly seminars are used for process analysis. *Minimum of 18 hours of involvement required of each student per week.*

PCG 613. SUPERVISED PRACTICE IN COUNSELING WITH CHILDREN. *Three hours credit. Fall, Winter, Spring.*

Prerequisite, PCG 612. The course provides supervised experiences in counseling with school age children concentrating mostly on those in the elementary schools. Tapes, teletapes, self analysis, and feedback from the supervisor are used to analyze difficulties and improve proficiency in counseling. Class seminars are used for self improvement and process analysis.

PCG 614. SUPERVISED PRACTICE IN COUNSELING WITH YOUTH AND/OR ADULTS. *Three hours credit. Fall, Winter, Spring.*

Prerequisite, PCG 612. The course provides supervised experiences in counseling with school age children and youth concentrating primarily on those at the junior and senior high school levels. Tapes, teletapes, self analysis, and feedback from the supervisor are used to analyze difficulties and improve proficiency in counseling. Class seminars are used for self improvement and process analysis.

PCG 617. TECHNIQUES OF BEHAVIOR CHANGE. *Four hours credit. Winter, Spring, Summer.*

Prerequisites, PCG 612 and permission of instructor. Qualified graduate students majoring in Psychology, Counseling and Guidance examine the theoretical basis for play therapy and engage in practice under the supervision of one or more members of the staff.

PCG 618. BEHAVIOR MODIFICATION. *Three hours credit. Fall, Spring.*
Prerequisites, PSY 442 or PCG 542, and permission of instructor. Qualified graduate students majoring in PCG examine the major approaches to behavior modification and engage in practice under the supervision of one or more members of the staff.**PCG 620. FOUNDATIONS OF EXISTENTIAL PSYCHOLOGY.** *Three hours credit. Winter, Summer.*

A study of the fundamental assumptions of existential thought as they translate into psychological theory. The focus will be on implications regarding the nature of man, his motivation, values and purpose relevant to American culture and conditions. Intended for graduate students majoring in PCG.

PCG 622. INDIVIDUAL STUDIES. *Maximum of four hours credit. Taught every quarter.*

Qualified graduate students outline and spend a minimum of 25 clock hours per quarter hour on a problem. Two copies of a well-written paper must be filed before credit is given, one with the instructor and one with the Dean of the Graduate School. Does not satisfy the 500 requirement unless the student is in full-time residence at UNC during the quarter the course is taken.

PCG 624. HUMAN NEUROPSYCHOLOGY. *Four hours credit. Winter, Summer.*

This course integrates current knowledge of neurophysiology with psychological correlates. Emphasis is placed on learning, motivation, perception, and personality variables as revealed in supervised psychodiagnostic experiences. Selected procedures and case studies are used to assess the role of neurological, especially brain, function or dysfunction and the consequent behavioral manifestations.

PCG 631. PSYCHOLOGY OF EARLY CHILDHOOD. *Three hours credit. Spring, Summer.*

Prerequisites, PSY 120 or PCG 520. A study of psychological theories and their applications to the understanding of characteristics, behaviors and development of young children. Intended primarily for students majoring in early childhood education and others planning to work with children from the nursery school through second grade.

PCG 632. CHILD PSYCHOLOGY. *Three hours credit. Fall, Summer.*

A study of the growth, adjustment and capacities of children from conception through the elementary school years. Emphasis is placed on the theories of development and on application in guiding the development of normal children.

PCG 633. PSYCHOLOGY OF ADOLESCENCE. *Three hours credit. Winter, Summer.*

This course deals with the change from the period of childhood into adulthood and the resultant physical, mental, social, and emotional growth with its implications for guiding the adolescent toward a wholesome realization of his potentialities.

PCG 634. PSYCHOLOGY OF COLLEGE STUDENTS AND OTHER ADULTS. *Three hours credit. Spring, Summer.*

A course to enable students to study the psychological phenomena of the life span from post-adolescence through the final stages of adulthood. Major theories concerned with processes maturing will be examined and problems characteristic of this age span will be considered. Emphasis will be placed on understanding related research and assessing areas indicative of need for further research.

PCG 635. PSYCHOLOGY OF INDIVIDUAL DIFFERENCES. *Three hours credit. Fall, Summer.*

The nature and extent of differences among individuals and differences between such groups as men and women, age, class, race and nationality; factors related to these differences; and the application of the facts of human variability to educational, vocational, social and personnel work.

PCG 641. THEORIES OF LEARNING. *Five hours credit. Fall, Winter, Summer.*

A course for students majoring in Psychology, Counseling and Guidance. The several theories of learning are examined critically for the purpose of developing a working control of the learning process by the student.

PCG 647. LEARNING DISABILITIES: DIAGNOSIS AND REMEDIATION. *Three hours credit. Fall, Summer.*

Prerequisites, PSY 340 or PCG 540, and permission of instructor. The course considers techniques used by school psychologists in identifying and evaluating extreme learning problems. It is also concerned with planning and coordinating remedial experiences.

PCG 650. PSYCHOLOGY OF THE HEALTHY PERSONALITY. *Three hours credit. Taught every quarter.*

Modern humanistic and existentially oriented psychological research and commentary regarding positive mental health and healthy personality development will be studied. Concepts such as self-actualization, self-realization, self-fulfillment, the fully-functioning self, personal adequacy, becoming, and the human potential for freedom and growth explored by approaching the basic question of *What Can Man Become?*

PCG 651. THEORIES OF PERSONALITY. *Three hours credit. Winter, Spring, Summer.*

Prerequisite, majors only. The course explores the psychological factors underlying personality development and adjustment and concentrates on the theories by which personality structure is explained.

PCG 655. MENTAL HYGIENE. *Three hours credit. Taught every quarter.*

Psychological principles, theories, and practices are examined and applied to individual, school, family, and community mental health problems.

PCG 661. ORIENTATION TO PSYCHOLOGY AND THE SELF. *Three hours credit. Fall, Summer.*

Required during first quarter of PCG master's program. Provides orientation to graduate study and presents basic philosophical positions in psychology. It provides for interactions between new students and the PCG faculty which will facilitate their evaluations as to the feasibility of the student's pursuing his graduate work at this institution.

PCG 670. PRINCIPLES AND PRACTICES IN TESTING AND MEASUREMENT. *Three hours credit. Taught every quarter.*

A course designed to develop understanding of the functional relationship between measurement and evaluation. Attention is given to teacher-made and standardized instruments and to essential statistical concepts. Laboratory experience is provided in construction, administration and interpretation of tests.

PCG 671. APTITUDE AND ACHIEVEMENT ANALYSIS. *Five hours credit. Winter, Summer.*

Prerequisites, PSY 270, PSY 271 or PCG 670. Standardized psychological instruments are critically analyzed in terms of the Technical Recommendations for Psychological Tests and Techniques. Students take a series of tests and incorporate the interpreted results into a self-case study. Laboratory experiences are provided in the administration and interpretation of group tests.

PCG 672. APTITUDE AND ACHIEVEMENT ANALYSIS, K-6. *Five hours credit. Winter, Summer.*

Prerequisites, PSY 270, 271, or PCG 670. Standardized psychological instruments developed specifically for young children, grades K-6, are critically analyzed in terms of the APA Technical Recommendations for Psychological Tests and Diagnostic Techniques. Experiences in administration and interpretation of various standardized instruments used at the elementary school level is provided.

PCG 673. INDIVIDUAL TESTS OF INTELLIGENCE. *Three hours credit. Fall.*

Prerequisite, PCG 670. A survey course for students outside the PCG Department, or those in PCG who do not complete the clinical testing courses: PCG 674, 675, 676 and 677 or 782 and 783. The history, theoretical backgrounds and descriptions of the Stanford-Binet Intelligence Scale, the Wechsler Pre-School and Primary Scale, The Wechsler Intelligence Scale for Children and the Wechsler Adult Intelligence Scale. Not open to unclassified students.

PCG 674. INDIVIDUAL INTELLIGENCE TESTING: STANFORD-BINET. *Three hours credit. Winter, Spring, Summer.*

Prerequisites, PCG 670 and instructor permission. The history, theoretical background and description of the Stanford-Binet Intelligence Scale. This course provides supervised practice in administering, scoring, reporting, and interpreting the results of the 1960 Stanford-Binet Intelligence Scale. Intended for students preparing for professional positions in which their responsibilities include testing of subjects of all age levels. Students taking this course should not take PCG 673. Not open to unclassified students.

PCG 675. INDIVIDUAL INTELLIGENCE TESTING: WECHSLER SCALES. *Four hours credit. Taught every quarter.*

Prerequisites, PCG 670 and instructor permission. The history, theoretical background and description of Wechsler's Intelligence Scales. This course provides supervised practice in administering, scoring, reporting, and interpreting the results of the Wechsler Intelligence Scale for Children and either the Wechsler Adult Intelligence Scale or the Wechsler Pre-School and Primary Scale. Intended for students preparing for professional positions in which their responsibilities include testing of subjects. Students taking this course should not take PCG 673. Not open to unclassified students.

PCG 676. PSYCHOLOGICAL TESTING: PERSONALITY. *Three hours credit. Summer.*

Prerequisites, PCG 674 and 675; permission of instructor. A course in the school psychology training program which focuses on the administration and interpretation of personality tests which may be used in the public schools to study the emotional and psychological adjustment of children. Attention is devoted to such tests as the thematic methods, sentence completion tests, human drawings, personality questionnaires, and observational procedures.

PCG 677. PSYCHOEDUCATIONAL TESTING. *Four hours credit. Fall, Spring, Summer.*

Prerequisites, PCG 674 and 675; permission of instructor. Designed for school psychology students to be taken concurrently with PCG 647. Theoretical backgrounds of, and the supervised practice in, the use of psychodiagnostic instruments such as the Bender Visual Motor Gestalt Test, the Illinois Test of Psycholinguistic Abilities, the Frostig Developmental Test of Visual Perception, and the Minnesota Percepto-Diagnostic Test. Special emphasis is placed on understanding the inter-relationships of results of these instruments along with the results of intelligence and achievement tests and non-standardized sources of data on diagnosing psychological problems of children.

PCG 678. CASE STUDY PRACTICUM. *One to three hours credit. Winter, Spring, Summer.*

Prerequisite, permission of instructor. This course is arranged individually with students in the school psychology program and is designed primarily to integrate clinical procedures and techniques utilized in child study. The course provides experience in the collection of data, interpretation of behavioral observations/test performances, and recommendations for remediation. Emphasis is placed upon

problem-solving and decision-making regarding the total functioning of the child. Intended for students preparing for professional positions in school psychology in which their responsibilities include testing of subjects, conducting staff conferences with school personnel, and arranging proper environments which will enhance adjustment. Not open to unclassified students.

PCG 683. SURVEY OF PROJECTIVE TECHNIQUES. *Three hours credit. Summer.*

Prerequisite, PCG 670. Develops the theories and rationale behind the most commonly used projective techniques including attention to the pertinent research. The course is designed for students in related professions who are likely to be working with psychologists and psychological reports.

PCG 692. INTERNSHIP. *Maximum sixteen hours credit per quarter. Taught every quarter.*

A practical field experience for qualified graduate students in areas of their specialty. The internship provides credit hours above those normally required for the degree.

PCG 699. THESIS. *Maximum of fifteen hours credit. Taught every quarter.* Required of Master of Arts candidates in the Arts and Sciences programs Botany, Chemistry, Physics, Zoology. Optional for all other Master of Arts programs on recommendation of the major adviser.

PCG 701. SPECIALIST DEGREE PRACTICUM. *Eight hours credit. Taught every quarter.*

Project or supervised professional activity, required of all candidates for the Specialist in Education degree (except for those departments which have substitutes for this course.)

PCG 707. SEMINAR IN COUNSELING THEORIES. *Three hours credit. Fall.*

Prerequisites, PCG 607 and permission of the instructor. A seminar designed to give doctoral students in Psychology, Counseling and Guidance the opportunity to study in depth various theoretical approaches to counseling.

PCG 712. ANALYSIS OF THE INDIVIDUAL. *Three hours credit. Spring.* Prerequisites, permission of instructor or advisor. A course designed to explore, analyze and synthesize the various philosophical and theoretical approaches to the interpretations and understanding of man. Nomothetic and ideographic techniques will be studied and critiqued as they relate to the theory and practices of professional workers situated in a variety of counseling settings.

PCG 713. INTERNSHIP IN SUPERVISION OF GUIDANCE SERVICES. *Maximum of twelve hours credit. Taught every quarter.*

Prerequisites, PCG 612 and 613 or 614 or 615, 611. The course is designed for specialist and doctoral candidates preparing for elementary, secondary school, college and university teaching and administration in the area of guidance services. It provides experiences in working with regular staff members engaged in guidance activities at all lines of education. A log of experiences and an analysis of self growth are reported as a culmination of the course.

PCG 714. INTERNSHIP IN SUPERVISION OF COUNSELING. *Maximum of twelve hours credit. Taught every quarter.*

Prerequisites, PCG 612 and 613, 614, 615, 611. The course is designed for doctoral candidates preparing for college teaching. It provides experiences in working with a regular staff member engaged in supervising counseling practicums. A log of experiences and an analysis of self growth are reported as a culmination of the course.

PCG 715. SEMINAR IN COUNSELOR SUPERVISION AND THEORY. *Three hours credit. Winter.*

Prerequisites, PCG 707, 611, 612, 613 or 614 and permission of instructor. A seminar designed to give doctoral students the opportunity to study the problems involved in the training of individuals to engage in the therapeutic process. The

course is to be taken concurrently with PCG 714, Internship in Supervision of Counseling.

PCG 721. DEVELOPMENT AND PHILOSOPHY OF IDEAS IN PSYCHOLOGY. *Five hours credit. Fall.*

Prerequisite, permission of instructor. This course is intended to orient the advanced student in psychology to his discipline through a study of the origin, evolution and philosophical implications of issues and ideas in psychology.

PCG 722. TRENDS IN PSYCHOLOGY, COUNSELING AND GUIDANCE. *Three hours credit. Winter, Summer.*

A course designed to focus on current trends and research in the areas of human growth and development, learning, mental hygiene, guidance and counseling. Special emphases are placed on methods of identifying significant trends and recognition of broad implications of trends.

PCG 723. SEMINAR: ISSUES IN PSYCHOLOGY, COUNSELING AND GUIDANCE. *Three hours credit. Spring, Summer.*

Prerequisites, for Specialist or Doctoral Students only. A seminar designed to focus on processes involved in identifying, stating, analyzing, discussing, evaluating, and de-polarizing current psychological, professional, and ethical issues, reviewing pertinent research and determining the implications for action.

PCG 730. SEMINAR IN GROWTH AND DEVELOPMENT. *Three hours credit.*

Prerequisites, PCG 632, and permission of instructor. This seminar is designed for qualified doctoral students who wish to develop professional competency in the area of child growth and development. Each student will develop his area of inquiry from current issues and research in the field. Intensive reading leading the student into multi-disciplinary inquiry is expected. His report to the seminar group will include a report of his readings with consideration of possible application to educational settings.

PCG 740. PSYCHOLOGICAL FOUNDATIONS OF EDUCATION. *Three hours credit. Winter, Spring, Summer.*

For non-majors only. The psychological foundations of education are concerned with basic concepts pertinent to understanding human behavior. Cognition, perception, maturation, motivation, learning, emotions, personal and social adjustment areas are emphasized.

PCG 741. SEMINAR IN LEARNING THEORIES. *Three hours credit.*

Prerequisites, PCG 641 and permission of instructor. Restricted to Specialist and Doctoral majors in Psychology, Counseling and Guidance. A graduate seminar available to all Specialist and Doctoral majors in Psychology, Counseling and Guidance. Considers basic theoretical and research evidence concerning the field of learning. Attitudes and understandings are developed through in-depth discussions which concern the application of psychological principles of learning to the educative process.

PCG 742. SEMINAR IN PERCEPTUAL PSYCHOLOGY. *Three hours credit. Winter.*

Prerequisites, graduate status; PSY 340 or PCG 540, permission of instructor. A seminar designed to allow students to study, report, and discuss basic perceptual psychological theory and research. Areas of investigation will include the relationship of human perception to such topics as: (1) the self concept, (2) motivation, (3) goals and values, (4) growth and development, (5) emotions and feelings, and (6) the teaching-learning process or other related "helping" professions. Students may construct perceptual demonstrations or design perceptual research.

PCG 743. SEMINAR IN MOTIVATION. *Three hours credit.*

Prerequisites, PCG 543 and permission of instructor. The course is a seminar designed to give doctoral students in Psychology, Counseling and Guidance the opportunity to do study in depth in selected topics in motivation.

PCG 751. SEMINAR IN PERSONALITY THEORIES. *Three hours credit.*

Prerequisites, PCG 651 and permission of instructor. The course explores the

psychological factors underlying personality development and adjustment and concentrates on the theories by which personality structure is explained.

PCG 755. SUPERVISED PRACTICUM IN COLLEGE TEACHING. *Maximum of nine hours credit. Taught every quarter.*

This course provides experiences in observation and supervised practice in college teaching for doctoral candidates planning to teach on the college or university level. Observations and the teaching experiences will be used as a basis for the analysis of learning experiences.

PCG 756. INTERNSHIP IN SUPERVISING COLLEGE TEACHING. *Three hours credit. Taught every quarter.*

This course is designed for doctoral candidates preparing for college teaching. It provides experiences in working with the regular staff members engaged in the supervision of college and university teaching experiences. Particular attention is centered on the various aspects of the teaching-learning process and on analyses of self growth.

PCG 758. ADVANCED PSYCHOPATHOLOGY. *Three hours credit. Winter.*

Prerequisite, PSY 458 or PCG 558 and permission of instructor. This course is designed for school psychology graduate students and is a continuation in greater depth of the topics in disorganized personality in PSY 458 or PCG 558. Attention will be devoted to the project test behavior related to the conditions discussed.

PCG 761. ORIENTATION TO THE GRADUATE PROGRAM AND SELF. *Three hours credit. Fall, Summer.*

Required during first quarter of the Ed.S. or Ed.D. degree program. Provides a variety of interactions between new students and PCG faculty leading to self-exploration, orientation to graduate program and to philosophical persuasions of the department, and evaluation of appropriateness of the student's vocational choice at this institution.

PCG 762. GROUP DYNAMICS IN HUMAN RELATIONS. *Three hours credit. Winter, Spring, Summer.*

Prerequisite, PCG 506 or 606. A course designed to give an understanding of the principles of group dynamics as applied to group situations including the classroom.

PCG 771. MEASUREMENT: SCALING AND RELATED TECHNIQUES. *Three hours credit. Winter.*

Prerequisites, RSM 604, PCG 671 or 672. An advanced course on the theory and methods of scaling with emphasis on attitude scales. Several of the newer techniques, such as the Q-Sort and Semantic Differential, are also covered.

PCG 775. INTERNSHIP IN SUPERVISION OF PSYCHOLOGICAL TESTING. *Four to twelve hours credit. Taught every quarter.*

Prerequisite, advanced students in testing may enroll in this course. Opportunity is provided for the student with successful and extensive background in psychological testing to participate under supervision in the instruction of the practice courses in testing. Experiences may include demonstration testing, supervision of practicing students, giving group or individual instruction in administering, scoring, reporting and interpreting test results.

PCG 780. INTRODUCTION TO PSYCHOLOGICAL RESEARCH. *Three hours credit. Spring, Summer.*

An introduction to research and advanced study in psychology. A course for specialist and doctoral candidates.

PCG 782. INTRODUCTION TO RORSCHACH ADMINISTRATION AND SCORING. *Three hours credit. Fall.*

Prerequisites, PCG 558; PCG 641, 674 or 675; and 651, permission of instructor. A course for doctoral students in training to become school psychologists. Stresses the conceptual basis for comparing the projective with more traditional psychometric procedures and develops beginning skills in actual administration and scoring of the Rorschach Test.

PCG 783. PROJECTIVE TECHNIQUE. *Three hours credit. Winter.*
Prerequisite, PCG 782, permission of instructor. Continues the topics begun in PCG 782 with special attention to problems of interpretation. Additional projective techniques such as the TAT, sentence completion tests, etc. are considered. Enrollment is limited to students in training to become school psychologists.

PCG 787. SEMINAR IN SCHOOL PSYCHOLOGY. *Three hours credit. Summer.*

A seminar intended to develop an appreciation for the professional issues and problems of concern to the school psychologist. The course considers such topics as qualifications for test administration, confidentiality, relations with other professions, problems of referral, and report writing.

PCG 789. INTERNSHIP IN SCHOOL PSYCHOLOGY. *Maximum of sixteen hours credit. Fall, Winter, Spring.*

Prerequisite, Permission of Instructor. A practical field work experience in the practice of school psychology under supervision conducted in selected public school systems. The internship should be taken near the completion of the student's program.

PCG 792. INTERNSHIP. *Maximum sixteen hours credit per quarter. Taught every quarter.*

Provides practical field experience for qualified doctoral candidates in areas of their speciality. The internship provides credit hours above those normally required for the doctor's degree.

PCG 799. DOCTORAL DISSERTATION. *Eighteen hours credit. Taught every quarter.*

Required of all doctoral candidates.

RESEARCH AND STATISTICAL METHODOLOGY

RSM 504. DESCRIPTIVE STATISTICS. *Four hours credit.*

Study of problems in organizing, summarizing, and interpreting statistical information in solution of educational and psychological problems. Topics: Central tendency, variation, transformed scores, normal distribution model, bivariate correlation and regression, chi-square models, and introduction to sampling theory. Laboratory experiences will be provided.

RSM 505. STATISTICAL INFERENCE. *Five hours credit.*

Prerequisite, RSM 504. The theory and nature of statistical inference. Topics; Sampling error and central limit theorem; theoretical frequency distributions; binomial, normal, t, F, chi-square; hypothesis testing; estimation.

RSM 508. WORKSHOP. *One to three hours credit.*

This course is concerned with computers and their applications to statistics and research. Selected topics may vary depending on the faculty involved. Each workshop will have a sub-title and no sub-title may be repeated for credit. Open to students with at least two courses in statistics.

RSM 543. DATA PROCESSING IN EDUCATION. *Three hours credit.*

This is a survey course of a non-technical nature in computer applications in education. It should familiarize the graduate student with the capabilities and limitations of equipment that is currently available.

RSM 600. INTRODUCTION TO GRADUATE STUDY. *Three hours credit.*

An orientation to graduate study in general and the nature and methods of research in particular. Required of all first-year graduate students (except for those departments which have substitutes for this course). Should be taken during the first quarter of graduate work.

RSM 603. ANALYSIS OF VARIANCE AND COVARIANCE. *Three hours credit.*

Prerequisite, RSM 504, 505. Designs relative to group comparisons will be studied. Topics: Simple analysis of variance and covariance; factorial design; fixed, random, and mixed models; trend analysis; Latin square.

RSM 613. MULTIPLE REGRESSION. *Three hours credit.*

Prerequisite, RSM 603. The theory of regression analysis applied to problems involving many variables. Regression models are developed for analysis of variance and covariance, Neyman-Johnson technique, multiple discriminant function, curvilinear data, and discontinuous functions.

RSM 622. INDIVIDUAL STUDIES. *Maximum of four hours credit.*

Qualified graduate students outline and spend a minimum of 25 clock hours per quarter hour on a problem. Two copies of a well-written paper must be filed before credit is given, one with the instructor and one with the Dean of the Graduate School.

RSM 623. NONPARAMETRIC STATISTICS. *Three hours credit.*

Prerequisite, RSM 504, 505. Selected nonparametric tests of research hypotheses are discussed in the light of : 1) the data to which the test is applicable, (2) the rationale underlying the test, (3) examples of application of the test in behavioral research, (4) comparison of the test with its parametric equivalent.

RSM 633. FACTOR ANALYSIS . *Three hours credit.*

Prerequisites, RSM 504, 505. Spearman's g-factor, centroid analysis, principal axis analysis, varimax solution. The theory of oblique and orthogonal solutions and the community problem will be considered.

RSM 643. SEMINAR: SPECIAL TOPICS. *Three hours credit.*

Prerequisite, approval of the instructor. Advanced topics in applied statistics, measurement theory, and research. Specific topics to be covered will be determined at the instructor's discretion and by the current needs of the students. Such topics as multivariate techniques, sampling theory, advanced experimental design and others may be covered.

RSM 644. RESEARCH PRACTICUM. *Twelve hours credit.*

Required of all candidates for the Ph.D. in Research and Statistical Methodology. Four hours must be taken every quarter. Will not be offered during the summer. Special topics are stressed each quarter: (a) Fall, Computer programming; (b) Winter, Decision Theory; (c) Spring, Judgment Analysis and Grouping Techniques. Open to non-majors.

RSM 673. ADVANCED THEORY OF MEASUREMENT. *One to three hours credit.*

Prerequisite, RSM 505. An advanced course in measurement dealing with theory in measurement of individual differences, methods and methodology applied to dependability problems, and models and methods for using educational and psychological data in practical situations.

RSM 699. THESIS. *Maximum of eight hours credit.*

Optional for Master of Science program on recommendation of the major adviser.

RSM 700. INTRODUCTION TO DOCTORAL RESEARCH. *Three hours credit.*

An introduction to research and advanced study. Required of all specialist and doctoral candidates (except for those departments which have substitutes for this course).

RSM 713. PLANNING AND METHODOLOGY OF RESEARCH. *Three hours credit.*

Prerequisite, RSM 505. Technical problems in planning and conducting studies. Topics: Locating and defining problems; measurement and scaling; sampling designs; problems specific to historical, survey, and experimental studies; data organization for computer processing. A research plan for an actual or hypothetical study will be developed by each student.

RSM 720. SEMINAR IN DISSERTATION EVALUATION. *No credit. (\$25.00 fee required.)*

Designed for doctoral candidates who are in the process of planning their research. Individuals will present their tentative research proposals and receive criticism from the class and the staff.

RSM 754. RESEARCH PRACTICUM. *Twelve hours credit.*

Prerequisite RSM 644. Required of all candidates for the Ph.D. in Research and Statistical Methodology. Four hours must be taken every quarter. Will not be offered during the summer. Special topics are stressed each quarter: (a) Fall, Advanced Regression Analysis; (b) Winter, Advanced Experimental Design; (c) Spring, Science of Research.

RSM 755. SUPERVISED PRACTICUM IN COLLEGE TEACHING. *Maximum of nine hours credit.*

This course provides experiences in observation and supervised practice in college teaching for doctoral candidates planning to teach on the college or university level. Observations and the teaching experiences will be used as a basis for the analysis of learning experiences.

RSM 799. DOCTORAL DISSERTATION. *Eighteen hours credit.*

Required of all doctoral candidates.

SCHOOL OF EDUCATIONAL CHANGE AND DEVELOPMENT

SECD 500. ADVANCED SEMINAR IN CREATIVITY. *Three hours credit.*

A seminar in the nature of creativity, how it can be nurtured in students of all ages, and the development and applications of tests of creativity. Practical application of creative approaches to teaching various ages and various subject areas.

SECD 502. PROFESSIONAL DEVELOPMENT EXPERIENCES. *One to fifteen hours credit.*

Upperclassmen and graduate students in the School of Educational Change and Development may elect professional development experiences that are a part of their program approved by their Resource Board and Advisory Board. The nature of the experiences and the credit hours are determined by the student's accepted proposal.

SECD 602. PROFESSIONAL DEVELOPMENT EXPERIENCES. *One to fifteen hours credit.*

Master's students in the School of Educational Change and Development may elect professional development experiences that are a part of their program approved by their Resource Board and Advisory Board. The nature of the experiences and the credit hours will be determined by the student's accepted proposal.

SECD 622. INDIVIDUAL STUDIES. *Four hours credit.*

Qualified graduate students outline and spend a minimum of 25 clock hours per quarter hours on a problem. Two copies of a well-written paper must be filed before credit is given, one with the instructor and one with the Dean of the School of Educational Change and Development.

SECD 702. PROFESSIONAL DEVELOPMENT EXPERIENCES. *One to fifteen hours credit.*

Specialist and doctoral students in the School of Educational Change and Development may elect professional development experiences that are a part of their program approved by their Resource Board and Advisory Board. The nature of the experiences and the credit hours will be determined by the student's accepted proposal.

SCIENCE

***SCI 505. PHYSICAL SCIENCE CONCEPTS.** *Four hours credit.*

The fundamental concepts of physical science are presented to provide a background for elementary teachers. This course is not applicable to a graduate science major.

SCI 507. AEROSPACE WORKSHOP. *Three hours credit.*

The purpose of this course is to provide the elementary and secondary teacher with a general background in aviation and an understanding of the air and space age. Subject matter will include the elementary concepts of aircraft, rocket and satellite development, weather, navigation, theory of flight, and aviation in education. Field trips will be an integral part of the workshop.

SCI 508. ELEMENTARY SCIENCE WORKSHOP. *Three hours credit.*

A subject matter course for the improvement of science background through experimentation and demonstration. Opportunity is provided for the solution of individual problems through the guidance of the instructors. Visual aids, laboratory materials, discussions, professional literature, and field trips are other resources.

SCI 510. EARTH SCIENCE FOR ELEMENTARY TEACHERS. *Three hours credit.*

This course will be a combination of content and methods in the area of earth science. The earth science units from contemporary and traditional materials will be examined. Subject matter films, lectures, and demonstrations in the areas of geology, astronomy, meteorology, and oceanography will be included. This course is specifically designed to give the elementary teacher confidence and background to teach in the realm of earth science.

SCI 593. COMPUTER PROGRAMMING IN SCIENCE I. *Three hours credit.*
(*NSF In-Service Institute.*)

Prerequisite, bachelor's degree with a major or minor in a natural science. This course will introduce the students to the theory and uses of computers including programming in the BASIC computer language. Emphasis will be placed on the application of these techniques to actual scientific problems. This course was taught as SCI 293 in the 1970-71 academic year.

SCI 595. ADVANCED COMPUTER APPLICATIONS IN SCIENCE. *Three hours credit.* (*NSF In-Service Institute.*)

Prerequisite, bachelor's degree with a major or minor in a natural science, SCI 594, or the consent of the instructor. This course will utilize the knowledge of computer programming in SCI 594 in solving advanced problems in the natural sciences. Techniques will also be developed for using the computer in junior and senior high school science courses for computer-assisted instruction. This course was taught as SCI 395 in the 1970-71 academic year.

SCI 676. HISTORY OF SCIENCE. *Three hours credit.*

The fundamental purpose of the course is to show the evolution of scientific thought and how it has contributed to contemporary methods of research. Emphasis will be devoted to the origin of the underlying principles, theories, laws of science, and the techniques used by various scientists in formulating their conclusions.

SCI 679. PHILOSOPHY OF SCIENCE. *Three hours credit.*

A study of the interrelations between philosophy and science with an attempt through exposition, discussion, and reconciliation to provide a clearer understanding of vital issues. Topics include the nature and sources of knowledge, meaning, and validity; criteria of objectivity, reality; examination of concepts underlying scientific method and development of scientific theories.

SCI 690. PHYSICAL PROPERTIES OF MATTER. *Three hours credit.*
(*NSF In-Service Institute.*)

This course will deal with some of the basic physical properties of matter and

their measurement. Properties studied include density, thermal expansion, elasticity, freezing point, melting point, and boiling point. The experimental approach to the study of these properties will be emphasized.

SCI 691. THE CHEMICAL NATURE OF MATTER. *Three hours credit. (NSF In-Service Institute.)*

This course will review modern concepts of the structure of gases, liquids, and solids and the relationship between structure and properties. Study of phase changes and solutions will include the concept of equilibrium.

SCI 692. THE ATOMIC NUCLEUS. *Three hours credit. (NSF In-Service Institute.)*

This course will deal with the atomic model of matter. Study includes radioactivity, both natural and artificially induced. The sizes and masses of atoms and molecules, and the methods of determination of molecular formulas will be considered.

SCI 694. PHILOSOPHICAL FOUNDATIONS OF SCIENCE. *Four hours credit.*

A study of the structure of science. Relationship between facts, laws, and theories and how they are verified. The relation of science to society, and the relation of science to values and morality.

SCI 730. GRADUATE READINGS COURSE IN SCIENCE. *Four hours credit.*

The required reading in several areas of science will consist of books written for the adult lay reader. Designated books will be required and a recommended supplementary reading list will be supplied. Each book will be the basis for class discussion and comment. This course not applicable to a graduate degree in science.

SCIENCE EDUCATION

SCED 568. INSTRUCTIONAL MATERIALS IN THE TEACHING OF SCIENCE. *Three hours credit. (Two hours lecture, three hours laboratory.)*

A course designed for the study and development of teaching materials for the science teacher. Particular emphasis will be placed on the materials associated with the new curriculum projects in science. Opportunities will be provided for the design and construction of suitable demonstration and laboratory aids. Commercial science teaching aids will be demonstrated, studied, and evaluated.

SCED 601. PRACTICUM. *Maximum of four hours credit.*

Open only by invitation to resident graduate students. Supervised professional activity in the student's major field, approximately two hours per day. Two copies of a well-written paper must be filed with the instructor before credit is given.

SCED 622. INDIVIDUAL STUDIES. *Maximum of four hours credit.*

Qualified graduate students outline and spend a minimum of 25 clock hours per quarter hour on a problem. Two copies of a well-written paper must be filed with the instructor before credit is given. Does not satisfy the 500 level requirement unless the student is in full-time residence at UNC during the quarter the course is taken.

SCED 671. SCIENCE CURRICULUM IN THE ELEMENTARY SCHOOL. *Three hours credit.*

Elementary science programs organized by science educators are evaluated in terms of basic criteria. From the above analysis and a review of research, curricula are planned to satisfy certain requirements. This includes a statement of the student's philosophy, objectives, types of learning activities and generalizations which coordinate elementary science with secondary.

SCED 672. SCIENCE CURRICULUM IN THE SECONDARY SCHOOL.*Three hours credit.*

Secondary science programs organized by science educators are evaluated in terms of basic criteria. From the above analysis and review of research, K-12 curricula with emphasis on the secondary program are planned to satisfy certain requirements. This includes a statement of the student's philosophy, objectives, types of learning activities and generalizations which coordinate secondary science with elementary.

SCED 673. SEMINAR IN SCIENCE EDUCATION RESEARCH. *Three hours credit.*

This course is designed to develop an acquaintance with research in science education. The types of problems, quality and areas explored are a major function of this course. Some time is devoted to acquainting the student with library resources available, and a review of English Style Form used in preparation of research reports. Science teachers at all levels may explore research to help determine a problem for their own work and/or to become familiar with research that has been done. Open only to science education majors and minors.

SCED 674. INSTRUCTIONAL PROBLEMS IN TEACHING SCIENCE.*Three hours credit.*

The study of instructional problems in teaching science in the elementary and secondary schools. The instructional problems may include problems relating to the pupils' ability in mathematics, reading and problem solving ability, to problems in laboratory, evaluation, demonstration, vocabulary, and provision for the better student.

SCED 675. DEVELOPMENT OF SCIENTIFIC INQUIRY ABILITIES OF CHILDREN THROUGH SCIENCE. *Four hours credit.*

The course emphasizes a need for the knowledge of the research in the field of scientific inquiry, the psychological elements involved in problem solving, the procedures incident to the organization of classroom techniques which will develop critical thinking and the scientific abilities of the student. Procedures for evaluation are considered fundamental.

SCED 676. CONSTRUCTION OF ACHIEVEMENT TESTS IN SCIENCE.*Three hours credit.*

A study of achievement test construction and use by the science teacher. Topics include the philosophy, purposes and values of classroom tests. Kinds of achievement tests are studied with attention given to administration, marking, scoring and proper physical form. Use of frequency distributions, measures of central tendency and deviation is studied. Students construct test items and a complete test.

SCED 677. SEMINAR IN MODERN DEVELOPMENTS IN SCHOOL SCIENCE. *Three hours credit.*

The course shall show modern science curriculum developments and the psychological and philosophical bases for their development. Emphasis shall be on cognitive learning, creativity, and techniques of developing inquiry. Non-science majors only.

SCED 678. SCIENCE EDUCATION SEMINAR. *One hour credit. (Maximum six hours credit.)*

This course gives the graduate student an opportunity to discuss current research in science education, to report on some topic of interest treated in recent literature, to discuss his own research problem, and to profit by the reports of others in the group.

SCED 679. SCIENCE CURRICULUM IN THE JUNIOR HIGH SCHOOL.*Three hours credit.*

A course designed to acquaint students with the science curriculum in the junior high school. Existing curricula and "new" curricula will be discussed and evaluated.

SCED 680. PROBLEMS IN TEACHING PHYSICS. *Four hours credit.*

A study of current trends in the teaching of high school physics and the various problems which confront the teacher.

SCED 681. PROBLEMS IN TEACHING BIOLOGY. *Four hours credit.*

The course deals with the organization of biological units, teaching procedures, and evaluation of learning. Preparation of teaching materials and organization of lessons are included. Evaluation of present practices will be accomplished in terms of criteria that foster general education in a secondary school program.

SCED 682. PROBLEMS IN TEACHING CHEMISTRY. *Four hours credit.*

This course is designed to deal with special problems in the teaching of chemistry. This includes elementary concepts, laboratory and stockroom problems, and demonstrations.

SCED 683. PROBLEMS IN TEACHING ELEMENTARY SCHOOL SCIENCE.

Four hours credit.

This course is designed to deal with special problems in the teaching of elementary school science of importance to in-service experienced teachers and supervisors of science. This includes a brief summary of trends, philosophy, rationale and procedures in new elementary science curricula. Special attention will be given to the conduct and evaluation of laboratory work and newer innovations in teaching elementary science.

SCED 684. PROBLEMS IN TEACHING JUNIOR HIGH SCHOOL SCIENCE.

Four hours credit.

This course deals with the special problems confronting the teacher of junior high school science. Problems of laboratory work, materials, familiarization with philosophy and objectives of new curriculum developments at junior high level, motivation, discipline, and evaluation problems of the junior high age group will be considered.

SCED 685. ADMINISTRATION AND SUPERVISION OF SCIENCE K-12.

Four hours credit.

This course is designed to prepare the graduate student to function as a science coordinator of K-12 science programs.

SCED 694. SEMINAR IN TEACHING SCIENCE CURRICULUM IMPROVEMENT STUDY. *Three hours credit.*

Prerequisite, Cooperative College-School Science Institute member. This course is designed to give elementary teachers an understanding of the philosophy and the method of teaching the SCIS (Science Curriculum Improvement Study) materials.

SCED 699. THESIS. *Fifteen hours credit.*

Optional for Master of Arts programs on recommendation of the major adviser.

SCED 701. SPECIALIST DEGREE PRACTICUM. *Maximum of eight hours credit.*

Project or supervised professional activity, required of all candidates for the Specialist in Education degree (except for those departments which have substitutes for this course.)

SCED 755. SUPERVISED PRACTICUM IN COLLEGE TEACHING. *Maximum of nine hours credit.*

This course provides experiences in observation and supervised practice in college teaching for doctoral candidates planning to teach on the college or university level. Observations and the teaching experiences will be used as a basis for the analysis of learning experiences.

SCED 756. INTERNSHIP IN SUPERVISING COLLEGE TEACHING. *Three hours credit.*

This course is designed for doctoral candidates preparing for college teaching. It provides experiences in working with the regular staff members engaged in the supervision of college and university teaching experiences. Particular atten-

tion is centered on the various aspects of the teaching-learning process and on analyses of self growth.

SCED 777. EVALUATION AND TESTING IN SCIENCE. *Three hours credit.* Prerequisite, RSM 504, SCED 676 or equivalent. This course involves the construction of some test items and the analysis of achievement tests used by classroom science teachers. The application of some statistical techniques to classroom testing and problems of planning and developing test programs in science will be studied.

SCED 799. DOCTORAL DISSERTATION. *Maximum of eighteen hours credit.*

SOCIAL STUDIES EDUCATION

SSED 602. CONCEPTS IN THE SOCIAL SCIENCES. (PTE or certification at the undergraduate level) *Five hours credit.*

Students will be exposed to the basic concept incorporated in theory relative to each social science discipline. Students will also be expected to develop annotated bibliographies relevant to each concept and to participate in regularly scheduled classroom discussions.

SSED 603. SEMINAR IN PROBLEMS OF TEACHING. (PTE or certification at the undergraduate level) *Five hours credit.*

Doctoral candidates will utilize understandings in the areas of (1) social analysis, (2) objectives, (3) curricular content, (4) the learning process, and (5) evaluation, in resolving problems anticipated in the light of doctoral and post-doctoral plans.

SSED 605. IMPROVEMENT OF INSTRUCTION IN SOCIAL STUDIES IN THE SECONDARY SCHOOL. (PTE or certification at the undergraduate level.) *Three hours credit.*

Consideration of recent trends in the organization and teaching of social studies courses in the secondary school. Teachers will be given opportunity to evaluate new courses of study, new materials and new equipment.

SOCIOLOGY

All of the following Sociology courses have as a prerequisite SOC 100 or equivalent.

SOC 510. COLLECTIVE BEHAVIOR. *Three hours credit.*

Relevant and appropriate sociological theory is directed to the subdiscipline of collective behavior. Mobs, riots, crowds, crazes, mass behavior, revolutions and reforms are unified through certain theoretical developments that permit the systematic examination of the social strains underlying collective effort and behavior.

SOC 515. THE SOCIOLOGY OF CHILD DEVELOPMENT. *Three hours credit.*

A sociological approach to the field of child development. The primary emphasis is upon the social situation and how the child grows and develops within its context from birth to maturity.

SOC 520. SEMINAR—MARRIAGE. *Three hours credit.*

A graduate seminar devoted to the exploration of marriage in depth, with a primary focus on American marriage. A secondary emphasis will be that of contrasting the American system with that of other societies.

SOC 527. MILITARY SOCIOLOGY. *Three hours credit.*

Analysis of the military as a social institution with comparisons to its place in the institutional patterns of other nations. Both the historical aspects and the contemporary institutional position are covered.

SOC 537. SEMINAR IN AMERICAN SOCIETY TODAY. *Three hours credit.*
An advanced study of the main cultural and social structures of American society, the social relations, beliefs and values which characterize the people of the United States.

SOC 540. CRIMINOLOGICAL THEORIES. *Three hours credit.*
Prerequisite, SOC 240 or equivalent. Analysis and evaluation of the major historical and contemporary theories of criminal behavior.

SOC 541. SOCIOLOGY OF CRIMINAL LAW. *Four hours credit.*
Prerequisite, SOC 240 or equivalent. An inquiry into the origins of criminal law, its administration, and the effect of legal sanctions.

SOC 550. PHILOSOPHICAL ISSUES IN SOCIOLOGY. *Four hours credit.*
Prerequisite, SOC 451. An exploration of a variety of philosophical problems, issues and contentions forming a backdrop to theoretical and empirical sociology.

SOC 551. SOCIOLOGY OF KNOWLEDGE. *Three hours credit.*
Prerequisite, SOC 450. The sociology of knowledge analyzes and evaluates the relationship between knowledge and existence, between thoughts and social structures, between mental productions and cultural and historical contexts.

SOC 552. THEORY CONSTRUCTION. *Four hours credit.*
Prerequisite, SOC 452. A systematic examination of that aspect of sociological inquiry which involves theory construction and theory generation.

SOC 562. SOCIAL RESEARCH III. *Four hours credit.*
Prerequisite, SOC 461 or equivalent and MATH 115 and 116. An introduction to the construction, solving, and application of mathematical models in sociology.

SOC 563. ETHNOMETHODOLOGY. *Four hours credit.*
A study of the folk classifications of social systems. Its intent is to discover how members of a social system perceive, define, and classify and how these members actually perform their activities as participants in social system.

SOC 564. DEMOGRAPHIC ANALYSIS. *Four hours credit.*
Prerequisite, one course in statistics or permission of instructor. Research procedures in interpersonal research, including the computation of standard demographic statistics (life tables, birth and death rates, population projections, etc.) and interpretation of demographic trends.

SOC 610. SEMINAR IN SOCIAL PSYCHOLOGY. *Three hours credit.*
Prerequisite, SOC 310. Analysis of the major perspectives. Discussion of certain issues, problems, and trends. Emphasis will be placed on specific theoretical approaches in the field of social psychology: interaction theory, cognitive theory, reinforcement theory, field theory, social learning theory, etc.

SOC 612. SEMINAR IN SOCIAL COMMUNICATION. *Three hours credit.*
An explorative, yet penetrating, overview of theories, substantive problems and methods in interpersonal and public communication. Emphasis is placed on processes of communication common to animal behavior, human interpersonal relations, mass communication, and machine behavior.

SOC 620. SEMINAR IN COMPARATIVE SOCIAL INSTITUTIONS. *Five hours credit.*
The course will discuss social transition from the stateless society of the pre-historic period to the contemporary nation-states. It will illustrate the change from small isolated units of social interchange to the interdependent, and interrelated world-centered units of today. The course will conclude with an analysis of the recent trends toward universalism and the one-world concept.

SOC 625. SEMINAR IN THE SOCIOLOGY OF MENTAL HEALTH AND ILLNESS. *Three hours credit.*

A study of the history of mental health and illness in America. Following study of the history, the student will focus on what we mean by mental health and illness, current conceptions related to social psychiatry and the role of the social scientist. Problems related to the school system and disturbed children will be discussed at some length.

SOC 643. CRIME RESEARCH: SEMINAR. *Three hours credit.*

Prerequisite, SOC 240 or equivalent. Selected problems in areas of criminal behavior, criminological theories, crime control or treatment of criminals. Student reports and critiques.

SOC 650. SOCIOLOGICAL THEORY. *Three hours credit.*

Prerequisite, SOC 452. The development of Sociological Theory from Comte to the present is analyzed with special emphasis on various European and American "schools." The principal aim is to acquaint the student systematically, with the concepts of sociological theory in order to orient him to various frames of reference for viewing human interaction.

SOC 660. SEMINAR IN ADVANCED SOCIAL RESEARCH. *Four hours credit.*

The course will include an examination of the scientific method, as it applies to sociology, advanced research designs and techniques used in sociological research, developing and testing of hypotheses, and basic statistical tools used in research.

SOC 661. SEMINAR IN SOCIAL STATISTICS. *Three hours credit.*

Prerequisite, SOC 461 or equivalent. This course will deal with select topics in social statistics. The topics discussed will vary according to individual needs and goals.

SOC 670. SOCIOLOGY INTERNSHIP. *Two hours credit.*

The course makes available to the M.A. candidate in sociology opportunities to assist, under supervision, in the teaching of Sociology 100. Experiences include meeting with a small section of the course two hours a week, preparing and proctoring written examinations, reviewing and clarifying material covered in prior lectures, and leading the section in discussions of current and topical matters.

SPECIAL EDUCATION AND REHABILITATION

EDSE 501. WORKSHOP IN SPECIAL EDUCATION. *One to six hours credit.*

A workshop designed for teachers and administrators. This course is designed to facilitate specific disability areas and will be so designated with each workshop offered. The content will include current issues, problems, programs, and topics of national and local interest.

EDSE 502. SPECIAL EDUCATION FOR GENERAL EDUCATORS. *Three hours credit.*

An introductory course for graduate students in general education, nursing, counseling and other related personnel (non-special education majors).

EDSE 511. VOCATIONAL PREPARATION OF THE MENTALLY RETARDED. *Three hours credit.*

Prerequisites: EDSE 100 or 602. Emphasis will be on discussing techniques in the following areas: (1) evaluating vocational fitness, (2) job placement, (3) working with related disciplines, (4) understanding of the implication of vocational experiences on curriculum, (5) on-the-job supervision, and (6) follow-up services.

EDSE 540. SURVEY OF EDUCATION OF THE VISUALLY HANDICAPPED. *Three hours credit.*

Educational, social and emotional implications of visual disability. Overview of history, and current practices in educational and rehabilitation planning. Organization and implications of various educational services—pre-school college. A review of private and public agencies, their philosophies, and programs.

EDSE 542. PRINCIPLES OF EDUCATION OF THE PARTIALLY SEEING.

Three hours credit.

Identification, classification, and methods of program organization; principles of preparation, selection, effective use of instructional materials for children with limited vision. Adaptation of the school environment considered. Observation, discussion, and administration of the Snellen Vision Screening test presented.

EDSE 543. BEGINNING BRAILLE. *Three hours credit.*

History of development of braille and other systems of reading used by the blind. Mastery of literary braille code development and use of special materials; slate and stylus techniques presented; introduction to Nemeth Code of Mathematics.

EDSE 544. ELEMENTARY METHODS FOR THE BLIND. *Three hours credit.*

Special instructional techniques in teaching reading through braille; use of audio and dimensional aids; current practices in arithmetic, language, arts, music, physical education, efficient living skills; orientation and mobility foundations. Materials preparation, adaptation of commercial devices emphasized.

EDSE 545. SECONDARY METHODS FOR THE BLIND. *Three hours credit.*

Curriculum, adaptations and special methods; problems of adjustment and expansion of the operational environment. Use of guidance, counseling and vocational rehabilitation agency services in life planning for the senior high school blind student. Pre-adult and adult special services. Review of special legislation and typical services available to the young blind adult.

EDSE 556. LABORATORY IN ADVANCED MANUAL COMMUNICATION SKILLS. *Two hours credit.*

Prerequisites EDSE 356 and EDSE 456, or permission of instructor. Advanced training in use of sign language. Correct use of signs for classroom teaching, conversation and interpreting for the deaf will be stressed.

EDSE 561. VOICE DISORDERS II. *Three hours credit.*

Prerequisite, EDSE 464 or consent of instructor. Causation, diagnosis and treatment of voice disorders with emphasis on those disorders occurring primarily in adults.

EDSE 562. SPEECH CORRECTION AND IMPROVEMENT IN THE CLASSROOM. *Three hours credit.*

Basic information for classroom teachers pertinent to their planning and carrying out programs of speech improvement in their classrooms. Not open to speech pathology majors.

EDSE 565. APHASIA. *Three hours credit.*

Prerequisites: EDSE 464 and EDSE 369 or consent of instructor. Causation, diagnosis and therapy for aphasic adults.

EDSE 573. THE AUDITORY MECHANISM. *Three hours credit.*

Detailed study of the human ear, and the processes of audition.

EDSE 575. AUDITORY DISORDERS IN CHILDREN. *Three hours credit.*

Identification audiometry and differential diagnosis of children with suspected auditory disorders. The effect of hearing loss on the child's educational and social development is also stressed. Counseling the parents of the hearing impaired child is an integral part of this course.

EDSE 576. ELECTROPHYSIOLOGICAL AUDIOMETRY. *Three hours credit.*

Prerequisite, EDSE 372 or permission of instructor. Electrophysiological techniques for measurement of hearing sensitivity. Emphasis on EER, ENR, EDR, and electro-acoustic and acoustic measurements of middle ear impedance.

EDSE 577. REHABILITATION OF THE ACOUSTICALLY HANDICAPPED. *Three hours credit.*

Prerequisites: EDSE 370 and EDSE 371. Consideration of the psychological impact of hearing impairment as it relates to the educational, social and vocational potential and aspirations of the acoustically handicapped child and adult. Special emphasis is placed on techniques of parent and client counseling, along with the effect of hearing loss on communication.

EDSE 580. EDUCATION OF CHILDREN WITH SPECIAL ABILITIES. *Three hours credit.*

Basic organization of programs for the education of the gifted child; classification and testing; curriculum adjustments and principles of teaching the gifted; exploring creative activities; guidance and evaluation of student programs.

EDSE 591. COMMUNITY RESOURCES FOR REHABILITATION, GUIDANCE AND COUNSELING. *Three hours credit.*

Designed to acquaint the student with an understanding of the need for community resources. Provides the student with techniques for evaluating the effectiveness of available resources, and the knowledge and skills required to develop community resources needed for the implementation of rehabilitation, guidance and counseling services.

EDSE 592. VOCATIONAL PLACEMENT AND ADJUSTMENT OF THE DISABLED IN REHABILITATION. *Three hours credit.*

Consideration of such basic areas of knowledge as theories of vocational choice, labor market analysis, job analysis, and the psychology and sociology of work as they relate to the vocational placement problems presented by disabled persons. Analysis of job placement and training facilities and ability to relate these through vocational guidance to client capacities and employer expectations.

EDSE 595. SEMINAR: INTRODUCTION TO EMPLOYMENT COUNSELING. *Three hours credit.*

An overview of the field of employment counseling beginning with the historical, legislative, and philosophical foundations of employment counseling and the contributions of related disciplines. Visitations to and observations of employment counseling programs are arranged.

EDSE 600. INTRODUCTION TO GRADUATE STUDY. *Three hours credit.*

An orientation to graduate study in general and the nature and methods of research in particular. Required of all first-year graduate students (except for those departments which have substitutes for this course). Should be taken during the first quarter of graduate work.

EDSE 601. PRACTICUM. *Maximum of four hours credit.*

Open only by invitation to resident graduate students. Supervised professional activity in the student's major field, approximately two hours per day. Two copies of a well-written paper must be filed before credit is given, one with the instructor and one with the Dean of Special Education and Rehabilitation.

EDSE 602. EDUCATION AND PSYCHOLOGY OF EXCEPTIONAL CHILDREN. *Three hours credit.*

A survey of the characteristics and educational needs of impaired and gifted children. Designed as an overview of the field for graduate students in special education, general education, psychology and other related fields.

EDSE 603. ADMINISTRATION AND SUPERVISION OF SPECIAL EDUCATION. *Three hours credit.*

Problems of organization, administration and supervision of special education programs; finance and attendance, physical facilities, budgeting, needed equipment, community agencies and curriculum development.

EDSE 604. APPRAISAL OF EXCEPTIONAL CHILDREN. *Four hours credit.*

Prerequisites, EDSE 304 or 606. A critical examination of objective tests used to appraise the intellectual abilities of exceptional children.

EDSE 605. PRACTICUM IN APPRAISING EXCEPTIONAL CHILDREN. *Three hours credit.*

Prerequisite, EDSE 604. Provides supervised practice in administering specialized tests to children who are visually handicapped, acoustically handicapped, cerebral palsied, speech impaired, or mentally retarded.

EDSE 606. PRINCIPLES AND PRACTICES OF MEASUREMENT OF THE HANDICAPPED. *Three hours credit.*

This course is designed to develop an understanding of and the ability to interpret the results of psychological and educational tests. Emphasis on diagnosis and problems encountered in testing children and adults who are visually, acoustically, orthopedically, mentally handicapped or speech impaired.

EDSE 607. SPECIAL PROBLEMS IN DIAGNOSIS AND EVALUATION OF THE HANDICAPPED. *Three hours credit.*

Prerequisites, EDSE 304 or 606. This course is designed to acquaint students with a variety of techniques of client appraisal, limitations imposed by standardized tests when making inferences about handicapped persons. Student will investigate methods of client appraisal unique to handicapped adults and develop skills in vocational diagnosis.

EDSE 609. BASIC CONCEPTS OF MENTAL RETARDATION. *Four hours credit.*

Prerequisites: EDSE 600. An examination of the intellectual, psychological, medical, and educational characteristics of the mentally retarded and related methods of management.

EDSE 610. SOCIOLOGICAL AND EDUCATIONAL ASPECTS OF MENTAL RETARDATION. *Four hours credit.*

A study of the sociological and educational problems related to mental retardation. Major emphasis will be placed on research findings having to do with community and institutional care treatment, and education of the mentally retarded.

EDSE 611. PSYCHOLOGICAL ASPECTS OF MENTAL RETARDATION. *Four hours credit.*

A study of the psychological aspects of mental retardation. Intellectual functioning, psychological theories and learning interrelationships are reviewed with their management and research implications emphasized.

EDSE 612. ADVANCED CURRICULUM DEVELOPMENT. *Four hours credit.*

Prerequisite, EDSE 412. This course will develop the application of the principles of preparation, development, and effective use of integrated units. Evaluation and reporting in terms of achievement of the curriculum objectives will also be emphasized.

EDSE 614. PRACTICUM WITH THE MENTALLY RETARDED. *Maximum of fifteen hours credit.*

Prerequisites, EDSE 100 or 602, 320. Individual observation and supervised practice in the education of the mentally handicapped.

EDSE 621. METHODS OF TEACHING CLASSES OF SOCIALLY AND EMOTIONALLY MALADJUSTED CHILDREN. *Three hours credit.*

The role of the special teacher in the development of a hygienic educational atmosphere and an adequate corrective program for socially maladjusted and emotionally disturbed children is stressed.

EDSE 622. INDIVIDUAL STUDIES. *Maximum of four hours credit.*

Qualified graduate students outline and spend a minimum of 25 clock hours per quarter hour on a problem. Two copies of a well-written paper must be filed with the instructor before credit is given. Does not satisfy the 600 requirement unless the student is in full-time residence at UNC during the quarter the course is taken.

EDSE 623. SOCIOLOGICAL AND CULTURAL ASPECTS OF SOCIALLY AND EMOTIONALLY DISTURBED CHILDREN. *Three hours credit.*

A study of the sociological and cultural problems related to social and emotional maladjustment. Major emphasis will be placed on research findings related to such areas as etiology, community and institutional care and treatment, pertinent current issues, and review of special legislation and typical community services.

EDSE 624. SEMINAR IN EDUCATION OF EMOTIONALLY DISTURBED. *Three hours credit.*

Prerequisites, EDSE 100 or 602, 320, 621, 623. Composite of shared experiences in course work and practicum in education of emotionally disturbed. Emphasis on critical appraisal of programming, methodology, and instructional techniques with emotionally disturbed; development of communication skills in consultation with professions of psychiatry, psychology, social work and others as a team approach.

EDSE 625. PRACTICUM WITH THE SOCIALLY AND EMOTIONALLY DISTURBED. *Maximum of fifteen hours credit.*

Prerequisites, EDSE 100 or 602, 320, 621, 623. Individual observation and supervised practice in the education of the socially and emotionally disturbed.

EDSE 627. METHODS OF TEACHING LEARNING DISABLED CHILDREN. *Three hours credit.*

Prerequisites: EDSE 326, 100 or 602. Study of methods being used to teach children with learning disabilities.

EDSE 628. SEMINAR IN EDUCATION OF LEARNING DISABLED. *Three hours credit.*

Prerequisites: EDSE 100 or 602, 326, 627. Synthesis of experiences and course work in the education of the learning disabled.

EDSE 629. PRACTICUM WITH LEARNING DISABLED CHILDREN. *Six to twelve hours credit.*

Prerequisites: EDSE 100 or 602, 326, and 627. Practice in programming and teaching learning disabled children.

EDSE 631. ADVANCED PROBLEMS IN TEACHING CHILDREN WITH PHYSICAL DEFECTS. *Three hours credit.*

An in-depth study of the cerebral palsied, spins bifida, muscular dystrophied, etc. Emphasis on techniques helpful in education, vocational training, therapeutic problems, and developing a satisfactory self-concept will be studied.

EDSE 633. SEMINAR IN CRIPPLED AND OTHER HEALTH IMPAIRED. *Three hours credit.*

This course is designed to augment other seminar courses available to doctoral students working in special education. The aim of the course is to make familiar specific aspects of importance to the future administrator, college teacher or researcher which may have an affect upon his future endeavors.

EDSE 634. PRACTICUM WITH PHYSICALLY HANDICAPPED. *Maximum of fifteen hours credit.*

Prerequisite, EDSE 100 or 602, 330. Individual observation and supervised practice in the education of the physically handicapped.

EDSE 641. STRUCTURE AND FUNCTION OF THE EYE. *Three hours credit.*

An ophthalmologist presents the anatomy and physiology of the eye and the medical eye examination. An educator presents functional implications of various pathologies in the educational setting. Educational interpretation of the medical eye report.

EDSE 642. ADVANCED PRINCIPLES OF EDUCATION OF THE PARTIALLY SEEING. *Three hours credit.*

Prerequisites: EDSE 540, EDSE 6471. Principles of preparation, selection, effective use of instructional materials in area of partially seeing child, problems of adaptation of school environment.

EDSE 643. ADVANCED BRAILLE. *Three hours credit.*

Intensive study of Nemeth Code, including material for algebra, calculus, trigonometry, and other advanced mathematics notation. Principles of transcription; editing and adaptation of print material for the braille reader. Sources of embossed material considered; a review of the volunteer movement. Overview of the music code; review of chemical notation.

EDSE 644. PRACTICUM WITH VISUALLY HANDICAPPED. *Maximum of fifteen hours credit.*

Supervised teaching experience with both blind and partially seeing children; placement evaluations; preparation of materials. Observation of varied programs, including resource room and residential school plans, rehabilitation agencies.

EDSE 645. PRINCIPLES OF ORIENTATION AND MOBILITY FOR THE BLIND. *Three hours credit.*

Independence in exploration of the environment as a life need. Technique in developing orientation skills; pre-cane mobility instruction. Philosophy and history of cane instruction, guide dogs, and other methods of travel. Current programs review. Observation of special orientors working with children. Students will gain experience in traveling independently with cane.

EDSE 646. THE MULTI-IMPAIRED BLIND CHILD. *Three hours credit.*

A course designed to study characteristics, learning problems, curricular adjustments, and program techniques of blind children with additional disabilities, including cerebral palsied blind, mentally retarded blind, and children with brain damage.

EDSE 648. PRACTICUM IN ORIENTATION AND MOBILITY FOR THE BLIND. *Twelve hours credit.*

Supervised teaching experience with both blind and partially seeing children in orientation and mobility. Observation of varied programs, e.g., resource room itinerant plan, residential school, and rehabilitation settings.

EDSE 650. ADVANCED PROBLEMS IN TEACHING THE HEARING IMPAIRED. *Three hours credit.*

Prerequisites: EDSE 451, 452, 453, 455, or by consent of the instructor. Preparation of units of work in content subject areas. Expansion of vocabulary and language comprehension and usage. Curriculum planning. An opportunity will be given experienced teachers to work on specific problems.

EDSE 651. ADVANCED PROBLEMS IN SPEECH FOR THE HEARING IMPAIRED. *Three hours credit.*

Prerequisite: EDSE 451. Problems in developing more nearly normal speech in deaf children; accent will be placed on rate, rhythm, nuance, and emphasis. Actual practice with hearing impaired children will be included. Technological approaches in diagnosis and correction of speech sounds will also be included.

EDSE 652. LINGUISTIC APPROACH TO LANGUAGE FOR THE HEARING IMPAIRED. *Three hours credit.*

Prerequisite: EDSE 452. The course is intended to explore some of the more

advanced language problems with the hearing impaired linguistic theories as applied to the hearing impaired, and current approaches towards analysis and remediation of the language of the hearing impaired.

EDSE 654. PRACTICUM WITH THE HEARING IMPAIRED. *Maximum fifteen hours credit.*

Registration by permission of major advisor only. Individual observation and supervised practice in the education of the deaf and hard of hearing. It is recommended that this course be taken over two consecutive quarters.

EDSE 659. SEMINAR IN EDUCATION OF THE HEARING IMPAIRED. *Three hours credit.*

Open discussion of problems encountered by the M.A. candidate in working with hearing impaired children. The course will be structured each session by the needs of the candidates.

EDSE 660. ARTICULATION DISORDERS II. *Three hours credit.*

Prerequisite: EDSE 464 or consent of instructor. Advanced study of articulation problems.

EDSE 661. NEUROLOGICAL MOTOR SPEECH DISORDERS. *Three hours credit.*

Prerequisites: EDSE 369 and 464 or consent of instructor. Causation, diagnosis and treatment of speech disorders resulting from neurological dysfunction.

EDSE 662. STUTTERING II. *Three hours credit.*

Prerequisite, EDSE 464 or consent of instructor. Study and evaluation of major theories, therapies, and current research on stuttering, with special emphasis on the adult stutterer.

EDSE 663. LANGUAGE DISORDERS IN CHILDREN II. *Three hours credit.*

Prerequisites: EDSE 365, 369, and 464, or consent of instructor. Causation, diagnosis and speech therapy for children with symbolic disorders.

EDSE 664. PRACTICUM IN SPEECH PATHOLOGY. *Maximum fifteen hours credit.*

Prerequisite: Fifteen graduate hours in Speech Pathology and Audiology and consent of adviser. Supervised clinical experience in diagnosis and therapy with speech defective and auditorily handicapped individuals.

EDSE 665. SEMINAR IN CLINICAL EXPERIENCES. *Three hours credit.*

Prerequisites: EDSE 664 or consent of instructor. A consideration of problems that have arisen as a result of the student's clinical experiences.

EDSE 666. CLEFT PALATE. *Three hours credit.*

Prerequisite: EDSE 464 or consent of instructor. Causation, diagnosis and treatment of individuals with speech disorders arising from oro-facial deformities.

EDSE 667. SEMINAR IN SPEECH AND HEARING SCIENCE. *Three to six hours credit.*

Advanced study of selected topics in speech and hearing science. May be repeated for credit.

EDSE 668. SEMINAR IN SPEECH PATHOLOGY. *Three to nine hours credit.*

Prerequisite, EDSE 464 or consent of instructor. Emphasis on current problems in speech pathology. May be repeated for credit.

EDSE 669. COMMUNITY REHABILITATION RESOURCES IN SPEECH PATHOLOGY AND AUDIOLOGY. *Three hours credit.*

Prerequisite, 12 graduate hours in speech pathology or consent of instructor. Demonstrations, lectures, site visits concerning sensory, motor structural, vocational, economic and psychological problems affecting individuals with speech and hearing difficulties. Instruction provided by medical and non-medical specialists.

EDSE 673. SPEECH AUDIOMETRY II. *Three hours credit.*

Prerequisite, EDSE 372 or permission of instructor. An in depth study of the con-

struction, use, and interpretation of standard speech audiometric tests. Special emphasis on tests which may reveal central auditory lesions.

EDSE 674. INTERNSHIP IN AUDIOLOGY. *Maximum of fifteen credit hours.*
Prerequisite: fifteen graduate hours in Audiology and Speech Pathology and consent of adviser. Supervised clinical experience in diagnosis and therapy with auditorily handicapped individuals.

EDSE 675. DIFFERENTIAL DIAGNOSIS OF AUDITORY PROBLEMS.
Three hours credit.

Prerequisite: EDSE 372 or permission of instructor. Emphasis on test batteries which may differentiate between cochlear and retrocochlear lesions and those which may differentiate between functional and organic auditory problems.

EDSE 677. PSYCHOACOUSTICS. *Four hours credit.*

Prerequisite, permission of instructor. Application of standard psychophysical techniques and the theory of signal detection to audiological research.

EDSE 678. BIOACOUSTICS. *Four hours credit.*

Prerequisite, permission of instructor. The ear as a transducer and analyzer. Consideration of electrophysiological and mechanical properties of the ear.

EDSE 679. SEMINAR IN AUDIOLOGY. *Three hours credit.*

Prerequisite: Permission of instructor. Study of selected topics in audiology. May be repeated for credit. Topics will include (1) Rehabilitative Aspects of Audiology, (2) Use of Amplification Devices with the Hearing Impaired, and (3) Research Problems in Diagnostic and Rehabilitative Audiology.

EDSE 689. INTERPRETATION AND EVALUATION OF BEHAVIORAL RESEARCH. *Three hours credit.*

Course is designed to provide graduate students the necessary skills for interpretation and evaluation of research in the social services. Emphasis on basic concepts, design, and utilization of behavioral research. (Course may be used as a substitute for EDSE 600)

EDSE 690. COUNSELING THE HANDICAPPED. *Three hours credit.*

A study of counseling and counseling theories as applied to the handicapped population. An analysis of these theories and how these theories are utilized in the counseling interview is discussed and practiced. Often the rehabilitation counselor's task is one of coordinating the efforts of the team members and bringing together the resources of community agencies which may contribute to the total rehabilitation of an individual.

EDSE 691. PRINCIPLES AND TECHNIQUES OF REHABILITATION COUNSELING (Meets six hours per week). *Three hours credit.*

Prerequisite, EDSE 690. Qualified students majoring in Rehabilitation Counseling engage in counseling interviews and activities in a rehabilitation setting, with rehabilitation clients, under the supervision of one or more members of the University Staff and Agency Staff members. A report analyzing this field experience will be prepared by the student and submitted to the instructor for approval and filing.

EDSE 692. PSYCHOLOGICAL ASPECTS OF DISABILITY. *Three hours credit.*

To develop a sensitive awareness of the handicapping nature of specific disabilities and the relationship between the disability and the psychological, social and vocational aspects of successful adjustment. Specific disability areas discussed will vary from year to year according to the needs and interests of each particular group of students.

EDSE 693. MEDICAL ASPECTS OF DISABILITIES. *Three hours credit.*

Medical implications for rehabilitation counselors including anatomy, physiology and pathology of human systems, physical reconstruction, restoration and

adaptation. Special emphasis is placed on the social and occupational aspects of injuring, somatic and psychogenic disability and the acquiring of facility in basic medical terminology.

EDSE 694. SUPERVISED CLINICAL PRACTICE IN REHABILITATION COUNSELING. *Maximum of sixteen hours credit.* (Open to Rehabilitation Counseling Majors Only).

This internship will include supervised practice in counseling, case studies, contacts with community social agencies and employers, as well as practicum in specific rehabilitation processes. The supervised clinical practice consists of a minimum of 400 clock hours of field work, lasting one full term of approximately 11 weeks.

EDSE 695. SEMINAR IN REHABILITATION: REHABILITATION PLAN FORMULATION. *Three hours credit.*

This course introduces the student to the basic principles and techniques peculiar to the rehabilitation process and the purpose of rehabilitation plan. The student will learn the essential content of the client study process and the techniques in plan formulation and implementation.

EDSE 696. SEMINAR IN REHABILITATION: PROFESSIONAL PROBLEMS. *Three hours credit.*

To provide the student with a thorough understanding of his responsibilities and duties as regards non-case work rehabilitation activities and to stimulate an awareness of the need for continuous professional growth and development. Research in rehabilitation, ethical problems and professional issues of current concern will be discussed.

EDSE 697. SEMINAR: ADMINISTRATION AND SUPERVISION OF VOCATIONAL REHABILITATION PROGRAMS. *Three hours credit.*

This course is designed to acquaint the student with the basic principles and practices related to administration and supervision of vocational rehabilitation programs, both college training and state-federal agencies. Included will be such special areas as program development, grant preparation, and related areas.

EDSE 698. PRINCIPLES OF EMPLOYMENT COUNSELING. *Three hours credit.*

An introduction to the role and function of the employment counselor—as a member of the counseling profession and as a counselor in a setting where economic and political answers are commonly proposed as solutions to psycho-social problems. The role of the counselor in helping the individual when major forces of society are against him is also considered.

EDSE 700. INTRODUCTION TO DOCTORAL RESEARCH. *Three hours credit.*

An introduction to research and advanced study. Required of all specialist and doctoral candidates (except for those departments which have substitutes for this course).

EDSE 701. SPECIALIST DEGREE PRACTICUM. *Eight hours credit.*

Project or supervised professional activity, required of all candidates for the Specialist in Education degree (except for those departments which have substitutes for this course).

EDSE 702. RESEARCH SEMINAR IN SPECIAL EDUCATION AND REHABILITATION. *Three hours credit.*

An analysis of studies and research pertaining to the education of exceptional children. Procedures for conducting and reporting research. A survey of critical problems and trends in Special Education.

EDSE 703. PROBLEMS SEMINAR IN SPECIAL EDUCATION AND REHABILITATION. *Maximum six hours credit.* (Doctoral Students Only).

A course designed for leaders and resource personnel in Special Education.

Emphasis will be placed on how to develop good leadership, the identification of major problem areas, the possible solutions of these problems, and evaluation of these solutions.

EDSE 704. TRENDS IN SPECIAL EDUCATION. *Maximum six hours credit.*
(Doctoral Students Only).

A course designed for the study of historical development of educational programs for exceptional children. A critical analysis of issues and trends in special education.

EDSE 705. INTERNSHIP IN SPECIAL EDUCATION. *Maximum of fifteen hours credit.*

The internship is a supervised program of orientation, observation, and participation in one or more community agencies devoted to exceptional children. Specific experiences are planned to include administration, program development, and inter-agency relationships. The internship requires a minimum of 330 clock hours of field experience during one full quarter.

EDSE 741. SEMINAR IN VISUALLY HANDICAPPED. *Three hours credit.*

A course designed to allow intensive inquiry into rapid changes in braille systems, techniques for reproduction, development, and distribution of educational materials, and application of low vision aids in the utilization of residual vision.

EDSE 755. SUPERVISED PRACTICUM IN COLLEGE TEACHING. *Maximum of nine hours credit.*

This course provides experiences in observation and supervised practice in college teaching for doctoral candidates planning to teach on the college or university level. Observations and the teaching experiences will be used as a basis for the analysis of learning experiences.

EDSE 756. INTERNSHIP IN SUPERVISING COLLEGE TEACHING. *Three hours credit.*

This course is designed for doctoral candidates preparing for college teaching. It provides experiences in working with the regular staff members engaged in the supervision of college and university teaching experiences. Particular attention is centered on the various aspects of the teaching-learning process and on analysis of self growth.

EDSE 761. SEMINAR: LANGUAGE PROBLEMS. *Three hours credit.*

Prerequisite: EDSE 663 or consent of instructor. An investigation of the patterns of normal speech and language development with special focus on research findings. Emphasis is placed on severe communication disruption as a result of deafness, brain damage, mental retardation, or emotional disturbance.

EDSE 762. SEMINAR: COMMUNICATION BARRIERS. *Three hours credit.*

Prerequisite: consent of instructor. An investigation of the factors of interpersonal significance in communication breakdown. The study considers the individual within the framework of a social situation communicating by all those processes by which individuals influence each other. The interpersonal aspects serve as a focus.

EDSE 763. INTERNSHIP IN SPEECH DIAGNOSIS. *Three hours credit.*

Prerequisite, EDSE 467. The student shall participate, under supervision, in the diagnostic program of the Speech and Hearing Clinic. This participation shall include all phases of diagnosis, evaluation of results, and disposition of the case. Opportunities to participate in diagnosis will be provided in additional facilities where appropriate.

EDSE 764. INTERNSHIP IN COMMUNICATION BARRIERS. *Three hours credit.*

Prerequisite, EDSE 762. An investigation of communication barriers in cases and groups undergoing therapy in the Speech and Hearing Clinic. Focus will be placed on those interpersonal and intrapersonal factors which limit

successful communication, interfere with therapeutic processes, and inhibit normal integration.

EDSE 794. ADVANCED PRACTICUM. *Maximum of eight hours credit.* (Doctoral Students Only). This supervised clinical practice will constitute an integral portion of the total education and training program for doctoral students in rehabilitation counseling. This practicum will be structured in accordance with the specific philosophy, functions and clientele of the agency and the interest, background and capabilities of the individual student.

EDSE 799. DOCTORAL DISSERTATION. *Eighteen hours credit.*
Required of all doctoral candidates.

SPEECH COMMUNICATION

SP 520. THE PSYCHOLOGY OF SPEECH. *Three hours credit.*
A study of the nature and origin of speech; the relationship of speech to emotion, learning, meaning and thought; the development of speech in the child; speech and personality.

SP 522. INTERPERSONAL COMMUNICATION PRACTICE. *Three hours credit.*
A course primarily designed to give the student laboratory experience in interpersonal communication.

SP 524. SEMINAR IN ORGANIZATIONAL COMMUNICATION. *Three hours credit.*
A course designed to investigate the nature of organizations and the communication patterns within organizations. Emphasis is placed on information flow, media, channel saturation and organizational morale.

SP 532. PHONETICS. *Three hours credit.*
The study of the science of speech sounds on the graduate level with particular attention to experimental phonetics and its application to speech and reading.

SP 570. ADVANCED ORAL INTERPRETATION. *Four hours credit. (Three hours lecture, two hours lab).*
Prerequisite, SP 170. The development of greater interpretative skill of the individual through lecture-recital and of the group through experimental readers theatre.

SP 580. CRITICAL THINKING . *Three hours credit.*
A study of inductive and deductive reasoning with special emphasis on the fallacies in reasoning.

SP 584. SPEECH EDUCATION SEMINAR. *Three hours credit.*
A seminar study of speech education: history, practices and trends.

SP 586. SEMINAR IN THE DIRECTION OF FORENSICS. *Three hours credit.*
A study of the principles, methods, and problems of directing a forensics program, particularly at the secondary school level.

ID 600. INTRODUCTION TO GRADUATE STUDY (in Speech Communication). *Three hours credit.*
An orientation to graduate study in general and the nature and methods of research in particular. Required of all first-year graduate students (except for those departments which have substitutes for this course). Should be taken during the first quarter of graduate work .

SP 601. SEMINAR IN EXPERIMENTAL RESEARCH IN COMMUNICATION. *Three hours credit.*
This course will provide graduate students with a knowledge of design and methodology in experimental research in communication.

SP 620. COMMUNICATION THEORY. *Three hours credit.*

A study of the principles underlying general communication theory, information theory, and attitude theory, and an attempt to discover their relationship to rhetorical theory and criticism.

SP 624. SEMINAR IN HUMAN RELATIONS. *Three hours credit.*

A study is made of verbal and nonverbal means of communication; patterns of miscommunication are studied and "correctives" are suggested.

SP 650. BRITISH PUBLIC ADDRESS. *Three hours credit.*

An historical and critical descriptive study of the rhetoric of representative British speakers from the 11th Century to the present.

SP 654. SEMINAR IN PUBLIC ADDRESS. *Three hours credit.*

This course is designed to apply the principles of rhetorical theory and rhetorical criticism to the study of public address. Thus, depending upon the instructor and the interests of particular students, the course focuses on selected contemporary speech movements, speeches, and/or speakers.

SP 660. CLASSICAL RHETORIC. *Three hours credit.*

An analytical review of major contributions of Greek and Roman rhetoricians from Corax to St. Augustine.

SP 661. MEDIEVAL AND RENAISSANCE RHETORIC. *Three hours credit.*

A course designed to identify landmark contributions in the development of rhetorical theory from the era of St. Augustine to contributions of Peter Ramus.

SP 662. MODERN RHETORIC. *Three hours credit.*

A course designed to explore and analyze the contributions of 18th, 19th, and 20th century rhetoricians to rhetorical theory.

SP 664. SEMINAR IN RHETORICAL CRITICISM. *Three hours credit.*

A course designed to give the graduate student the opportunity to explore contemporary theories of rhetorical criticism.

SP 666. SEMINAR IN PERSUASION. *Three hours credit.*

A course designed to give the graduate student an opportunity to investigate the implications of research methodologies in the study of persuasion, particularly attitude research.

SP 680. TEACHING COLLEGE BASIC SPEECH. *Three hours credit.*

A course designed specifically for the graduate assistant assigned to teach basic Speech Communication classes. The entire basic speech program will be considered in terms of objectives, students, policies, attitudes, teaching techniques, course outlining, evaluation, and related problems.

THEATRE ARTS

THEA 500, 501, 502. INDIVIDUAL PERFORMANCE IN THEATRE. *Two hours credit each.*

Open to all students who desire to participate in production activities of the theatre. A minimum of six credits is required of the master's candidate.

THEA 585. THEATRE PRODUCTION IN THE HIGH SCHOOL. *Three hours credit. (PTE or certification at the undergraduate level.)*

A basic production course for the English and/or speech teacher who is involved in the direction of high school plays. (This course may not be taken by a Theatre Arts major without permission of instructor.)

THEA 600. INTRODUCTION TO GRADUATE STUDY. *Three hours credit.*

An orientation to graduate study in general and the nature and methods of research in particular. Required of all first-year graduate students. Should be taken during the first quarter of graduate work.

THEA 601. PRACTICUM. *Maximum of four hours credit.*

Open only by invitation to resident graduate students. Supervised professional activity in the student's major field, approximately two hours per day. Two copies of a well-written paper must be filed with the instructor before credit is given.

THEA 622. INDIVIDUAL STUDIES. *Maximum of four hours credit.*

Qualified graduate students outline and spend a minimum of 25 clock hours per quarter hour on a problem. Two copies of a well-written paper must be filed with the instructor before credit is given. Does not satisfy the 500 level requirements unless the student is in full-time residence at UNC during the quarter the course is taken.

THEA 630. SEMINAR IN THEATRE HISTORY. *Three hours credit.*

Prerequisite: THEA 430, 431, 432. A study of theatres, actors, and acting from primitive times to the present. Emphasis is placed upon special research projects dealing with the theatre as a social and cultural institution.

THEA 650, 651, 652. GRADUATE SUMMER THEATRE WORKSHOP I, II, III. *Five hours credit each.*

Prerequisite: acceptance by the Theatre Arts staff. A workshop in acting and technical work as observed and practiced by the daily rehearsal of The Little Theatre of the Rockies. Students must spend six to eight hours per day in rehearsals, either as actors or technical assistants.

THEA 655. SEMINAR IN THEATRE PRODUCTION. *Four hours credit.*

Prerequisite: THEA 440. An analysis of the practical problems in theatre production, acting techniques, and the technical phases of setting and lighting the stage.

THEA 680. ADVANCED CHILDREN'S THEATRE PRODUCTION. *Four hours credit.*

Prerequisite: THEA 380, or permission of instructor. An advanced course in the practical problems of production in a theatre for children. Emphasis is placed on the educational possibilities of this type of theatre, and practical experience is gained through work with community groups and with public school students.

VOCATIONAL TEACHER EDUCATION

VE 500. ORGANIZATION AND ADMINISTRATION OF HEALTH OCCUPATIONS. *Three hours credit.*

This is an introduction to the field of vocational allied health occupations for instructors and administrative or supervisory personnel. The course places emphasis upon external factors affecting health programs at secondary, post-secondary, and community junior college levels.

VE 506. CLINICAL LEARNING EXPERIENCES IN ALLIED HEALTH PROGRAMS. *Three hours credit.*

Selecting, scheduling, and coordinating methods of clinical learning will be included in this course designed for health occupation instructors.

VE 507. ACCREDITATION AND REGULATORY PRACTICES IN HEALTH OCCUPATIONS. *Three hours credit.*

This course is designed for administrative and supervisory personnel in allied health occupations. Emphasis is placed upon accreditation, regulation, licensure, and certification practices as they affect students and allied health occupation programs in secondary, post-secondary, and community junior college institutions.

VE 508. WORKSHOPS IN VOCATIONAL EDUCATION. *Maximum of nine hours credit.*

Workshops provide opportunities for vocational educators to concentrate their study on common instructional or administrative problems. Each workshop will have a sub-title and no sub-title may be repeated for credit. Write to the Direc-

tor of Vocational Education for the Summer Vocational Education Bulletin. S-U final mark.

VE 509. SEMINARS IN VOCATIONAL EDUCATION. *Maximum of eight hours credit.*

Seminars provide the theoretical structure for future workshops, practicums, and individual studies. The seminars are designed for group participation and focus on specific topics. Special off-campus guest instructors will be asked to contribute their expertise to the general theme.

VE 520. METHODS IN VOCATIONAL EDUCATION. *Three hours credit.*

This is an overview of various methods associated with occupational education: (a) Cooperative Vocational Education, (b) Project Method, (c) Simulation, (d) OJT—on-the-job training (e) career guidance through explorations/identification/orientation. Other topics included in the overview are: clustering techniques, instructional modules based on task analysis, and methods for individualizing instruction. Participants will have an opportunity to apply these methods to their own areas of education. Qualified seniors may enroll.

VE 521. EQUIPMENT—SELECTION AND MAINTENANCE. *Two hours credit.*

This course will involve the projected planning for selection, purchase, and maintenance of equipment for specific occupational areas. Equipment selection will include evaluation of brands versus cost and maintenance.

VE 524. TASK ANALYSIS AND PROGRAM DEVELOPMENT. *Five hours credit.*

VE 522 recommended. This course considers the factors affecting program development—task analysis, determination of specific objectives, evaluation, development of multimedia instructional materials for the purpose of individualizing instruction in occupational education. Qualified seniors may enroll with permission of instructor.

VE 550. SEMINAR ON EVALUATION—CONSTRUCTS AND CONCERNS. *Three hours credit.*

This seminar is an introductory discussion on evaluation models and theories with emphasis on the vocabulary of evaluation. Some of the models discussed are: (1) CIPP, (2) Contingency, and (3) Discrepancy. The writing of Stake, Guba, Stufflebeam and Scriven will also be explored.

VE 551. STUDENT AND PROGRAM EVALUATION SEMINAR. *Three hours credit.*

VE 550 highly recommended. Models and theories studied in VE 550 are applied to occupational programs and student evaluation. State evaluation procedures and forms as well as 1-3-5 year follow-up techniques are examined.

VE 610. ADVANCED SEMINAR ON FOUNDATIONS OF VOCATIONAL EDUCATION. *Three hours credit.*

This seminar is designed to help vocational educators become acquainted with the current activities and philosophical thought in vocational and technical education. Students, therefore, not having an adequate background in the history of vocational education should enroll in VE 310 and VE 311.

VE 612. COOPERATIVE VOCATIONAL EDUCATION — GRADUATE SEMINARS. *Maximum of six hours.*

These seminars are designed for graduate students who have had a previous course in cooperative vocational education or who are currently employed as teacher-coordinators in a cooperative program. Each seminar will focus on a specific topic and will have a sub-title and no sub-title may be repeated for credit.

VE 613. SECONDARY SCHOOL VOCATIONAL EDUCATION PROGRAMS. *Three hours credit.*

This course briefly examines the curriculum in eight areas of vocational educa-

tion: Agriculture, Distributive Education, Business Education, Home Economics, Health Occupations, Trade and Industrial Education, Technical Education, and Special Programs. The major purpose of the review is to acquaint administrators, counselors and vocational educators with current program development in these occupational areas and provide participants an opportunity to design a secondary curriculum model or matrix for total program improvement.

VE 614. POST-SECONDARY AND ADULT VOCATIONAL EDUCATION PROGRAMS. *Three hours credit.*

This course briefly examines the total occupational programs in the community colleges/area vocational schools. The major purpose of the course is to acquaint administrators, job development and placement specialists, and career counselors with the total occupational education spectrum at the post-secondary level. New occupational vistas will also be explored.

VE 615. SEMINAR IN CURRENT VOCATIONAL EDUCATION LITERATURE. *Two hours credit.*

An analysis of the current literature in vocational education will be conducted to determine philosophical issues, principles, implications for program improvement, and research topics in vocational education.

VE 616. SEMINAR ON TRENDS, PROBLEMS, ISSUES IN VOCATIONAL AND TECHNICAL EDUCATION. *Two hours credit.*

This seminar course is designed for individual and group analysis and discussion of the various trends, problems, and issues in vocational education. State, regional, and national leaders in vocational education will serve as guest speakers to help analyze and clarify specific topics.

VE 622. INDIVIDUAL STUDIES IN VOCATIONAL EDUCATION. *Maximum of six hours credit.*

Graduate students spend a minimum of 25 clock hours per quarter on a problem which is not included under the regular vocational education program of instruction. Two copies of a well-written paper must be filed before credit is given, one to be filed with the instructor and one with the chairman of the department. Offered by arrangement.

VE 626. MULTIMEDIA CURRICULUM CONSTRUCTION FOR VOCATIONAL AND TECHNICAL PROGRAMS. *Three or six hours credit.*

This course will include a review and synthesis of existing curriculum materials in occupational education for the purpose of developing multi-media materials not currently available for occupational programs.

VE 627. DEVELOPMENT OF INSTRUCTIONAL MATERIALS SEMINAR (AND RELATED FIELD PRACTICUM). *Three hours credit.*

Prerequisite, Concurrent enrollment in VE 691 for three hours. Enrollment is limited to occupational teachers and career guidance personnel. The purpose of the seminar is to offer educators in the field an opportunity to (1) review the latest instructional and occupational guidance materials located in the Center for Career Development, (2) review instructional designs and related media, (3) present ideas for developing and validating needed instructional materials at the participants' places of employment, and (4) return to campus to present developed materials and share refinement ideas. The *time schedule* includes two on-campus experiences—one at the beginning of the quarter and one toward the end of the quarter. Participants come to campus for a Thursday evening meeting, Friday all day, and a half day on Saturday. The practicum will be the individual's project developed and supervised in the field. Course offered Summer and Winter quarters. Participants should preregister the previous quarter.

VE 628. DEVELOPMENT OF LEARNING SKILL CENTERS FOR OCCUPATIONAL TRAINING. *Three hours credit.*

The purpose of this course is to assist vocational teachers, counselors, and administrators design occupational skill centers for maximizing the learning experiences of youth and adults. Specific attention will be given to manpower development and training skill center designs.

VE 630. EXEMPLARY PROGRAMS IN VOCATIONAL-TECHNICAL EDUCATION FOR LEARNERS WITH SPECIAL NEEDS. *Three hours credit.*

This course is designed for teachers, counselors, administrators, and other professional people work with learners with special needs as described by the Vocational Education Acts of 1963 and 1968. This course includes the analysis of research projects, case studies, and the designing of exemplary or model programs and projects which may broaden occupational aspirations and opportunities for learners with special needs.

VE 640. CAREER DEVELOPMENT (FOR VOCATIONAL COUNSELOR CREDENTIAL). *Three hours credit.*

This course is a study and critical analysis of present and emerging theories of career development. Emphasis is placed on theories of individual career development, theories of individual career development as they relate to placement and job choice in general human growth and development, and the design of a career development model.

VE 642. CURRICULUM RESTRUCTURING FOR CAREER DEVELOPMENT—K THROUGH 14. *Five hours credit.*

This course is designed for administrators, supervisors, teachers, counselors, and other professional personnel concerned with elementary, secondary, and post-secondary curricula restructuring and/or improvement. The course is concerned with vocational education as it relates to career development and the current trends in developing integrated curricula. Emphasis will be placed upon approaches to curriculum restructuring, organization and function of personnel, initiation and evaluation of curriculum change, selection and organization of teaching materials, curriculum research, and the design of a career development curriculum.

VE 644. CAREER GUIDANCE, COUNSELING, AND PLACEMENT (SECONDARY AND ADULT) (FOR VOCATIONAL COUNSELOR CREDENTIAL). *Three hours credit.*

Prerequisites, VE 640. This course is designed to aid counselors and other professional persons in methods and techniques used in career guidance, counseling, and placement as a means of promoting the development and adjustment of the individual. The course provides an analysis of the relationship among theoretical constructs, counselor behavior, and career guidance, counseling, and placement services; evaluation of the implications of manpower and technological changes; the analysis of economic, political, and social factors influencing public and private manpower policies; administration, scoring, interpretation, and reporting of tests, (General Aptitude Test Battery).

VE 648. COMPUTER ASSISTED PROGRAMS FOR COUNSELORS AND VOCATIONAL EDUCATORS. *Three hours credit.*

This course provides an exposure to emerging trends and issues in computerized systems assistance in instruction, training and guidance. Other important aspects of the course are the introduction to basic concepts and techniques of computerized systems (VIEW, ECES, ISVD) and the development of a prototype program. This course is not intended to provide an exhaustive treatment but enough depth to serve as a basis for further study.

VE 649. MANPOWER DEVELOPMENT AND UTILIZATION. *Three hours credit.*

This course provides an analysis of manpower development, resources, and problems and their implications to vocational education. Important aspects of the course are research projects and case studies in manpower policies, practices, and utilization; implications of technological changes; analysis of economic, political, and social factors influencing manpower policies; survey of measures to meet the utilization and mobility needs of special populations.

VE 660. SEMINAR IN CONFERENCE PLANNING. *Two hours credit.*

This seminar is designed for vocational educators charged with the responsibility of planning and implementing local, state, and regional conferences in vocation-

al education. Students will plan and be directly involved in implementing a conference at the University of Northern Colorado. The seminar may or may not be offered concurrently with VE 661.

VE 661. CONFERENCE LEADING—LABORATORY EXPERIENCE. *Two hours credit.*

Prerequisite, VE 660. This is a laboratory experience. Participants enrolled in or having completed VE 660 will conduct an actual conference and lead various types of discussion groups. The group will critique and make recommendations for improving the conference leading experience.

VE 662. SEMINAR IN FISCAL PLANNING AND BUDGETARY SYSTEMS. *Three hours credit.*

This seminar and VE 663 were developed for individuals responsible for planning vocational and technical programs. It is anticipated that vocational and technical education supervisors, state supervisors, and local school administrators will find this course beneficial. The seminar includes a series of experiences dealing with: (1) long-range plans for occupational education—changing contexts; (2) a guide to systematic planning—sequential tasks involved in the process of program planning, evaluation, and budgetary systems; (3) a review of the State Board's Division for Occupational Education policies, procedures and forms.

VE 663. SEMINAR IN FACILITIES AND EQUIPMENT PLANNING. *Three hours credit.*

This seminar and VE 662 were developed for individuals responsible for planning vocational and technical programs and facilities. It is anticipated that vocational and technical education supervisors, directors, teachers, and even university school plant planners, architects, and other local school administrators would benefit from this seminar. The major emphasis will be placed on designing functional facilities for existing and emerging programs in vocational and technical education.

VE 664. ADMINISTRATION AND SUPERVISION OF COOPERATIVE VOCATIONAL EDUCATION PROGRAMS. *Three hours credit.*

This is a course designed for individuals responsible for the administration and supervision of cooperative work-experience type programs at the secondary and post-secondary levels. The course will include: (1) a review of the criteria for organizing and maintaining a successful program; (2) responsibilities of the teacher-coordinator, department head, city coordinator, principal/superintendent, state vocational supervisor; (3) methods, procedures, and techniques for effective supervision; (4) needed supportive services for cooperative vocational education; (5) organization of special programs for students with special needs.

VE 665. ADMINISTRATION AND SUPERVISION SEMINAR ON SECONDARY VOCATIONAL PROGRAMS. *Three hours credit.*

This seminar covers the responsibilities and problems encountered by department heads, city consultants, and local directors of vocational education programs.

VE 666. ADMINISTRATION AND SUPERVISION SEMINAR ON COMMUNITY COLLEGE AND VOCATIONAL-TECHNICAL POST-SECONDARY SCHOOL PROGRAMS. *Three hours credit.*

This seminar covers the responsibilities and problems of vocational directors, career counselors, job development and placement specialists, deans of occupational studies, and department heads at the community college and/or area vocational-technical post-secondary schools.

VE 670. SEMINAR IN VOCATIONAL RESEARCH—PART I. *Two hours credit.*

To be taken concurrently with VE 615. An introductory research seminar in vocational education research emphasizing strategies of inquiry and problem

conceptualization. Major topics covered are: (1) Scientific method, (2) Identification and Defining Vocational Research Problems, (3) Review of occupational education and related literature, and (4) Construction of hypotheses and research questions. (SEE front of catalog under Vocational Education for graduate research assistantships in the department.)

VE 671. SEMINAR IN VOCATIONAL RESEARCH—PART II. *Two hours credit.*

Prerequisite, VE 670, Basic Statistics (SEE Department of Research and Statistical Methodology offerings). This is the second in a series of planned research seminars for graduate students in vocational education. The seminar explores internal and external concerns for three commonly used research strategies: (1) Description, (2) Ex Post Facto, and (3) Experimental.

VE 672. SEMINAR IN VOCATIONAL RESEARCH—PART III. *Two hours credit.*

Prerequisites VE 670, VE 671 or research and statistical methodology. This seminar is to assist graduate students with projects and proposals related to studies in vocational education. The seminar may be repeated for a total of six hours. Graduate students, before enrolling, should discuss their programmatic needs with the Coordinator of Research in the Department of Vocational Education.

VE 673. WRITING VOCATIONAL EDUCATION PROPOSALS/PROJECTS FOR STATE AND FEDERAL FUNDS. *Maximum of eight hours credit.*

Prerequisites, VE 310 and VE 311 or VE 610. The enrollment in this course is limited to practicing teachers and administrators of vocational programs. Major topics to be covered are: (1) Colorado Research Coordinating Unit proposal format, (2) Procedures for program approval and funding, (3) Funding sources for R&D activities, (4) Evaluation considerations, (5) Budget implications. Each participant will be expected to design a proposal or project during or following the course. This course is usually offered during the summer quarters and/or off-campus.

VE 675. DIRECTED LABORATORY EXPERIENCES IN VOCATIONAL RESEARCH. *Twelve hours credit.*

Prerequisites, RSM 304 and six additional hours from the Department of Research and Statistical Methodology. This experience is limited to graduate students with adequate background in both vocational education and research-statistical methodology. The student will work for one quarter under the direct supervision of the Vocational Education Research Coordinator in the Department of Vocational Education. The intern will work on a specific research problem. A small grant-in-aid may be available to the intern for this involvement. Interested intern candidates should apply at least three quarters in advance of the actual assignment.

VE 685. LABORATORY EXPERIENCES IN VOCATIONAL AND TECHNICAL EDUCATION. *Maximum of twelve hours credit.*

Prerequisite, Instructor's permission. This course provides a laboratory experience to improve the student's technical skills and knowledge in a specific occupational field. This experience will aid the individual in his development as a vocational-technical educator. The program is designed for the individual.

VE 691. PRACTICUMS IN VOCATIONAL AND TECHNICAL EDUCATION. *Three or six hours credit.*

Prerequisites, VE 610 or VE 310 and VE 311. The practicum is designed for either off-campus vocational educators who may wish to develop new programs or initiate needed educational changes in their school, or for on-campus graduate students who may wish to become involved in a practical vocational research project. Before a student is permitted to enroll for a practicum, a "prospectus" must be submitted to the project adviser. The format for the prospectus may be obtained from the Department of Vocational Education. The grade for the practicum is not recorded until the project has been completed and evaluated by

a designated staff member from the Department of Vocational Education. Off-campus practicums will be evaluated in the field by the project adviser or field service coordinator.

VE 692. DIRECTED OCCUPATIONAL OBSERVATION EXPERIENCES.

Maximum of eight hours credit.

This course provides vocational educators and counselors an opportunity to update their knowledge of the world of work. The participants will observe in eight different business and/or industries as they relate to their vocational areas. Curriculum materials will be developed for use in their vocational programs. Contact the Field Service Coordinator for additional information.

VE 696. DIRECTED OCCUPATIONAL INTERNSHIP. *Maximum of twelve hours credit.*

This course provides Colorado vocational educators an opportunity to update their skills and knowledge in the world of work. The participants will be gainfully employed in an area which relates to his/her vocational field or occupational objective. Curriculum materials will be developed for use in their vocational programs. Contact the Field Service Coordinator for additional information.

VE 755. SUPERVISED PRACTICUM IN COLLEGE TEACHING. *Maximum of nine hours credit.*

This course provides experiences in observation and supervised practice in college teaching for doctoral candidates planning to teach on the college or university level. The course also provides an opportunity to work with individual State Supervisors in the Program Operations division of the State Board for Community Colleges and Occupational Education.

VE 756. INTERNSHIP IN SUPERVISING COLLEGE TEACHING. *Three hours credit.*

This course is designed for doctoral candidates preparing for the role of a vocational teacher educator at the college level. It provides experiences in working with the regular staff within the department of vocational education. Particular attention is centered on the various aspects of teaching specific occupational service area professional courses as well as teaching those interdisciplinary vocational education courses.

VE 790. DOCTORAL SUPERVISED FIELD EXPERIENCE IN VOCATIONAL-TECHNICAL EDUCATION ADMINISTRATION AND SUPERVISION. *Fifteen hours credit.*

Prerequisite; A minimum of twelve graduate hours in vocational education. This is an off-campus experience to acquaint doctoral students with the responsibilities of local, state, regional, and national vocational administrators, supervisors, and directors. The program is designed for the individual.

ZOOLOGY

ZOO 511. ADVANCED INVERTEBRATE ZOOLOGY. *Five hours credit. (Three hours lecture, four hours laboratory.)*

Prerequisites, BIO 101, 103. A comparative study of the classification, anatomy, physiology and natural history of the invertebrates, exclusive of insects and most parasitic forms.

ZOO 512. HELMINTHOLOGY. *Four hours credit. (Three hours lecture, three hours laboratory.)*

Prerequisite, ZOO 412. An advanced study of the parasitic worms. Concepts of phylogeny, morphology, life cycles, classification and history are emphasized.

ZOO 518. MEDICAL ENTOMOLOGY. *Three hours credit. (Two hours lecture, three hours laboratory.)*

Prerequisite, ZOO 316. An advanced study of insects and other arthropods of medical importance to man and his domestic animals.

ZOO 525. EXPERIMENTAL VERTEBRATE EMBRYOLOGY. *Four hours credit. (Three hours lecture, three hours laboratory.)*

Prerequisite, ZOO 325. Experimental and demonstration approaches will be used in inducing and inhibiting ovulation in various vertebrate animals. Effect of hormones on expression of secondary sex characteristics in chicks will be demonstrated and parthenogenetic development of vertebrate eggs will be attempted.

ZOO 526. VERTEBRATE HISTOLOGY. *Five hours credit. (Three hours lecture, six hours laboratory.)*

Prerequisites, BIO 101, 103. An intensive study of normal tissues and organs of vertebrates, with emphasis on mammals.

ZOO 551. MAMMALIAN PHYSIOLOGY I. *Five hours credit. (Three hours lecture, six hours laboratory.)*

Prerequisites, BIO 101, 103, ZOO 121 or 326, CHEM 333 or 281 recommended. A detailed and comprehensive coverage of the major organ systems of the mammal. Major emphasis is placed on the integrative functions of the nervous and endocrine systems in the maintenance of homeostasis. This course is the first of a two-quarter sequence and includes a study of the body fluids, cardiovascular, respiratory and gastrointestinal systems. Students having taken ZOO 250 may not receive credit for ZOO 551.

ZOO 552. MAMMALIAN PHYSIOLOGY II. *Five hours credit. (Four hours lecture, three hours laboratory.)*

Prerequisite, ZOO 551. This course is a continuation of ZOO 551. The course includes consideration of digestion and absorption, intermediary metabolism, the excretory, muscular and nervous systems and the special senses. Major emphasis is placed on the integrative functions of the nervous and endocrine systems in the maintenance of homeostasis.

ZOO 553. PHARMACOLOGY. *Four hours credit. (Three hours lecture, two hours laboratory.)*

Prerequisites, BIO 101, 103 or ZOO 105, ZOO 250 or 551, 552, CHEM 281. Principles underlying absorption, distribution, metabolism, and excretion of drugs. Special emphasis will be given to the interaction between chemical substances or drugs and living organisms at all levels of organization.

ZOO 627. COMPARATIVE MAMMALIAN ANATOMY. *Five hours credit. (Four hours lecture, three hours laboratory.)*

Prerequisites, BIO 101, 103, ZOO 325, 326. A detailed study of mammalian anatomy, stressing the function and adaptive significance of the organ systems. Each student will deliver one seminar on a specialized topic. The class will make two field trips to the Denver Museum of Natural History. Offered alternate summers.

ZOO 651. ENDOCRINOLOGY. *Three hours credit.*

Prerequisite, one year of zoology. A detailed and comprehensive study of the endocrine glands and hormones. Special emphasis is placed on the concepts of feedback, synergism and the overall effects that the hormones have on the physiological economy of the mammal.

ZOO 652. THE CENTRAL NERVOUS SYSTEM AND SPECIAL SENSES. *Three hours credit.*

Prerequisite, one year of zoology. A detailed study of the anatomy and function of the brain and spinal cord. The course also includes coverage of the physiology of vision, hearing, olfaction, equilibrium, and proprioception.

BOARD OF TRUSTEES 1973-74

PHILLIP M. LORTON, Alamosa (1961, 1973)*

President

S. AVERY BICE, Fort Collins (1971, 1977)

Vice President

ROBERT W. BARTLEY, Pueblo (1961, 1973)

L. RICHARD BRATTON, Gunnison (1963, 1975)

GERALD A. CAPLAN, Boulder (1971, 1977)

CAROL GOSSARD, Craig (1972, 1975)

BETTY NAUGLE, Denver (1963, 1977)

*The first figure in parentheses shows the date of the first appointment,
the second figure the date when the present term expires.

GERALD A. CAPLAN, *Liaison Officer for University of Northern Colorado*

SAMUEL G. GATES, *Executive Director*

GENERAL ADMINISTRATION

President	Richard R. Bond
Assistant to the President	Jerald B. Johnson
Vice President for Academic Affairs	Frank P. Lakin
Assistant Vice President	Barbara H. Mickey
Director, Academic Research	Duane E. Henderson
Provost	Donald G. Decker
Program Director	Donald M. Luketich
Dean, School of the Arts	William R. Erwin, Jr.
Dean, College of Arts and Sciences	Robert O. Schulze
Associate Dean	John A. Beel
Associate Dean	Thomas E. Boyle
Dean, College of Education	Bruce W. Broderius
Associate Dean	Richard L. Bear
Director of Laboratory School	Kenneth G. Frisbie
Director, Bureau of Research	Donald W. Chaloupka
Coordinator, Teacher Certification	George F. Sanderson
Dean, School of Special Education and Rehabilitation	Daniel C. McAlees
Dean, School of Business	Ramon P. Heimerl
Dean, School of Educational Change and Development	Donald G. Decker
Dean, School of Health, Physical Education and Recreation	L. C. Butler
Dean, School of Music	James E. Miller
Dean, School of Nursing	L. Elaine McMinn
Chairman, Division of Aerospace Studies	John C. Brown
Dean, Graduate School	Arthur R. Reynolds
Dean of Students	Theodore M. Nelson
Assistant Dean	James K. Bowen
Assistant Dean	Dallas Martin
Assistant Dean for Special Services	Carlos Leal
Assistant Dean for Student Affairs	Carolyn J. Kostelecky
Assistant Dean for Student Affairs	Brangwyn Foote
Assistant Dean for Student Affairs	Gerald Tanner

Registrar	Charles Selden
Director of Admissions	Gary E. Miller
Director of Placement	Warren E. Best
Director of Financial Aids	Harry E. Collins
Coordinator of Health Services	Wayne H. Ericson
Dean of Psychological Services	Bernard C. Kinnick
Director, University Center	George L. Meyers
Director of Housing	Wayne T. Kuncel
Associate Dean, Honors Program	Eugene D. Koplitz
Director of International Education	George H. Brooks
Director of Library Services	Thomas C. Harris
Director, Computer and Data Processing Center	Donald L. Meyers
Director of Special Studies and Continuing Education	Robert O. Singer
Academic Director, University Without Walls	Robert J. Powers
Vice President for Business Affairs	Alvin E. Barnhart
Director, Business Administration	Quintus C. Fuller
Personnel Officer	Eileen Hill
Director, Physical Plant	David Reichert
Director of Safety and Security	James E. Wanek
Vice President for Public Affairs	J. Gilbert Hause
Director, Alumni Relations and Development	J. Glen Arko
Director, Intercollegiate Athletics	Virgil Y. Lindahl
Director, University News Service	Eric Lundberg
Director, Publications	Lois Stearns
Director, Special Programs	Helen Hein
Director, Sports Information	Gary Morgan

Graduate Faculty 1972-73

WALLACE AAS, B.S., Moorhead State Teachers College; **M.A.**, University of Northern Colorado.

*Associate Professor of Physics;
Chairman, Department of Physics*

JAMES F. ANDERSON, Ph.B., University of Wisconsin; **M.A., Ph.D.**, University of Colorado.

Assistant Professor of Economics

DARRELL E. ANDERSON, A.B., York College; **Ph.D.**, University of Nebraska.

*Professor of Psychology; Chairman,
Department of Psychology, Counseling and Guidance*

RACHEL F. ANDERSON, A.B., M.A., University of Northern Colorado.

*Associate Professor of Business;
Chairman, Department of General
Business and Business Teacher
Education*

HUGO A. ANDERSON, JR., A.B., University of Chicago; **M.S.**, Colorado State University.

*Associate Professor of Business;
Acting Chairman, Department of
Finance and Insurance
On Leave Summer Quarter, 1973.*

DEAN A. ARNOLD, B.A., Eastern Illinois University; **M.A.**, Stanford University; **Ph.D.**, University of Chicago.

*Professor of History
On Leave Summer Quarter, 1973.*

WILLIAM RAMON ARNOLD, B.S., Oregon College of Education; M.Ed., Ed.D., University of Oregon.

Associate Professor of Elementary Education

On Leave Summer Quarter, 1973.

EDWIN D. BAKER, B.M., M.M., Indiana University.

Associate Professor of Music;

Chairman, Department of Brass and Percussion

RICHARD F. BALL, B.S., State Teachers College, Pennsylvania; M.A., University of Northern Colorado.

Professor of Art

JERRY N. BARHAM, B.S., University of Arkansas at Monticello; M.S. Ed.D., Louisiana State University.

Professor of Physical Education

ALVIN E. BARNHART, B.S., Southern Oregon College; M.Ed., University of Oregon; Ed.D., University of Northern Colorado.

Professor of Educational Administration

LOREN W. BARTLETT, B.A. in Ed., B.A. in Mus., Eastern Washington State College; M.M.Ed., Oberlin College; Ph.D., University of Iowa.

Associate Professor of Music;

Chairman, Department of Woodwinds

RICHARD LEO BEAR, B.S., Huntington College; M.A., Ball State University; Ed.D., Indiana University.

Associate Professor of Psychology, Counseling and Guidance

JOHN ADDIS BEEL, B.S., Montana State College; Ph.D., Iowa State University.

Professor of Chemistry

MARY A. BEHLING, B.S., Illinois State Normal University; M.A., University of Northern Colorado; Ph.D., Florida State University.

Professor of Physical Education

WARREN P. BEST, B.S., Nebraska State Teachers College; M.A., University of Northern Colorado.

Associate Professor of College Student Personnel Work

JAMES A. BITTER, B.A., Marquette University; M.S., University of Wisconsin; Ed.D., University of Northern Colorado.

Associate Professor of Special Education

MARGARET T. BLAKE, B.S., University of Oklahoma; M.S., Ph.D., Iowa State University.

Associate Professor of Psychology, Counseling and Guidance

On Leave Fall Quarter, 1973.

HOWARD LAWRENCE BLANCHARD, B.A., University of Northern Iowa; M.S., Drake University; Ed.D., University of Northern Colorado.

Professor of Psychology, Counseling and Guidance

ROBERT L. BLASI, B.S., Colorado State University; M.A., University of Northern Colorado.

Associate Professor of Physical Education

GEORGE A. BOECK, B.A., Iowa State Teachers College; M.A., Ph.D., State University of Iowa.

Professor of History

RICHARD R. BOND, B.S., Salem College; M.A., West Virginia University; Ph.D., University of Wisconsin.

Professor of Zoology; President of the University

JOHN TURNER BOOKMAN, B.A., Ph.D., University of Cincinnati.

Associate Professor of Political Science

WILLIAM W. BOSCH, B.S., M.S., North Dakota State University; Ph.D., University of Nebraska.

Assistant Professor of Mathematics

JACK ARTHUR BOWEN, A.B., Brigham Young University; B.S., Eastern Oregon College; M.A., Ph.D., University of Utah.

Associate Professor of Special Education

On Leave Summer Quarter, 1973.

JAMES K. BOWEN, B.S., M.S. in Ed., Kansas State Teachers College; Ed.D., University of Wyoming.

Associate Professor of Psychology, Counseling and Guidance

D. HAROLD BOWMAN, B.S., McPherson College; M.Ed., Ed.D., Wayne State University.

Professor of Education; Chairman, Department of Educational Media

THOMAS E. BOYLE, A.B., University of Richmond; M.A., Ph.D., University of Illinois.

Professor of English

JOHN M. BRAND III, A.B., Austin College; B.D., Austin Presbyterian Seminary; Ph.D., Texas Christian University.

Assistant Professor of English

WANDA E. BREWER, B.F.A., University of Denver; M.A., Ed.D., University of Northern Colorado.

Assistant Professor of English

BRUCE W. BRODERIUS, B.S., St. Cloud State College; M.A., George Washington University; Ed.D., University of Northern Colorado.

Professor of Education

GEORGE H. BROOKS, B.A., Sterling College, Kansas; M.Ed., University of Kansas; Ed.D., University of Northern Colorado.

Assistant Professor of Social Studies

DON A. BROWN, B.S., M.Ed., Ed.D., University of Oregon.

Professor of Education

GERALD NEIL BURNS, B.A., M.A., University of Northern Colorado; Ed.D., University of Denver.

Assistant Professor of Education

MARILYN M. BURNS, B.S., University of Colorado; M.A., University of Northern Colorado.

Associate Professor of Home Economics

ARNOLD H. BURRON, B.S., Concordia Teachers College; M.A., Ed.D., Ball State University.

Assistant Professor of Elementary Education

WARREN R. BUSS, B.S., M.S., Brigham Young University; Ph.D., Iowa State University.

Associate Professor of Botany

LONIS C. BUTLER, B.A., M.A., University of Northern Colorado; Ed.D., New York University.

Professor of Physical Education

BENJAMIN F. BYERLY, B.S., Kansas State University; M.A., Ph.D., University of Illinois.

Professor of History

On Leave Fall Quarter, 1973.

RONALD S. CAMP, B.A., M.A., University of Missouri.

Assistant Professor of Television (Speech)

ROBERT F. CAMPAIN, B.S., Northern Michigan University; M.S., Western Michigan University; Ph.D., University of Denver.

Assistant Professor of Special Education

SHIRLEY M. CARRIAR, B.Ed., Superior State College; M.A., University of Wisconsin; Ed.D., University of Northern Colorado.

Professor of English

TIMOTHY D. CAVANAGH, B.A., M.A., Sacramento State College; Ph.D., Ohio State University.

Associate Professor of Mathematics

DONALD W. CHALOUKKA, B.S., University of Nebraska; M.A., Ed.D., University of Northern Colorado.

Professor of Education

HARALD P. CHRISTENSEN, B.A., M.A., Ph.D., State University of Iowa.

Professor of Political Science

AMOS L. CLAYBAUGH, B.E., Wisconsin State College; M.S., University of Wisconsin; Ed.D., University of Northern Colorado.

Professor of Elementary Education

FORD W. CLEERE, B.A., M.A., Los Angeles State College; Ph.D., University of Colorado.

Assistant Professor of Sociology

SUSAN JEANNETTE CLEVINGER, A.B., Ball State Teachers College; A.M., San Francisco State College; Ed.D., Stanford University.

Professor of Psychology, Counseling and Guidance

L. GLEN COBB, B.A., Louisiana State University; M.S., Ph.D., Texas A & M University.

Assistant Professor of Meteorology

HARRY EDMON COLLINS, A.B., M.A., Ed.S., University of Northern Colorado.

Associate Professor of College Student Personnel Work

WILLIAM E. CONNETT, B.A., M.S., Ph.D., Southern Illinois University.

Assistant Professor of Research and Statistical Methodology

BRYAN E. M. COOKE, B.A., Aligarh Muslim University; M.S., Ph.D., University of Illinois.

*Associate Professor of Health Education; Chairman, Department of Health and Safety
On Leave Fall, Winter and Spring, 1973-74.*

ROBERT E. COPLEY, B.M., Denver University; M.M., Ph.D., Michigan State University.

Associate Professor of Music

FRANKLIN D. CORDELL, B.A., M.A., Ph.D., Michigan State University.

Associate Professor of Education; Chairman, Department of Foundations of Education

ALFRED EMILE CORNEBISE, A.B., Wayland College; M.A., Texas Technological College; Ph.D., University of North Carolina.

*Professor of History
On Leave Summer Quarter, 1973.*

RICHARD J. CRAWFORD, B.S., M.A., Southern Illinois University; Ph.D., University of Oklahoma.

*Professor of Speech Communication
On Leave Summer Quarter, 1973.*

GEORGE L. CROCKETT, B.S., Utah State University; M.S., Oregon State University; Ed.D., Utah State University.

Associate Professor of Science Education; Chairman, Department of Science Education

JOHN HENRY CRONIN, B.A., Nebraska State Teachers College; M.A., Ed.D., University of Northern Colorado.

Assistant Professor of Special Education

NEAL M. CROSS, B.A., M.A., University of Northern Colorado; Ed.D., Stanford University.

*Professor of English
On Leave Summer, Fall, Winter, and Spring, 1973-74.*

VINCENT A. CYPHERS, B.S., Pacific University; M.A., Ed.D., University of Northern Colorado.

Professor of Physical Education

JOHN A. DAMGAARD, JR., B.A., Colorado College; M.B.A., University of Michigan; Ed.D., University of Utah.

*Professor of Business; Coordinator Graduate Studies
On Leave Summer Quarter, 1973.*

THELMA L. DAMGAARD, B.S., University of Minnesota; B.M., M.A., University of Wisconsin; Ed.D., Stanford University.

Associate Professor of Education

RAYMOND L. DEBOER, B.A., Augustana College; M.A., Ed.D., University of Denver.

Professor of Speech Communication

DONALD GILMORE DECKER, B.S., Michigan State Normal; M.A., University of Northern Colorado; Ph.D., Columbia University.

Professor of Science Education

RICHARD D. DIETZ, B.S., California Institute of Technology; Ph.D., University of Colorado.

Assistant Professor of Astronomy

- WILLIAM L. DUFF, B.A., San Francisco State College; M.S., University of Stockholm; Ph.D., University of California.
*Associate Professor of Business—
Statistics*
- DALE DYKINS, B.M., M.M., College of Music, Cincinnati.
*Professor of Music; Chairman
Department of Theory and
Composition*
- ROBERT EHLE, B.M., Eastman School of Music; M.M., Ph.D., North Texas State University.
Assistant Professor of Music
- LARRY G. EHRLICH, A.B., M.A., University of Kansas; Ph.D., Northwestern University.
*Assistant Professor of Speech
Communication*
- GARTH M. ELDREDGE, B.A., M.A., Ph.D., University of Utah.
*Associate Professor of Special
Education*
- DONALD D. ELLIOTT, B.S. in Chem., B.S., in Bus., M.S., Ph.D., University of Colorado.
*Assistant Professor of Mathematics;
Chairman, Department of Mathe-
matics*
- CARL OSCAR ERICKSON, A.B., M.A., University of Northern Colorado; Ed.D., Illinois State University.
Assistant Professor of Education
- WILLIAM RENTZ ERWIN, JR., B.S., M.S., North Texas State University; Ed.D., University of Houston.
Professor of Industrial Arts
- KENNETH G. EVANS, B.A., M.A., University of Northern Colorado; M.F.A., Ph.D., State University of Iowa.
*Associate Professor of Music
On Leave Summer Quarter, 1973.*
- MARGARET ELIZABETH EVERETT, B.S., University of Wisconsin; M.A., Ph.D., State University of Iowa.
*Professor of Physical Education;
Chairman, Department of Physical
Education for Women*
- GEORGE E. FAY, B.A., University of Missouri; M.A., University of Michigan; Ph.D., Interamerican University.
Associate Professor of Anthropology
- GEORGE N. FEBINGER, B.A., M.A., University of Denver; Ed.D., University of Colorado.
Assistant Professor of Education
- EDGAR E. FIELDER, B.A., Northwestern State College; M.A., Phillips University; Ed.D., University of Northern Colorado.
Associate Professor of Education
- CLARK LEROY FIELDS, B.A., Pasadena College; M.S., Ph.D., State University of Iowa.
Associate Professor of Chemistry
- MARY F. FINNEGAN, B.A., Loretto Heights; M.A., University of Colorado; Ph.D., University of Denver.
Assistant Professor of English
- FOREST N. FISCH, B.A., M.A., University of Northern Colorado.
Professor of Mathematics
- JOHN H. FLUKE, B.F.A., Carnegie Institute of Technology; M.Ed., Central Washington College of Education; Ed.D., University of Northern Colorado.
*Professor of Music
On Leave Summer Quarter, 1973.*
- AUGUSTA MEREDITH FOX, B.S., M.Ed., Texas A&M University; Ed.D., North Texas State University.
Professor of Educational Research
- CYNTHIA R. FREASE, B.A., University of Kansas; M.A., University of Minnesota; Ed.D., University of Northern Colorado.
Associate Professor of English
- FORREST WILLARD FREASE, A.B., B.S., Kansas State Teachers College, Emporia; M.A., University of Kansas; Ph.D., University of Pennsylvania.
*Professor of English
On Leave Fall Quarter, 1973.*
- SAM F. FREEMAN, B.A., Ph.D., University of Oklahoma.
Professor of English

RICHARD KENT FRY, B.S., M.S., Ph.D.,
Kansas State University.
Professor of Physics

JOHN D. FUELBERTH, A.B., Wayne
State College; M.A., Ph.D., University
of Nebraska.
Associate Professor of Mathematics

CLARA ELLEN FUNDERBURK, B.S., Colo-
rado State University; A.D.A., Uni-
versity of Michigan Hospital; M.A.,
University of Northern Colorado.
*Associate Professor of Home
Economics*
On Leave Summer Quarter, 1973.

JOHN KEITH GAPTER, B.S., M.S.,
Ph.D., Colorado State University.
Associate Professor of Botany

DON GARLICK, B.F.A., University of
Oklahoma; M.M., D.M.A., University
of Rochester.
*Professor of Music; Chairman,
Department of History and Literature*
On Leave Summer Quarter, 1973.

DENNIS A. GAY, B.S., Oregon State
University; M.S., Ph.D., University
of Wisconsin.
*Assistant Professor of Special
Education*

BILL G. GEARHEART, B.A., Friends
University; M.Ed., Wichita State Uni-
versity; Ed.D., University of Northern
Colorado.
Professor of Special Education

GALE R. GIEBLER, A.B., M.S., Fort
Hays Kansas State College; Ph.D.,
Colorado State University.
*Assistant Professor of Student
Personnel—Counseling*

JOHN S. GIRAULT, B.A., University of
Denver; M.A., University of Northern
Colorado; Ph.D., University of Denver.
Associate Professor of Drama

NICHOLAS A. GLASER, B.A., B.Ed.,
Pacific Lutheran University; M.Ed.,
Ed.D., University of Oregon.
*Professor of Elementary Education;
Director, Reading Center*

ANNE GOFF, B.S., University of Illi-
nois; M.S., Ph.D., Southern Illinois
University.
*Assistant Professor of Psychology,
Counseling and Guidance*

LEROY A. GREEN, A.B., Wheaton Col-
lege; M.A., University of Oregon;
Ed.D., University of Northern Colo-
rado.
*Assistant Professor of Educational
Media*

MARVIN HARRY HALLDORSON, B.S.,
B.A., M.B.A., University of Denver;
Ph.D., University of Northern Colo-
rado.
Assistant Professor of Business

MICHAEL T. HAMERLY, A.B., M.A.,
University of Washington; Ph.D., Uni-
versity of Florida.
Assistant Professor of History

ROBERT G. HAMERLY, B.S., West-
ern Illinois State College; M.S., Uni-
versity of Illinois; Ph.D., Colorado State
University.
Associate Professor of Physics

ROBERT G. HAMMOND, B.Ed., Illinois
State University; M.A., University of
Northern Colorado; Ed.D., University
of Missouri.
*Professor of Industrial
Arts; Chairman, Department of
Industrial Arts*

MARJORIE L. HARKNESS, B.S., Uni-
versity of Minnesota; M.A., Ed.D.,
University of Northern Colorado.
Professor of Elementary Education

JOHN W. HARRISON, B.S., California
Institute of Technology; M.A., Uni-
versity of Denver; Ph.D., University
of Colorado.
Professor of English

WILLIAM F. HARTMAN, B.A., Nebraska
State College, Chadron; M.A., Ed.D.,
University of Northern Colorado.
Professor of Journalism

J. GILBERT HAUSE, B.A., M.A., Uni-
versity of Northern Colorado; Ed.D.,
University of Colorado.
*Professor of College Student
Personnel Work*

BEATRICE B. HEIMERL, B.A., St. Cloud State College; M.A., University of Minnesota; Ed.D., University of Northern Colorado.

Associate Professor of Research and Statistical Methodology; Chairman, Department of Research and Statistical Methodology

RAMON P. HEIMERL, B.S., B.Ed., St. Cloud State College; M.A., Ph.D., University of Minnesota.

Professor of Business

ROBERT L. HEINY, B.S., Colorado College; M.S., Ph.D., Colorado State University.

*Associate Professor of Mathematics
On Leave Summer Quarter, 1973.*

WILLIAM C. HEISS, JR., B.S., University of Illinois; M.A., Columbia University.

Associate Professor of Health and Physical Education

DUANE E. HENDERSON, B.S., M.Ed., Colorado State University; Ed.D., University of Northern Colorado.

Assistant Professor of Psychology, Counseling and Guidance

PEGGY E. HENRY, B.S., Northwest Missouri State College; M.A., University of Northern Colorado; Ph.D., University of Iowa.

Assistant Professor of Elementary Education

TYRUS HILLWAY, B.A., Willamette University; M.A., University of California; Ph.D., Yale University.

Professor of Higher Education

JOSEPH EDWARD HIMMEL, B.A., North Central College; M.M., Northwestern University.

Professor of Higher Education

KENNETH E. HOGAN, B.A., Ottawa University; M.A., Ed.D., University of Northern Colorado.

Professor of Education; Chairman, Department of Higher Education

DONALD L. HOLLEY, B.Ed., Illinois State Normal; M.A., University of Illinois; Ed.D., University of Northern Colorado.

*Professor of Speech Communication; Chairman, Department of Speech Communication and Journalism
On Leave Fall Quarter, 1973.*

SAMUEL R. HOUSTON, B.A., University of California at Los Angeles; M.A., California State College, Los Angeles; M.S., University of Oregon; Ph.D., University of Northern Colorado.

*Associate Professor of Research and Statistical Methodology
On Leave Fall, Winter and Spring Quarters, 1973-74.*

RAYMOND C. HOWARD, B.S., University of Montana; M.S., Western Montana College; Ed.D., University of South Dakota.

Assistant Professor of Psychology

CHESTER C. HUFF, B.S., Indiana University; M.A., DePaul University; Ph.D., University of Colorado.

Associate Professor of English; Chairman, Department of English

RAYMOND H. HULL, A.B., McPherson College; MA., University of South Dakota; Ph.D., University of Denver.

Assistant Professor of Special Education; Chairman, Department of Communications Disorders

BERNICE E. HUNN, B.S., Kansas State Teachers College; M.A., Ed.D., University of Northern Colorado.

*Professor of Elementary Education
On Leave Summer Quarter, 1973.*

RITA J. HUTCHERSON, B.A., Culver Stockton College; M.A., Ph.D., State University of Iowa.

Professor of Music; Chairman, Department of Piano and Organ

M. LYNN REES JAMES, B.S., M.S., Brigham Young University; Ph.D., University of Utah.

Associate Professor of Chemistry

ROBERT S. JAMES, B.M.E., M.M.,
Northwestern University; Ed.D., Uni-
versity of Northern Colorado.
Associate Professor of Music

DAVID L. JELDEN, B.A., Nebraska State
Teachers College; M.A., University of
Northern Colorado; Ed.D., University
of Missouri.
Professor of Industrial Arts

DANA F. JOHNSON, B.F.A., Ed.D., Uni-
versity of Kansas.
Associate Professor of Fine Arts

F. MORRIS JOHNSON, B.A., M.A., Uni-
versity of Northern Colorado; Ed.D.,
University of Denver.
Professor of Industrial Arts

J. M. JOHNSON, B.A., University of
Northern Colorado; M.A., Ed.D., Uni-
versity of Denver.
Assistant Professor of Education

ROBERT L. JOHNSON, B.A., M.A.,
University of Northern Colorado; M.S.,
University of Illinois; Ph.D., University
of Colorado.
Associate Professor of Mathematics
On Leave Summer Quarter, 1973.

DOROTHY CAMERON JONES, B.A.,
M.A., Wayne State University; Ph.D.,
Colorado University.
Associate Professor of English

WILLARD G. JONES, B.A., M.S., Kansas
State Teachers College; Ed.D., Uni-
versity of Wyoming.
*Associate Professor of Special
Education*

ZAHY S. KAMAL, B.S., M.S., Colorado
State University; Ph.D., Washington
State University.
Assistant Professor of Sociology;
Chairman, Department of Sociology

KEVIN C. KEARNS, B.S., Washington
University; M.A., Ph.D., St. Louis
University.
Associate Professor of Geography;
Chairman, Department of Geography

LOUISE J. KELLER, B.S., Kansas State
College, Pittsburg; M.S., Kansas State
Teachers College, Emporia; Ed.D.,
Montana State University.
*Professor of Vocational
Education; Chairman, Department
of Vocational Education*
On Leave Winter Quarter, 1974.

EDWARD J. KELLY, B.A., Defiance
College; M.A., Ph.D., State University
of Iowa.
Professor of Elementary Education

CALVIN EDWARD KENNEDY, B.S.,
Southeastern Oklahoma State College;
M.S., Oklahoma State University;
Ph.D., University of Nebraska, C.P.A.
Professor of Business;
Chairman, Department of Accounting

LEROY RAYMOND KERNS, B.A., M.A.,
University of Northern Colorado;
Ed.D., University of Colorado.
Professor of Education

RALPH R. KING, B.A., M.A., Univer-
sity of Northern Colorado; Ed.D., Uni-
versity of Denver.
Professor of Music
On Leave Sumer Quarter, 1973.

BERNARD C. KINNICK, B.A., St. John's
University; M.A., University of North
Dakota; Ed.D., Auburn University.
*Associate Professor of Psychology
and Counseling; Chairman, Depart-
ment of College Student Personnel
Work*

RAY B. KNAPP, A.B., Los Angeles
State College; Ph.D., University of
Southern California at Los Angeles.
*Associate Professor of Political
Science*
On Leave Fall, Winter and Spring
Quarters, 1972-1973.

ALEXANDER W. KNOTT, A.B., M.A.,
Ph.D., University of Colorado.
Assistant Professor of History

WILLIAM GEORGE KOCH, B.S., Univer-
sity of Notre Dame; M.A., Montana
State University; Ph.D., University of
Illinois.
*Professor of Chemistry; Chairman,
Department of Chemistry*

BETTY J. KOLSTOE, B.A., University of Northern Colorado; M.A., University of Denver; Ed.D., University of Northern Colorado.

Assistant Professor of Special Education

OLIVER PAUL KOLSTOE, A.B., State Teachers College, North Dakota; M.S., University of North Dakota; Ph.D., State University of Iowa.

*Professor of Special Education;
Chairman, Department of Mental Retardation*

EUGENE D. KOPLITZ, B.S., Wisconsin State University; M.S., Ph.D., University of Wisconsin.

*Professor of Psychology,
Counseling and Guidance
On Leave Summer Quarter, 1973.*

ROGER A. KOVAR, B.S., Doane College; Ph.D., University of Wyoming.

Assistant Professor of Chemistry

ROY T. KROSKY, B.A., M.A., University of Northern Colorado; Ph.D., University of Denver.

Assistant Professor of Education

JOHN M. KRUGER, B.S., Western Michigan University; M.A., Ed.D., University of Northern Colorado.

Assistant Professor of Industrial Arts

FRANK P. LAKIN, B.A., M.A., University of Northern Colorado; Ed.D., Oregon State University.

Professor of Psychology

J. MELVIN LANE, B.A., State College of Iowa; M.A., Ed.D., University of Northern Colorado.

Assistant Professor of Special Education

ROBERT W. LARSON, B.A., M.A., University of Denver; Ph.D., University of New Mexico.

Professor of History

PAUL L. LEHRER, B.S., University of Cincinnati; M.A., Ohio State University; Ph.D., University of Nebraska.

Professor of Geography

A. JUANITA LEWIS, B.S., West Texas State College; M.A., Ph.D., University of Iowa.

*Professor of Elementary Education;
Director, Early Childhood Studies*

VIRGIL Y. LINDAHL, A.B., Wayne State Teachers College, Michigan; M.A., University of Northern Colorado; P.E. Director, Indiana University.

*Professor of Physical Education;
Chairman, Department of Intercollegiate Athletics*

IVO E. LINDAUER, B.S., Colorado State University; M.A. University of Northern Colorado; Ph.D., Colorado State University.

*Associate Professor of Botany
On Leave Summer Quarter, 1973.*

SANFORD A. LINSCOME, B.M.E., McNeese State College; M.M., University of Illinois; D.M.A., University of Texas at Austin.

Assistant Professor of Music

JOHN E. LOFTIS III, A.B., University of the South; M.A., Ph.D., Emory University.

Assistant Professor of English

DAVID L. LONSDALE, B.A., M.A., Ph.D., University of Colorado.

*Assistant Professor of History
On Leave Fall Quarter, 1973.*

BETTY L. LOWRY, B.A., M.A., University of Northern Colorado; Ph.D., University of Iowa.

Professor of Elementary Education

J. MAX LUBBERS, B.A., M.A., University of Northern Colorado.

*Associate Professor of
Industrial Arts*

ARNO H. LUKER, B.S., J.D., University of South Dakota; M.A., Michigan State College; Ed.D., University of Northern Colorado.

*Professor of Psychology,
Counseling and Guidance*

DONALD M. LUKETICH, B.S.E., Arkansas State College; M.S., University of Illinois; Ed.D., University of Northern Colorado.

Professor of Education

DALE J. LUNDEEN, B.S., Western Michigan University; M.A., Indiana University; Ph.D., University of Minnesota.

Professor of Special Education

CAROL L. LUTEY, B.S., M.A., University of Minnesota; Ph.D., Michigan State University.

*Professor of Psychology,
Counseling and Guidance*

DANIEL C. MCALEES, B.A., Albright College; M.A., Ph.D., Michigan State University.

*Associate Professor of Special
Education*

PATRICK W. McCARY, B.A., M.A., Ph.D., Michigan State University.

*Assistant Professor of Student
Personnel—Counseling*

JAMES E. McCLURG, B.S., M.S., Ph.D., University of Michigan.

*Associate Professor of Science
Education*

HAROLD L. MCKAIN, JR., B.S., Central Missouri State College; M.E., University of Oklahoma; Ph.D., State University of Iowa.

*Associate Professor of
Physical Education*

CHARLES R. McNERNEY, B.A., M.A., University of Northern Colorado; Ph.D., Ohio State University.

Assistant Professor of Mathematics

THERESA M. MALUMPHY, B.S., State College, Massachusetts; M.S., University of Wisconsin; Ph.D., Ohio State University.

*Associate Professor of Health and
Physical Education*

MARCUS K. MEILAHN, B.S., Lakeland College; Ph.D., Arizona State University.

Associate Professor of Chemistry

HOWARD M. MICKENS, B.S., Bowling Green State University; M.M., Northwestern University.

*Associate Professor of Music; Chairman,
Department of Strings*

BARBARA H. MICKKEY, B.A., M.A., Ph.D., Indiana University.

*Associate Professor of
Anthropology*

GARY EVAN MILLER, B.A., M.A., University of Northern Colorado.

Assistant Professor of Education

JAMES E. MILLER, B.M., Michigan State College; M.A., University of Northern Colorado; M.F.A., Ph.D., State University of Iowa.

Professor of Instrumental Music

KURT R. MILLER, A.B., M.A., Northern Arizona State University; D.M.A., University of Southern California.

Associate Professor of Music

WILBUR G. MILLSLADGE, B.S., Black Hills State College; M.A., Ed.D., University of Northern Colorado.

*Assistant Professor of Special
Education*

DONALD B. MONTGOMERY, B.A., Pepperdine College; M.A., Ohio University; Ed.D., University of Northern Colorado.

Assistant Professor of Education

LOLA J. MONTGOMERY, B.A., University of Kansas; M.A., University of Northern Colorado; Ed.D., Teachers College, Columbia University.

*Associate Professor of Psychology,
Counseling and Guidance
On Leave Fall Quarter, 1973.*

ROBERT A. MONTGOMERY, B.A., Pepperdine College; M.S., University of Southern California; Ed.D., University of Northern Colorado.

Professor of Physical Education

G. JOSEPH MOODY, B.F.A., University of Illinois; M.F.A., University of Iowa; Ed.D., Ball State University.

*Associate Professor of Fine Arts
On Leave Summer Quarter, 1974.*

GAYLORD D. MORRISON, B.S., Northwest Missouri State College; M.A., University of Nebraska; Ed.D., University of Missouri.

Professor of Education

ALVIN O. MOSBO, B.A., Luther College; M.A., State University of Iowa; Ed.D., University of Northern Colorado.

Professor of Elementary Education; Chairman, Department of Elementary Education and Reading

DORIS E. MYERS, B.S.E., Arkansas State Teachers College; M.A., Ohio University; Ph.D., University of Nebraska.

Associate Professor of English
On Leave Spring Quarter, 1974.

GRACE D. NAPIER, B.A., Douglass College; M.A., New York University; Ed.D., Temple University.

Associate Professor of Special Education

DALE ALLEN NEBEL, B.A., M.A., University of Iowa; Ed.D., University of Northern Colorado.

Professor of Elementary Education

THEODORE M. NELSON, B.S., M.A., Ph.D., University of Minnesota.

Professor of Psychology

JOE NICHOLS, B.S., M.S., Pittsburg State College; Ed.D., University of Colorado.

Associate Professor of Education; Chairman, Department of Curriculum and Instruction

DWIGHT E. NOFZIGER, B.S., Bowling Green State University; M.A., Columbia University; Ed.D., University of Northern Colorado.

Associate Professor of Music; Chairman, Department of Music Education

EDWARD L. OHLSON, B.A., University of Montana; M.Ed., Ed.D., University of Oklahoma.

Assistant Professor of Psychology, Counseling and Guidance

DAVID O. OLSON, B.S., Northern Illinois Teachers College; M.A., University of Northern Colorado; Ed.D., Texas A&M University.

Professor of Industrial Arts

On Leave Summer Quarter, 1973.

KENNETH V. OLSON, B.A., Augsburg College; M.A., Ph.D., University of Minnesota.

Professor of Science Education

NORMAN T. OPPELT, B.S., Colorado State University; M.A., University of Northern Colorado; Ph.D., Michigan State University.

Professor of Psychology

KAYE D. OWENS, B.A., Idaho State University; M.A., Ed.D., University of Northern Colorado.

Associate Professor of Special Education

On Leave Fall Quarter, 1973.

MICHAEL PALMER, B.A., Arizona State University; M.A., Michigan State University; Ph.D., Arizona State University.

Assistant Professor of Psychology, Counseling and Guidance

WILLIAM GEORGE PARKOS, B.S., Mankato State College; M.S., Ph.D., University of Minnesota.

Assistant Professor of Health and Safety

ARTHUR R. PARTRIDGE, B.A., M.S., University of Kansas; Ed.D., Stanford University.

Professor of Education; Chairman, Department of Educational Administration

RICHARD A. PERCHLIK, B.S. in Bus.; B.S., in Ed., M.A., Ohio State University; Ph.D., University of Colorado.

Professor of Social Science; Chairman, Department of Political Science

RICHARD A. PETERSON, A.B., M.A., San Diego State College; Ph.D., University of Wisconsin.

Assistant Professor of Physical Education

D. ALLEN PHILLIPS, B.S., M.A., University of Idaho; Ed.D., University of Oregon.

Associate Professor of Physical Education

On Leave Summer Quarter, 1973.

RONALD KEITH PLAKKE, B.A., University of Northern Colorado; Ph.D., University of Montana.
Associate Professor of Zoology

WILLIAM D. POPEJOY, B.S., M.A., Illinois State Normal University; Ed.D., University of Northern Colorado.
Professor of Mathematics

STEPHEN T. POWERS, B.S., U.S. Naval Academy; M.A., Rice University; Ph.D., University of Notre Dame.
Associate Professor of History
On Leave Spring Quarter, 1974.

JUDITH A. PRAUL, B.S., Western Illinois University; M.S., Ed.D., Indiana University.
Associate Professor of Psychology, Counseling and Guidance

DAVID L. PRINGLE, B.S., Wayne State University; M.S., Ph.D., Iowa State University.
Associate Professor of Chemistry
On Leave Summer Quarter, 1973.

FRANCIS R. QUAMMEN, B.A., M.A., University of Northern Colorado.
Associate Professor of Sociology

ELIZABETH J. RAVE, B.S., Illinois State University; M.A., University of Colorado; Ph.D., University of Southern California.
Assistant Professor of Psychology, Counseling and Guidance
On Leave Fall Quarter, 1973.

PAUL WESLEY REA, A.B., Eastern Michigan University; M.A., Wayne State University; Ph.D., Ohio State University.
Assistant Professor of English

HENRY R. REINERT, B.S., Fort Hays Kansas State College; M.A., Ed.D., University of Northern Colorado.
Associate Professor of Special Education; Chairman, Department of Special Learning Problems
On Leave Fall Quarter, 1973.

NORMAN H. RESNICK, B.A., American International; M.A., Ph.D., University of Connecticut.
Assistant Professor of Special Education

ARTHUR R. REYNOLDS, B.A., Nebraska State Teachers College; M.A., Ph.D., University of Minnesota.
Professor of History

MARY RHOADS, B.M., M.M., University of Michigan; Ph.D., Michigan State University.
Assistant Professor of Music

ROYAL A. RICH, B.S., University of Nebraska; M.S., Ph.D., Utah State University.
Associate Professor of Zoology

ANNE C. RICHARDS, B.A., Brandeis University; M.S.T., University of Chicago; Ed.D., University of Florida.
Assistant Professor of Psychology, Counseling and Guidance

EDMUND ARTHUR RICHARDS, B.S., Purdue University; M.S., Ph.D., University of Illinois.
Associate Professor of Zoology

JOAN RICHARDSON, B.S., University of Minnesota; M.A., Ph.D., Arizona State University.
Assistant Professor of Mathematics

ROBERT C. RICHARDSON, B.A., M.A., University of Michigan; Ph.D., University of Colorado.
Associate Professor of Education; Director, Educational Field Experiences
On Leave Summer Quarter, 1973.

EMMETT ALLISON RITTER, B.S., M.Ed., Ed.D., University of Oregon.
Associate Professor of Education

DAVID H. ROAT, B.A., Albion College; M.A., Ph.D., Michigan State College.
Associate Professor of Education
On Leave Summer Quarter, 1973.

JOHN A. ROSALES, A.B., University of Northern Colorado; M.A., Colorado College.
Assistant Professor of Education

ANTHONY M. ROSSI, B.S., New York University; M.A., University of Northern Colorado.
Associate Professor of Physical Education

BARRY ROTHBAUS, B.A., Hunter College; M.S., Ph.D., University of Wisconsin.
Associate Professor of History; Chairman, Department of History

GAIL S. ROWE, B.A., Fresno State College; M.A., Ph.D., Stanford University.
Assistant Professor of History

WENDELL ROY, B.S., M.Ed., North Texas State University; Ed.D., Texas A&M University.

Associate Professor of Industrial Arts

THOMAS F. SAFFELL, B.S. in Ed., M.Ed., Ph.D., University of Kansas.

Associate Professor of Education

GEORGE H. SAGE, B.A., M.A., University of Northern Colorado; Ed.D., University of California, Los Angeles.

Professor of Physical Education; Chairman, Department of Physical Education for Men

ANNE W. SCHENKMAN, A.B., M.S., Ed.D., Indiana University.

*Associate Professor of Psychology, Counseling and Guidance
On Leave Summer Quarter, 1973.*

WALTER A. SCHENKMAN, B.A., Harvard University; M.M., Yale Music School; Diploma d'Etudes, Paris Conservatory; D.Mus., Indiana University.

Professor of Music

JOHN SCHMID, B.S., M.S., Ph.D., University of Wisconsin.

Professor of Education

DONALD L. SCHMIDT, B.A., Bethel College; M.S., Ph.D., Iowa State University.

Professor of Mathematics

GERALD D. SCHMIDT, B.A., University of Northern Colorado; M.S., Ph.D., Colorado State University.

Professor of Zoology

CLAUDE M. SCHMITZ, B.A., M.A., University of Northern Colorado.

*Professor of Music;
Chairman, Department of Voice*

JAMES O. SCHRECK, B.A., University of St. Thomas; M.S., Ph.D., Texas A & M University.

Assistant Professor of Chemistry

GLENN B. SCHROEDER, B.S., Oregon College of Education; M.Ed., University of Oregon; Ph.D., University of New Mexico.

Associate Professor of Education

HERBERT C. SCHUMACHER, B.F.A., M.F.A., University of Kansas.

*Associate Professor of Fine Arts;
Chairman, Department of Fine Arts*

DANIEL A. SEAGER, B.A., Oklahoma Baptist University; A.B., M.A., University of Oklahoma.

Associate Professor of Library Science; Assistant Director of University Library, Public Services

JACK SHAW, B.A., University of Saskatchewan; B.E.A., M.Ed., University of Manitoba; Ph.D., University of Minnesota.

Professor of College Student Personnel Work

SARAH F. SHAW, B.S., West Virginia University; M.A., Marshall University; Ed.D., Indiana University.

Associate Professor of Psychology, Counseling and Guidance

JOHN MAX SHIRLEY, B.S., M.A., University of New Mexico; Ed.D., University of Northern Colorado.

*Professor of Recreation Education;
Chairman, Department of Recreation*

JOSEPH L. SHOEMAKER, B.A., M.A., University of Northern Colorado; Ed.D., University of Colorado.

Professor of Science

HOWARD M. SKINNER, B.A., Sterling College, Kansas; B.Mus., M.Mus., McPhail College of Music; D.Mus., Northwestern University.

Professor of Music

DAVID W. SMART, A.B., Brigham Young University; M.A., Ph.D., University of Utah.

Assistant Professor of Student Personnel

MAYNARD N. STAMPER, B.S., Eastern Kentucky State College; M.A., University of Northern Colorado; Ph.D., Ohio State University.

Professor of Biological Sciences

WENDELL R. STARR, B.A., Ottawa University; M.A., University of Colorado; Ph.D., University of Minnesota.

Professor of English

DORIS C. STEFFY, B.A., Iowa State Teachers College; M.A., State University of Iowa.

Professor of Physical Education

WALTER H. STEWART, B.J., B.A., B.S., M.A., University of Missouri; Ph.D., Southern Illinois University.

Associate Professor of Journalism

JAMES A. STOFFLER, B.S., Southern Illinois University; M.Ed., Marquette University; Ed.D., Southern Illinois University.

Professor of Education

CHRISTINE A. STURGES, A.B., College of William & Mary; M.A., Ph.D., Northwestern University.

Assistant Professor of Theatre Arts

ROBERT B. SUND, B.A., Reed College; M.S., Oregon State College; M.A., Ed.D., Stanford University.

Professor of Science Education

STEVE TEGLOVIC, Jr., B.S.B.A., M.B.A., University of Denver; Ph.D., University of Northern Colorado.

*Professor of Business;
Chairman, Department of
Management*

On Leave Summer Quarter, 1973.

BERT O. THOMAS, B.S., M.S., Colorado State University; Ph.D., University of Minnesota.

*Professor of Zoology; Chairman,
Department of Biological Sciences*

THOMAS N. THOMPSON, B.A., M.A., Ph.D., University of Pennsylvania.

Assistant Professor of English

SYLVIA D. THORNBURG, B.A., M.A., Ph.D., University of Illinois.

*Assistant Professor of Psychology,
Counseling and Guidance*

BERT D. THORPE, B.S., Ph.D., University of Utah.

*Professor of Zoology
On Leave Summer Quarter, 1973.*

GORDON ERNEST TOMASI, B.A., M.A., University of Northern Colorado; Ph.D., University of Louisville.

Professor of Chemistry.

ORVEL L. TRAINER, B.A., M.A., Ph.D., University of Colorado.

*Professor of Economics; Chairman,
Department of Economics*

LESLIE W. TROWBRIDGE, B.S., Central State Teachers College, Wisconsin; M.S., University of Chicago; M.S., University of Wisconsin; Ph.D., University of Michigan.

Professor of Science

DEAN E. TURNER, B.A., Centro De Estudios Universitarios; M.Ed., Adams State College; Ph.D., University of Texas.

Associate Professor of Education

DEAN W. TUTTLE, B.S., Wheaton College; M.A., Teachers College, Columbia University; M.A., San Francisco State College; Ph.D., University of California.

*Assistant Professor of Special
Education*

JAMES S. UPTON, JR., B.A., B.M., Hendrix College; N.M., Southern Methodist University; Ph.D., University of Texas.

Associate Professor of Music

RICHARD H. USHER, B.S., Murray State College; M.Ed., Ed.D., University of Florida.

Associate Professor of Education

NANCY M. VAN ANNE, B.A., Iowa State Teachers College; M.A., State University of Iowa; Ph.D., University of Oregon.

Professor of Physical Education

NORBERT R. VAN DINTER, B.S., Sul Ross State College; M.S., Florida State University; Ed.D., University of Northern Colorado.

Assistant Professor of Recreation

EVERETT H. VAN MAANEN, B.S., Northern State Teachers College; M.A., University of Northern Colorado; Ed.D., University of Oregon.

Professor of Education

WAYMAN E. WALKER, B.M.E., University of Colorado; M.M., University of Southern California.

Professor of Instrumental Music

THOMAS EDWARD WARNER, B.S., Ashland College; M.Ed., Ph.D., Ohio University.

Assistant Professor of Education

ROLAND C. WATERMAN, B.S., New York State College for Teachers; M.A., Ed.D., Columbia University.

Professor of Business—Accounting

242 / GRADUATE FACULTY

MEL W. WEISHAHN, B.A., M.A., University of Northern Colorado, Ed.D., University of Oregon.

Associate Professor of Special Education

I. DAVID WELCH, A.B., M.A., University of Northern Colorado; Ed.D., University of Florida.

Assistant Professor of Psychology, Counseling and Guidance

WILLIAM H. WELTNER, B.S., University of Colorado; M.A., Ed.D., Ball State University.

Associate Professor of Education

JOHN W. WILLCOXON III, B.A., Washington and Lee University; M.A., Ph.D., University of Minnesota.

Professor of Drama; Chairman, Department of Theatre Arts

GARY G. WILLOUGHBY, B.A., M.A., University of Colorado.

Assistant Professor of Sociology

CARL E. WILSEY, A.B., M.A., University of the Pacific; Ed.D., Stanford University.

Professor of Education

NELL E. WILSON, B.A., Texas Technological College; M.A., Ph.D., University of Colorado.

Assistant Professor of English

ALBERT M. WINCHESTER, B.A., Baylor University; M.A., Ph.D., University of Texas.

Professor of Biology

DALE E. WOERNER, B.S., Kansas State University; M.S., Ph.D., University of Illinois.

Professor of Chemistry

ELAINE V. WOLFE, B.S., California State College; M.Ed., Pennsylvania State University; Ph.D., University of Pittsburgh.

Assistant Professor of Elementary Education

RICHARD R. WOLFE, B.S., Thiel College; M.S., Westminster College; Ph.D., University of Pittsburgh.

Associate Professor of Special Education; Chairman, Department of Social and Rehabilitation Services

WELBY B. WOLFE, B.A., M.A., University of Northern Colorado; Ed.D., Columbia University.

Professor of Drama

THURMAN N. WRIGHT, B.A., University of Northern Colorado; M.A., Dir. of P.E., Indiana University.

Associate Professor of Physical Education

ALICE M. YETKA, B.S., University of Minnesota; M.A., Ed.D., University of Northern Colorado.

Professor of Business

Graduate Council

The School of the Arts—David Olson, Ed.D.

College of Arts and Sciences—Donald Elliott, Ph.D.; Forrest Frease, Ph.D.; John Girault, Ph.D.; Kevin Kearns, Ph.D.; Ronald Plakke, Ph.D.; Donald L. Schmidt, Ph.D.

The School of Business—William Duff, Ph.D.

College of Education—Amos Claybaugh, Ed.D.; Bill Gearheart, Ed.D.; Samuel Houston, Ed.D.; Bernard Kinnick, Ed.D.; Alvin Mosbo, Ed.D., Arthur Partridge, Ed.D.; Richard Wolfe, Ph.D.

The School of Health, Physical Education and Recreation—Jerry Barham, Ed.D.; Bryan Cooke, Ph.D.

The School of Music—James Upton, Ph.D., Walter Schenkman, D.Mus.

Index

A	
Academic Information, Graduate	9-27
Accreditation and Affiliation	4
Acoustically Handicapped, Program	100
Administrative Officers	227
Admission	9, 18, 22
Advisement	19, 22
Adviser, Research	22
Aerospace Studies, Courses	116
Anthropology, Courses	116-118
Anthropology, Program	34
Applications for Graduation	18, 21, 26
Astronomy, Courses	118
Attendance	12
Audiology, Program	98
Awards, Other	8
B	
Biological Sciences, Program	34
Biology, Courses	118-121
Board of Trustees	227
Botany, Courses	121
Botany, Program	35
Bureau of Business and Public Research	5
Bureau of Research	6
Business, Courses	122-124
Business, Program	35-37
Business Education, Courses	124-126
C	
Calendar	2-3
Candidacy for the degree	24
Catalog, Effective Dates	9
Center for Special and Advanced Programs	6
Certification Program	14
Chemistry, Courses	126-128
Chemistry, Program	37
Citizenship Standards	11
College Student Personnel Work, Courses	128-130
College Student Personnel Work, Program	41-43
Competency in English Usage	11
Computer and Data Processing Center	6
Copies of Medical Records	7
Course Descriptions	116-226
Course Load, Credit Off-Campus Courses	12
Course Number, (Explanation)	11
Course Work for Next Degree	10
Crippled and Other Health Impaired, Program	104
Curriculum and Instruction, Courses	136-138
Curriculum and Instruction, Program	43-53

D	
Degree Candidacy	24
Degree Programs	16-27
Degree Requirements	32-116
Departmental Program Requirements	32-116
Dining Rooms	7
Doctor of Arts, Doctor of Education and Doctor of Philosophy Degrees	21-27

E	
Earth Science, Courses	130
Economics, Courses	130-132
Economics, Program	53
Educational Administration, Courses	132-136
Educational Administration, Program	53-57
Educational Curriculum and Instruction, Courses	136-138
Educational Curriculum and Instruction, Program	43-53
Educational Field Experiences, Courses	138-139
Educational Field Experiences, Program	15-16
Educational Media, Courses	139-141
Educational Media, Program	57-58
Educational Planning Service	5
Elementary Education and Reading, Courses	141-144
Elementary Education and Reading, Program	59-65
Emotionally Disturbed, Program	106
Employment	8
English, Courses	145-146
English Education, Courses	146-147
English Education, Program	67
English, Program	65-67
English Style Form Standards	11
Extra Fees	29

F	
Faculty, Graduate Listing	228-242
Fees and Expenses	27-32
Financial Aids	7-8
Financial Information	27-32
Fine Arts, Courses	147-150
Fine Arts, Program	67-69
Foreign Languages, Courses	151
Formal Applications for Graduation	18, 21, 26
Foundations of Education, Courses	151-153
Foundations of Education, Program	69-70
French, Courses	151

G	
General Administration	227

General Information	4-8
Geography, Courses	153-155
Geography, Program	70
Geology, Courses	155-156
German, Courses	151
G. I. Benefits	8
Grading System	12
Graduate Academic Information	9-27
Graduate Council	243
Graduate Degrees, Departments	32-116
Graduate Degree Requirements	32-116
Graduate Faculty Listing	228-242
Graduation, Application for 18, 21, 26	
Graduation Exercises	13
Graduation Requirements	17, 20, 25

H

Health Education, Program	70-71
Health, Physical Education and Recreation, Courses	156-160
Health, Physical Education and Recreation, Program	70-72
Health Services	6-7
Higher Education, Courses	160
Higher Education, Program	72
History, Courses	160-163
History, Program	72-74
Home Economics, Courses	163-167
Home Economics, Program	74-76
Housing	7
Humanities, Courses	167-168

I

Individual Studies, Courses	172
Industrial Arts, Courses	168-172
Industrial Arts, Program	76-78
Insurance Institute	6
Instructional Materials Center	5
Interdisciplinary and Individual Studies, Program	15-16
Interdisciplinary Courses	172-173

J

Journalism, Courses	174
Journalism, Program	113

L

Late Registration Fee	29
Learning Disabilities, Program	102
Library Facilities	5
Limitations on Enrollment	12
Linen and Bedding	7
Loan Funds	8
Location	4

M

Married Student Housing	7
Master of Arts Degree	16-18
Master of Science Degree	16-18
Mathematics, Courses	174-177
Mathematics, Program	78-80
Mathematics Education, Courses	177-178

Mathematics Education, Program	78-80
Medical Records, Copies of	7
Mental Retardation, Program	100, 107
Meteorology, Courses	178-179
Music, Courses	179-186
Music Fees	30
Music, Program	80-87

N

National Direct Student Loan Program	8
Nursing, Courses	186

O

Oceanography, Courses	186
Off-Campus Housing	7
Off-Campus Instruction	28
Off-Campus Services (Health)	6
Outdoor Education, Courses	139-141
Outdoor Education, Program	58

P

Photographs	10
Physical Education, Courses	156-160
Physical Education for Men, Program	71
Physical Education for Women, Program	71
Physically Handicapped Children, Program	100
Physical Science, Program	87
Physics, Courses	187-188
Physics, Program	87-88
Placement Services	4-5
Political Science, Courses	188-189
Political Science, Program	88
Postdoctoral Programs	27
Professional Teacher Education Program	14-15
Program Requirements, Departmental	32-116
Psychology, Counseling and Guidance, Courses	189-198
Psychology, Counseling and Guidance, Program	88-94

R

Reading (Elementary Education), Courses	141-144
Recreation, Program	71
Refund Policy	30
Registration and Advisement	10
Rehabilitation Counseling, Program	102, 108
Research Adviser	22
Research, Doctoral	23-24
Research and Statistical Methodo- logy, Courses	198-200
Research and Statistical Methodo- logy, Program	94-96
Residence and Time Requirements	16, 20, 24
Residence Hall Charges	31-32

Requirements for Graduation	17, 20, 25
Right of Appeal, Students'	13
Rocky Mountain Special Education Instructional Materials Center	6

S

Schedule of Classes	12
School of Educational Change and Development	27
School of Educational Change and Development, Courses	200
Science, Courses	201-202
Science Education, Courses	202-205
Science Education, Program	96-97
Science, Political, Courses	188-189
Science, Political, Program	88
Social Sciences, Program	97-98
Social Studies Education, Courses	205
Socially and Emotionally Disturbed Children, Program	101
Sociology, Courses	205-207
Sociology, Program	98
Spanish, Courses	151
Special Education: Administration, Program	104
Special Education and Rehabilitation, Courses	207-217
Special Education and Rehabilitation, Program	98-111
Special and Advanced Programs, Center for	6
Specialist in Education Degree	18-21
Speech Communications, Courses	217-218
Speech Communications—	
Journalism, Program	112-113
Speech Pathology, Program	99, 109
Student Appeal	13
Student Employment	8
Student Field Experiences	15-16

Student Field Experiences, Courses	138-139
Student Group Health and Accident Insurance	7
Student Health Center	6
Student Health Services Brochure	7
Student Personnel Work, Courses	128-130
Student Personnel Work, Program	41-43
Student Residence Halls	7
Student Responsibility	11

T

Teacher Education Program Information	13-14
Theatre Arts, Courses	218-219
Theatre Arts, Program	113-114
Transfer of Credit	16, 19, 24
Trustees, Board of	227
Tuition and Fees	27-32

U

Unclassified Graduate Student	10-11
University Calendar	2-3

V

Veterans' Benefits	8
Visually Handicapped, Program	102, 110
Vocational Teacher Education, Courses	219-225
Vocational Education, Program	114-115

W

Withdrawal from Class	12
-----------------------------	----

Z

Zoology, Courses	225-226
Zoology, Program	115

GUIDE TO CAMPUS OFFICES

Post Office Address: University of Northern Colorado
Greeley, Colorado 80639

Telephone: (Area Code 303) 351-1890

Admissions

Admissions Office, 108 Frasier Hall (Ext. 2823)

Affirmative Action

Affirmative Action Office, 110 Kepner Hall (Ext. 2516)

Bulletins and Catalogs

Publications Office, 401 Carter Hall (Ext. 2772)

Counseling Services

Counseling and Testing Center, 103 Gray Hall (Ext. 2483)

Fee Payments

Accounting Office, 11 Frasier Hall (Ext. 2201)

Financial Assistance and Student Employment

Financial Aids Office, 101 Frasier Hall (Ext. 2156)

Graduate Program Information

Graduate Office, 1410-20th Street (Ext. 3401)

Housing

Housing Office, 209 Carter Hall (Ext. 2502)

Off-Campus and Correspondence Courses

Dept. of Special Studies & Continuing Ed., 209 Carter Hall (Ext. 2758)

Registration

Registrar and Records Office, 123 Frasier Hall (Ext. 3701)

Scholarships

Financial Aids Office, 101 Frasier Hall (Ext. 2156)

Summer Study

Admissions Office, 108 Frasier Hall (Ext. 2823)

