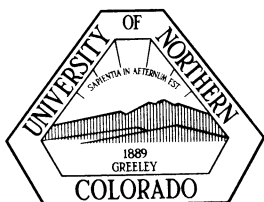


Applegate

University of Northern Colorado

Bulletin 1975-76





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GRADUATE COUNCIL

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UNIVERSITY CALENDAR

1975-1976

Summer Quarter, 1975

- Monday, June 16 -- Registration for first five-week classes, eight-week classes, and ten-week classes. (Registration of subsequent classes may be completed on the day of that class.)
Tuesday, June 17 -- Classes Begin
Friday, July 4 -- Independence Day (No Classes)
Saturday, August 23 -- Commencement (Quarter Ends)

Fall Quarter, 1975

- Monday, September 15 -- Lab School Opens
Thursday, September 18 -- University Meetings, Faculty & Staff
Friday, September 19 -- College/School, Departmental Faculty Meetings
Sunday, September 21 -- New Undergraduate Students Report
Monday, September 22 -- New Students' Orientation & Registration Pickup
Tuesday & Wednesday, September 23 & 24 -- Registration
Thursday, September 25 -- Classes Begin
Friday & Saturday, November 7 & 8 -- Winter Quarter Early Registration (No Classes November 7)
Tuesday, November 25 -- Thanksgiving Vacation Begins (After Last Class)
Monday, December 1 -- Classes Resume
Saturday, December 13 -- Commencement (Quarter Ends)

Winter Quarter, 1976

- Monday, January 5 -- Registration
Tuesday, January 6 -- Classes Begin
Friday & Saturday, February 20 & 21 -- Spring Quarter Early Registration (No Classes February 20)
Saturday, March 13 -- Commencement (Quarter Ends)

Spring Quarter, 1976

- Monday, March 22 -- Registration
Tuesday, March 23 -- Classes Begin
Friday & Saturday, April 30 & May 1 -- Fall Quarter Preregistration (No Classes April 30)
Monday, May 31 -- Memorial Day (No Classes)
Saturday, June 5 -- Commencement (Quarter Ends)

Summer Quarter, 1976

- Monday, June 14 -- Registration
Tuesday, June 15 -- Classes Begin
Monday, July 5 -- Independence Day (No Classes)
Saturday, August 21 -- Commencement (Quarter Ends)

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 student 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 57,000, 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 Association of Graduate Schools, the Western Association of Graduate Schools, National Association of Summer Sessions, and other educational organizations.

Placement Service. The Placement Center is located in Carter Hall, Room 401, and provides service to the student, the employer, and the University. A file of credentials can be established for graduating seniors, alumni, and for students who have a college degree and completed course work at our University. Enrollment is not required, but highly recommended. Established credentials are maintained for a period of five years from the time of the last enrollment date. Reenrollment and updating must transpire within five years of last enrollment or credentials are destroyed.

Employment is not guaranteed. University students and Placement Center enrollees are offered counseling service and other assistance which will aid the candidate in reaching a career decision based on a full appreciation of his potential. Included in our facilities are seven private rooms for personal interviewing and a library section which contains files of materials relating to vacancies and prospective employers.

Libraries. The main University Library, the James A. Michener Library, incorporates some of the latest equipment and techniques known to library science to provide the materials and services necessary for research and study.

The library materials collection, comprised of a total of over 962,379 library units or 691,570 volume equivalents, is housed largely in the Michener Library.

The Library holdings contain representative collections of literature in the fields of knowledge taught at the University; also, bound periodicals, government documents, pamphlets and reference materials in the variety of formats, e.g., print, microforms, motion pictures, filmstrips, slides, maps, phono records and tapes, braille writing, videotapes and cassettes, etc.

The stacks are open to all students and other patrons. Individual and group study facilities are located in or near all stack areas.

The Educational Information Retrieval Service, a new educational service rendered via computer search, works through the Reference Services.

The Multi-media Services, located on the lower level of the Michener Library, are composed of the Film Library Services; Photo-Duplication Services; Microforms Reading and Storage; Educational Resources Center, containing educational materials, textbooks, curriculum guides, testing materials, et cetera, for the student who is preparing to teach; special Reserve Book Facility and Reading Area; and Services to the Handicapped.

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

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.

Tours and special instruction in library use are available on request.

Media Services. Assistance to faculty and students in the location, acquisition, and utilization of media is available from two regular services on campus:

The Instructional Materials Services is located in Michener Library, L-10. Here faculty film requests and orders are processed. 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 at and supplied by the IMS. Student projectionists are provided for faculty members who desire this help. Portable video units utilizing ½-inch video tape are also available on loan from the IMS.

The Media Planning and Production Services (MPPS) in the Department of Educational Media is located in McKee 101. In addition to consultative and maintenance services, the following facilities and staff skills are available:

1. A self-instructional Educational Media lab is open to undergraduates, graduates, staff and faculty who wish to learn equipment operation and instructional materials production. Individualized studies, workshops, mini courses, tours, demonstrations and special courses may be scheduled by contacting the Educational Media Department.

2. Audio production studios provide tape recording and duplication services.

3. A graphics production staff is available in the center for the creation and reproduction of visual and photographic instructional materials.

4. 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.

The Media Planning and Production Services (MPPS) does not loan equipment, but produces original audio visual materials to meet specific faculty needs.

6 / GENERAL INFORMATION

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 and to encourage and provide student and faculty community research projects. The bureau 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.

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 and general seminars for professional improvement.

Bureau of Research Services. Research and 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.

Health Services

A comprehensive program of health care is provided by physicians, registered nurses, and professionals in mental health by using facilities on campus as well as those in the community. A student group health and accident insurance plan provides hospitalization and care for sickness and accidental injury. All full-time students (7 quarter hours or more) have access to these benefits upon payment of student fees. Services to part-time students are limited as outlined in the Student Health Services and Insurance brochure. This brochure, which describes benefits provided and how to use the program, is available at registration and at the Health Center. Also, a copy may be obtained by writing directly to the Student Health Center. A brief description of the program is as follows:

The Health Center (on campus out patient clinic). Provides an initial source of help for any student who has a known or suspected health problem. Examples of benefits provided are services by physicians and registered nurses, diagnostic laboratory, emergency first aid, immunizations, referrals, mental health services, administration of allergy medications, and counseling for health problems.

The Off-Campus Services. Provides up to three office calls (\$6 each), one diagnostic x-ray, and \$10 for diagnostic laboratory tests each quarter by a contractual agreement with local physicians.

The Student Group Hospitalization and Accident Insurance. Provides care 52

weeks per year anywhere in the United States or Canada. Major medical benefits are not provided.

Copies of Medical Records will be sent to other institutions 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.

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.

Off-Campus Housing. The Housing Office provides limited assistance to obtain housing in the city of Greeley 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.

Board is available in the residence halls on a contract basis for students living off-campus.

Application for Housing. Address the Housing Office when applying for any type of on-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 these dates in each quarter or no notice to forego attendance at the university results in a full forfeiture of the deposit. A housing deposit for a student who is assigned to 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.

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 an Application for Financial Assistance to the University Financial Aids Office by March 30th and an A.C.T. Family Financial Statement to A.C.T. in Iowa City, Iowa, by February 15th for consideration of assistance for the next academic year. Applications and Family Financial Statements submitted after the dates indicated above will be considered as late applications and processed accordingly. Although late applications are considered for aid it is to the students advantage to meet application deadlines.

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.

Students desiring part-time employment, other than work-study, must obtain a work permit from the Office of Financial Aid before they can accept employment in any area of the University.

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 Veteran Affairs 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 Veteran Affairs 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 Com-

mittee 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.

Campus Ombudsman

Members of the academic community who have concerns which they are unable to reconcile through the existing University structure are encouraged to contact the Campus Ombudsman by telephoning 351-2889 or by writing him c/o University of Northern Colorado, Greeley, Colorado 80639.

International Education

UNC Program in Florence: Studies in Comparative Arts
Supervised by the Department of Fine Arts
Paolo Barucchieri, Director

All students in good standing, graduate and undergraduate, are eligible to participate for at least a quarter in the program at Florence, Italy. Financially, the program is designed so that virtually every student can participate. There is limited financial assistance available through the program in the form of scholarships, work-help, etc.

The program provides students with a valuable cultural experience through a profound and continuous contact with the people and environments of Florence and Tuscany. The program stresses and utilizes to the fullest extent the contrasts and advantages offered by a different culture, nurturing a more open and tolerant approach to life for all concerned so that the gap between experience and knowledge is eliminated.

Students may participate in this program spring, summer, and fall quarters. Students will enroll for 12 to 15 quarter hours while in Florence, choosing from a number of courses relating to the aims of the programs. Courses are offered through the Departments of Fine Arts, Anthropology, Humanities and are supplemented occasionally through the participation of other departments. There are courses offered each quarter, some of which vary depending upon availability of resources, interest, season, etc. The staff includes English-speaking Italian or European university professors or other qualified professional artists. There is always a faculty member from UNC in residence as well, usually teaching in addition to overseeing the program. English-speaking guest lecturers, field trips, and special events are integral parts of the program.

Course offerings are listed in this catalog under the departmental course offerings (Fine Arts, Anthropology, Humanities). For further information contact the Florence Program Office in the Office of International Education. In keeping with the regular Graduate School policy; up to 15 quarter hours of 300 to 400 level courses may be applied to graduate degrees. Courses may be applied to fulfill major and minor requirements in Fine Arts, Anthropology, Humanities as well as General Education requirements.

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, 1975 to May 31, 1976. 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 the student's application and one copy of the transcript(s) are placed in the student's file in the Graduate School Office. One Xerox copy 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). *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 ninety 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). 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 been admitted to a degree program when the student first registers in his graduate degree program. 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 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 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 safeguard 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.

Paper Standards for Dissertations, Theses, et cetera. Each candidate presenting a doctoral dissertation, a written report of the specialist's practicum, a master's thesis, a detailed written explanation of the creative project's contribution to contemporary thought and life, or a written report of the project done in lieu of a

dissertation by some doctoral students in the SECD must furnish four copies of the final document to be bound. The original copy must be typed on twenty-pound, 75 percent Cotton Fiber Content 8½" x 11", 20 Substance, Regular Finish paper from Southworth Paper Company, Permanent Record Number 33C, or Kimberly Clark Corporation, Success Bond Number 1-20B. The other three copies are to be reproduced on twenty-pound bond paper.

The original copy of the preliminary outline of the dissertation must be typed on twenty-pound bond paper and the other five copies are to be reproduced on twenty-pound bond paper.

The original copy of the preliminary outline for the written report of the Specialist Degree Practicum must be typed on twenty-pound bond paper and the other three copies are to be reproduced on twenty-pound bond paper.

The student must use the same brand bond paper for the entire study.

The Bookstore has a mimeographed supplement entitled, "Instructions, Standards and Forms for Dissertations, Theses, Et Cetera." Each student preparing a dissertation, thesis, et cetera should purchase the supplement because it includes instructions, examples, et cetera *required* by the UNC Graduate School Office.

Do not use Dissertations, Theses or Projects on file in the Library as examples for style and format. Style requirements may have changed.

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.

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). A student in a Specialist in Education program may count up to 30 hours in a 90 hour program with departmental and major adviser approval. Educational Field Experiences courses bearing catalog numbers of 499 or below, EDCI 341, and IS 422 may *not* be taken for 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 or certification more than 19 hours of *course work* in a fall, winter, spring, or summer quarters; more than 15 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.

Evening on-campus classes may be limited in size. Enrollment will be accepted on a "first-come" basis. Classes with insufficient enrollment may necessarily be cancelled for that term. Students enrolling in night classes only will register for those courses in the assigned classroom during the first class meeting.

Interdisciplinary and Individual Studies. Interdisciplinary courses are offered in appropriate areas and levels of instruction. These 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.

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 for IS or Departmental Prefix 601, Practicum, and IS or Departmental Prefix 622, Individual Study:

1. The study must be limited to four hours per quarter.
2. The approved IS 601, Practicum, or IS 622, Individual Study, registration form must be used. The applicant must have the approval evidenced by signature of the instructor who will direct the study, the student's adviser, and the department chairman of the department in which the study is to be done.
3. Unless the student is registered for at least six (6) additional hours of classes on campus, the student shall not count IS or Departmental Prefix 601 or IS or Departmental Prefix 622 or IS or Departmental Prefix 799 to satisfy the residence requirement or requirement that at least half of a student's credit must be in courses numbered 500 and above and *taken in residence in Greeley*.

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 student's grades. The student also has the responsibility of knowing the policies in each course. Students registered for a class who miss the first two sessions of the class may be dropped from the class. This is at the option of the instructor, and is not automatic.

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 and "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 Records Office.

"NR" (No Report) will be recorded in the case of students who register for X number of hours in a Master's Thesis or Creative Project, a Specialist Degree Practicum, or a Doctoral Dissertation but have not completed the project by the end of the quarter. The NR (No Report) will be replaced by the appropriate grade on completion of the project.

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.
 - b. A student must have a 3.00 *before* final credit is given for a thesis, a creative project, a specialist practicum, or a dissertation.
5. If a student has a 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 may 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. The Graduate Council has authorized the Dean to dispose of graduate student petitions administratively. The last Thursday of each month is petition day at which time the Dean's decision may be appealed to the Graduate Council.

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. 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 one complete and official transcript(s) of all previous work. *A grade average of C+ (2.70) on the most recent 100 quarter 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 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 Department of Student Personnel, Student Health Center, by the student's personal physician. Appropriate forms are available from the Graduate School Office.

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 general education areas: 1. Communications; 2. General Psychology; 3. Humanities; 4. English; 5. Science; 6. Social Science; 7. Mathematics; 8. Fine Arts; 9. Languages; 10. Philosophy; and 11. Religion.
- B. Satisfactory completion of the following professional education courses: (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 379 Introduction to Teaching (appropriate to Specialization) or an equivalent observation/participation experience as prescribed by the academic department.		2
	Methods of Teaching (appropriate to Specialization)		3
	or equivalent methods of teaching		
PSY	301-326 (except PSY 322) Educational Psychology (5 courses offering 1 hour credit for each module)		5
EDFE	Supervised teaching for initial teacher certification		18

*These specific courses must be completed prior to supervised teaching.

- 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 Office, 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. All UNC official recommendations are made by the College 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 before

4:00 on the second Friday 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 end of his first 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.

Teacher Year Alternative. Any student interested in the Teacher Year Alternative may apply for this special option in the PTE Office, McKee 518, after acceptance into the Graduate School. This option involves an integrative team taught and field based program jointly planned by students and faculty. The program will run for three consecutive quarters with students receiving approximately 15 hours of PTE course credit per quarter; student teaching is included. Application for PTE must be made at the onset of this program.

Orientation Seminar. Although this is optional to graduate students and not a PTE requirement, you may wish to enroll in this for your own benefit. There are two two-hour sessions per quarter. At these sessions, the student will be given a *Handbook* from which will be discussed valuable information regarding requirements for PTE, student teaching, graduation, certification, and finding the initial teaching position. If you are interested, please sign up on the seminar schedule available in the EDFE Office, 27 McKee Hall.

Educational Field Experiences

Supervised teaching assignments for certification are available in cooperating school districts throughout the state and out of 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.

The following requirements must be completed before beginning the field experience:

1. Met all specific departmental requirements for supervised teaching.
2. Been afforded *full* admission to PTE.
3. Be cleared by the UNC Health Service.

Students interested in internships and/or other types of extended field experiences which combine both credit and pay should contact the Area Coordinators in the Department of Educational Field Experiences for information concerning the various options.

All students must file application in the Office of Educational Field Experiences, 27 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:

- for **Fall placement**: no later than May 1.
- for **Winter placement**: no later than November 1.
- for **Spring placement**: no later than February 1.
- for **Summer placement**: no later than May 1.

Master's Degrees

Admission. A student must hold a baccalaureate degree from an accredited college or university.¹ A grade average of 2.70 on the most recent 100 quarter 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 recommendations.

Students entering a degree program within the College of Education will be expected to meet the requirements of the officially approved program in effect at the time of their admission. The student's adviser, however, has the prerogative of waiving specific course requirements on the basis of the student's previous experience, education and professional goals.

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 cannot be used to meet the requirement that 22 hours of the course work must be in courses numbered 500 or 600 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 Dean of the 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 in the same discipline at the "parent institution." Transferred credit may not be used to make up "D" or "F" grades received in required courses.

¹A mature student who has had extensive practical experience in the field in which he proposes to study may apply to the Committee on Admission of Applicants Who Do Not Have a Baccalaureate Degree.

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. National and international study courses organized on the UNC campus with appropriate number of hours will be accepted as meeting one of the quarters of the residency requirement.

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 should register for Introduction to Graduate Study.¹ Standards for graduate study, research methods, evaluation of printed research, bibliographical tools and other items will be emphasized. The student should take 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 may declare a double major with the approval of both concerned departments. The student must complete the requirements of both departments and satisfactorily pass comprehensive examinations in each area or otherwise demonstrate competency in each major field by a departmentally approved equivalent.

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 number 500 and 600 and taken in residence in Greeley. National and international study courses which are organized on the UNC campus and which are numbered 500 or above shall satisfy 11 hours of the 22 hours. 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). Educational Field Experience courses bearing catalog numbers of 499 or below, EDCI 341, and IS 422 may *not* be taken for graduate credit.

Candidates in the arts and sciences program 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.

A creative project in educational media, fine arts, literature, or music may be prepared as the equivalent of a thesis with the written approval of the major adviser

¹Following research-oriented course substitutions which have been approved by the Graduate Council may be made in lieu of Introduction to Graduate Study: Health, Physical Education and Recreation, HPER 602; Biological Science, BIO 694; Chemistry, at least CHEM 390 and two hours in CHEM 599; Educational Administration, EDAD 600; Elementary Education--Early Childhood Education, EDEL 664; Earth Sciences, ESCI 500; 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; Anthropology, ANT 681; Elementary Education and Reading, EDRD 645; Home Economics, HEC 533.

and the Dean of the Graduate School. The creative project when completed becomes the property of the university.

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 four copies of 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.

Paper Standards for Dissertations, Theses, et cetera are stated on page 12.

After being signed and bound, three copies of the thesis or three copies of the detailed written report of the 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. 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 comprehensive examination or the departmentally approved equivalent may not be completed until the student has completed at UNC at least thirty (30) quarter hours with a grade average of at least 3.00 and has the approval of his major adviser and the Graduate School Office.

The following steps must be taken:

- a. Student obtains "Permit To Take Written Comprehensive Examination or Otherwise Demonstrate Competency" from his departmental office or the Graduate School Office.
- b. The student completes comprehensive examination or otherwise demonstrates competency in the departmentally approved equivalent.
- c. The report of the examination and the examination paper, or the written report confirming that the departmentally approved equivalent has been satisfactorily completed, *must* be filed by the adviser or the department chairman in the Graduate School Office at least 17 days before the end of the quarter in which the candidate expects to graduate. The report of the examination must be signed by the adviser. The report indicating the competency has been demonstrated in the departmentally approved equivalent must be signed by the committee which evaluated the competency.

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.

A student who has been admitted to and taken any course in a doctoral program shall not earn a Specialist in Education degree.

Preparation of Junior College or Community College Teachers. Since there is a 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 on the most recent 100 quarter hours. 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 appropriate work experience as determined by the major department is required for admission to the Specialist in Education degree.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 June 21, 1975, October 18, 1975, January 17, 1976, and on June 12, 1976. 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 week's prior to taking the test.

Students entering a degree program within the College of Education will be expected to meet the requirements of the officially approved program in effect at the time of their admission. The student's adviser, however, has the prerogative of waiving specific course requirements on the basis of the student's previous experience, education and professional goals.

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, chaired by the Assistant Dean of the Graduate School, 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.

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.

Research. A Specialist Degree Practicum (IS or Departmental Prefix 701) is required.¹ The preliminary outline for the written report of the Specialist Degree Practicum shall be under the direction and approved by the Supervising Committee. The approved preliminary outline shall be filed in the Graduate School Office by the end of the eighth week of the second quarter. (*See Graduation Requirements for filing of the written report of the practicum.*)

Paper Standards for Dissertations, Theses, et cetera, are stated on page 12.

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 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 in 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 Dean of the 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. National and international study courses organized on the UNC campus with appropriate number of hours will be accepted as meeting one of the quarters of the residency requirement.

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.* National and international study courses which are organized on the UNC campus and which are numbered 500 or above shall satisfy 12 hours of the 24 hours. 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

¹ The 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.

(courses open to juniors and seniors). A student in a Specialist in Education program may count up to 30 hours in a 90 hour program with departmental and major adviser approval. Educational Field Experiences courses bearing catalog numbers of 499 or below, EDCI 341 and IS 422 may *not* be taken for graduate credit.

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 and the Dean of the Graduate School.

3. At least 17 days before the end of the quarter in which the student plans to graduate, four copies of the approved written report of the practicum 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.

Paper Standards for Dissertations, Theses, et cetera are stated on page 12.

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." The comprehensive examination may *not* be taken until the student has completed at UNC at least 28 quarter hours, not including the practicum, with a grade average of at least 3.00 and has the approval of his major adviser and the Graduate School Office. 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

The University of Northern Colorado offers programs leading to the Doctor of Arts (D.A.), the Doctor of Education (Ed.D.), and the Doctor of Philosophy (Ph.D.) degrees. The Doctor of Philosophy degree, traditionally granted as the highest research degree by many American universities was authorized by the Board of Trustees in 1929. 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 Doctor of Arts degree was first offered in 1970 and 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 program 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 and also a Seminar in Teaching of his specific discipline.

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 quarter hours of graduate credit. He will be admitted if his previous academic average is 3.00 (B) or better on the most recent 100 quarter hours, 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 Mathematics 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

Students entering a degree program within the College of Education will be expected to meet the requirements of the officially approved program in effect at the time of their admission. The student's adviser, however, has the prerogative of waiving specific course requirements on the basis of the student's previous experience, education and professional goals.

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

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.

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 committee member, other than the Faculty Representative, is not available during the quarter in which the major adviser wishes to hold the Oral Comprehensive Examination, The Dissertation Outline Defense, or the Dissertation Defense, the major adviser shall request the Graduate School Dean to appoint a specified replacement for the missing committee member. The appropriate Department Chairman or School Dean must endorse the request that the Graduate Dean appoint the specified replacement. 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 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; 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 chaired by the Assistant Dean of the Graduate School 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 (IS 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

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 filed in the Graduate School Office. (*See Graduation Requirements for filing of approved dissertation.*)

Paper Standards for Dissertations, Theses, et cetera are stated on page 12.

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. Meet the research tools requirement in programs requiring such competence. 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.

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.

Residence requirements must be completed after the candidate has been admitted to the doctoral degree program. National and international study courses organized on the UNC campus with appropriate number of hours may be accepted as meeting one of the quarters of the residency requirement.

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 cannot be used to meet the requirement that 36 hours of the course work must be in courses number 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 Dean of the 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 in Greeley*. National and international study courses which are organized on the UNC campus and which are numbered 500 or above shall satisfy 18 hours of the 36 hours (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). Educational Field Experiences courses bearing catalog numbers of 499 or below, EDCI 341, and IS 422 may *not* be taken for graduate credit.

2. 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.)

3. 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 the quarter.*)

- (a) *Comprehensive written and oral examinations covering course work.* These examinations will take place after the student has successfully completed at least 55 quarter hours of work beyond the master's of which at least 36 quarter hours must have been completed at UNC with a grade average of at least 3.00 (81 hours if the student enters the program with only a baccalaureate degree) and has been encouraged to continue in the doctoral program. 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.

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 oral comprehensive committee must be appointed no later than the end of the quarter *prior* to the requesting of an oral examination.

The oral comprehensive examination shall be administered except in those cases in which the student has failed the written comprehensive examination. 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 at least ten calendar days *prior* to the examination). The time and place of the oral comprehensive examination shall be announced in the University 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 students 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 condi-

tions 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 University 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.

- 4 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.

Paper Standards for Dissertation, Theses, et cetera are stated on page 12.

5. 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.

6. 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.

7. 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 p.m. 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 post-doctoral 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 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.

The Center for Non-Traditional and Outreach Education

Robert O. Singer, Associate Dean and Director

Richard J. Wood, Associate Director

Clarence O. Haeker, Director of Off-Campus Instruction

Bobbe L. Davey, Assistant Director of Off-Campus Instruction

John A. Ketchum, Director of Outreach Administrative Services

The Center houses all off-campus programs in one administrative unit. Through it, the University offers:

- a. off-campus classes
- b. multi-media learning packages
- c. external degree programs

Off-campus classes are given in various parts of the state primarily as a service to public school teachers and school systems. Multi-media learning packages are provided for the convenience of students wishing to earn university credits who cannot attend classes either on or off the campus. Whenever feasible, the Center also tailors, for schools in Colorado, external degree programs.

In addition, the Center exercises academic management and coordination for the *Center for Special and Advanced Programs, (CSAP)*, which has been created to meet the educational needs of the employed adult. Its programs are designed to enable students to obtain degrees without undue interference with full-time

employment. This 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.

Periodically, the Center, through the School of Education, will also offer classes or workshops on campus dealing with the whole field of non-traditional education.

For detailed information and special catalogues dealing with the various responsibilities of the Center, address inquires to the Associate Dean and Director of the Center for Non-Traditional and Outreach Education, University of Northern Colorado, Greeley, Colorado 80639, or call 303-351-2891.

FEES AND EXPENSES

All rates quoted below are established for 1974-75 and are subject to a provision that the University reserves the right to change tuition, fees and other charges without notice. 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.

Be sure to check for revised information concerning tuition and fees prior to registration either by writing the Office of Public Services or by contacting the Office of Administrative Services at (303)351-2208.

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:		
Tuition, Per Credit Hour of Enrollment	\$16.00	\$30.00
*Student Services Fees	11.00	11.00
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More than Six Credit Hours:		
Tuition	\$110.00	\$441.00
**Health Insurance	12.50	12.50
*Student Services Fees	34.00	34.00
Total	\$156.50	\$487.50

SUMMER QUARTER

Six Credit Hours or Less:		
Tuition, Per Credit Hour of Enrollment	\$16.00	\$30.00
*Student Services Fees	11.00	11.00
<i>(\$11.00 charge does not apply to workshops of less than an 8-week duration.)</i>		
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More than Six Credit Hours:		
Tuition	\$120.00	\$480.00
*Student Services Fees	33.00	33.00
Total	\$153.00	\$513.00

Off-Campus Instruction***

	Tuition Per Credit Hour of Enrollment
Group Instruction****	\$16.00
Multi-media Learning Package	.16.00
IS or Departmental Prefix 799***	
Doctoral Dissertation	\$16.00

*Student Services Fees are committed for the support of student activities programs, the Student Health Center, and Associated Student government. No part of these fees is remitted to those students who may not desire to make use of any or all of the privileges provided. Full-time students receive I.D. cards validated for admission to campus athletic events, performing arts productions, selected lectures and other events as specified for admission under the I.D. card.

**Health insurance coverage is required for all students who register for seven academic hours or more each quarter, except summer. Details of this coverage may be obtained from the Student Health Center.

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

****When group instruction involves a sequential program or external degrees, additional program fees may be charged.

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 Law--Colorado Revised Statutes 1966, as amended, 1973. Administrative procedures fix status before or at the time of registration. 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.

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	.5.00
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
Meal Ticket Replacement	.5.00
Official Transcript of University Records, per copy	.1.00

*Optional Student Health Insurance Coverage Summer Quarter Only	14.50
(If a student was not enrolled full-time -- for more than six credit hours -- Spring Quarter, 1975 he does not have health insurance coverage for the Summer Quarter of 1975.)	
Special Billing: Assessed when an itemized invoice of an account is requested by the student or a supporting agency	1.00
*This insurance can be obtained <i>only</i> by requesting coverage at registration or at the Student Health Center during the first week of the quarter.	
Special Program Fees such as bowling, skiing, field trips, golf, etc.	At Cost
Special Tests by the Counseling Service	At Cost
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)	20.00
Comprehensive Examination Retesting Fee	10.00
Foreign Language Examination required for doctoral program	10.00

*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 September 1 and ends August 31)

Initial enrollment	\$10.00
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Re-enrollment	10.00
First and subsequent copies of credentials mailed when applicant has not re-enrolled, per copy200
Telephone calls, postage for Air Mail and Special Delivery are billed at actual cost.	

Residence Hall Charges

All rates quoted are subject to a provision that the University reserves the right to change rates prior to the beginning of any academic quarter.

RESIDENCE HALLS WITH ROOM AND BOARD (Occupancy: Two persons per room)	Quarterly Rates per Student
Harrison, McCowen, Wilson, Wiebking	\$390.00
Belford, Tobey-Kendel, Sabin, Snyder .....	.375.00
Cross, Hadden, Hays, Troxel .....	.370.00

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

Turner Hall	\$185.00
Lawrenson Hall .....	.200.00

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

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

	Summer Quarter
Turner Hall	\$350.00
Lawrenson Hall .....	.400.00

	Monthly
Student Family Apartments, East Campus, leased on 12-month contract (Includes furnishings and utilities)	\$120.00

Policy on Reassessments, Refunds, Retentions on Withdrawal

Adjustments in tuition or fees are permitted after registration only under specified conditions. In most circumstances 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 policy statements below 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.

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.
Communication	M.A., Ed.S.
Curriculum and Instruction	M.A., Ed.S., Ed.D.
Earth Sciences	M.A.
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.
Foreign Languages	M.A.
Geography ¹	M.A., D.A.
Gerontology	M.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., D.A.
Physics	M.A.
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.
Theatre Arts	M.A.
Zoology	M.A.

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.

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.

¹Candidates taking this supporting area must earn 24 quarter hours in this discipline.

Anthropology

Master of Arts Degree

A concentration in Anthropology is offered within the Social Science Master of Arts Degree. See Social Science, page 119.

In addition to the General Graduate School admission requirements for entrance, see page 17, the Anthropology Department reserves the right to screen candidates for admission to the program.

The Anthropology Department participates in the UNC Program in Florence: Studies in Comparative Arts, see page 80.

Biological Sciences

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

Master of Arts Degree (Secondary Teaching)

This degree program is designed to improve the teaching skills of secondary level biology teachers.

Prerequisites:

1. A bachelors degree in biology, botany or zoology including teacher education courses required for certification at the secondary level.
2. A student may be admitted to this program without one of the above degrees or certification but course and/or certification deficiencies must be made up in addition to the required minimum program.

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Requirements:

SCED	672	Science Curriculum in the Secondary School	3
SCED	681	Problems in Teaching Biology	4
BIO	691	Seminar in Biological Sciences	3
BIO	692	Special Topics in Biology	3
BIO	694	Foundations of Biological Research (Should be taken as soon as possible after beginning of graduate program.)	3
BIO	697	Graduate Research	2
		Electives	27
		Minimum program	45

All electives must be approved by the student's Biological Sciences Advisory Committee. The electives should be chosen to assure an understanding of the basic principles of both botany and zoology. In his degree program a student may count no more than 15 hours of work in courses numbered at the 300 and 400 levels. A proficiency in chemistry through general biochemistry is strongly recommended.

A thesis is not required for this program. A written comprehensive exam must be taken to demonstrate a broad understanding of the fields of biology, botany and zoology.

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	692	Special Topics in Biology	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	681	Effective Teaching (Forum)	3
BIO	755	Doctoral Supervised Teaching	6

Professional Requirements:

BIO	799	Doctoral Dissertation	18
RSM	505	Statistical Inference	5

Recommended Electives:

SCED	672	Science Curriculum in the Secondary School	.....3
SCED	674	Instructional Problems in Teaching Science	.....3
SCED	676	Evaluation of Classroom Performance 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	692	Special Topics in Biology	.....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 BIO 699)	.....36
			<u>45</u>

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

Business

The degree of *Master of Arts*, is offered in Business Teaching and in Business.

The degree of *Specialist in Education* is offered 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.

Sometime prior to the completion of any graduate degree program offered by the School of Business (except any in Journalism), the student must have satisfied the typical undergraduate business core course requirements (per the Undergraduate Catalog or an equivalent consistent with the American Assembly of Collegiate Schools of Business--AACSB--recommendations). Implicitly, these core courses are minimal prerequisites for graduate courses in the particular subject areas.

Master of Arts Degree in Business Teaching

General Requirements:

BUS	600	Introduction to Graduate Study	.....	.3
BUS	602	Foundations of Business	.....	.3
BEVE	672	Curriculum Construction for Business Teachers	.....	.3
		One Improvement of Instruction Course	.....	.3
				<u>12</u>
		Business or Business Teacher Education Courses	.....	.24
		(One-half of the courses must be at the 500 or 600 level. One-half of the courses must be in the content area.		
		Restricted Electives	.....	.9
				<u>45</u>

During the student's first quarter on campus he will select a major adviser. The student and the adviser will select a committee of two more faculty members, one of whom shall be from the student's area of content specialization. The student and the committee will develop the student's program of study during his first quarter in residence.

In addition to the above requirements, the student must have completed at least one year of successful experience as a business teacher or an internship in business teaching prior to receiving the degree.

Master of Arts Degree in Business

General Requirements:

BUS	592	Statistical Analysis for Business	.....	.4
BUS	600	Introduction to Graduate Study	.....	.3
				<u>7</u>

Graduate Business Requirements:

Students must take at least 24 quarter hours of graduate-level courses in business (courses with BUS prefix at the 500 or 600 level), 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 adviser.

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 take previously)
ID	799	Doctoral Dissertation .....18
BEVE	701	Seminar in Analysis of Research in Business Teaching .....5
BEVE	702	Issues and Trends in Business Teaching .....3
BEVE	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 at the 500, 600, or 700 level and beyond the master's degree level), 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 adviser.

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. 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 or graduate credit will not be allowed.

Requirements:

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

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

CHEM	501	Special Topics in Inorganic Chemistry	3
CHEM	502	Advanced Inorganic Chemistry	3
CHEM	508	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
			18
CHEM	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)

This degree program is intended to meet the needs of teachers in the improvement of instruction.

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
CHEM	599	Seminar in Chemistry	12-15
		Electives (with approval of major adviser)	3-4
			4-8
			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	4
CHEM	495	Seminar in Teaching Chemistry	2
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	2
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	654	Statistical Thermodynamics	3
CHEM	657	Special Topics in Physical Chemistry	2
CHEM	658	Quantum Chemistry I	2
CHEM	659	Quantum Chemistry II	2
SCED	674	Instructional Problems in Teaching Science	3
SCED	676	Evaluation of Classroom Performance in Science	3
SCED	777	Evaluation and Testing in Science	3
SCI	676	History of Science	3

The Chemistry Department recognizes that the educational needs of each candidate for this degree will be unique. Careful program planning with the chemistry adviser will enable the student to design a program suited to his needs. This may include courses outside of the fields of chemistry and science education such as bilingual bicultural education, psychology, special education, and research and statistical methodology when they are appropriate.

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. A student successfully completing this program will be well qualified to teach chemistry at the junior (community) or senior college level.

Admissions Requirements:

1. Meet general Graduate School admission requirements.
2. Have completed sufficient prerequisites to enroll in recommended major and professional courses listed below.
3. Have completed at least twelve hours of physics and mathematics through integral calculus.

4. Take written qualifying examinations in four areas of chemistry to determine the student's strengths and weaknesses.

If these requirements are not fulfilled, a student may be admitted on a provisional basis. The deficiencies must be removed as soon as possible in order for graduate credit to be allowed for courses taken.

Degree Requirements:

A candidate for the degree must complete 135 quarter hours of graduate credit if he enters the program with the baccalaureate degree; 90 quarter hours with the masters degree.

Any of the required courses or their equivalents listed below 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.

1. General requirements:

All of these requirements are to be completed by the candidate. The teaching internship, CHEM 755, will be carried out at the University of Northern Colorado or at a junior college under the supervision of the chemistry faculty at the University of Northern Colorado (number of hours will depend upon background of candidate).

CHEM	390	Chemical Literature	1
CHEM	599	Seminar in Chemistry	4-6
ID	702	Seminar in College Teaching	3
CHEM	755	Supervised Practicum in College Teaching	3-9
CHEM	799	Doctoral Dissertation	18

2. Recommended major courses:

The candidate must select from the following (with the approval of his adviser) those courses which will afford a knowledge in four fields of chemistry: inorganic, organic, analytical, and physical.

CHEM	401	Inorganic Chemistry II	3
CHEM	414	Instrumental Methods of Analysis	5
CHEM	431	Organic Qualitative Analysis	3
CHEM	451	Physical Chemistry I	4
CHEM	452	Physical Chemistry II	4
CHEM	453	Physical Chemistry III	4
CHEM	455	Physical Chemistry II Laboratory	1
CHEM	456	Physical Chemistry III Laboratory	1
		or	
			15
CHEM	551	Principles of Physical Chemistry I	6
CHEM	552	Principles of Physical Chemistry II	6
			12
CHEM	457	Selected Topics in Physical Chemistry	2
CHEM	495	Seminar in Teaching Chemistry	2
CHEM	501	Special Topics in Inorganic Chemistry	3-6
CHEM	502	Advanced Inorganic Chemistry	3
CHEM	503	Organometallic Chemistry	3
CHEM	511	Special Topics in Analytical Chemistry	2-6
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	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	654	Statistical Thermodynamics	3
CHEM	657	Special Topics in Physical Chemistry	2-6

CHEM	658	Quantum Chemistry I	2
CHEM	659	Quantum Chemistry II	2
PHYS	466	Electricity and Magnetism II	3
PHYS	468	Atomic Physics	5
PHYS	469	Nuclear Physics I	5
PHYS	567	Optics II	4

3. Recommended professional courses:

The candidate is expected to be informed in the field of professional science education and some of the significant research in this area.

RSM	504	Descriptive Statistics	4
RSM	505	Statistical Inference	5
SCED	672	Science Curriculum in the Secondary School	3
SCED	673	Seminar in Science Education Research	3
SCED	674	Instructional Problems in Teaching Science	3
SCED	676	Evaluation of Classroom Performance in Science	3
SCED	678	Science Education Seminar	1-6
SCED	682	Problems in Teaching Chemistry	4
SCED	777	Evaluation and Testing in Science	3

4. Final examination.

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:

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	<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

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 660 The College and the Student	3
CSPW 661 Philosophy and History of College Student Personnel Work	3
CSPW 662 Student Housing	3
CSPW 663 College Counseling and Health Services	3
CSPW 664 Admissions and Records	3
CSPW 665 Student Government, Activities and Sponsorship	3
CSPW 666 Placement Service	3
CSPW 667 Financial Aids	3
CSPW 668 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 669 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 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

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 take 12 quarter hours of statistics.

F. 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.

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

Communication

Master of Arts Degree

Communication

The master's program in Communication is a multipurpose program which offers a broad range of choices to the prospective candidate. Those who choose a teaching emphasis shall design their program in consultation with an advisory board to meet the needs of teachers at all instructional levels. Those who choose an emphasis other than teaching shall design their program in consultation with an advisory board to attain the varied professional goals of individual students (i.e., human relations specialists, media specialist, etc.).

Candidates should formulate their program in consultation with their advisory board in accordance with the following requirements for the major:

1. The master's candidates must complete a minimum of 45 quarter hours, of which a minimum of 30 hours must be communication courses.
2. The student may count in his degree program up to 15 quarter hours of work in courses numbered in the 300-400's. Graduate credit will be given in the 300-400 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 300 level.
3. The student may count in his degree program up to 15 hours of credit for thesis research or intern experience.
4. The student in consultation with the adviser, must select an advising board in his first quarter composed of three faculty members, at least one of whom is tenured. Further, if the candidate selects a human relations emphasis, one member of his board must be from outside this department. The student will then design a program for study in conjunction with the above board.
5. All candidates shall complete the core and select one of two emphasis areas outlined below.

Communication Core

Hours Credit

COMM	600	Introduction to Communication Research	3
COMM	603	Seminar in Research	3
		or	
COMM	510	Internship in Communication	3
			6

I. Human Relations Emphasis: (9 hours required).

Hours Credit

COMM	521	Seminar in Communication	3
COMM	522	Interpersonal Communication: Theory	3
COMM	524	Organizational Communication	3
COMM	620	Communication Theory	3
COMM	624	Seminar in Human Relations	3
COMM	666	Persuasion	3
			<u>9-18</u>

Communication Core6-6

Electives in Communication or Related Discipline30-21

1. Students with the consent of their advisory board shall select a minimum of three courses from outside the discipline. Suggested courses for selection include the following:

SOC	610	Seminar in Social Psychology
PCG	762	Group Dynamics in Human Relations
JOUR	544	Community Relations
HPER	508	Workshop: Contemporary Issues in Drug Abuse
JOUR	595	Philosophies and Procedures of Public Relations
PCG	650	Psychology of the Healthy Personality
ANT	600	Introduction to the Concept of Culture
EDF	690	Advanced Topics: Ethics and Human Relations
ANT	637	Seminar in Cultural Anthropology
SOC	520	Seminar in Marriage
SOC	625	Seminar in the Sociology of Mental Health and Illness
SOC	602	Seminar in Perspectives in Sociology

2. Other courses determined by the student in consultation with the advisory board.

II. Teaching or Media or Rhetoric Emphasis:

			<i>Hours Credit</i>
COMM	620	Communication Theory	3
COMM	660	Philosophical and Rhetorical Origins of Oral Communication	3
COMM	664	Seminar in Rhetorical Criticism	3
COMM	680	Teaching Communication	3
		<i>or</i>	
COMM	584	Current Trends in Teaching Communication	3
			3
			12
Communication Core			6
Elective in Communication or related discipline			27
(i.e., Educational Media, English, etc.)			45

Specialist in Education Degree

Communication

The program anticipates the development of a new type of position -- a 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.

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 a given content area.

			<i>Hours Credit</i>
RSM	600	Introduction to Graduate Study (for departmental substitute)	3
EDCI	661	Secondary Instruction	3
EDCI	662	The Development of Instructional Practice	3
EDCI	666	Foundations for Curriculum Development	3
A <i>minimum</i> 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
VE	614	Career Development Theories	3
EDEC	648	Psycholinguistics in Early Childhood	3

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

EDF	485		
or	585	Philosophy of Education	3
EDEM	410	Introduction to Educational Resources	5
or			
VE	616	Performance-Based VE Curricula	5
PCG	670	Principles and Practices in Testing and Measurement	3
or			
RSM	504	Descriptive Statistics	4
PCG	602	Foundations of Guidance	3
or			
VE	610	Foundations of Vocational Education--Advanced Seminar	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
EDCI	560		
or	660	Professional Roles and Responsibilities	3
EDRD	627	Remedial Reading in the Secondary School	4
EDCI	667	Modern Curricular Programs	3
EDEL	612	The Elementary School Curriculum	3
PCG	655	Mental Hygiene	3
RSM	504	Descriptive Statistics	4
EDFE	640	Supervision of Educational Field Experiences	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 understanding and competencies.

EDAD	520	School Law I	3
EDRD	521	Reading in the Content Fields	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	667	Modern Curricular Programs	3
EDCI	668	Seminar in Curriculum and Instruction	Max. 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	667	Modern Curricular Programs	3
EDCI	668	Seminar in Curriculum and Instruction	Max. 9

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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.

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.

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
RSM	603	Analysis of Variance and Covariance	3
EDFE	750	University Roles in Educational Field Experiences	3

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.

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	667	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.

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.

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.

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
EDFE	640	Supervision of Educational Field Experiences	3
EDFE	750	University Roles in Educational Field Experiences	3

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 programs of the public schools.

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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.

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	667	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.

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

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.

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.

RSM	504	Descriptive Statistics .....	.4
RSM	506	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 Measurement	3
PCG	671	Aptitude and Achievement Analysis	5
EDFE	750	University Roles in Educational Field Experiences	3

Support Areas: 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 areas, 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.

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	667	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.

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.

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 instruction program of the school system.

RSM	504	Descriptive Statistics	4
RSM	505	Statistical Inference	5
RSM	608	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 Educational Field Experiences	3
EDFE	750	University Roles in Educational Field Experiences	3

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, as well as, the administration of field experiences program.

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

EDFE	601	Educational Field Experiences Practicum	Max. 4
EDFE	622	Independent Study in Educational Field Experience	Max. 4
EDFE	640	Supervision of the Educational Field Experience	3
EDFE	740	School Roles in Educational Field Experiences	3
EDFE	750	University Roles in Educational Field Experiences	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

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.

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	667	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.

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 ad-

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ministration of a school system's instructional program.

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.

RSM	504	Descriptive Statistics	4
RSM	505	Statistical Inference	5
RSM	713	Planning and Methodology of Research	3
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 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>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.

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.

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	667	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.

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.

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.

RSM	504	Descriptive Statistics	4
RSM	505	Statistical Inference	5
RSM	713	Planning and Methodology of Research	3
PCG	563	Sociodrama	2
PCG	564	Sociometry	2
PCG	670	Principles and Practices of Testing and Measurement	3

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PCG	671	Aptitude and Achievement Analysis5
EDRD	521	Reading in the Content Fields3
EDRD	627	Remedial Reading in the Secondary Schools .....	.4

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

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>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	667	Advanced Curriculum Programs .....	.3
EDCI	668	Seminar in Curriculum and Instruction	Max. 9
EDCI	768	Advanced Seminar in Curriculum and Instruction	Max. 9

Earth Sciences (Astronomy, Geology, Meteorology, Oceanography)

Master of Arts Degree

This program provides an opportunity for graduate study in the earth sciences. It is designed to be as flexible as possible in order to accommodate the interests and goals of each individual. In consultation with the faculty each student will design a curriculum suited to his particular needs. The department is interdisciplinary, and students will be encouraged to deepen their understanding of all areas of earth science. A thesis is optional.

Departmental Requirements:

			<i>Hours Credit</i>
ESCI	500	Earth Science Research .....	.3
			(Substitute for ID 600)
			Course of study as determined by the student
			in consultation with the faculty
			<u>.42</u>
			45

Economics

Master of Arts Degree

A concentration in Economics is offered within the major in Social Science. See Social Science, page 119.

Educational Administration

In addition to the degree programs described below, various certification programs are available. Completion of an approved certification program constitutes the basis for institutional recommendation for administrative certification in Colorado as well as many other states. Further information about certification requirements may be obtained from the department.

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. The student's adviser, however, has the prerogative of waiving specific course requirements on the basis of the student's previous experience and education.

Master of Arts Degree

All M.A. students must meet the following course requirements: *Hours Credit*

EDAD	600	Introduction to Research in Educational Administration	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 Courses related to design, planning, implementation, and evaluation of curriculum	3 9

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

			<i>Hours Credit</i>
EDAD	670	Elementary School Organization, Administration, and Supervision	4
PCG	603	Guidance in the Elementary School Electives in Psychology	3 3-6

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

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
SCED	671	Science Curriculum in the Elementary School Electives to complete graduation requirements	3 3

Junior High School Administration

PCG	602	Foundations of Guidance	3
EDCI	664	Seminar in Junior High School Instruction	3
EDAD	671	Secondary School Organization, Administration, and Supervision Electives in Psychology Electives to complete graduation requirements	4 3-6 3-6

Secondary School Administration

PCG	602	Foundations of Guidance	3
EDAD	671	Secondary School Organization, Administration, and Supervision Electives in Psychology Electives to complete graduation requirements	4 3-6 3-6

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.

EDHI	651	Higher Education in the United States	.....3
EDHI	663	The Junior and Community College	.....3
CSPW	655	Student Government, Activities, and Sponsorship	.....3
		or	
CSPW	657	Financial Aids	.....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>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	690	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:

ERDR	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:

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 requirement's 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:

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	690	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:

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

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:

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:

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:

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, or a comparable course is to be taken before or concurrent with entrance in the program.

Hours Credit

RSM	600	Introduction to Graduate Study	3
		<i>or</i>	
ID	600	Introduction to Graduate Study	3
EDEM	601	Practicum	4
EDEM	610	Instructional Technology, Philosophy, Theory, and Practice	3
		<i>or</i>	
PCG	541	Theories of Learning	5

One of the following courses:

EDCI	661	Secondary Instruction	3
EDCI	663	Curriculum in the Junior High School	3
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	4-6
		<i>Library Science (Speciality)</i>	
EDEM	434	Reference Materials: Basic School Reference Service	3
EDEM	530	Classification and Cataloging I	3
EDEM	531	Classification and Cataloging II	3
		Electives	4-6
		<i>Technology (Speciality)</i>	
EDEM	460	Television in Education	4
EDEM	620	Production of Photographic Teaching Materials	3

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EDAD	630	School Plant Planning	3
COMM	340	Introduction to Television Production	4
		Electives	1-3
		<i>Instruction-Generalist</i>	
EDEM	Electives 1-3		
		Subject Area Electives	15-20

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 Outdoor Laboratory School Programs conducted in the University Laboratory School, in the public schools and in outdoor education centers. An opportunity to participate in adventure education programs 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 the Outdoor Education Program.

One of the following:			<i>Hours Credit</i>
EDCI	661	Secondary Instruction	3
EDCI	663	Curriculum in the Junior High School	3
EDCI	666	Foundations for Curriculum Development	3
EDEL	612	The Elementary School Curriculum	3
EDEM	410	Introduction to Educational Resources	5
EDEM	575	Organization and Administration of the Educational Resource Center	5
		<i>or</i>	
OED	651	Organization and Administration of Outdoor Education Programs	4
EDEM	600	Introduction to Graduate Study	3
		<i>or</i>	
OED	652	Research Seminar in Outdoor Education	3
EDEM	610	Instruction-Technology: Philosophy, Theory and Practice	3
		<i>or</i>	
PCG		Theories of Learning	5
EDEM	695	Trends and Issues in Educational Media	3
EDEM	695	Trends and Issues in Educational Media	3
		<i>or</i>	
OED	650	Philosophy and Principles of Outdoor Education	3
OED	450	Programs in Outdoor Education	3

Electives: To be selected with advisement from the courses listed below to attain knowledge and competency to complete the students interdisciplinary preparation in Outdoor Education.

BIO	501	Environmental Conservation	4
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
EDF	565	Social and Cultural Differences in Education	3
EDSE	480	Outdoor Education for the Handicapped	3
ENST	361	Art and the Environment	3
GEOG	592	Field Course in Geography	3-15
HPER	460	Outdoor Recreation	4
		<i>or</i>	
HPER	550	Environmental Health	3

ID	601	Practicum in Outward Bound	4
		<i>or</i>	
ID	601	National Outdoor Leadership School Program	4
JOUR	496	Opinion Formation	3
MUS	315	Music and Recreation	2
OED	350	Education for Leisure Through Outdoor Education	4
OED	508	Workshop in Outdoor Education	3
OED	550	Internship in Outdoor Education	18
RSM	504	Descriptive Statistics	4

A Specialist in Education Degree Program in Outdoor Education is available (See page 21) and a Supporting Area or Minor in Outdoor Education (See page 37 at the Doctoral Level is offered through advisement with the Coordinator of the Outdoor Education Program.

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.

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, three courses in PSY 301-326, 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.

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

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	406	Literature for Adolescents	3

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 406.

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 Research and the 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	406	Literature for Adolescents	3

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.

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
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.

Hours Credit

EDRD	654	Reading Center Internship: Reading Clinic, College Reading, Adult Literacy	Max. 9
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EDRD	701	Specialist Degree Practicum8
EDRD	745	Seminar in Reading3
RSM	504	Descriptive Statistics4
RSM	505	Statistical Inference .....	.5

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 and an elementary education course preferably with the adviser 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.

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	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
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, 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.

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

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.

RSM	504	Descriptive Statistics .....	.4
RSM	505	Statistical Inference .....	.5

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

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.

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
SCED	677	Seminar in Modern Developments in School Science	.....3

Elementary Education: Early Childhood Education

The following are required:

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

2. Background course requirements. Students lacking appropriate background in elementary education must fulfill additional course requirements.

3. Core course requirements.

A. Instructional techniques (24 quarter hours).

EDEC	648	Psycholinguistics in Early Childhood	.....3
*EDEC	660	Critical Issues in Kindergarten Education	.....3
*EDEC	664	Seminar in Early Childhood Education	.....3
EDEL	612	The Elementary School Curriculum	.....3
EDEL	615	Seminar in Elementary Education: Planning for Change	.....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
EDRD	612	Reading in the Primary Grades	3
EDRD	614	Literature in the Elementary School	2
EDRD	645	Seminar in Research and the Analysis of Reading Programs	3
EDRD	745	Seminar in Reading	3

B. Child development and family relations (9 quarter hours).

CD	533	Research in Child Development	3
CD	536	Seminar in Child Development	3
*EDEC	662	Research in Early Childhood Education	3
PCG	530	Child and Adolescent Psychology	3
PCG	631	Psychology of Early Childhood	3
PCG	632	Child Psychology	3

C. Diagnostic techniques (6 quarter hours).

EDCI	551	Problems in Teaching Minority Groups	3
EDEC	667	Nursery Schools for the Disadvantaged	3
EDRD	642	Teaching the Bicultured to Read	3
EDSE	627	Methods of Teaching Learning Disabled Children	3
EDSE	628	Seminar in Education of Learning Disabled	3

D. Research tract (27 quarter hours).

*EDEC	799	Doctoral Dissertation	18
*RSM	504	Descriptive Statistics	4
*RSM	505	Statistical Inference	5

E. Field experiences (9 quarter hours).

EDEC	601	Practicum	3-9
EDEC	755	Supervised Practicum in College Teaching	3-9

*Required courses.

4. Electives to complete a total of 90 quarter hours. In consultation with adviser select electives in elementary education and reading, child development and family relations, psychology and/or diagnostic techniques.

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:

1. RSM 504 is 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.

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 Research and the Analysis of Reading Programs	3
EDRD	650	Remedial Reading Case Study	3

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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	406	Literature for Adolescents	3
RSM	504	Descriptive Statistics	4
RSM	505	Statistical Inference	5

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.

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 Research and the 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	406	Literature for Adolescents	3
PCG	507	Counseling Theories	3
PCG	541	Theories of Learning	5
PCG	632	Child Psychology	3
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

English

Master of Arts Degree

As a minimum requirement, the student will take ENG 600, Introduction to Graduate Study, 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.

Teaching Option -- To increase the flexibility of this program for teachers and to provide further work to help them improve their instructional skills, a block of pedagogical course work (9 to 15 hours) is recommended. The student and his adviser will work out an individualized block of courses from these areas:

- a. Bilingual Bicultural Education
- b. Curriculum and Instruction
- c. Educational Administration
- d. Educational Media
- e. Educational Foundations
- f. English Education
- g. Psychology
- h. Special Education
- i. Research and Statistical Methodology

ENG 600 stresses the use of bibliographical tools for research and writing about literature and language (from the short essay to the dissertation).

There will be enough individually designed exercises to assure familiarity with the UNC library, library facilities in general and the major professional journals and bibliographical resources. The emphasis on bibliography and research includes the student's practical use of those skills in several short critical essays. The course culminates in one major project which each student will arrange in consultation with the professor.

Doctor of Education Degrees

The English Department offers two programs leading to the doctorate. One of these 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 one research tool 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 speciali-

zations 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
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	4
ENG	403	Techniques of the Novel	5
ENG	404	Modern Literature about Childhood and Adolescence	4
ENG	406	Contemporary American Drama	4
ENG	407	Forms and Meaning of Poetry	4
ENG	408	Elizabethan Drama Exclusive of Shakespeare	4
ENG	409	Literary Criticism	4
ENG	410	History of Ideas in Literature	4
ENG	321	Generative-Transformational Grammar	4
ENG	418	Grammatical Analysis	4
ENG	419	Advanced Topics in Syntax	4
ENG	420	Stylistics	4

(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	4
ENG	415	Literature of the Old Testament	4
ENG	416	Literature of the New Testament	4
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 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:

Foreign Languages

Master of Arts Degree in the Teaching of Foreign Languages

The degree of Master of Arts is offered in Foreign Language Teaching. Applicants must possess a B.A. in Foreign Languages or the equivalent and should already have achieved a spoken and written command of the language they have chosen. An examination of this ability will be administered upon entrance and any deficiencies should be made up before the student enters the program.

A minimum of 45 quarter hours is required for a Master of Arts in the Teaching of Foreign Languages.

Departmental Requirements

1. The candidate must have completed one year of teaching experience before admission into the program.
2. The course of study leading to the M.A. in the Teaching of Foreign Languages shall consist of 45 quarter hours of which at least 33 quarter hours must be on the graduate level, viz., courses numbered 500 or above. The remaining courses can be at the 300-400 level.
3. The language of specialization must be one of the languages offered at UNC.
4. Related courses outside the immediate field of the foreign languages -- Linguistics, Anthropological Linguistics, Teaching Minorities, etc. -- will count among the major courses.
5. The acceptability of credit for courses taken at other institutions will be determined by the department.
6. Candidates may study abroad with the Foreign Language Department's Study Abroad Program if it is deemed desirable, especially if the candidate has never been in a country where the language is spoken.

Hours Credit

Courses in the Foreign Language Department to be chosen from the following:

FL	531	The Teaching of Foreign Languages	4
FL	532	The Teaching of Foreign Languages in the Elementary School	3
FL	601	Practicum	5-15
FL	510	Linguistics	3
FR	500	Problems in Oral French	3
GER	500	Problems in Oral German	3
SPAN	500	Problems in Oral Spanish	3
		Electives at the 300-400 level	0-10
			28

Course in other disciplines to be chosen from the following groups and counted toward the degree:

Group 1: A minimum of 6 hours, maximum of 11 hours with the following courses suggested:

EDCI	551	Problems in Teaching Minority Groups	3
EDCI	651	Teaching Minority Groups	1-4
EDCI	652	History, Philosophy and Organization of the Non-Graded School	3
EDCI	661	Secondary Instruction	3
EDCI	663	Curriculum in Junior High School	3
EDHI	653	The Junior and Community College	3
EDHI	654	The College and University Teacher	3
EDEM	410	Introduction to Educational Resources	5
EDEM	516	Utilization of Educational Resources	3
EDEM	520	Design and Construction of Audio-Visual Materials	3

Group 2: A minimum of 3 hours, maximum of 9 hours with the following courses suggested:

COMM	520	The psychology of Human Communication	3
EDEL	648	Psycholinguistics in Early Childhood	3
PCG	540	Psychology of Perception & Learning	5
PCG	670	Principles and Practices in Testing	3

Group 3: A maximum of 6 hours with the following courses suggested:

HIST	528	Seminar in Southwest History	3
HIST	555	Seminar in Latin American History	3
HIST	570	Seminar in the French Revolution and Napoleon	3
HIST	578	Seminar in Modern German History	3
HIST	588	Seminar in Modern European Intellectual History	3
ANT	537	Seminar in Cultural Anthropology	3
ANT	600	Introduction to the Concept of Culture	3
ANT	620	Spanish American Culture	3
		Total of possible hours to be accumulated in interdisciplinary Culture	17

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>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:

COMM	580	Critical Thinking	3
COMM	622	Seminar in General Semantics	3

Total Program: 24 quarter hours minimum.

Alternative B: Emphasis on Social Foundations of Education**Specific Course Requirements:**

EDF	785	Philosophical Foundations of Education	3
EDF	785	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
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 119.

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 and Park Administration
Gerontology

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:

			<i>Hours 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
			<u>45</u>

Physical Education (Men and Women)

The following are the required courses in the major:

HPER	602	Introduction to Research in Health, Physical Education, and Recreation	3
HPER	612	Evaluation in Health, Physical Education, and Recreation	4
HPER	626	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
			<u>45</u>

Recreation

The following are the required courses in the major:

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 adviser's professional objectives and complete deficiencies apparent following evaluation of previous college work)			22
			<u>45</u>

Gerontology

The following are the required courses in the major:

			<i>Hours Credit</i>
HPER	602	Introduction to Research	3
HPER	676	Seminar in Contemporary Problems	4
GERO	535	Organization, Operation, and Management of Gerontological Services	4
GERO	530	Recreation and the Aging Process	3
HPER	531	Health Aspects of Gerontology	3
GERO	534	Movement Problems in Geriatrics	3

EDSE	591	Community Resources of Older Adults	3
ANT	620	Spanish-American Culture	3
		Electives (to be selected with advisement to meet the student's professional objectives and complete deficiencies apparent following evaluation of previous college work and professional experience)	19
			<u>45</u>

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>Hours 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
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	<u>48</u>
			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, 623, 624, 626. Students desiring to specialize in Health Education or Recreation 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

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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:

EDHI	655	Seminar in Non-Traditional Programs in Higher Education	3
EDHI	656	Seminar in Higher Education Data Systems	2
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	740	School Roles in Educational Field Experiences	3
EDAD	621	The Law and Higher Education	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 64 hours.

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

4. 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
8. Great Britain and The British Commonwealth

Category III:

1. Asia and the Far East
2. Latin America
3. Africa

Should the candidate fail to pass two of his comprehensive examinations, 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.

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

6. 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.

7. 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 \$1,000.00 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 examina-

tion 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 72 graduate hours in history. The student will have a concentration in one of the following areas:

- a. United States
- b. European including Russia and the Soviet Union
- c. Asian
- d. Latin America
- e. Third World (Asia, Latin America, Africa)

The candidate will also have two secondary areas in History, normally drawn from outside his/her field of concentration. Such secondary areas, e.g., Europe Since 1789, Recent English History, Recent American Intellectual and Social History, are to be worked out in consultation with the chairman and the specific committee assigned to oversee the candidate.

5. In addition to the major requirements the candidate will, with the approval of the appropriate committee assigned to him, take an interdisciplinary, or specific department, minor of at least 18 hours which he must pass satisfactorily.

6. The candidate is also to demonstrate reading proficiency in two foreign languages, or one foreign language and demonstrated competence in a research tool, e.g., statistics.

7. Each student is required to complete History 681, Seminar in Teaching History in Junior Colleges or Colleges, History 799, Thesis, ID 702, Seminar in College Teaching, and History 755, Supervised Teaching.

8. 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.

9. 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 adviser.
3. Acceptance of a Master's Project by the faculty adviser 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>Hours Credit</i>
HEC	608	Directions in Home Economics .....	.1
ID	600	Introduction to Graduate Study .....	.3
HEC	699	Master's Project .....	.4

2. Subject Matter Programs

A student plans a program to meet his individual needs and interests with an opportunity for alternate 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 combine two subject matter areas of concentration in 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

Clothing

Consumer Education and Management

Food

Housing and Related Arts

Nutrition

Textiles

HEC	501	Art in Contemporary Living	3
HEC	508	Workshop in Home Economics	1-6
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	524	Family Communications	3
HEC	531	The World of Picture Books and the Child	3
HECV	532	Teaching Child Development and Family Relations	3
CD	533	Research in Child Development	3
HECV	534	Curriculum Development in Child Care Centers	3
CD	536	Seminar in Child Development	3
HECV	538	Internship in Child Care Centers	3-6
		(may be 2 quarters)	
CD	539	Issues in Parent Education	3
HEC	543	Food Preservation and Distribution	3
HEC	552	Nutrition Education	3
HECV	564	Advanced Techniques in Teaching Home Economics	4
HECV	565	Effecting Postitive Relationships Between	
		Home and School	3
HEC	571	Design for Shelter	3
HEC	572	Applied Home Furnishings	3
HEC	574	Man, Environment and Change	3
HEC	576	Housing and Family Needs	3
HEC	577	Interior Design Theories-Practicum	3
HEC	578	Survey of Furniture Design	3
HEC	581	Advanced Textiles	3
HEC	593	Field Experiences in Cultural Awareness	15
HEC	594	Advanced Techniques in Clothing Construction	3
HEC	595	Creative Dress Design	4
HEC	596	Dress Design in Draping	4

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HEC	597	History of Costume	3
HEC	599	Clothing Economics	3
HEC	601	Developmental Assessment of the Young Child	3
HEC	608	Directions in Home Economics	1
HEC	611	Current Trends in Home Management	3
HEC	622	Individual Studies	1-4
HEC	642	Advanced Experimental Foods	4
HEC	655	Research in Foods	4
HEC	657	Food Economics	3
HEC	659	Seminar in Nutrition	3
HECV	666	Supervision of Student Teaching in Home Economics	3
HECV	668	Curriculum in Home Economics	3
HECV	669	Evaluation in Home Economics Education	3
HEC	683	Fabric Analysis	4
HEC	689	Seminar in Clothing and Textiles	3
HEC	694	Tailoring	3
HEC	696	Advanced Fashion Design and Construction	3

Recommended Electives:

VE	509	Seminars in Vocational Education	Max. 6
VE	610	Foundations of Vocational Education	3
VE	612	Programs and Processes in Vocational Education	4
VE	614	Career Development Theories	3
VE	616	Performance-Based Curricula	5
VE	625	Program Proposals and Budgets	3
VE	630	Community and Adult Vocational Education	3
HECV	480	Occupational Home Economics	3
VE	690	Field Experience	1-12

Humanities

The Humanities Program offers workshops on the UNC campus and also participates in the UNC program in Florence: Studies in the Comparative Arts, see page 9 for a description of the latter program. Consult with the Director of Humanities for a list of humanities courses which will be offered during the respective quarters.

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 | E. Metalwork |
| B. Drafting | F. Power |
| C. Electricity-Electronics | G. Wood |
| D. Graphic Arts | |

Graduate students may include in their degree program a maximum of 15 hours of work in courses numbered in the 300's and/or 400's excluding workshops and individual studies.

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

Each student upon graduation at the master's level in industrial arts teacher education is required to have met the requirements of the Graduate Certification Program in Teacher Education as listed elsewhere in this catalog.

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 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 after the fourth week and during the fifth week of the last quarter in residence if possible. This means the third quarter or at a time when 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. Upon satisfactory completion of these additional hours the student will retake 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 program 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 will 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 make every effort to assign advisees to professors in the department who have the same area of interest. 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. These courses are required by the department and may count toward the industrial arts program of 48 hours. (RSM 504, Descriptive Statistics, is considered as a deficiency course and cannot be applied to the doctoral program.)

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. This comprehensive examination is approximately 12 hours in length and is administered during the fifth week of each quarter. Upon the successful completion of the written examination, the student will be given an oral examination by his committee.

Prior to taking the comprehensive examination, the student will declare to his adviser a technical area in which he feels competent. One portion of the examination will be used to measure the degree of competency attained.

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 one unbound copy of the dissertation to the department.
- C. 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 a technical area of industrial arts education.
2. IA 730 -- Research in Industrial Education, maximum of 6 hours credit.
3. Select courses planned in conjunction with the major adviser from the following list:

		<i>Hours Credit</i>
IA	530	Organization and Administration in Industrial Arts .....3
IA	531	A Critique of Modern Industrial Education .....3
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

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

Mathematics

Master of Arts Degree (Liberal Arts)

Each degree aspirant should complete two quarters of the modern 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 program 45

Master of Arts Degree (Mathematics Education)

The objective of the Master of Arts (mathematics education) program is to better prepare teachers of junior high school and senior high school mathematics.

		<i>Hours</i>	<i>Credit</i>
MED	672	Curriculum in Secondary School Mathematics 4 (Substitute for ID 600)	
MED	673	Problems in the Teaching of Junior High School Mathematics 4	
		<i>or</i>	
MED	674	Problems in the Teaching of Senior High School Mathematics 4	4
		Mathematics education and/or mathematics courses 22	
		Electives 15	
		Minimum programs 45	

The entire program must be approved by the departmental Master of Arts Review Committee. No student may count more than 15 hours of work in courses numbered at the 300 and/or 400 level in his degree program.

A written comprehensive examination will be given over the mathematics education courses MED 672, 673 or 674. A two-hour oral examination will be given over all work taken in the degree program.

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 program 72

General Requirements:

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

Mathematics Requirements:

As a prerequisite, Master's degree level of proficiency must be attained in modern algebra and analysis. Also, the student is expected to have had some exposure to complex variables and topology or to take introductory courses in these areas before completing his program (these introductory courses, however, are not to count toward the 72 hour course requirement). In addition, the linear algebra sequence and the real analysis sequence must be completed, as well as one sequence

in pure mathematics, and one sequence in applied mathematics. In pure mathematics, the student may elect to take general topology, complex variables, or two of the following three courses: fields, groups, and rings. In applied mathematics, the student may elect to take mathematical statistics, numerical analysis, or differential equations. In addition, one course in mathematics education (other than MED 681) and three hours of MATH 510, Seminar in Mathematics, are to be taken (the latter 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 (linear algebra, real analysis, and in each of the pure and applied mathematics sequences elected by the student).

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

Doctor of Education Degree

Mathematics Education

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

Each student is required to take at least 12 hours of course work in mathematics courses numbered 500 or above and to demonstrate competence in the areas of modern algebra, linear algebra, modern geometry, and analysis. Competence may be demonstrated by satisfactory performance, as determined by the faculty of the Department of Mathematics, in appropriate courses or on the corresponding qualifying examinations. The appropriate courses at the University of Northern Colorado are MATH 521, 525, 543, and 535. The student's program will be planned with his major adviser and will be subject to the approval of his Oral Comprehensive Examination Committee which will be appointed no later than the second quarter of study.

The student may apply, subject to the approval of his major adviser, for the written comprehensive examinations at any time after the satisfactory completion of 55 hours of course work applied toward the Ed.D. degree, of which 36 hours have been taken at the University of Northern Colorado. Proposals for the dissertation may also be considered at any time after this same course work requirement has been completed.

The student must meet the current requirements for the Ed.D. as established by the Graduate School. The course requirement ID 700, Introduction to Doctoral Research, may be met by taking MED 672.

Minimum total course work72 hours

Music

The Master of Music Education degree is offered in the following areas of concentration:

Music Education

The Master of Music degree is offered in the following areas of concentration:

Conducting and Literature

Performance

Theory and Composition

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

The Doctor of Music Education degree is offered in the following areas of concentration:

Music Education

The Doctor of Arts degree is offered in the following areas of concentration:

Music History and Literature

Music Theory and Composition

Music Performance

Conducting

Performance and Pedagogy

Graduate Coordinator

For specific questions regarding graduate programs in music, consult the Graduate Coordinator in the School of Music.

Recitals, Concerts and Production

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.

Applied Music

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

100 and 200 series -- Introductory work in the fundamentals of the chosen performance medium -- technical students 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.*

- | | |
|--------------------------|--|
| 169, 269, 369, 469, 669. | INDIVIDUAL PERFORMANCE IN VOICE FOR NON-VOICE MAJORS. <i>One-three hours credit.</i> |
| 170, 270, 370, 470, 670. | INDIVIDUAL PERFORMANCE IN VOICE. <i>One-three hours credit.</i> |
| 171, 271, 371, 471, 671. | INDIVIDUAL PERFORMANCE IN PIANO. <i>One-three hours credit.</i> |
| 172, 272, 372, 472, 672. | INDIVIDUAL PERFORMANCE IN ORGAN. <i>One-three hours credit.</i> |
| 173, 273, 373, 473, 673. | INDIVIDUAL PERFORMANCE IN STRINGS. <i>One-three hours credit.</i> |
| 174, 274, 374, 474, 674. | INDIVIDUAL PERFORMANCE IN WOODWINDS. <i>One-three hours credit.</i> |
| 175, 275, 375, 475, 675. | INDIVIDUAL PERFORMANCE IN BRASS. <i>One-three hours credit.</i> |
| 176, 276, 376, 476, 676. | INDIVIDUAL PERFORMANCE IN PERCUSSION. <i>One-three hours credit.</i> |
| 177, 277, 377, 477, 677. | INDIVIDUAL INSTRUCTION IN COMPOSITION. <i>One-three hours credit.</i> |
| 178, 278, 378, 478, 678. | INDIVIDUAL PERFORMANCE IN HARP. <i>One-three hours credit.</i> |
| 179, 279, 379, 479, 679. | INDIVIDUAL PERFORMANCE IN GUITAR. <i>One-three hours credit.</i> |

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.*
- 689. LABORATORY ORCHESTRA. *One hour credit.*
- 690. SYMPHONIC WIND BAND. *One hour credit.*
- 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.*

*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 Music Education Degree in Music Education.

Graduate Student Advisory Examinations

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 in the specific programs at the masters level as 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 Performance, Literature and Conducting or Theory and Composition program will be examined in the pedagogical area of their specialization).

Master of Music Education Degree

Qualified graduate students may follow one of the four tracks as presented below:

Track I

Track I serves to strengthen musical competencies by emphasizing a balanced program between courses in music content, music education, and performance. It encourages flexibility in each of several broad areas without sacrificing a basic structure necessary for strong music growth.

Each candidate will audition on his major instrument, and will take advisory examinations in History, Music Education, and Theory. All of the above will be completed during the first week of the candidate's first quarter.

Course advisement with regard to courses taken and the project will be based on advisory examinations, letters of recommendation, and interviews.

Qualification to pursue the Track I program must include: (1) a satisfactory undergraduate record indicating understanding of the essential elements of music and education; (2) evidence of teaching ability; (3) evidence of necessary motivation and mental endowment for competent graduate work. Investigation based upon these criteria should be made during the student's first term of residence. He may be required to complete certain deficiencies prior to admission to the program.

In order to allow flexibility in applied study and ensemble participation, a candidate following this track may choose study outside his major applied area and work in small ensembles under the following conditions:

1. Candidate must audition on his major applied instrument before that applied faculty.
2. If the candidate qualifies at the 400 level or above on his major instrument he may elect individual or class instruction on an instrument other than his own major instrument.
3. The candidate who qualifies at the 400 level or above on his major instrument may also elect to use two of his three ensemble credits in small ensembles. He must, however, use the other ensemble credit in his major area large ensemble. Written permission will be required from the major ensemble director each quarter a small ensemble is substituted.

Candidates on this track who do not qualify at the 400 level or above must take three hours in their major instrument and three hours in their major large ensemble.

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Courses in music content* (see course list page 100)	12-15
Courses in music performance** (see course list page 100) (3 hours applied, 3 hours ensemble)	6
MUS 600 Introduction to Musical Scholarship	3
Courses in music education*** (see course list page 100)	12-15
Electives in or outside of School of Music	6-12

Comprehensive examinations will be administered by the departments of History, Music Education, and Theory in a manner to be determined by the individual departments in compliance with University regulations.

Track II

The inherent purpose of this program is to develop the candidate's qualities of professional leadership. Therefore, the curriculum is built upon a core which emphasizes (1) the investigation of important ideas and practices pertaining to school of music, and (2) the development of skills, concepts, and plans to meet situations in the field. In addition, opportunity is provided to acquire both greater breadth of musicianship with the useful degree of specialization.

Track II is developed around professional music education experience while offering a continuation of music skills and knowledge through required work in the areas of music history, theory, applied music and/or performance.

Central to Track II is the provision of a variety of in-service experiences, advanced teacher apprentice experiences, and experimental off-campus work corresponding to the specific needs and desires of the individual student to increase his music teaching competencies.

Each candidate will audition on his major instrument, and will take advisory examinations in History, Music Education, and Theory. All of the above will be completed during the first week of the candidate's first quarter.

If the candidate qualifies through audition at the 400 level of individual instruction, he may elect (1) individual instruction in his major instrument (or voice), (2) individual or class instruction on instruments (or voice) other than his major instrument (or voice), and/or (3) to participate in small or large ensembles. Applied and performance work must be decided in consultation with his major and applied advisers on a criteria of teaching competency needs. Candidates on this track who do not qualify at the 400 level or above must take three (3) hours on their major instrument and three (3) hours in their major ensemble.

Course advisement with regard to courses taken and the project will be based on advisory examinations, letters of recommendation, and interviews.

If the student receives an average grade of 3.00 or above in any given area other than music education he will not be required to take a written comprehensive examination in that area.

Qualification to pursue the Track II program must include: (1) a satisfactory undergraduate record indicating understanding of the essential elements of music and education; (2) evidence of teaching ability; (3) evidence of necessary motivation and mental endowment for competent graduate work. Investigation based upon these criteria should be made during the student's first term of residence. He may be required to complete certain deficiencies prior to admission to the program.

Music Education Project

The master's degree implies an ability to analyze and pursue problems independently. Thus, while the full-scale research problem is usually reserved for the doctoral program, the master's candidate should become oriented to the process of investigation, including (1) familiarity with pertinent studies in music education and related fields, (2) understanding of the basic forms and techniques of educational research, and (3) skill in developing an investigation or creative project of educational import.

Pursuit of these goals may be arranged in terms of courses or seminars dealing with action research techniques and bibliography, leading to some form of individual study.

Hours

Courses in music content* (see course list on page 100)	6
Courses in applied music and/or performance** (see course list on page 100)	3
MUS 600 Introduction to Musical Scholarship	3
Courses in music education*** (see course list on page 100)	18-21
Individual music education project	Min. 4
Electives in or outside of School of Music	6-9

Each student is required to pass a written comprehensive, or otherwise demonstrate competency in the major field (Music Education) or a departmentally approved equivalent.

Track III

Track III focuses on an open, flexible, and personalized approach to music education, which is intended to develop within the student the same kind of openness and flexibility toward teaching and learning. In this track there are a minimum of prescribed requirements; therefore, each student, in consultation with his adviser, develops a program uniquely matched to his professional objectives, interests, strengths, and weaknesses.

Each candidate will audition on his major instrument, and will take advisory examinations in History, Music Education, and Theory. All of the above will be completed during the first week of the candidate's first quarter.

If the candidate qualifies through audition at the 400 level of individual instruction, he may elect (1) individual instruction on his major instrument (or voice), (2) individual or class instruction on instruments (or voice) other than his major instrument (or voice), and/or (3) to participate in small or large ensembles. Applied and performance work must be decided in consultation with his major and applied advisers on a criteria of teaching competency needs. Candidates on this track who do not qualify at the 400 level or above must take three (3) hours on their major instrument and three (3) hours in their major ensemble.

Course advisement with regard to courses taken and the project will be based on advisory examinations, letters of recommendation, and interviews.

If the student receives an average grade of 3.00 or above in any given area, other than music education, he will not be required to take a written comprehensive examination in that area.

Qualification to pursue the Track III program must include: (1) a satisfactory undergraduate record indicating understanding of the essential elements of music and education; (2) evidence of teaching ability; (3) evidence of necessary motivation and mental endowment for competent graduate work. Investigation based upon these criteria should be made during the student's first term of residence. He may be required to complete certain deficiencies prior to admission to the program.

Hours

Music Theory* (see course list on page 100)	3-6
Music History* (see course list on page 100)	3-6
MUS 600 Introduction to Musical Scholarship	3
Applied Music and Performance	6
Electives in or outside of School of Music	15-21
Courses in Music Education*** (see course list on page 100)	15-25

Each student is required to pass a written comprehensive, or otherwise demonstrate competency in the major field (Music Education) or a departmentally approved equivalent.

Track IV

Track IV provides opportunity for in-depth study and research in the field of music administration and supervision, K-12. A broad base in music education and at least two years of successful music teaching is required before pursuing this program.

Each candidate will audition on his major instrument, and will take advisory examinations in History, Music Education, and Theory. All of the above will be completed during the first week of the candidate's first quarter.

If the candidate qualifies through audition at the 400 level of individual instruction, he may elect (1) individual instruction on his major instrument (or voice), (2) individual or class instruction on instruments (or voice) other than his major instrument (or voice), and/or (3) to participate in small or large ensembles. Applied and performance work must be decided in consultation with his major and applied advisers on a criteria of teaching competency needs. Candidates on this track who do not qualify at the 400 level or above must take three (3) hours on their major instrument and three (3) hours in their major ensemble.

Course advisement with regard to courses taken and the project will be based on advisory examinations, letters of recommendation, and interviews.

If the student receives an average grade of 3.00 or above in any given area other than music education he will not be required to take a written comprehensive examination in that area.

Qualification to pursue the Track IV program must include: (1) a satisfactory undergraduate record indicating understanding of the essential elements of music and education; (2) evidence of teaching ability; (3) evidence of necessary motivation and mental endowment for competent graduate work. Investigation based upon these criteria should be made during the student's first term of residence. He may be required to complete certain deficiencies prior to admission to the program.

The candidate will research an area of music administration and supervision which will culminate in a written thesis.

	<i>Hours</i>
Courses in music content*	6
Courses in applied music and/or performance**	3
MUS 600 Introduction to Musical Scholarship	3
Courses in music education***	9
Courses in administration and supervision****	12
Thesis (Music 699)	8-12
Electives in or Outside of School of Music	14

A written comprehensive examination in the area of music administration and supervision will be required, and will be administered by the Music Education Department.

*Courses available in music content: MUS 340, 401, 402, 403, 409, 437, 438, 439, 441, 442, 443, 445, 446, 447, 449, 501, 502, 503, 504, 505, 507, 509, 545, 546, 601, 603, 604, 605, 640, 641, 642, 643, 644, 645, 648, 649, 650, 651, 652, 653, 654, 664.

**Courses available in music performance: MUS 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 404, 423, 424, 425, 448, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 605, 630, 631, 632, 633, 634, 635, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 689, 690, 691, 692, 693, 694, 695, 696, 697.

***Courses available in music education: MUS 316, 317, 318, 341, 410, 411, 412, 414, 443, 444, 450, 451, 452, 453, 454, 455, 456, 457, 458, 460, 461, 462, 463, 506, 508, 519, 532, 533, 534, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 660, 661, 662, 663, 666.

****Courses available in administration and supervision: MUS 607, 608, 609, 611, 612, 613, 614, 616, 617, EDAD 508, 611, 630, 632.

Master of Music Degree

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 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 examinations and conferences with the faculty jury, the student will be advised as to his status as a candidate for the Master of Music degree in 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. A recorded, public recital and correlative paper will constitute four quarter hours of applied major.

6. 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.

7. 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.

8. The grade evaluation of the student's correlative paper shall be determined by a faculty committee called by the Chairman of that committee.

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

Conducting and Literature**Required Courses:**

MUS		Music Performance (a minimum of 3 hrs. in a major ensemble and 3 hrs. in applied lessons)	6-9
MUS	502	Eighteenth Century Harmony and Forms	3
MUS	523	Advanced Conducting (Choral or Instrumental)	3
MUS	600	Introduction to Musical Scholarship	3
*MUS	601	Practicum In Music (Performance) or	
*MUS	622	Individual Studies in Music (Performance)	4
MUS	650	Music History I	3
MUS	651	Music History II	3
		Additional electives to satisfy degree requirements through consultation with major adviser.	

*The performance will consist of a concert (choral and/or instrumental) conducted by the candidate and evaluated by the voice/choral and/or instrumental faculty. A correlative paper will also be required. The organization 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 major adviser and faculty in the appropriate area (vocal or instrumental).

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:

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
		Additional electives to satisfy degree requirements.	<u>36</u>

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	608	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 Music 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:
 - 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 702 -- 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 courses 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 courses are offered.

- b. Carry a prefix other than "music."

With the three required "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).

Doctor of Arts Degree

The program leading to the Doctor of Arts degree is designed to prepare professional, academically well-qualified teaching scholars for the junior and senior college level. The degree is available in the areas of Music History and Literature, Theory and Composition, Music Performance, Conducting or Performance and Pedagogy.

Admission Requirements:

Candidates must meet the general Graduate School requirements for admission. In addition candidates are required to take:

- 1. School of Music advisory examinations in Music History and Music Theory. (Brass, Woodwind, String or Percussion majors will be asked to take techniques examinations in their performance area in addition to the advisory examination.)

- 2. Major applied area audition.

These examinations will be administered by the School of Music upon the candidates arrival on campus.

General Requirements:

The candidate's individualized program will be determined by his graduate advisory committee after reviewing with the student his educational objectives, transcripts, advisory examinations and audition results. A minimum of 90 hours are to be earned in graduate study beyond the Master's level and distributed throughout the following areas:

Area of Primary Emphasis

The primary area is designed to develop a major scholarly and/or performing function for the junior and senior college level in Music History and Literature, Theory and Composition, Musical Performance, Conducting, or Performance and Pedagogy.

Area of Secondary Emphasis

This area is designed to develop a secondary scholarly and/or performing function in one of the above areas, in music education, or in related areas outside of music.

College Teaching and Learning

An internship ranging from limited responsibilities to full time classroom teaching under direct supervision of the graduate faculty in the School of Music is required. Externships are highly recommended subsequent to successful completion of internship.

Appropriate course work in the area of higher education, learning theory, foundation courses, tests and measurements and/or media will be selected through consultation with the major professor and advisory committee.

Distribution of Hours

Approximate distribution of hours in a typical program. (Please Note: credit hours are approximate unless required and may vary according to number of hours used for Teaching Practicum (MUS 755) and for other reasons approved by the doctoral committee.)

Primary Emphasis	.....	27
Secondary Emphasis	.....	15
*MUS 622	Individual Studies in Effective Teaching (required)	3
MUS 700	Research Seminar (required)	3
ID 702	Seminar in College Teaching (required)	3
MUS 755	Supervised Practicum in College Teaching (required) (Internship and Externship)	3-9
**MUS 799	Doctoral Dissertation (required)	18
	Electives	12
		TOTAL 90

*This course will be designed according to the candidate's primary emphasis and will satisfy the Seminar in Teaching (Discipline) required of all D.A. candidates in music.

**A dissertation is required which provides for the development of research skills in the student's subject matter area and utilizes research in the classroom. The dissertation might include such topics as writing a textbook, curriculum courses of study or developing various teaching media for a particular subject matter area. The 18 hours allotted to the doctoral dissertation may be divided between performance and the dissertation requirement according to the degree plan as outlined and approved by the candidate's committee.

Distribution and Grading of Dissertation Hours in Primary Emphasis

1. D.A. in Performance or Conducting	
A. Two recitals or concerts	12 hrs.
B. Dissertation	6 hrs.
	18 hrs.
2. D.A. In Pedagogy and Performance	
A. One recital	6 hrs.
B. Dissertation	12 hrs.
	18 hrs.

3. D.A. in Music History and Literature

A. Dissertation18 hrs.

4. D.A. in Theory and Composition

Credit may be divided in blocks of 6 hours between

Composition and Theoretical Research18 hrs.

A letter grade will be given by the Research and Dissertation Committee, in consultation with the candidate's applied performance department, upon the completion of each recital or concert. A grade of A or B will be considered as acceptable. A grade of C or below will be considered as unacceptable.

Should the candidate's recital or concert be unacceptable the student will be required to do another program. A minimum of ten weeks must lapse before this program may be done and new repertoire will be required.

The candidate will be allowed one failure and subsequent make-up program for each recital required on his degree emphasis.

Creative Requirement for Secondary Emphasis

It will be normally expected that as part of the secondary emphasis a creative project of some type will be undertaken. Credit would be given, generally on an ID basis. This project might be of the following nature:

1. Secondary Emphasis in History and Literature. . .A minor research project.
2. Secondary Emphasis in Performance. . .A recital.
3. Secondary Emphasis in Conducting. . .Conducting recital or research project in literature.
4. Secondary Emphasis in Theory and Composition. . .Composition or research project.
5. Secondary Emphasis in Music Education. . .A minor research project.
6. Secondary Emphasis outside of music. . .Creative project in areas outside the School of Music will be administered by the candidate's committee.

If the candidate qualifies in his secondary emphasis at a primary level proficiency, he may, with the approval of his doctoral committee and the department chairman of his primary and secondary areas, incorporate his secondary creative requirement into his Dissertation Requirement.

Foreign Language Requirements for Doctor of Arts Degree Candidates

1. History and Literature. . .Primary Emphasis: A reading knowledge in one foreign language required. A second language may be required through advisement. Secondary Emphasis: Open. The candidate and his adviser will determine language requirements.

2. Theory and Composition. . .Reading knowledge in one foreign language required.

3. Conducting. . .Translational skills of vocal literature in one foreign language is to be highly recommended. The mastery of diction in two additional languages is to be highly recommended for candidates in Choral Conducting. Italian is recommended for candidates in the instrumental field.

4. Performance

a) Brass -- Reading knowledge in one foreign language required.

b) Piano -- Reading knowledge in one foreign language required.

c) Strings -- Reading knowledge in one foreign language required.

d) Vocal -- Translational skills of vocal literature in one foreign language (French, German, or Italian) shall be required, and diction mastery in all three.

e) Woodwind -- Reading knowledge in one foreign language required. (A substitute research tool may be permitted after consultation with and approval by the candidate's committee.)

f) Pedagogy -- Same as in the respective performance areas.

Comprehensive Examinations for Doctoral Candidates in Music (D.M.E. and D.A. Programs)

At a time approved by his major professor, the candidate will take written and oral examinations covering his primary, secondary (or related) areas of emphasis, plus Music History and Literature and Music Theory if these are not part of his primary or secondary emphasis.

Research and Examination Committee for Doctoral Candidates in Music (D.M.E. and D.A. Programs)

1. The candidate's major adviser shall be appointed by the Dean of the School of Music after consultation with the chairman of the department of the candidate's area of emphasis.
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 History and Literature; (2) Music Theory and Composition; (3) Music Education for candidates in the D.M.E. program; (4) The respective performance or conducting area for D.A. candidates whose primary emphasis is in performance, performance/pedagogy or conducting; (5) faculty representative, appointed by the Dean of the Graduate School.
 - b. The departments represented by the above committee members shall design, administer, and evaluate the written comprehensive examination in their respective area, in consultation with the full Examination Committee.
3. An oral comprehensive examination shall be given by this committee only after successful completion of the written comprehensives. (For additional information see page 29).
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. The Committee, in consultation with the appropriate applied department, will also approve the repertoire for the candidate's recital or concert and will grade the program. (see page 29).

Physics

Master of Arts Degree

This is a broad degree under which program can be tailored to the individual needs of the student. (The student, however, must meet the general catalog requirements for the Master of Arts degrees.) A program of specific content requirement will be determined between the student and his adviser, and each such program must be approved by the majority of the Physics Department faculty. The faculty as a whole will then be responsible for the evaluation of the student's work.

Some of the typical specialities that may be taken under this degree are environmental studies, teacher internships, physical science, emphasis in natural philosophy, and professional physics. Typical suggested course sequences for these specialities are available in the Physics Department office.

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:

First Quarter

*PCG	608	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
RSM	504	Descriptive Statistics	4

Second Quarter

*PCG	612	Introductory Supervised Practice in Counseling	6
PCG	670	Principles and Practices in Testing & Measurement	3
PCG	540	Psychology of Perception and Learning	
		or	
PCG	641	Theories of Learning	5

Third Quarter

*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
*PCG	671	Aptitude & Achievement Analysis	5

Fourth Quarter

PCG	606	Theories and Practices in Group Guidance	5
		Any non-sequence courses	9

One course is required from each of the following groups:

Group I -- PCG 530, PCG 631, or PCG 632

Group II -- PCG 650, or PCG 655

Group III -- BLS 350, BLS 380, BLS 495, MAS 304, or MAS 306

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:

			<i>Hours Credit</i>
PCG	558	Abnormal Psychology	3
PCG	632	Child Psychology	3
		or	
PCG	633	Psychology of Adolescence	3
PCG	634	Psychology of College Students and Other Adults	3

PCG	761	Orientation to the Graduate Program and Self	3
PCG	762	Group Dynamics in Human Relations	3
PCG	780	Introduction to Psychological Research	3
PCG	792	Internship	Max. 16
RSM	505	Statistical Inference	5

One of the following:

BLS 350, BLS 380, BLS 495, MAS 304, or MAS 306	3
--	---

Highly Recommended Courses:

PCG	543	Theories of Motivation	3
PCG	647	Learning Disabilities: Diagnosis and Remediation	3
PCG	650	Psychology of the Healthy Personality	3
PCG	673	Individual Tests of Intelligence	3
PCG	674	Individual Intelligence Testing: Stanford-Binet	3
PCG	675	Individual Intelligence Testing: Wechsler-Scales	4
PCG	676	Psychological Testing: Personality	3
PCG	742	Seminar in Perceptual Psychology	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

PCG	763	Introductory Seminar in School Psychology	2
PCG	632	Child Psychology	
		<i>or</i>	
PCG	530	Human Growth and Development	3
PCG	641	Theories of Learning	5
PCG	651	Theories of Personality	3
PCG	762	Group Dynamics in Human Relations	3
SOC	310	Social Psychology	
		<i>or</i>	
SOC	610	Seminar in Social Psychology	3
RSM	505	Statistical Inference	5

B. Clinical Procedures

PCG	607	Principles and Practices of Counseling Theories	5
PCG	612	Introductory Supervised Practice in Counseling	6
PCG	617	Play Therapy	4
		<i>or</i>	
PCG	618	Behavior Modification	3
		<i>(Note: PCG 542 is prerequisite)</i>	
PCG	674	Individual Intelligence Testing: Stanford-Binet	3
PCG	675	Individual Intelligence Testing: Wechsler-Scales	4
PCG	676	Psychological Testing: Personality	3
PCG	677	Psychoeducational Testing	4
PCG	679	School Psychology Practicum	4

C. Professional Education:

PCG	647	Learning Disabilities: Diagnosis and Remediation	3
EDSE	602	Education and Psychology of Exceptional Children or	
EDSE	502	Handicapped Children in Regular Classroom	3
EDRD	617	Remedial Reading in the Elementary School	4
EDF	495	Philosophy of Education or	
EDF	585	Philosophy of Education or	
EDF	785	Philosophical Foundations of Education	3

D. Minority Understanding:

One course from the following list:

BLS 350, BLS 380, BLS 495, MAS 304, MAS 306	3
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E. Supervised Field Work

PCG	789	Internship in School Psychology	16
			<i>(two quarters full-time, 8 credit hours per quarter)</i>

Total Program: A minimum of forty-five quarter hours beyond the Master of Arts Degree in Psychology, Counseling and Guidance.

Electives:

If additional hours are needed, the student may choose from such courses as these to bring total hours up to 90:

EDSE	610	Sociological & Educational Aspects of Mental Retardation	4
EDSE	604	Appraisal of Exceptional Children	4
EDSE	605	Practicum in Appraising Exceptional Children	4
EDSE	611	Psychological Aspects of Mental Retardation	4
PCG	542	Experimental Analysis of Behavior	3
RSM	608	Analysis of Variance and Covariance	3
ANT	600	Introduction to the Concept of Culture	3
PCG	565	The Psychology of Prejudice	3
PSY	468	Psychology of Women	3
COMM	520	Psychology of Human Communication	3

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.

Hours Credit

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

One of the following:

BLS 350, BLS 380, BLS 495, MAS 304, or MAS 306	3
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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
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

PCG	763	Introductory Seminar in School Psychology	2
PCG	542	Experimental Analysis of Behavior	3
PCG	543	Theories of Motivation	3
PCG	632	Child Psychology	3
		<i>or</i>	
PCG	530	Human Growth & Development	3
PCG	641	Theories of Learning	5
PCG	651	Theories of Personality	3
PCG	780	Introduction to Psychological Research	3
RSM	505	Statistical Inference	5

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RSM	603	Analysis of Variance and Covariance	3
		or	
RSM	613	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	Play Therapy	4
PCG	618	Behavior Modification	3
PCG	674	Individual Intelligence Testing: Stanford-Binet	3
PCG	675	Individual Intelligence Testing: Wechsler Scales	4
PCG	676	Psychological Testing: Personality	3
PCG	677	Psychoeducational Testing	4
PCG	783	Advanced Personality Assessment	3
PCG	679	School Psychology Practicum	8

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
		<i>(two quarters full time, 8 hours per quarter)</i>	

E. Minority Understanding:

One course from the following list:

BLS 350, BLS 380, BLS 495, MAS 304, MAS 306	3
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F. Suggested Electives

PCG	624	Human Neuropsychology	4
PSY	480	Physiological Psychology	5
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
SOC	610	Seminar in 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, B. Heimerl, Houston**

Assistant Professors: **Lynch, D. Shaw**

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.

Students lacking a background in elementary matrix algebra and calculus are urged to enroll in Math 330-331-332.

Requirements:

A minimum of 45 quarter hours of graduate credit beyond the bachelor's degree is required. The candidate must pass a written comprehensive examination covering the subject matter in the graduate program. In addition, each student will have the opportunity to gain teaching and/or research experience. An appropriate thesis is optional.

Required Courses

Hours Credit

RSM	504	Descriptive Statistics	4
RSM	505	Statistical Inference	5
RSM	600	Introduction to Graduate Study (RSM)	3
RSM	603	Analysis of Variance and Covariance	3
RSM	613	Multiple Regression	3
RSM	644	Research Seminar, I	4
RSM	699	Thesis (optional)	8
		Complete program to 45 hours with elective courses approved by the adviser selected from RSM and other academic areas	15-23
			<u>45</u>

Doctor of Philosophy Degree

Prerequisites:

Masters degree or equivalent from an accredited graduate school with an average of B or better; satisfactory GRE scores.

Objectives:

The program is planned to prepare persons for (1) performing or directing educational research in colleges, universities, school administrative units, and educational and research laboratories; (2) teaching statistics, measurement and

research in colleges and universities. 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. Some topics considered in detail are: factor analysis, multiple regression analysis, complex analysis of variance, multiple discriminant analysis, and canonical correlation.

General Degree Requirements:

In general, two years residence is necessary with a minimum of 90 quarter hours of graduate credit beyond the masters degree. (Some credit may be transferred from an accredited graduate school.) These hours will be distributed among the following areas:

1. Statistics, information processing, and computer applications to educational problems.
2. Theory and practices of measurement, psychology, and research methodology.
3. Research seminars and internship experiences.
4. Dissertation.
5. Twenty-four hours in one or more elective areas.
6. Non-credit internships.

Degree candidates are required to demonstrate the ability to use two research tools; computer knowledge will be one of these requirements and is satisfied by taking the first year seminar. The second research tool may be satisfied by one of the following:

- a. A basic general reading knowledge of an acceptable foreign language, generally German, French or Spanish.
- b. Twelve hours in Mathematical Statistics.
- c. Twelve hours in Research Methods and Philosophy from other disciplines.

The election of option b and c may be met by transferring credit from an accredited institution or elected in addition to the students 90 hour program.

Students lacking a background in matrix algebra and calculus are urged to enroll in Math 330, 331, 332 during their first year on campus. Candidates deficient in research tools or area requirements may be required to spend more than two years in the program.

During the Fall quarter of the second year, candidates shall submit their programs for departmental advisement in preparation for the written comprehensives.

Hours Credit

RSM	504	Descriptive Statistics	4
RSM	506	Statistical Inference	5
RSM	608	Analysis of Variance and Covariance	3
RSM	618	Multiple Regression	3
RSM	623	Nonparametric Statistics	3
RSM	638	Factor Analysis	3
RSM	644	Research Seminar I (Computer Techniques for Research)	4
RSM	644	Research Seminar I (Advanced Computer Techniques)	4
RSM	644	Research Seminar I (Advanced Topics)	4
RSM	673	Advanced Theory of Measurement	3
RSM	713	Planning and Methodology of Research	3
RSM	754	Research Seminar II (Advanced Statistical Procedures)	4
RSM	754	Research Seminar II (Multivariate Topics)	4
RSM	754	Research Seminar II (Advanced Experimental Design)	4
PCG	771	Measurement: Scaling and Related Techniques	3

Science Education

Master of Arts Degree

Major Requirements:

			<i>Hours Credit</i>
SCED	673	Seminar in Science Education Research (Substitutes for ID 600)	3
SCED	671	Science Curriculum in the Elementary School (May be waived for secondary majors by petition to Science Education Department)	3
<i>or</i>			
SCED	672	Science Curriculum in the Secondary School	3
SCED	674	Instructional Problems in Teaching Science	3
SCED	676	Evaluation of Classroom Performance in Science	3
SCED	678	Science Education Seminar (Min. 2 hrs., max. 6 hrs.)	2-6
RSM	504	Descriptive Statistics	4

Recommended Electives:

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	676	History of Science	3
SCI	679	Philosophy of Science	3
RSM	505	Statistical Inference	5
SCED	601	Practicum (max. 8 hrs.)	5
<i>or</i>			
SCED	622	Individual Studies (max. 8 hrs.)	4-8
SCED	699	Thesis	8-15

Supporting Area Requirements: Minimum 23 quarter hours

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 intelligently direct 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.

The supporting area may be selected from the following: Biology, Botany, Chemistry, Earth Sciences, General Science, Physics (5 hours of mathematics may be included), Physical Science, Zoology.

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 Degree:

The Ed.D. program is designed to prepare specialists in science education.

Recipients of the degree find careers as:

1. Professors of Science Education
2. College or university professors with responsibilities in science as well as science education.
3. Science department chairmen in secondary schools or junior colleges.
4. Supervisors of science at the state, county, or city level.
5. Master science teachers at the junior high, senior high, or junior college level.

The Program:

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, a faculty advisory board will be appointed. 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.

Hours Credit

SCED	568	Instructional Materials in the Teaching of Science	.5
SCED	601	Practicum	4-8
SCED	622	Individual Studies	4-8
SCED	671	Science Curriculum in the Elementary School	.3
SCED	672	Science Curriculum in the Secondary School	.3
SCED	673	Seminar in Science Education Research	.3
SCED	674	Instructional Problems in Teaching Science	.3
SCED	675	Development of Scientific Inquiry Abilities of Children Through Science	.4
SCED	676	Evaluation of Classroom Performance in Science	.3
SCED	677	Seminar in Modern Developments in School Science	.3
SCED	678	Science Education Seminar	1-6
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
SCED	683	Problems in Teaching Elementary School Science	.4
SCED	684	Problems in Teaching Junior High School Science	.4
SCED	685	Administration and Supervision of Science K-12	.4
SCED	694	Seminar in Teaching Science Curriculum Improvement Study	.3
SCED	777	Evaluation and Testing in Science	.3
SCED	799	Doctoral Dissertation	18

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 science¹, sociology, and interdisciplinary Social Science such as; urban planning, area studies, transportation, and the environment. For information concerning an interdisciplinary concentration, contact the Department of Political Science.

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.

¹The student should consult the chairman of the department in regard to this degree.

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 Sciences. See Social Science, page 119.

Also, consult with the Sociology Department for advisement concerning specific details on the program prerequisites, course requirements, thesis, and comprehensive examinations.

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, learning disabilities, and visually handicapped children. The Special Education facility also includes a speech and hearing clinic which provides complete audiometric evaluations as well as speech pathology 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:

Hours Credit

EDSE	565	Language & Related Disorders of Adults	3
EDSE	572	Industrial Audiology	3
EDSE	573	The Auditory Mechanism	3
EDSE	575	Pediatric Audiology: Etiology & Assessment	3
EDSE	576	Electrophysiological Audiometry	3
EDSE	577	The Psychology and Rehabilitation of the Acoustically Handicapped	3
EDSE	600	Introduction to Graduate Study	3
EDSE	651	Advanced Problems in Speech for the Hearing Impaired	3
EDSE	663	Language Disorders of Children	3
EDSE	674	Internship in Audiology	Max. 15
EDSE	675	Differential Diagnosis of Auditory Problems	3
EDSE	677	Seminar in Audiology: Pediatric Aural Rehabilitation	3
EDSE	678	Seminar in Audiology: Hearing Aids & Uses of Amplification	3
EDSE	679	Seminar in Audiology: Geriatric Audiology and Aural Rehabilitation	3

The student and his adviser shall select additional courses to complete a minimum of 55 quarter hours (at least 45 must be in academic courses, as opposed to practicum courses) which must allow the student to meet National Certification standards of the American Speech and Hearing Association. These are minimum requirements and assume an adequate undergraduate background in Communication Disorders and related areas. Upon occasion, because of special needs by individual students, additional requirements for graduation may have to be met as recommended by his adviser or the Director of Audiology. Prerequisite courses will be based primarily on the B.A. Audiology requirements of the University of Northern Colorado. The student must also complete a minimum of 300 clock hours of supervised practicum experience, 150 of which must be obtained at the graduate level. Clinical practicum will be completed after the student has had experience dealing with a wide range of clients from infancy to the geriatric in both the diagnostic and rehabilitative aspects.

The following courses are highly recommended as electives:

EDSE	690	Counseling the Handicapped	3
RSM	504	Descriptive Statistics	4
EDSE	591	Community Resources for Rehabilitation, Guidance, and Counseling	3
EDSE	592	Vocational Placement and Adjustment of the Disabled in Rehabilitation	3
EDSE	451	Speech Development for the Hearing Impaired	6
EDSE	452	Language Development for the Hearing Impaired	6
ZOO	652	The Central Nervous System and Special Senses	3

Students entering the Master's program in Audiology will be selected according to the following criteria: (1) promise of academic achievement; (2) letters of reference; (3) goals of the student in relation to the needs in the field; and (4) personal interview.

Special Education: Speech Pathology

The following is the required program:

EDSE	561	Voice Disorders	3
EDSE	565	Language and Related Disorders of Adults	3

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EDSE	660	Articulation Disorders II	3
EDSE	661	Neurological Motor Speech Disorders	3
EDSE	662	Stuttering II	3
EDSE	663	Language Disorders of Children II	3
EDSE	664	Internship in Speech Pathology	Max. 15
EDSE	666	Cleft Palate	3
EDSE	669	Interpretation and Evaluation of Behavioral Research	3

The student and his adviser shall select additional courses to complete a minimum of 55 quarter hours (at least 45 of which must be in academic versus practicum courses) which must allow the student to meet American Speech and Hearing Association Certification Standards. These are minimum requirements and assume an adequate undergraduate background in Speech Pathology and related areas. Students who do not have this background or students who wish acknowledgement or additional experience in related disciplines must fulfill additional academic requirements as determined by their major adviser. Prerequisite courses will be based primarily on the B.A. Speech Pathology requirements of the University of Northern Colorado. The student must also complete a minimum total of 300 clock hours of supervised practicum experience, 150 of which must be obtained at the graduate level. This practicum experience must include a minimum of 25 hours with individuals exhibiting voice, articulation, and rhythm disorders and 75 hours with language impaired patients. If a teaching certificate is desired, the educational requirements described in the undergraduate bulletin must also be met. The following courses are highly recommended as electives:

EDSE	369	Neurological Basis for Speech and Hearing	4
EDSE	575	Auditory Disorders in Children	3
EDSE	577	Rehabilitation of the Acoustically Handicapped	3
EDSE	604	Appraisal of Exceptional Children	4
EDSE	606	Principles and Practices of Measurement of the Handicapped	3
EDSE	667	Seminar in Speech and Hearing Science	3
EDSE	668	Seminar in Speech Pathology	3
PCG	624	Human Neuropsychology	4
PCG	647	Learning Disabilities: Diagnosis and Remediation	3
EDEC	648	Psycholinguistics in Early Childhood	3
ENG	321	Generative - Transformational Grammar	4
ANT	361	Descriptive Linguistics	3
ZOO	652	The Central Nervous System and Special Senses	3
COMM	532	Phonetics	3

Students entering the Master's Program in Speech Pathology will be selected according to the following criteria: (1) promise of academic achievement; (2) letters of reference; (3) goals of the student in relation to the needs in the field; and (4) personal interview.

Special Education: Teaching the Acoustically Handicapped

The following is the required program:

EDSE	575	Auditory Disorders in Children	3
EDSE	600	Introduction to Graduate Study	3
		or	
EDSE	669	Interpretation and Evaluation of Behavioral Research	3
EDSE	602	Education and Psychology of Exceptional Children	3
EDSE	650	Advanced Problems in Teaching the Hearing Impaired	3
EDSE	651	Advanced Problems in Speech for the Hearing Impaired	3
EDSE	652	Linguistic Approach to Language for the Hearing Impaired	Max. 3
EDSE	654	Practicum with the Hearing Impaired	Max. 15
EDSE	659	Seminar in Education of the Hearing Impaired	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

EDSE	310	Introduction to Mental Retardation	4
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	600	Introduction to Graduate Study	3
		<i>or</i>	
EDSE	689	Interpretation and Evaluation of Behavioral Research	3
EDSE	602	Education and Psychology of Exceptional Children	3
EDSE	606	Principles and Practices of Measurement of the Handicapped	3
*EDSE	614	Practicum with the Mentally Retarded	Max. 15

Elective Courses

EDSE	302	Counseling Parents of Exceptional Children	3
EDSE	311	Education of Trainable Mentally Retarded	4
EDSE	330	Care and Pathology of the Physically Handicapped	3
EDSE	350	Pathology and Introduction to Education of the Hearing Impaired	3
EDSE	414	Problems in Teaching Trainable Mentally Retarded Children	4
EDSE	421	Behavior Management in the Classroom	3
EDSE	411	Vocational Preparation of the Mentally Retarded	3
EDSE	440	Survey of Education of the Visually Handicapped	3
EDSE	590	Introduction to Vocational Rehabilitation Counseling	3
EDSE	603	Administration and Supervision of Special Education	3
EDSE	604	Appraisal of Exceptional Children	4
EDSE	609	Basic Concepts of Mental Retardation	4
EDSE	610	Sociological and Educational Aspects of Mental Retardation	4
EDSE	611	Psychological Aspects of Mental Retardation	4
EDSE	612	Advanced Curriculum Development	4
EDRD	617	Remedial Reading in the Elementary School	4
PCG	530	Child and Adolescent Psychology	3
PCG	558	Abnormal Psychology	3
PCG	655	Mental Hygiene	3
MUS	326	Music for the Exceptional Child	3
VE	610	Foundations of Vocational Technical Education	3
VE	612	Cooperative Education and Coordination	3
VE	430	Vocational Education for Learners with Special Needs	3

Total Program: 45 quarter hours minimum.

Acceptance in the Master's program in M.R. is contingent upon possession of a teaching certificate and at least one year of teaching experience or the equivalent. It is not mandatory that the certificate or the experience be in Special Education.

***NOTE:** EDSE 614 -- Practicum with the Mentally Retarded must be applied for within the first two weeks of the quarter previous to the one in which the graduate student plans to do this practicum.

Special Education: Teaching Physically Handicapped Children

The following is the required program:

EDSE	310	Introduction to Mental Retardation	4
EDSE	330	Care and Pathology of the Physically Handicapped	3
EDSE	331	Problems of Teaching the Physically Handicapped	3
EDSE	562	Speech Correction and Improvement in the Classroom	3
EDSE	602	Education and Psychology of Exceptional Children	3
EDSE	606	Principles and Practices of Measurement of the Handicapped	3
EDSE	631	Advanced Problems in Teaching Children with Physical Defects	3
EDSE	633	Seminar in Crippled and Other Health Impaired	3
EDSE	634	Practicum with Physically Handicapped	3-15
EDSE	689	Interpretation and Evaluation of Behavioral Research	3

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	326	Introduction to Teaching Learning Disabled 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	411	Vocational Preparation of the Mentally Retarded	3
EDSE	421	Behavior Management in the Classroom	3
*EDSE	440	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	Neurological Motor Speech Disorders	3
EDSE	693	Medical Aspects of Disabilities	3
EDRD	617	Remedial Reading in the Elementary School	4
PCG	530	Child and Adolescent Psychology	3
HPER	369	Therapeutic Recreation	3
HPER	432	Adapted Physical Education	3

Total Program: 45 quarter hours minimum.

Special Education: Teaching Socially and Emotionally Disturbed Children

The following is the required program:

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	602	Education and Psychology of Exceptional Children	3
EDSE	604	Appraisal of Exceptional Children	4
EDSE	605	Practicum in Appraising Exceptional Children	4
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
EDSE	689	Interpretation and Evaluation of Behavioral Research	3
EDRD	617	Remedial Reading in the Elementary School	4
		or	
EDRD	627	Remedial Reading in the Secondary School	4
EDEL	620	Mathematics in the Elementary School	3

*Prerequisite course. If not taken previously, it should be enrolled for in the first quarter. Does not count toward master's degree.

Elective Courses: (*Strongly Recommended)

*EDSE	302	Counseling Parents of Exceptional Children	3
*EDSE	562	Speech Correction and Improvement in the Classroom	3
EDSE	590	Introduction to Vocational Rehabilitation Counseling	3
EDSE	603	Administration and Supervision of Special Education	3
EDSE	663	Language Disorders of Children II	3
PCG	530	Child and Adolescent Psychology	3
PCG	540	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	650	Remedial Reading Case Study	3
MUS	326	The School Music Program for the Handicapped	3
SOC	414	The Sociology of Child Development	3
*SOC	645	Seminar in the Sociology of Mental Health and Illness	3

Total Program: 45 quarter hours minimum.

Students entering the Master's program in E.D. will be selected according to the following criteria: (1) teaching and/or clinical experience appropriate to the area; (2) promise of academic achievement; (3) references; (4) goals in relationship to needs in the field.

Special Education: Learning Disabilities

The following is the required program:

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	602	Education and Psychology of Exceptional Children	3
EDSE	604	Appraisal of Exceptional Children	4
EDSE	605	Practicum in Appraising Exceptional Children	4
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
EDSE	689	Interpretation and Evaluation of Behavioral Research	3
EDEL	620	Mathematics in the Elementary School	3
EDRD	617	Remedial Reading in the Elementary School	4
		or	
EDRD	627	Remedial Reading in the Secondary School	4
EDRD	650	Remedial Reading Case Study	3

*Prerequisite course. If not taken previously, it should be enrolled for in the first quarter. Does not count toward master's degree.

Students entering the Master's program in L.D. will be selected according to the following criteria: (1) teaching and/or clinical experience appropriate to the area; (2) promise of academic achievement; (3) references; (4) goals in relationship to needs in the field.

Special Education: Teaching the Visually Handicapped

The following is the required program:

Generic Requirements:

EDGE	600	Introduction to Graduate Study	3
		or	
EDGE	689	Interpretation and Evaluation of Behavioral Research	3
EDGE	606	Principles and Practices of Measurement of the Handicapped	3
		or	
EDGE	604	Appraisal of Exceptional Children	4
EDGE	602	Education and Psychology of Exceptional Children	3
EDGE	302	Counseling Parents of Exceptional Children	3
		or	
EDGE	690	Counseling the Handicapped	3

Academic Requirements: (For Classroom Teaching)

EDGE	503	The Multihandicapped	3
EDGE	541	Techniques of Daily Living for Visually Handicapped	1
EDGE	543	Braille and Other Communication Skills for Visually Handicapped I	3
EDGE	544	Media and Methods for Visually Handicapped I	3
EDGE	545	Media and Methods for Visually Handicapped II	3
EDGE	546	Principles of Orientation and Mobility for Visually Handicapped	3
EDGE	591	Community Resources for Rehabilitation, Guidance, and Counseling	3
EDGE	641	Structure and Function of the Eye	3
EDGE	642	Low Vision and Its Educational Implications	2
EDGE	643	Braille and Other Communication Skills	3
EDGE	644	Practicum with Visually Handicapped	Max. 15

Students earning certification in orientation and mobility through the American Association of Workers for the Blind must complete the following group of requirements: LIMITED ENROLLMENT: DEPARTMENT CONSENT ONLY.

Orientation and Mobility Requirements:

EDGE	547	Independence in Orientation and Mobility	3
EDGE	548	Advanced Independence in Orientation and Mobility	3
EDGE	647	Methodology in Orientation and Mobility	2
EDGE	648	Practicum with Visually Handicapped Orientation and Mobility ...	3-15

***Electives:**

EDGE	310	Introduction to Mental Retardation	4
EDGE	320	Introduction to the Education of Socially and Emotionally Disturbed Children	3
EDGE	326	Introduction to Teaching Learning Disabled Children	3
EDGE	350	Pathology and Introduction to Education of the Hearing Impaired ...	3
EDGE	590	Introduction to Vocational Rehabilitation Counseling	3
EDGE	562	Speech Correction and Improvement in the Classroom	3
EDGE	608	Supervision and Administration of Special Education	3
EDGE	330	Care and Pathology of the Physically Handicapped	3
EDGE	440	Survey of Education of the Visually Handicapped	3
EDGE	441	Listening Skills for Learning	3

*Or any other courses, with adviser approval.

Students who elect *not* to earn certification in orientation and mobility are required to earn a minimum of 60 credit hours for the degree. Students earning certification in orientation and mobility from AAWB are required to earn a minimum of 75 credit hours for the degree.

When a student enters the M.A. degree program without teacher certification in any field, he is required to add to his program course requirements listed under Professional Teacher Education.

Special Education: Multihandicapped

The following is the required program:

EDSE	503	The Multihandicapped	3
EDSE	504	Practicum with the Multihandicapped	Max. 15
EDSE	505	Curriculum for the Multihandicapped	3
EDSE	510	Severely Intellectually Handicapped	1
EDSE	520	Severely Emotionally Disturbed	1
EDSE	530	Severely Physically Disabled and OHI	1
EDSE	540	Low Functioning Visually Impaired	1
EDSE	550	Low Functioning Acoustically Handicapped	1
		Elective Courses	19

Total Program: 45 quarter hours minimum.

Students will be requested to select a minimum of two emphasis areas from the following:

Physically Handicapped
Mentally Retarded
Emotionally Disturbed
Acoustically Handicapped
Visually Handicapped

Concentrations will be planned with the adviser in harmony with previous experience and career goals.

A student will be advised to carefully check his catalog for all requirements and policies of the graduate school.

Requirements for the program include: (1) a Teaching Certificate (2) a Bachelor's degree or concentration in some area of Special Education, (3) one year's teaching experience, or equivalent as an aide, volunteer worker, etc.

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:

EDSE	590	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	4
EDSE	595	Seminar: Introduction to Employment Counseling	4
*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. 16
EDSE	696	Seminar in Rehabilitation: Rehabilitation Plan Formulation	.....3
EDSE	697	Seminar: Administration and Supervision of Vocational Rehabilitation Programs	.....3
PCG	507	Counseling Theories	.....3
PCG	558	Abnormal Psychology	.....3
PCG	612	Introductory Supervised Practice in Counseling	.....6
*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	411	Vocational Preparation of the Mentally Retarded	.....3
EDSE	540	Survey of Education of the Visually Handicapped	.....3
EDSE	609	Basic Concepts of Mental Retardation	.....4
EDSE	611	Psychological Aspects of Mental Retardation	.....4
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

Post-Masters Special Education Administration Endorsement Program

A program designed to prepare Special Education Administrators and leading to endorsement by the University to serve in this capacity is available. Requirements vary in relation to previous education, but basic teacher certification is a prerequisite. This program is available to those who meet the Graduate School Admission requirements, have completed the Master's degree, and have obtained teacher certification at either the B.A. or the M.A. level. Those interested should contact the Dean of the College of Special Education and Rehabilitation for specifics.

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 in Special Education

The doctoral program in Special Education is based on the assumption that entering students are experienced Special Education professionals with undergraduate and/or master's level training in Special Education. Those who do not possess such experience and training will be required to take additional training and to obtain additional field experience, as required by the doctoral program review board.

Each student, upon admission to the doctoral program by the graduate office of the University of Northern Colorado and following written request to the Dean of the School of Special Education and Rehabilitation, will be assigned an adviser within the School of Special Education and Rehabilitation. In consultation with this adviser, he should determine courses for the first quarter on campus (for the most part, required courses should be selected this first quarter). During the first and second quarters on campus, the student and adviser in joint planning sessions should establish a tentative doctoral program. This program should be based on past experience and training and must include a statement of goals and rationale for proposed course work and educational experiences. Planning should provide for flexibility in future professional efforts, but must have meaningful directionality, which should be reflected in the rationale. The program (including rationale) must then be submitted to the doctoral program review board of the School of Special Education and Rehabilitation for approval. A majority of this board must vote approval of the specific doctoral plan before such plan may be considered established. If the board disagrees with elements of such plan, it will make recommendations for revisions or additions. *Enrollment in third quarter courses of the doctoral program without a program approved by the doctoral program review board may lead to the inclusion of courses which will not be ultimately approved as a part of the doctoral plan.* (Minimal changes in program ~~activities~~ may be approved by the major adviser after program review board approval.)

The Ed.D. in Special Education is a flexible doctoral program with provision for major emphasis in university teaching or administration. Both major emphases are internally flexible and may be established so as to fit a variety of points of focus. In addition, the student will select subareas of emphasis as outlined below. Individual student program planning should be based on past training and experience and future interests.

Required Courses: (These are required for both major emphases within the doctoral program.)

		<i>Hours Credit</i>
EDSE	604	Appraisal of Exceptional Children 4
EDSE	702	Research Seminar in Special Education and Rehabilitation 3
EDSE	703	Problems Seminar in Special Education and Rehabilitation 3-6
EDSE	704	Trends in Special Education (The student is required to take a total of at least 9 quarter hours in EDSE 703 and EDSE 704 combined.) 3-6
RSM		(Selected courses in Statistics as appropriate to the student's background) Min. 9
EDSE	799	Doctoral Dissertation 18
		Total Required Hours 42

In addition to the courses required for all Ed.D. programs (above), certain courses are required for major emphases in University Teaching or Special Education Administration as indicated below:

Required for University Teaching Emphasis

EDSE	755	Supervised Practicum in College Teaching Min. 4
EDSE	705	Internship in Supervision of Student Teachers Min. 4
		Total Required Hours 8

Required for Special Education Administration Emphasis

EDSE	603	Administration and Supervision of Special Education 3
EDAD		(Selected Courses) Min. 12
EDSE	705	Internship in Special Education Min. 12
		Total Required Hours 27

Subareas of Emphasis (to be selected in conference with the adviser and subject to approval of the doctoral program review board):

1. Emphasis in vocational preparation of handicapped children and youth.
2. Emphasis in education of preschool handicapped children.
3. Emphasis in any of the categorical areas (mental retardation, speech pathology, emotionally disturbed, etc.)
4. Emphasis in education of minority, ethnic, and cultural groups.
5. Emphasis in research.
6. Emphasis in curriculum development.
7. Emphasis in appraisal/interpretation/pupil program prescription.
8. Emphasis in institutional programming and management.
9. Others -- as designed by the student and his adviser.

Candidates for the doctorate at the University of Northern Colorado must meet all University requirements of the graduate catalog, such as minimum number of quarter hours in courses numbered 500 or above, completion of EDSE 700 -- Introduction to Doctoral Study or its equivalent, completion of a minimum of 90 quarter hours beyond the master's degree, residency requirements, and all other similar requirements. It is the responsibility of the student to make certain that these requirements are met in addition to specific requirements as outlined above.

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 year's work experience in rehabilitation or related field (evaluated by the rehabilitation staff) prior to awarding the degree, with a minimum of one year of appropriate work experience subsequent to the Master's Degree.

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:

EDSE	592	Vocational Placement and Adjustment of the Disabled in Rehabilitation	4
EDSE	692	Psychological Aspects of Disability	3
EDSE	695	Seminar in Rehabilitation: Rehabilitation Plan Formulation	3
PCG	543	Theories of Motivation	3
PCG	558	Abnormal Psychology	3
PCG	624	Human 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

Theatre Arts

Master of Arts Degree

The Master of Arts degree program is the terminal degree program in the fields of Theatre Arts at the University of Northern Colorado. This program is designed primarily to produce the master classroom teacher and the master director of drama activities in the elementary through the secondary school levels (K-12 grades). It is also a suitable program for the teacher, director, and technical director and designer for theatre programs at the junior college level. Although this program is not designed as a pre-doctoral program, it should be possible for any student, who meets the admission standards of another graduate school, to be admitted to that graduate school with this master's degree program.

The student's program must be planned with the departmental major adviser to achieve a balanced emphasis in at least three of the following areas: theatre history, acting and directing, technical theatre (including costuming), and educational theatre. The choice of emphasis should be dictated by the student's professional purpose in pursuing the degree (as listed above), weaknesses in the student's undergraduate background in theatre arts, and the student's own special needs.

Core Program. All students are required to take the following courses unless exempted by a previously completed equivalency:

			<i>Hours Credit</i>
THEA	600	Introduction to Graduate Study	3
THEA	610	Seminar in Technical Theatre	3
		(maximum 9 hours)	
THEA	630	Seminar in Theatre History	3
		(maximum 9 hours)	
THEA	685	Seminar in Educational Theatre	3
		(maximum 9 hours)	
THEA	650	Graduate Summer Theatre Workshop I	8
THEA	651	Graduate Summer Theatre Workshop II	8
THEA	652	Graduate Summer Theatre Workshop III	8
THEA	500	Individual Performance in Theatre	2
THEA	501	Individual Performance in Theatre	2
THEA	502	Individual Performance in Theatre	2
		Electives	4
			<u>.21</u>
			45

In addition, each candidate for the Master of Arts degree must pass a written comprehensive examination covering three areas of his or her emphases in theatre arts and a general oral examination conducted by three members of the Department of Theatre Arts. With the approval of the student's major adviser, a thesis may be submitted in partial fulfillment of the master's degree program. Proven proficiency in written English communication and in the required research tools for the thesis must be demonstrated before approval to submit a thesis will be granted.

Electives. Electives should be chosen from theatre arts courses listed in the catalog. With the approval of the student's adviser, 12-15 quarter hours of credit may be selected from 300-400 level courses in the master's degree program.

Electives Outside the Department of Theatre Arts. Graduate School requirements state that each student must complete a minimum of 45 quarter hours of credit in the master's degree program, of which at least 22 hours must be in courses open only to graduate students (numbered 500 or above). Each student must also have a minimum of 64 quarter hours of credit in his or her combined undergraduate and graduate programs in the fields of theatre arts. At least 24 hours of graduate credit must be earned in theatre arts and must be taken at the University of Northern Colorado. The department highly recommends that the student pursuing

a master's degree develop supporting areas in speech communication and dramatic literature, especially if these areas are weak in the undergraduate program. In consultation with his or her major adviser, each student is encouraged to complete his core program in theatre arts with humanistic studies which will serve to broaden his or her awareness of the human uses of the theatre in its practice and teaching.

Vocational Teacher Education

The Mission of Vocational Education at the graduate level is to provide programs and services consistent with professional needs of teachers, department chairpersons, and career guidance personnel through graduate studies and in-service education. The graduate program is organized around competency modules and units and delivered at the present time through courses which have been grouped as to: (1) Basic Core Requirements, (2) Program Leadership Seminars, (3) Other Areas of Emphases, and (4) Special Professional Development Experiences.

The Basic Core Program is a fifteen-hour program divided into four concentrated courses: VE 610, 612, 614, and 616. These courses are usually offered each quarter. Courses rotate each quarter from an evening to a day-time schedule. VE 610 may be taken to meet State requirements for a three-hour course in Philosophy or Foundations of Vocational Education.

The Program Leadership Seminars have been designed to prepare vocational educators for planning, designing/structuring, implementing, managing, and evaluating vocational education programs. To enter the leadership training program individuals are required to have successfully completed VE 616. The seminars are scheduled on alternate quarters, thus are offered at least twice a year. Students are asked to take the seminars, if at all possible, according to the proposed sequence: VE 623, 624, 625, 626, and 627. Students taking a "content area" in Vocational Education through the Department of Curriculum and Instruction will be expected to demonstrate the identified program leadership competencies. The Basic Core and the Program Leadership Seminars may be elected as a "supporting area" to other graduate degree programs.

Other Areas of Emphases are those categorized as: (a) Community/Manpower and Adult Vocational Education: VE 630 and 631; (b) Career Guidance and Counseling: VE 641, 642, 644, and 648; and, (c) Health Occupations Education: VE 500, 506, and 507.

Special Professional Development Experiences have been designed as learning experiences which develop additional competencies and leadership abilities under supervised considerations. These experiences range from specialized practicums to the Vocational Internship Program. For further information examine the following course descriptions: VE 509, 690, 691, and 696.

Individuals interested in vocational education graduate studies at UNC should contact: Dr. Louise J. Keller, Coordinator of Graduate Vocational Education, McKee Hall of Education, Office No. 511, College of Education, University of Northern Colorado, Greeley, Colorado 80639.

Zoology

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

Master of Arts Degree

Minimal Requirements:

			<i>Hours Credit</i>
BIO	691	Seminar in Biological Sciences .....	.3
BIO	692	Special Topics in Biology .....	.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 BIO 699) .....	.36
			<u>45</u>

Thesis required.

Proficiency in chemistry through general biochemistry is strongly recommended 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 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 involve off-campus archaeological 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 550. SEMINAR IN ARCHAEOLOGY. *Three to nine hours credit.*

Prerequisite, two courses in archaeology or permission of instructor. Detailed investigation into the archaeology of a particular geographical area, or chronological period, or specific artifactual materials. Subjects to be selected in terms of current student interests.

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.

ANT 650. ARCHAEOLOGY FIELD SCHOOL. *Twelve hours credit maximum.*

A number of sites will be test excavated and a section will be extensively excavated. Techniques taught will include site mapping, controlled surface collection, recording, flotation, and a variety of excavation techniques. The latter will range from random test excavation samples to the excavation of large horizontal areas. Prerequisite, permission of instructor.

ANT 681. RESEARCH METHODS IN ANTHROPOLOGY. *Four hours credit.*

An introduction to theory construction, validation, maintenance and desolution in anthropology. Specific research methods and techniques will be elaborated through examples chosen from various subfields within anthropology.

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.

AST 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. Does not satisfy the 500 level requirement unless the student is in full-time residence at UNC during the quarter the course is taken.

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. *Three hours credit.*

Prerequisites, BIO 103, CHEM 281, PHYS 150 or consent of instructor. 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 508. WORKSHOP. *One to ten hours credit.*

This course will be concerned with various topics of biological interest. The topic will depend on the expert conducting the workshop. Each workshop will have a subtitle and no subtitle may be repeated for credit.

BIO 531. HUMAN GENETICS AND SOCIETAL PROBLEMS. *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 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 561. PATHOGENIC MICROBIOLOGY. *Three hours credit.*

Prerequisites, BIO 108, 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. *Three hours credit.*

Prerequisites, BIO 261 or 361, CHEM 281, PHYS 150, 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. *Three hours credit.*

Prerequisites, BIO 261 or 361, 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 564. ZONOSSES AND EPIZOOTIOLOGY. *Three hours credit.*

Prerequisites, BIO 261 or 361. A study of the zoonoses (infectious diseases of animals transmissible to man) and epizootics (infectious diseases in animals) with particular emphasis on those found in this region.

BIO 590. PUBLIC SCHOOLS AND VENEREAL DISEASE EDUCATION. *Three hours credit.*

An introduction to the history, epidemiology, control and medical aspects of common venereal disease with emphasis on counseling, teaching and curriculum development and implementation in secondary schools. The course is designed for secondary school teachers, and administrators and others involved in activities concerning teenage youths.

BIO 622. INDIVIDUAL STUDIES. *Maximum 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 500 level requirement unless the student is in full-time residence at UNC during the quarter the course is taken.

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.

BIO 692. SPECIAL TOPICS IN BIOLOGY. *One hour credit.*

Study of topics of current biological interest. Students will research and present various segments of the selected topics.

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.*

Prerequisites, 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. Corequisites, 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 699. THESIS. *Maximum eight hours credit.*

Required of Master of Arts candidates in Botany and Zoology.

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.

BIO 799. DOCTORAL DISSERTATION. *Six to eighteen hours credit.*

Required of all doctoral candidates.

BLACK STUDIES

BLS 508. WORKSHOP IN BLACK STUDIES. *One to three hours credit.*

This course is concerned with the total educational problems of the participants and provides interactive opportunities for socio-cultural-economic exploration in its total complexity.

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.

BIO 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 fields 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.

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 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 528. SEMINAR IN INCOME TAXATION. *Three hours credit.*

Prerequisite, BUS 429. An in-depth study of some of the more complex areas of tax law; for example, corporate liquidations, subchapter S corporations, pension and profit sharing plans, etc. Tax planning and tax research procedures will be included as an integral part of the subject matters.

BUS 540. RISK AND INSURANCE MANAGEMENT. *Three hours credit.*

Prerequisites, BUS 340 or 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 560. MARKETING MANAGEMENT. *Four hours credit.*

Prerequisites, BUS 260 or consent of instructor. Not open to students with an undergraduate marketing major. A critique of the current theories in marketing from a historical perspective and an analysis of their applicability to marketing strategy. Contributions made by "outside" disciplines will be emphasized.

BUS 570. FINANCIAL MANAGEMENT AND POLICY. *Four hours credit.*

A course designed to study the acquisition, allocation, and management of funds within the business enterprise. Financial goals, funds flows, capital budgeting, asset management, and financing strategies are covered. Course is not open to students with a previous major or minor in finance.

BUS 582. STATISTICAL ANALYSIS FOR BUSINESS. *Four hours credit.*

A course designed to orient the student to classical and Bayesian statistical methodology, with primary emphasis on applications to modern business decisions. Topics include probability concepts, sampling, hypothesis testing, correlation and regression analysis, and statistical design.

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 602. 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 620. SEMINAR IN CONTROLLERSHIP. *Four hours credit.*

Prerequisite, consent of instructor. An in-depth study of some concepts of controllership. Emphasis is on the importance of theoretical principles, and adapting the procedures followed for the needs and capacities of the organization and individuals.

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. *Four hours credit.*

A seminar that considers management approaches to large-unit relationships and the organization as a whole, with understanding of power and influence concepts. Analysis and evaluation of conflict relate these aspects of behavior to coordination and control -- with motivation. The change phenomena and managerial handling to

minimize behavioral consequences, related to structure and "climate" considerations in organizational planning, and concepts of organizational effectiveness are examined. The student is presumed to have had prior exposure to a principles of management course or equivalent experience.

BUS 652. SEMINAR IN ORGANIZATIONAL BEHAVIOR. *Four hours credit.*

A seminar designed to study small work groups and their impact on organizational behavior, from development through membership roles and satisfactions into influence on motivation and performance. Individual and group behavior are compared. The leadership concept, both for work groups and managers, with detailed examination of concepts appropriate for effective management of larger units of organization will be explored. The student is presumed to have had prior exposure to a principles of management course or equivalent experience.

BUS 653. SEMINAR IN PERSONNEL MANAGEMENT. *Two hours credit.*

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. The student is presumed to have had prior exposure to a principles of management course or equivalent experience.

BUS 654. SEMINAR IN HUMAN BEHAVIOR IN ORGANIZATIONS. *Four hours credit.*

A seminar designed to study the circumstances surrounding the management of organizational behavior, highlighting concepts of work, the work environment and, especially, technology. The emphasis is on individual behavior in organizations, including understanding of the developmental background provided by communication and motivation theory. Included is an introductory consideration of informal organizations and small work groups. The student is presumed to have had prior exposure to a principles of management course or equivalent experience.

BUS 656. SEMINAR IN BUSINESS POLICY. *Four hours credit.*

A seminar designed to integrate the various functional areas of business in terms of policy-level decision making. The comprehensive-case method is used. The student is presumed to have had prior exposure to courses at the principles level in each of the functional areas of business.

BUS 661. SEMINAR IN MARKETING AND PUBLIC POLICY. *Four hours credit.*

Prerequisites, BUS 560 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 662. SEMINAR IN MARKETING COMMUNICATIONS. *Four hours credit.*

Prerequisites, BUS 362 or consent of instructor. A seminar course designed to acquaint the student with the means and media which the marketing manager utilizes to communicate with his target market. Special emphasis will be placed on the function of the promotional mix in the marketing plan.

BUS 665. SEMINAR IN MARKETING. *Four hours credit.*

Prerequisites, BUS 560 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. *Four hours credit.*

Prerequisites, BUS 470 or 570. A seminar designed for advanced study of the financial problems involved in the organization and conduct of business enterprise, including the integration of financial operations with operations of the business

unit, financial planning and control, capital budgeting, and the cost of capital. The student is presumed to have had prior exposure to a principles-level course in business or corporate financial management.

BUS 678. SEMINAR IN MANAGERIAL ECONOMICS. *Four hours credit.*

A seminar designed to explore the relationship between economic theory and the normative decision sciences. Special attention is given to illustrating the contribution of microeconomic analysis to management science. The student is presumed to have had prior exposure to the principles of managerial economics.

BUS 682. SEMINAR IN MANAGEMENT INFORMATION SYSTEMS. *Four hours credit.*

A seminar studying macro information systems. Emphasis will be placed on providing insight into the problems, opportunities, and techniques of identifying an organization's information requirements to facilitate the management and decision-making process, and of designing and evaluating systems to meet the recurring information based theories of management, information technology, cost and value of information, and organizational implications of information technology. The student is presumed to have had prior exposure to a principles of data processing course or equivalent experience.

BUS 685. SEMINAR IN SYSTEMS ANALYSIS AND DESIGN. *Four hours credit.*

A seminar studying micro information systems. Emphasis will be placed on the general processes and methodology involved in the area of systems analysis and design. Brief looks into the past and into the future of systems design will also be undertaken to illustrate the scope and potential of the discipline. Theory and practice will be blended to bring out an understanding of the techniques and tools needed. The technical aspects will be supplemented by the human aspects; skills and aptitudes. The student is presumed to have had prior exposure to a principles of data processing course or equivalent experience.

BUS 687. SEMINAR IN COMPUTER SIMULATION METHODS AND MODELS. *Four hours credit.*

A seminar designed to examine the use of computer simulation techniques as aids in the decision-making process. Emphasis will be placed on the analysis, design, construction, and verification of computer simulation models. Some knowledge of FORTRAN is highly recommended. The student is presumed to have had prior exposure to a principles of data processing course or equivalent experience.

BUS 695. SEMINAR IN OPERATION ANALYSIS. *Four hours credit.*

A seminar designed to introduce the topic of management science and to study some of the models in operations research. Emphasis is on decision-making through the use of such problem-solving models, with attention given to specific applications. The student is presumed to have had prior exposure to undergraduate algebra, statistics, and economics courses or equivalent experience.

BUS 697. SEMINAR IN BUSINESS DECISION THEORY. *Four hours credit.*

A seminar designed to introduce executive decision-making and to demonstrate the usefulness of Bayesian logic in integrating the diverse ideas of management science. Studied shall be decisions based on prior information (or feelings), decisions based on sampled evidence alone, and decisions based upon a combination of feelings and sampled evidence. The student is presumed to have had prior exposure to undergraduate algebra, statistics, and economics courses or equivalent experience.

BUSINESS TEACHER EDUCATION

BEVE 566. DEVELOPMENT OF DISTRIBUTIVE EDUCATION INSTRUC-

TIONAL 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 program.

BEVE 580. WORKSHOP IN BUSINESS TEACHING. *Maximum 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.

BEVE 581. WORKSHOP IN DISTRIBUTIVE EDUCATION. *Maximum nine hours credit.*

An intensive course designed primarily for distributive education coordinators. Not more than three workshops may be applied to any one degree.

BEVE 651. PRINCIPLES AND PROBLEMS IN BUSINESS TEACHING. *Three hours credit.*

A study of the principles upon which business education is founded and the problems which face the entire field. The purpose of the course is to promote a sound philosophy of business education as it is today and will become tomorrow. Not open to doctoral students.

BEVE 653. IMPROVEMENT OF INSTRUCTION IN BOOKKEEPING AND BASIC BUSINESS. *Three hours credit.*

This course is planned primarily for those who have had experience teaching bookkeeping and basic business subjects. Objectives, content, good teaching practices, and evaluation as well as specific teaching problems of the members of the class are emphasized.

BEVE 655. IMPROVEMENT OF INSTRUCTION IN DISTRIBUTIVE EDUCATION. *Three hours credit.*

Important procedures and effective techniques used in teaching high school cooperative classes in the distributive occupations and in evening classes for employed sales and supervisory personnel.

BEVE 657. IMPROVEMENT OF INSTRUCTION IN OFFICE SKILLS. *Three hours credit.*

Primarily for experienced teachers who have had undergraduate method courses in shorthand, typewriting, and/or office practice. Emphasis is on research in learning and on applications of this research to the teaching of typewriting, shorthand, and/or office practice classes.

BEVE 665. POST-SECONDARY PROGRAMS IN BUSINESS AND DISTRIBUTIVE EDUCATION. *Three hours credit.*

A general overview of the types of business and distributive education programs which should be offered in community colleges and area vocational technical schools. Special emphasis will be placed on students, faculty and curriculum.

BEVE 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.

BEVE 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.

BEVE 672. CURRICULUM AND CONSTRUCTION FOR BUSINESS TEACHERS. *Three 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.

BEVE 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.

BEVE 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.

BEVE 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.

BEVE 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.

BEVE 704. READINGS IN BUSINESS TEACHING. *Three hours credit.*

Prerequisite, BEVE 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 primarily 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. An introduction to chemical thermodynamics with an emphasis on topics which are particularly applicable to high school and general college chemistry courses rather than on rigorous mathematical proofs.

CHEM 552. PRINCIPLES OF PHYSICAL CHEMISTRY II. *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. An introduction to chemical kinetics and quantum chemistry with the same emphasis as in 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 thermodynamics 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 mechanisms 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 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 622. INDIVIDUAL STUDIES. *Maximum 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.

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.

CHEM 699. THESIS. *Maximum fifteen hours credit.*

Required of Master of Arts candidates in the Arts and Sciences Chemistry program.

CHEM 755. SUPERVISED PRACTICUM IN COLLEGE TEACHING. *Maximum 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.

CHEM 799. DOCTORAL DISSERTATION. *Six to eighteen hours credit.*
Required of all doctoral candidates.

COLLEGE STUDENT PERSONNEL WORK

CSPW 508. WORKSHOP. *Maximum three hours credit.*

Special short courses concerning topics or issues in College Student Personnel Work will be offered during summers and other quarters as the need arises and the resources are available.

CSPW 622. INDIVIDUAL STUDIES. *Maximum 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 permission 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.

COMMUNICATION

COMM 510. INTERNSHIP IN COMMUNICATION. *Maximum fifteen hours credit.*

This course is designed to encourage interdisciplinary and interprofessional communication experience.

COMM 520. THE PSYCHOLOGY OF HUMAN COMMUNICATION. *Three hours credit.*

This seminar offers an introduction to psycholinguistics and includes an analysis of the basic psychological factors surrounding human communication; the development of language in the child; the relationships between grammar-dialect-slang-taboo language and communication; the relationship between thought and speech; the nature and function of language.

COMM 521. SEMINAR IN COMMUNICATION. *Three hours credit. (Maximum nine hours credit.)*

A seminar designed to involve students in issues of current concern. Subject matter will vary according to faculty expertise and student needs and interests. The course can be repeated for credit under different subtitles, for example: Free Speech, Rhetoric of the Cold War, Problems in Family Communication, etc.

COMM 522. INTERPERSONAL COMMUNICATION: SEMINAR. *Three hours credit.*

This is the first of a two quarter sequence. A course primarily designed to provide the student with a theoretical base in interpersonal communication literature.

COMM 523. INTERPERSONAL COMMUNICATION: PRACTICE. *Three hours credit. (Two hours lecture, two hours laboratory.)*

Prerequisite, COMM 522. This is the second of a two quarter sequence. A course designed to give the student laboratory experience in interpersonal communication.

COMM 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.

COMM 554. SEMINAR IN PUBLIC DISCOURSE. *Three hours credit. (Maximum nine hours credit.)*

A seminar which will include an examination and application of rhetorical theory and rhetorical criticism. Subject matter will vary according to faculty expertise and student interest. The course may be repeated under different subtitles, for example: Communication and the Law; American Preaching; Rhetoric of the Presidency.

COMM 556. COMMUNICATION STRATEGIES. *Three hours credit. (Maximum nine hours credit.)*

A seminar study of a specific social movement and its rhetors. The course would be

repeated for credit up to nine hours, as the specific movement would vary according to student interest and faculty expertise.

COMM 570. ADVANCED ORAL INTERPRETATION. *Three hours credit.*

An advanced study in the oral communication of literature. Some attention will be given to the oral tradition of the language and historical basis of interpretation. Individual and group performance will include the lecture-recital, Readers Theater and Chamber Theater.

COMM 584. CURRENT TRENDS IN TEACHING COMMUNICATION. *Three hours credit.*

A seminar study of the philosophy of learning and methods of teaching (1) trends and techniques in an institutional setting, and (2) professional communication consulting.

COMM 600. INTRODUCTION TO COMMUNICATION RESEARCH. *Three hours credit.*

This class will include an orientation to graduate study in general plus a study of the various types of research utilized in the Communication discipline.

COMM 603. PRACTICUM IN RESEARCH. *Three hours credit.*

Prerequisite, COMM 600, Introduction to Communication Research. Further prerequisite for the practicum is COMM 603 or COMM 664, based upon student thesis direction. A course offering students an opportunity to conduct a research study under faculty guidance.

COMM 608. SEMINAR IN RESEARCH. *Three hours credit.*

Prerequisite, COMM 600. This course will provide graduate students with a knowledge of design and methodology in experimental research in Communication.

COMM 630. COMMUNICATION THEORY. *Three hours credit.*

A study of the principles underlying language theory, systems theory, information theory, and attitude theory, and an attempt to discover their relationship to the process of communication.

COMM 632. INDIVIDUAL STUDIES. *Maximum 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.

COMM 634. SEMINAR IN HUMAN RELATIONS. *Three hours credit.*

A study of verbal and nonverbal symbols and how they enhance or impede our ability to relate to each other. Patterns of miscommunication are studied and "correctives" are suggested for improving human relations.

COMM 680. PHILOSOPHICAL AND RHETORICAL ORIGINS OF ORAL COMMUNICATION. *Three hours credit.*

A systematic review of the origins and development of communication with attention to the probable impact of certain philosophical and rhetorical ideas. The course focuses upon the oral tradition from Aristotle to Quintilian.

COMM 682. MODERN RHETORIC. *Three hours credit.*

A course designed to explore and analyze the contributions of 18th, 19th, and 20th century rhetoricians to rhetorical theory.

COMM 684. SEMINAR IN RHETORICAL CRITICISM. *Three hours credit.*

A course designed to explore contemporary theories of rhetorical criticism.

COMM 666. SEMINAR IN PERSUASION. *Three hours credit.*

A course designed to investigate the implications of research methodologies in the study of persuasion, particularly attitude research.

COMM 680. TEACHING COMMUNICATION. *Three hours credit.*

A course required of graduate assistants assigned to teach communication classes. The entire communication curriculum will be considered in terms of objectives, students, policies, attitudes, teaching techniques, course outlining, evaluation, and related problems.

EARTH SCIENCE

ESCI 500. EARTH SCIENCE RESEARCH. *Three hours credit.*

An introduction to the nature and methods of research in the earth sciences. The student will select a topic for intensive investigation.

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 500. MICROECONOMIC THEORY. *Three hours credit.*

Prerequisite, ECON 200. Investigation of the theories of the firm at a more advanced level; includes a detailed analysis of the resource market and the effects of public policy upon resource allocation. Open to seniors, graduates and approved juniors.

ECON 501. OPERATIONS AND ECONOMIC ANALYSIS. *Three hours credit.*

Prerequisite, ECON 200. Examination of the normative decision-making processes through the use of microeconomic theory with applications to business practice through operations research. Open to graduates, approved seniors and juniors.

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 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 655. PRACTICUM ON STRATEGY OF CHANGE. *One to five hours credit.*

This course is the first of a three-course sequence designed to provide the student with a thorough understanding of the problem-solving process in education and the skills required to be a successful problem-solver or "change agent." Course emphasizes strategies of effecting change. Department approval required.

EDAD 656. PRACTICUM ON MANAGEMENT OF CHANGE. *One to five hours credit.*

A continuation of EDAD 655, this course requires the systematic analysis of defined problems, the design of solution alternatives, and the implementation or field testing of selected solutions. Department approval required.

EDAD 657. PRACTICUM ON EVALUATION OF CHANGE. *One to five hours credit.*

A continuation of EDAD 656, this course emphasizes the systematic evaluation of problem-solutions or changes implemented to meet specific needs. Department approval required.

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 690. INTERNSHIP IN EDUCATIONAL ADMINISTRATION. *Maximum 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 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 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 741. SEMINAR ON FOUNDATIONS OF SCHOOL MANAGEMENT. *One to ten hours credit.*

This course is designed to permit the student to acquire basic knowledge in such

areas as law, finance, comprehensive planning, facilities management, research, personnel administration, curriculum, and foundations of education. Department approval required.

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 subtitle and no subtitle 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 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 600. RESEARCH IN INSTRUCTION. *Three hours credit.*

An orientation to graduate study in Curriculum and Instruction; and the nature and methods of research related to Curriculum and Instruction.

EDCI 601. PRACTICUM. *Maximum 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 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 NON-GRADED 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 655. EVALUATION RELATED TO THE PROCESS OF INSTRUCTION. *Three hours credit.*

Evaluation related to the process of instruction. A discourse designed to develop an understanding of the function between instruction and evaluation. Attention will be directed to teacher-made instruments with emphasis placed on the improvement of instruction and the selection of more appropriate learning experiences. Basic statistical processes will be explored.

EDCI 660. PROFESSIONAL ROLES AND RESPONSIBILITIES. *Maximum 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 practices 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 667. 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 668. SEMINAR IN CURRICULUM AND INSTRUCTION. *Maximum 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 669. 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 768. ADVANCED SEMINAR IN CURRICULUM AND INSTRUCTION. *Maximum nine hours credit.*

Prerequisite, EDCI 666. 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 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 candidate.

EDUCATIONAL FIELD EXPERIENCES

EDFE 501. EDUCATIONAL FIELD EXPERIENCES STUDIES. *One to four hours credit. May be repeated.*

Arranged with 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 aids, student teachers and/or interns. S-U final mark.

EDFE 506. WORKSHOP IN EDUCATIONAL FIELD EXPERIENCES. *Three to eight hours credit.*

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 subtitle. No subtitle may be repeated for credit. S-U final mark.

EDFE 601. EDUCATIONAL FIELD EXPERIENCES PRACTICUM. *One to four hours credit. May be repeated.*

Involvement in teacher education activities in the field. S-U final mark.

EDFE 610. PRACTICUM IN ALTERNATIVE EDUCATION. *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 EDUCATIONAL 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 EDUCATIONAL 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. 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 in 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 workshop might cover such areas as Administration, Individualized Instruction, Outdoor Education, Production, etc. Each workshop will have a subtitle and no subtitle 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: SERVICE IN SPECIALIZED SUBJECT AREAS AND GOVERNMENT PUBLICATIONS. *Three hours credit.*

Examination and evaluation of specialized reference sources and government publications with special consideration of the needs of the public school media center.

EDEM 536. EVALUATION AND SELECTION OF EDUCATIONAL MATERIALS. *Three hours credit.*

Discussion of selection principles and selection aids for media centers. Covers reading levels and interests of children and young people. Course discusses suitable materials for both elementary and high school media centers.

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 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 630. 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) film-strip and slide set techniques, and (3) motion picture production techniques. Actual production experience will be gained through laboratory experiences and required individual projects.

EDEM 632. INDIVIDUAL STUDIES. *Maximum 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 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 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

CD 508. CHILD DEVELOPMENT WORKSHOP. *One to three hours credit.*

An opportunity to study problems in child development. The area to be covered in any one workshop will be determined by the workshop subtitle. No subtitle may be repeated for credit. S-U final mark.

CD 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.

CD 533. RESEARCH IN CHILD DEVELOPMENT. *Three hours credit.*

Prerequisite, equivalent of CD 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.

CD 534. CURRICULUM DEVELOPMENT IN PRESCHOOL EDUCATION.
Three hours credit.

Prerequisite, CD 334 or consent of instructor. Taken in conjunction with CD 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.

CD 536. SEMINAR IN CHILD DEVELOPMENT. *Three hours credit.*

Prerequisite, CD 333. Discussions and analysis of current readings in Child Development.

CD 538. INTERNSHIP IN CHILD CARE CENTERS. *Three to six hours credit.*

Prerequisites, CD 333, 334, 335, 533 or equivalent experience in preschool teaching. Taken in conjunction with CD 534. Application of child development principles in teaching experience with preschool children. Experience in planning the program, preparing materials and assume all teaching responsibilities.

CD 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.

CD 601. PRACTICUM. *Maximum four hours credit.*

Open only by invitation to resident graduate students. Supervised professional activity in child development, approximately two hours per day. A well-written paper must be filed with the instructor before credit is given.

CD 622. INDIVIDUAL STUDIES. *Maximum 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.

EDEC 508. EARLY CHILDHOOD WORKSHOP. *One to three hours credit.*

An opportunity to study problems in early childhood education. The area to be covered in any one workshop will be determined by the workshop subtitle. No subtitle may be repeated for credit. S-U final mark.

EDEC 601. PRACTICUM. *Maximum four hours credit.*

Open only by invitation to resident graduate students. Supervised professional activity in early childhood education, approximately two hours per day. A well-written paper must be filed with the instructor before credit is given.

EDEC 622. INDIVIDUAL STUDIES. *Maximum 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.

EDEC 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.

EDEC 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.

EDEC 662. RESEARCH IN EARLY CHILDHOOD EDUCATION. *Three hours credit.*

This course is designed to provide the student with a background in research concerning the growth and development of the young child from birth through age eight.

EDEC 664. SEMINAR IN EARLY CHILDHOOD EDUCATION. *Three hours credit.*

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 an educational setting from nursery school through third grade level.

EDEC 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.

EDEC 699. THESIS. *Maximum fifteen hours credit.*

Optional for Master of Arts programs on recommendation of the major adviser. S-U final mark.

EDEC 701. SPECIALIST DEGREE PRACTICUM. *Eight hours credit.*

Project or supervised professional activity, required of all candidates for the Specialist in Education degree. S-U final mark.

EDEC 755. SUPERVISED PRACTICUM IN COLLEGE TEACHING. *Maximum 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.

EDEC 799. DOCTORAL DISSERTATION. *Eighteen hours credit.*

Required of all doctoral candidates. S-U final mark.

EDEL 508. ELEMENTARY EDUCATION WORKSHOP. *One to 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 subtitle. No subtitle may be repeated for credit. S-U final mark.

EDEL 601. PRACTICUM. *Maximum 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. S-U final mark.

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 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. S-U final mark.

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. S-U final mark.

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. S-U final mark.

EDEL 699. THESIS. *Maximum fifteen hours credit.*

Optional for Master of Arts programs on recommendation of the major adviser. S-U final mark.

EDEL 701. SPECIALIST DEGREE PRACTICUM. *Eight hours credit.*

Project or supervised professional activity, required of all candidates for the Specialist in Education degree. S-U final mark.

EDEL 755. SUPERVISED PRACTICUM IN COLLEGE TEACHING. *Maximum 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. S-U final mark.

EDRD 506. READING WORKSHOP. *One to three hours credit.*

The subtitle will indicate whether the workshop is for elementary or secondary teachers. Topics related to remedial reading (diagnosis, causation, and remediation), word perception, study skills, reading in the content fields, and trends and issues will be treated in various workshops. No subtitle may be repeated for credit. S-U final mark.

EDRD 531. READING IN THE CONTENT FIELDS. *Three hours credit.*

A course designed to assist teachers in the content areas to teach the 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 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 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.*

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 RESEARCH AND THE ANALYSIS OF READING PROGRAMS. *Three hours credit.*

Prerequisite, EDRD 310 or 411 or 612. A seminar in research techniques and their application in education. Reading programs will be critiqued, and individual research reports will be developed and presented by students.

EDRD 650. REMEDIAL READING CASE STUDY. *Three hours credit.*

Prerequisite, EDRD 617 or 627. This practicum consists of tutoring an individual remedial reader for five student contacts per week. One period 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. S-U final mark.

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 five student contacts per week. 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. S-U final mark.

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. S-U final mark.

EDRD 690. THESIS. *Maximum fifteen hours credit.*

Optional for Master of Arts program on recommendation of the major adviser. S-U final mark.

EDRD 701. SPECIALIST DEGREE PRACTICUM. *Eight hours credit.*

Project or supervised professional activity, required of all candidates for the Specialist in Education degree. S-U final mark.

EDRD 745. SEMINAR IN READING. *Three hours credit.*

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. S-U final mark.

EDRD 755. SUPERVISED PRACTICUM IN COLLEGE TEACHING. *Maximum 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 790. DOCTORAL DISSERTATION. *Eighteen hours credit.*

Required of all doctoral candidates. S-U final mark.

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 600. INTRODUCTION TO GRADUATE STUDY. *Three hours credit.*

An orientation to graduate study in general and the nature and methods of research in particular. Should be taken during the first quarter of graduate work.

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.

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 credit.*

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 622. INDIVIDUAL STUDIES. *Maximum 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.

ENG 640. COLLOQUIUM IN WORLD LITERATURE. *Three to 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.

ENG 691. CREATIVE PROJECT. *Maximum 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.

ENG 799. DOCTORAL DISSERTATION. *Eighteen hours credit.*
Required of all doctoral candidates.

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 502. LIFE DRAWING. *Three hours credit.*

Prerequisite, 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.*

Prerequisite, 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.*

Prerequisite, FA 419. Advanced study of photographic techniques in silk screen printing. Study of post design and advertising post silk screen 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 521. INTERPRETATIVE DRAWING. *Three hours credit.*

Prerequisite, FA 421. Study from nature, still-life, imagination. Emphasis on individual interpretation, pictorial composition, personal imagery.

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 subtitle. No subtitle 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 subheading 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.*

Prerequisite, 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 590. CONTEMPORARY IMAGERY AND IDEAS. *Three hours credit.*

A study of current imagery and ideas prevalent in the main stream of contemporary aesthetic practice.

FA 600. INTRODUCTION TO GRADUATE STUDIES, FINE ARTS. *One hour credit.*

This course must be taken for a total of three hours. A seminar in contemporary modes of art research with an emphasis on establishing directions for the culminating creative study.

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.*

Prerequisite, 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 expression 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 SCREENING PRINTING PROCESS. *Three hours credit.*

Prerequisite, FA 519. Individual investigation, research, silk screen printing. Emphasis on mixed media with photographs and with silk screen printing.

FA 620. OIL PAINTING STUDIO. *Three hours credit.*

Prerequisite, experience in basic oil painting. Advanced study in oil painting to provide the student with more time to develop individual expression and mastery of the medium.

FA 621. INTERPRETIVE DRAWING. *Three hours credit.*

Prerequisite, basic interpretive drawing. Study from nature, still-life, imagination. Emphasis on personal imagery.

FA 622. INDIVIDUAL STUDIES. *One to four hours credit.*

Individual studies in fine arts.

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. PATTERNS OF EXPERIENCE IN ARTS. *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 curriculum 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.*

Prerequisite, 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.

FA 691. CREATIVE PROJECT. *Maximum fifteen hours credit.*

With the approval of the major adviser and the Dean of the Graduate School, a creative project in fine arts may be prepared as the equivalent of a thesis.

UNC PROGRAM FOR COMPARATIVE ARTS

Held in Florence, Italy

FA 508. SCULPTURE STUDIO-IN FLORENCE. *Three hours' credit.*

Individual application of design and technical skills in making sculpture. Emphasis on significant form and expression.

FA 520. OIL PAINTING STUDIO-FLORENCE. *Three hours credit.*

Advanced study in oil painting to provide the student with more time to develop individual expression and mastery of the medium.

FA 531. WORKSHOP IN FINE ARTS: FILMMAKING AND PHOTOGRAPHY TECHNIQUES-FLORENCE. *Three hours credit.*

Class will meet for six hours a week and give the basic techniques of filmmaking and photographic processes. Stress will be on the observation of those artistic patterns that go beyond normal photography.

FA 531. WORKSHOP IN FINE ARTS: MOSAICS, INTAGLIO, AND INTARSIO. *Three hours credit.*

Class will meet six hours a week to study the technical application and historical background of these techniques.

FA 540. CRAFT STUDIO-FLORENCE. *Three hours credit.*

An in-depth workshop in one specific craft technique developing skills and individual expression. This course will be listed under a separate subheading each session.

FA 550. INTAGLIO AND RELIEF PRINTMAKING-FLORENCE. *Three hours credit.*

Advanced problems in intaglio printmaking including advanced technical processes and monoprint media. Emphasis is on fine print quality and the color process.

FA 606. SCULPTURE STUDIO-FLORENCE. *Three hours credit.*

Individual application of design and technical skills are explored on an advanced level. Emphasis is on significant form and expression.

FA 620. OIL PAINTING STUDIO-FLORENCE. *Three hours credit.*

This course offers advanced study in oil painting to provide the student with more time to develop individual expression and mastery of the medium.

FA 650. INTAGLIO AND RELIEF PRINTMAKING-FLORENCE. *Three hours credit.*

Individual investigation, relation of aesthetic concepts to practical two and three dimensional problems in intaglio printing are examined: etching, engraving, aquatint and innovational techniques and materials.

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.

FOUNDATIONS OF EDUCATION

EDF 508. WORKSHOP IN FOUNDATIONS OF EDUCATION. *One to six 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 subtitle. No subtitle 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. *Fifteen 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 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.

FL 601. PRACTICUM. *Maximum fifteen hours credit.*

Open only by invitation to resident graduate students. Supervised professional activity in the student's area of interest.

FRENCH**FR 500. PROBLEMS IN ORAL FRENCH.** *Three hours credit.*

Prerequisite, three hours college French 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.

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.

FR 622. INDIVIDUAL STUDY IN FRENCH. *Maximum 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.

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, comprehensive 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.

GER 622. INDIVIDUAL STUDY IN GERMAN. *Maximum 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.

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.

SPAN 622. INDIVIDUAL STUDY IN SPANISH. *Maximum 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.

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 subtitle. No subtitle may be repeated for credit.

EDF 740. PSYCHOLOGICAL FOUNDATIONS OF EDUCATION. *Three hours credit.*

Non-Psychology 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.

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 people 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.*

GEOG 571. SEMINAR IN URBAN GEOGRAPHY. *Three hours credit.*

GEOG 572. SEMINAR IN PHYSICAL GEOGRAPHY. *Three hours credit.*

GEOG 573. SEMINAR IN ECONOMIC GEOGRAPHY. *Three hours credit.*

GEOG 574. SEMINAR IN GEOGRAPHIC EDUCATION. *Three hours credit.*

GEOG 575. SEMINAR IN QUANTITATIVE GEOGRAPHY. *Three hours credit.*

GEOG 576. SEMINAR IN SETTLEMENT GEOGRAPHY. *Three hours credit.*

GEOG 577. SEMINAR IN AGRICULTURAL GEOGRAPHY. *Three hours credit.*

GEOG 578. SEMINAR IN RESEARCH METHODOLOGY. *Three hours credit.*

GEOG 580. SEMINAR IN LATIN AMERICA. *Three hours credit.*

GEOG 581. SEMINAR IN AFRICA. *Three hours credit.*

GEOG 582. SEMINAR IN THE SOVIET UNION. *Three hours credit.*

GEOG 583. SEMINAR IN EUROPE. *Three hours credit.*

GEOG 584. SEMINAR IN ASIA. *Three hours credit.*

GEOG 585. SEMINAR IN ANGLO-AMERICA. *Three hours credit.*

GEOG 586. SEMINAR IN AUSTRALIA AND THE PACIFIC. *Three hours credit.*

The above courses are problems courses 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. 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 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 in Geography. Should be taken during the first quarter of graduate work.

GEOG 601. PRACTICUM. *Maximum four hours credit.*
Open only by invitation to resident graduate students. Supervised professional activity in Geography, approximately two hours per day. Two copies of a well-written paper must be filed with the instructor before credit is given.

GEOG 622. INDIVIDUAL STUDIES. *Maximum 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.

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.

GEOG 799. DOCTORAL DISSERTATION. *Maximum eighteen hours credit.*
Required of all doctoral candidates.

GEOLOGY

GEO 500. SURVEY OF GEOLOGY. *Five hours credit. (Four hours lecture, three 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.

GEO 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.

GEO 550. SEDIMENTARY PETROLOGY. *Four hours credit. (Two hours lecture, six hours laboratory.)*

Prerequisites, GEOL 450 or consent of instructor. An advanced study of sedimentary rocks. Various techniques, including use of the petrographic microscope, will be employed to analyze these rocks and to investigate their histories. These laboratory procedures will be applied to the solution of real geologic problems.

GEO 564. QUATERNARY STRATIGRAPHY. *Three hours credit.*

Prerequisite, GEOL 464. History of climatic changes during the Quaternary Period as revealed by the geologic record. Regional and global synthesis of Quaternary events. Special attention is given to methods of dating and correlating Quaternary sediments.

GEO 565. STUDIES IN QUATERNARY GEOLOGY. *Two hours credit.*

Prerequisites, GEOL 464 or consent of instructor. Current topics in Quaternary 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.

GEO 567. VOLCANIC GEOLOGY. *Four hours credit. (Three hours lecture, three hours laboratory.)*

Prerequisites, 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.

GEO 570. GEOTECTONICS. *Three hours credit.*

Prerequisite, 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.

GEO 580. ADVANCED FIELD GEOLOGY. *Eight hours credit.*

Prerequisite, 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 597. GEOLOGY OF ICELAND. *Ten hours credit.*

Prerequisite, one introductory geology course. A study tour of Iceland by land and air to view and investigate features of exceptional geological interest and significance. Classic areas of glaciation, volcanism, and rifting will be examined in this country which sits astride of the Mid-Atlantic Ridge. The course will include field studies as well as classroom lectures and seminar discussions before and after the tour. Enrollment limited to 45.

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.

GEOL 622. INDIVIDUAL STUDIES. *Maximum 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.

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. *Three to 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. *One to three hours credit.*

Designed to provide opportunities for study in the problem areas of 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 subtitle; and no subtitle may be repeated by a student for credit.

HPER 520. THERAPEUTIC RECREATION SERVICE. *Three hours credit.*

A study of the theory, philosophy, and practice of providing recreation services for special populations. The course covers the organization, administration, and leadership of therapeutic recreation in the community as well as in Treatment Centers. Student educational experiences will include observation visitations, reports, required reading, discussions, and special projects.

HPER 522. SEMINAR IN RECREATION PROGRAM DEVELOPMENT FOR SPECIAL POPULATIONS. *Three hours credit.*

A study of the foundations, principles, and procedures utilized in developing recreation programs for special populations (e.g., handicapped, disadvantaged, older adult, etc.). Students will be assigned required reading and study problems to research out of class. Class work will consist of short lectures, discussion of study problems, and reports.

GERO 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.

GERO 534. MOVEMENT PROBLEMS IN GERIATRICS. *Three hours credit.*

An in-depth study of the problems (anatomical, physiological, psychological, and sociological) encountered by the aged individual during physical activity. Special emphasis will also be given to the effect of physical activity programs on these parameters in the aged population.

GERO 535. ORGANIZATION, OPERATION, AND MANAGEMENT OF GERONTOLOGICAL SERVICES. *Four hours credit.*

Designed to prepare the graduate student to effectively organize and administer the staff to operate the programs and facilities which are unique to services for older adults.

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. *Three to 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 to four 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. *Three to 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. *Three to 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. *Three to 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. *Three to 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 or equivalent. 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. INDIVIDUAL STUDIES. *Maximum 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.

HPER 623. ADVANCED PSYCHOLOGICAL KINESIOLOGY. *Four hours credit.*

Prerequisite, HPER 223 or equivalent. 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 626, 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.

Two to 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 626. ADVANCED PHYSIOLOGICAL KINESIOLOGY. *Four hours credit.*

Prerequisites, HPER 220, 221, 222 or equivalent. An advanced study of the physiological components of human movement with special attention being given to the analysis of movement problems.

HPER 630. HUMAN PERFORMANCE PHYSIOLOGY. *Three hours credit.*

Prerequisite, permission of instructor. An advanced course applying the principles of BIO and physical chemistry, cytology, and physiology to the problems of human movement.

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.

Three to 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 to four 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. *Three to 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 interrelatedness of sports, society, and physical education.

HPER 675. AREAS AND FACILITIES IN PHYSICAL EDUCATION AND RECREATION. *Three to 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.

Three to four hours credit.

Detailed study of important problems in the area of leisure and recreation in America.

HPER 677. PARKS AND RECREATION MANAGEMENT. *Three to 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. *Three to 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 plays 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, 623, 624, and 626). Individual and group study of problems related to the scientific variables of human movement.

HPER 799. DOCTORAL DISSERTATION. *Six to eighteen hours credit.*

Required of all doctoral candidates.

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 655. SEMINAR IN NON-TRADITIONAL PROGRAMS IN HIGHER EDUCATION. *Three hours credit.*

Rapid evolution of innovative non-traditional programs in higher education mandates understanding of such curricula, their evaluation, fiscal and academic administration. Course focuses on discussion of internal and external dynamics enhancing or impeding new concepts of various client-centered external degree delivery systems, credits for work experience, learning packages, and time/space-freed education for mature, fully-employed adults.

EDHI 656. SEMINAR IN HIGHER EDUCATION DATA SYSTEMS. *Two hours credit.*

A discussion of higher education systems, their definition, rationale, and interrelationships. Included will be examples of sub-systems, their integration into a management model and its administrative uses.

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

A research component is required in each History course numbered in the 500 and 600 level.

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 571. SEMINAR IN MODERN BRITISH HISTORY. *Three hours credit.*

The course is largely thematic in organization, and among the major problems considered are these: the triumph of the Industrial Revolution, the growth of the 'Second' British Empire, the origins of the modern political parties, the two great wars and their aftermath.

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 597. SEMINAR IN MODERN AFRICAN HISTORY. *Three hours credit.*

The course will study developments in the 19th century and then lead into a topical discussion of the 20th century focusing primarily on the colonial and post-colonial period in Sub-Saharan Africa.

HIST 600. HISTORIOGRAPHY. *Three hours credit.*

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 699. THESIS. *Maximum fifteen hours credit.*

Optional for Master of Arts programs on recommendation of the major adviser.

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.

HIST 799. DOCTORAL DISSERTATION. *Eighteen hours credit.*

Required of all doctoral 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. 508 WORKSHOP IN HOME ECONOMICS. *Credit varies 1-6 hours.*

Each workshop will have a subtitle; no subtitle may be repeated for credit. The workshop subjects and teaching approaches will vary according to needs of students and faculty conducting the workshop.

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.

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 524. FAMILY COMMUNICATIONS. *Three hours credit.*

Provides a new approach to parent-child communication and conflict resolution. Course is designed to help parents develop specific communication and problem solving skills by use of variety of audio-visual materials. Materials for potential instructors of parents classes also available.

HEC 531. THE WORLD OF PICTURE BOOKS AND THE CHILD. *Three hours credit.*

An intensive introduction to children's literature and storytelling with emphasis on books and related materials in the field of early childhood, for: teachers, daycare workers and parents wishing to develop a background and working knowledge of children's books, students having no previous acquaintance with children's literature.

HECV 532. FOCUS ON CHILD DEVELOPMENT. *Three hours credit.*

Prerequisite, undergraduate class in Child Development and in Family Relations. An overview of materials available to teachers, examination of variations in teaching techniques and methods, particularly related to Secondary Child Care Occupations.

HECV 534. CURRICULUM DEVELOPMENT IN CHILD CARE CENTERS.
Three hours credit.

Prerequisite, HEC 432 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.

HECV 538. INTERNSHIP IN CHILD CARE CENTERS. *Three to six hours credit.*

Prerequisites, HEC 233, 432 or consent of instructor. 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 543. FOOD PRESERVATION AND DISTRIBUTION. *Three hours credit.*
(Two hours lecture, two hours laboratory.)

An analysis of current trends in the technology of food preservation and distribution and its relationship to commercial and small scale production.

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 teach-

ing nutrition in the elementary and secondary schools are emphasized. This course is designed primarily for graduate students who have a minimum background in nutrition.

HECV 564. ADVANCED TECHNIQUES IN TEACHING HOME ECONOMICS.
Four hours credit.

This course is planned for the advanced student who wishes to improve competence in teaching home economics. Various methods of teaching home economics are examined and evaluated.

HECV 565. EFFECTING POSITIVE RELATIONSHIPS BETWEEN HOME AND SCHOOL. *Three hours credit.*

This course explores techniques which may be used in working effectively with parents who have children in school and in the home environment. Special emphasis will be given to the needs of low income families, minority groups and educationally disadvantaged.

HEC 571. DESIGN IN SHELTER. *Three hours credit.*

Prerequisite, HEC 371 or consent of instructor. Advanced planning concepts will be applied to the design of living space, appropriate to a variety of situational needs. Content will include construction techniques, systems for temperature control, electrical requirements as well as finance fundamentals.

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 574. MAN, ENVIRONMENT AND CHANGE. *Three hours credit.*

An examination of the interrelationship between man's basic needs, his changing environment, and the adaptive processes used to cope with change.

HEC 576. 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 577. INTERIOR DESIGN THEORIES-PRACTICUM. *Three hours credit. (Two hours lecture, two hours laboratory.)*

Prerequisite, HEC 372. 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 578. SURVEY OF FURNITURE DESIGN. *Three hours credit.*

A study of the dominant influences and characteristics of historical and modern furniture, ornamental and architectural design.

HEC 581. ADVANCED TEXTILES. *Three hours credit. (Two hours lecture, two hours laboratory.)*

Prerequisite, HEC 181. A study of recent developments in the world of textiles including characteristics of new and modified fibers, new construction methods 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 593. FIELD EXPERIENCES IN CULTURAL AWARENESS. *Fifteen hours credit.*

A study tour affording an opportunity to develop an appreciation of the cultural and historical backgrounds and contributions of various foreign countries or ethnic groups in Home Economics related areas.

HEC 504. ADVANCED TECHNIQUES IN CLOTHING CONSTRUCTION. *Three hours credit. (Two hours lecture, two hours laboratory.)*

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 505. CREATIVE DRESS DESIGN. *Four hours credit. (Two hours lecture, four hours laboratory.)*

Prerequisites, HEC 395 or consent of instructor. Basic problems in draping on dress forms and in the drafting of flat patterns. Opportunity is provided for creative design 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 506. DRESS DESIGN IN DRAPING. *Four hours credit. (Two hours lecture, four hours laboratory.)*

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 507. 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.

HEC 509. 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 601. DEVELOPMENTAL ASSESSMENT OF THE YOUNG CHILD. *Three hours credit.*

An examination of current methods of development assessment of infant and preschool children including relevant readings as well as practical experience in test administration.

HEC 606. 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 622. INDIVIDUAL STUDIES. *Maximum four hours credit.*

Qualified graduate students outline and spend a minimum of 25 clock hours per quarter on a problem. Two copies of a well-written paper must be filed with the instructor and the chairman of the department 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.

HEC 642. ADVANCED EXPERIMENTAL FOODS. *Four hours credit. (Two hours lecture, four hours laboratory.)*

Prerequisite, HEC 445, CHEM 315 or consent of instructor. In-depth study of current food research and application of advanced research techniques to the theory of food chemistry.

HEC 655. RESEARCH IN FOODS. *Four hours credit. (Two hours lecture, four hours laboratory.)*

Prerequisites, HEC 445, CHEM 315. Study of the recent findings in food research. Opportunity is given for individual investigation in food problems. 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.

HECV 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.

HECV 668. CURRICULUM IN HOME ECONOMICS. *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.

HECV 669. EVALUATION IN HOME ECONOMICS 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 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. Laboratory experiences may be included.

HEC 694. 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 the individual needs of a student.

HEC 695. ADVANCED FASHION DESIGN AND CONSTRUCTION. *Three hours credit. (Two hours lecture, two hours laboratory.)*

Prerequisites, HEC 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 699. MASTERS PROJECT. *Four hours credit.*

A graduate student will investigate in-depth a chosen area of emphasis. Two copies of the outline of the project will be filed with the adviser two weeks before the end of the quarter which precedes the quarter in which the student graduates.

HUMANITIES (Administered by English Department)

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 subtitle and no subtitle 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 515. 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 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 519. 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 521. TECHNOLOGY AND ITS IMPACT ON WESTERN CIVILIZATION.*Three hours credit.*

Course deals with a brief history of technology, a study of today's capability and a look into what technology holds for man in the future. Emphasis on the psychological, physiological, sociological and natural impacts on mankind. Covers medicine, communications, crime, music, art, transportation, urban systems, leisure, work, invention and creativity, education, food, waste, environmental concepts, economics, commercialism and developing a more humanized technology.

IA 530. 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 531. 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 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 553. FURNITURE AND CABINET MAKING. *Three hours credit.*

Design and construction of period and modern furniture, study of production methods of industry, upholstery, and wood finishing.

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 562. PROBLEMS IN DRAFTING AND PLANNING. *Three hours credit.*

Objectives, course content, practices and teaching procedures in selected areas of drafting. Problems and assignments are set in terms of individual needs.

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. JEWELRY DESIGN AND CONSTRUCTION. *Three hours credit.*

Basic processes in jewelry construction including soldering, casting, stone cutting, simple silversmithing, and use of appropriate equipment.

IA 574. MACHINE TOOL TECHNOLOGY. *Three hours credit.*

A study and operation of modern machine tools, including milling machines, grinding machines and lathes, both engine and turret. In addition, numerical control of modern tooling and the use of precision measuring and test equipment will be studied.

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 580. ELECTRONIC CIRCUIT APPLICATIONS. *Three hours credit.*

A study of electronic hardware and component applications to common circuits found in electronic equipment. Emphasis placed on control circuits, digital computer logic theory, solid state devices, printed circuits, power supplies, amplifiers, oscillators, transmitters, receivers and fundamentals of tv. Class assignments established on individual needs and interests. Amateur radio and various FCC licenses can also be earned in this course.

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 617. INDUSTRIAL PLASTICS. *Three hours credit.*

Development of skills and knowledge in the use of thermosetting and thermoplastic materials with emphasis on industrial applications including designing and construction of molds and forms.

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 622. INDIVIDUAL STUDY IN INDUSTRIAL ARTS. *Maximum 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.

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.*

Content deals with the development of individualized learning activity packages. Emphasis on motivation, performance objectives, instructional systems and devices, student evaluation and media development in a learner centered instruction

environment. Class is open to all academic disciplines as students choose their area and level of package development.

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 and discussion of various curriculum approaches to content selection in industrial arts.

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 640. 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; shot 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, practices and teaching procedures in selected areas of drafting. Problems and assignments are set 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. ELECTRONIC CIRCUIT APPLICATIONS. *Three hours credit.*

A study of electronic hardware and component applications to common circuits found in electronic equipment. Emphasis placed on control circuits, digital computer logic theory, solid state devices, printed circuits, power supplies, amplifiers, oscillators, transmitters, receivers and fundamentals of tv. Class assignments established on individual needs and interests. Amateur radio and various FCC licenses can also be earned in this course.

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 six hours credit.*

A series of 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. Three hour course offered in summers only, designed for new doctoral students. One hour seminar offered each fall, winter and spring quarters. This sequence is recommended for the doctoral students who are in residence working on their dissertations.

IS 799. DOCTORAL DISSERTATION. *Six to eighteen hours credit.*

Required of all doctoral candidates. Student must earn eighteen (18) hours of credit.

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.

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 597. PUBLIC RELATIONS WORKSHOP. *Three hours credit.*

Practice of public relations principles and methods for the school man and businessman.

JOUR 601. PRACTICUM. *Maximum four hours credit.*

Open only by invitation to resident graduate students in journalism. Supervised professional activity in the student's area of specialization. Approximately ten hours per week should be spent. Two copies of a well-written paper must be filed with the instructor before credit is given.

JOUR 701. SPECIALIST DEGREE PRACTICUM. *Eight hours credit.*

Project or supervised professional activity, required of all journalism candidates for the Specialist in Education Degree. Must be directly related to the student's area of specialization.

MATHEMATICS

MATH 510. SEMINAR IN MATHEMATICS. *One hour credit. (Maximum six hours credit.)*

Study and discussion of topics from mathematics. S and U grading.

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 I. *Three hours credit.*

Prerequisite, MATH 322. The first course in a two-quarter sequence of linear algebra. Topics to be covered include vector spaces, linear transformations and matrices, determinants, eigenvalues, canonical forms, quadratic forms, special transformations and matrices, and selected applications in other mathematical areas such as differential equations.

MATH 526. LINEAR ALGEBRA II. *Three hours credit.*

Prerequisite, MATH 525. A continuation of MATH 525.

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. *Three 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. *Three 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 distributions.

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 560. INTRODUCTORY COMPLEX VARIABLES. *Three hours credit.*

Prerequisite, MATH 433 or equivalent. A first course in complex variables designed especially for the potential teacher of calculus. The course will begin with preliminaries concerning complex numbers and then proceed directly to power series, Laurent's series, contour integration, residue theory, polynomials and rational functions.

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 565. DIFFERENTIAL EQUATIONS I. *Three hours credit.*

Prerequisite, MATH 433 or equivalent. This course is an introduction to the basic methods, theory, and applications of differential equations. The intimate connection between differential equations and linear algebra is stressed to stimulate students, at an early level, to think in terms of linear analysis.

MATH 566. DIFFERENTIAL EQUATIONS II. *Three hours credit.*

Prerequisite, MATH 565. A continuation of MATH 565. Topics covered include orthonormal bases, least squares, Fourier series, scalar and vector fields, and partial differential equations.

MATH 585. NUMERICAL ANALYSIS I. *Three 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. *Three 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 630. THEORY OF FIELDS. *Three hours credit.*

Prerequisite, MATH 522 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 633. INDIVIDUAL STUDIES. *Maximum 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.

MATH 626. THEORY OF RINGS. *Three hours credit.*

Prerequisite, MATH 522 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. *Three hours credit.*

Prerequisite, MATH 522 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 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 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 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.

MATH 799. DOCTORAL DISSERTATION. *Six to eighteen hours credit.*

Required of all doctoral candidates.

MATHEMATICS EDUCATION

MED 577. MATHEMATICS TEACHERS' WORKSHOP. *One to 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. S and U grading.

MED 622. INDIVIDUAL STUDIES. *Maximum 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.

MED 672. CURRICULUM IN SECONDARY SCHOOL MATHEMATICS. *Four hours credit.*

Emphasis will be on the mathematics curriculum of Grades 7-14 and research in mathematics education. Reports and recommendations of several commissions will be studied. Additional topics will include curriculum development, behavioral objectives, and evaluation.

MED 673. PROBLEMS IN THE TEACHING OF JUNIOR HIGH SCHOOL MATHEMATICS. *Four hours credit.*

Prerequisites, MATH 322, MED 672. Topics to be covered will be selected to fit the needs of the class. Sample topics include more detailed considerations of behavioral objectives and evaluation, working with the slow learner, content for Grades 7 through 9, and individualization.

MED 674. PROBLEMS IN THE TEACHING OF SENIOR HIGH SCHOOL MATHEMATICS. *Four hours credit.*

Prerequisites, MATH 341, MED 672. Topics will be selected to fit the needs of the class. Sample topics include more detailed considerations of behavioral objectives and evaluation, future of geometry, teaching of advanced algebra, mathematics curriculum for Grade 12, advanced placement programs, different approaches to teaching trigonometry, and working with the non-college-bound.

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 teachers. S and U grading.

MED 772. THEORY AND PRACTICE OF TEACHING MATHEMATICS. *Three hours credit.*

Prerequisite, MED 672. Current practices used in the classroom will be related in 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. S and U grading.

MED 799. DOCTORAL DISSERTATION. *Six to eighteen hours credit.*

Required of all doctoral candidates.

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.

MET 622. INDIVIDUAL STUDIES. *Maximum 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.

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. Emphasis will be placed on ways this may be taught in the classroom.

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 510. AUDIO FOR MUSICIANS. *Three hours credit.*

An introduction to audio technology as it involves musicians. Special emphasis will be placed on those topics of particular need or interest to the students enrolled.

MUS 519. FOUNDATIONS OF MUSIC EDUCATION. *Three hours credit.*

A study of the philosophical and sociological foundations of music education.

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 532. IDEAS IN MUSIC EDUCATION. *Three hours credit.*

This course is designed for study in areas of emphasis contributing toward the improvement of teaching, supervision and administration of music in the schools. Topics of study will vary from quarter to quarter according to the needs and interests of the students.

MUS 533. TRENDS IN MUSIC EDUCATION. *Three hours credit.*

This course is designed for study in areas of emphasis contributing toward the improvement of teaching, supervision and administration of music in the schools. Topics of study will vary from quarter to quarter according to the needs and interests of the students.

MUS 534. PRACTICES IN MUSIC EDUCATION. *Three hours credit.*

This course is designed for study in areas of emphasis contributing toward the improvement of teaching, supervision and administration of music in the schools. Topics of study will vary from quarter to quarter according to the needs and interests of the students.

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.*

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.

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 mater-

ial 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 607. GRADUATE SEMINAR IN INSTRUMENTAL MUSIC IN JUNIOR AND SENIOR HIGH SCHOOLS. *Three hours credit.*

Prerequisite, previous teaching experience. This course is designed to present specific techniques for the development of musicianship. Content will include improvement of tone quality, sonority, timbre, style, various types of literature, and trends in the teaching of instrumental music in the junior and senior high schools.

MUS 608. GRADUATE SEMINAR IN ELEMENTARY SCHOOL MUSIC. *Three hours credit.*

Prerequisite, graduate standing and previous school music teaching experience. 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.

MUS 609. GRADUATE SEMINAR IN MIDDLE AND JUNIOR HIGH SCHOOL MUSIC. *Three hours credit.*

Prerequisite, graduate standing and school music teaching experience. This course is designed to present materials, methodology, philosophy, and trends in the teaching of choral and general music in today's middle and junior high schools. Study of an extensive choral list will be part of the course. Offered odd years.

MUS 610. PSYCHOLOGY OF MUSIC. *Three hours credit.*

The subjects included in this course are: the psychology of music listening; psychology of musical performance; and, psychology of music as related to the cultural and social structures of American society.

MUS 611. COMPREHENSIVE MUSICIANSHIP IN HIGH SCHOOL CHORAL PERFORMING GROUPS. *Three hours credit.*

This course is designed to make a comprehensive study of choral literature for high school performing groups. Included will be style, history, analysis, conducting, rehearsal techniques, and performance of the literature. Offered even years.

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. SEMINAR IN ADMINISTRATION AND COORDINATION OF THE SCHOOL MUSIC PROGRAM. *Three hours credit.*

Prerequisite, graduate standing and school music teaching experience. This course is designed to provide an overview of the problems of organizing, administering, and coordinating the K-12 music program. Curriculum, teacher growth, scheduling, budget, and public relations are included in the course. Offered even years.

MUS 615. SEMINAR IN MUSIC EDUCATION. *Two hours credit.*

An orientation to graduate study in music education and a seminar on current teaching problems encountered by the students.

MUS 616. PROBLEMS OF INSTRUMENTAL COORDINATION. *Three hours credit.*

A discussion and study of the problems of instrumental coordination 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, and new trends.

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.*

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.

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 on 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 655. 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.*

Prerequisites, MUS 361, 362, and 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.*

Prerequisites, MUS 364 and 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 to three hours 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 to three hours credit.***MUS 671. INDIVIDUAL PERFORMANCE IN PIANO.** *One to three hours credit.***MUS 672. INDIVIDUAL PERFORMANCE IN ORGAN.** *One to three hours credit.***MUS 673. INDIVIDUAL PERFORMANCE IN STRINGS.** *One to three hours credit.***MUS 674. INDIVIDUAL PERFORMANCE IN WOODWINDS.** *One to three hours credit.***MUS 675. INDIVIDUAL PERFORMANCE IN BRASS.** *One to three hours credit.***MUS 676. INDIVIDUAL PERFORMANCE IN PERCUSSION.** *One to three hours credit.***MUS 677. INDIVIDUAL INSTRUCTION IN COMPOSITION.** *One to three hours credit.***MUS 678. INDIVIDUAL PERFORMANCE IN HARP.** *One to three hours credit.*

MUS 679. INDIVIDUAL PERFORMANCE IN GUITAR. *One to 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 689. 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 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 all students on campus in the instrumental music education program who will teach in the secondary schools and wish certification.

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 699. THESIS. *Eight to twelve hours credit.*

Required of all Master of Music Education students pursuing Tract IV, and all Master of Music students majoring in Theory and Composition. For specific requirements students should consult their respective departments.

MUS 700. INTRODUCTION TO DOCTORAL RESEARCH. *Three hours credit.*

Analysis of studies in music writing and research techniques for dissertations and field studies; a survey of critical problems in music; the preparation of research outlines.

MUS 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).

MUS 702. CRITERIA FOR MUSIC ANALYSIS AND COMPARISON. *Four hours credit.*

MUS 702 is designed as an introductory course to acquaint the candidates with the subtleties of analytical and comparative music problems.

MUS 755. SUPERVISED PRACTICUM IN COLLEGE TEACHING. *Maximum 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.

MUS 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.

MUS 799. DOCTORAL DISSERTATION. *Eighteen hours credit.*

Required of all doctoral candidates.

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.

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 302 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.

OCN 622. INDIVIDUAL STUDIES. *Maximum 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.

OUTDOOR EDUCATION

OED 508. WORKSHOP IN OUTDOOR EDUCATION. *Three hours credit.*

This workshop is designed to provide insight in regard to the broad interdisciplinary approach to Outdoor Education. Direct experience participation in the outdoors will be provided related to all academic disciplines. Faculty from all disciplines and other resource specialists will be involved in the instructional offerings. Emphasis will be placed on the cognitive, affective, and psychomotor domains.

OED 550. INTERNSHIP IN OUTDOOR EDUCATION. *Eighteen hours credit.*

Prerequisite, OED 250, student teaching and all prerequisites for student teaching. This course is designed to provide direct first-hand experiences in Outdoor Education in one or more programs available in public school settings, and educationally related agencies. Opportunities will be provided for instruction, supervision and leadership responsibilities in selected education programs where the interdisciplinary or multi-disciplinary approach is followed.

OED 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.

OED 651. ORGANIZATION AND ADMINISTRATION OF OUTDOOR EDUCATION PROGRAMS. *Four hours credit.*

A course designed to acquaint students, teachers, supervisors, curriculum directors, administrators and university faculty with the procedures and problems encountered in the initiation and administration of Outdoor Education programs. Varied programs will be considered in terms of organization, conducting and evaluation. Acquisition, financing, development and maintenance will be emphasized.

OED 652. RESEARCH SEMINAR IN OUTDOOR EDUCATION. *Three hours credit.*

A course designed to develop the students' appreciation, understanding and competency in the field of research. An analysis and interpretation will be made of selected research in Outdoor Education and the related fields of Environmental Education, Conservation Education and Camping.

PHILOSOPHY

PHIL 501. THE PHILOSOPHER AND HIS TOOLS. *Four hours credit.*

An intensive introduction to Philosophy designed for (a) high school teachers of humanities or social science interested in integrating philosophic materials into their syllabi, and (b) graduate students having no previous acquaintance with philosophy but interested in the bearing of philosophic work on their disciplines.

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. ADVANCED ELECTRONICS. *Three hours credit. (Two hours lecture, three hours laboratory.)*

Prerequisite, PHYS 361. 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 468. 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 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 465, MATH 234. Third 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 466, MATH 234. Third 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 267, 365, and MATH 234. 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 Schroedinger wave equation, and the uncertainty principle.

PHYS 601. PRACTICUM. *Maximum 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.

PHYS 622. INDIVIDUAL STUDIES. *Maximum 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.*

Prerequisites, PHYS 368 or PHYS 578, PHYS 465. 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. *Three hours credit.*

Prerequisite, PHYS 468. 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 and 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.

PHYS 699. THESIS. *Maximum fifteen hours credit.*

Required of Master of Arts candidates in Physics who elect the thesis option in the degree.

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 of 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.

PSCI 622. INDIVIDUAL STUDIES. *Maximum 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.

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 subtitle and no subtitle may be repeated for credit.

PCG 520. GENERAL PSYCHOLOGY AND THE PRINCIPLES OF BEHAVIOR.
Three hours credit. Fall, 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. HUMAN GROWTH AND DEVELOPMENT. *Three hours credit. Spring, Summer.*

An overview of human growth and development from conception through senescence. Cognitive, affective, social and psychomotor development throughout the life of an individual for the teaching of courses in Human Growth and Development.

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. Spring, Summer.*

Prerequisite, 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, 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.*

A laboratory course combining lecture, discussion, and reactions to readings with focus on the activity involved in the technique of sociodrama.

PCG 564. SOCIOMETRY. *Two hours credit. Spring, Summer.*

A laboratory course combining lecture, discussion, and reactions to readings with focus on the sociometric technique.

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. RESEARCH METHODOLOGY. *Three hours credit. Spring, Summer.*

Prerequisite, RSM 504. An orientation to graduate study in general and the nature and methods of research in particular. Required of all first-year students.

PCG 601. PRACTICUM. *Maximum 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 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 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. PLAY THERAPY. *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 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 640. PSYCHOLOGICAL FOUNDATIONS OF EDUCATION. *Three hours credit. Winter, Summer.*

Prerequisite, permission of instructor. Basic psychological concepts pertinent to understanding educational (teaching-learning) process. Concepts derived from Freudian/Psychoanalytic, Behavioristic, Cognitive, Humanistic, and Transpersonal psychology orientations are examined.

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, 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.*

Taken 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.*

Prerequisite, RSM 504. 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 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 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. Winter, 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 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 interrelationships 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 679. SCHOOL PSYCHOLOGY PRACTICUM. *Maximum twelve hours credit.*

Prerequisite, PCG 674, 675 and 763. This course is both a supervised field experience and a professional seminar. Includes: typical functions of the school psychologist, assessment procedures, case studies, case staffings, consultation with parents, school personnel and community agencies. Topics introduced during the school psychology introductory seminar will be developed further and integrated with the students experiences in practicum.

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 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 adviser. 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 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 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 experience 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 education settings.

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 341 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 of 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 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 763. INTRODUCTORY SEMINAR IN SCHOOL PSYCHOLOGY. *Two quarter hours credit. Offered Fall Quarter only.*

Required during the first Fall Quarter of the Ed.S. or Ed.D. degree program. 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 certification requirements, confidentiality, relations with other professions, problem of referral, ethical issues, role models and report writing. Observation in the schools will be a required part of this course.

PCG 771. MEASUREMENT: SCALING AND RELATED TECHNIQUES. *Three hours credit. Winter.*

Prerequisites, RSM 504, 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. ADVANCED PERSONALITY ASSESSMENT. *Three hours credit. Winter.*

Prerequisite, PCG 676, permission of instructor. Continues the topics begun in PCG 676 with special attention to problems of interpretation and validation. Additional projective techniques of the thematic type, completion type, association type, and drawings will be considered. Objective personality assessment will also be covered with attention to the MMPI, CPI, and 16PF. 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 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. Eight hours credit will be given for each quarter of full-time internship.

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. Taught every quarter.

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 subtitle and no subtitle 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 nontechnical nature in computer applications in education. It will familiarize the graduate student with computer capabilities and limitations.

RSM 600. INTRODUCTION TO GRADUATE STUDY AND RESEARCH. *Three hours credit.*

An orientation to graduate study in general and the nature and methods of research in particular. Emphasis is placed on student interests by reading and critiquing research publications in their academic areas. Required of all first-year graduate students (except for those departments which have substitutes for this course.) Taught every quarter.

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 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, principle axis analysis, varimax solution. The theory of oblique and orthogonal solutions and the communality problem will be considered.

RSM 643. SEMINAR: SPECIAL TOPICS. *One to 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 SEMINAR I. *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 Techniques for Research; (b) Winter, Advanced Computer Techniques; (c) Spring, Advanced Topics. Open to non-majors.

RSM 673. ADVANCED THEORY OF MEASUREMENT. *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 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). A dissertation plan will be developed by each student.

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 754. RESEARCH SEMINAR II. *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 Statistical Procedures; (b) Winter, Multivariate Topics; (c) Spring, Advanced Experimental Design.

RSM 755. SUPERVISED PRACTICUM IN COLLEGE TEACHING. *Maximum 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 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 603. PROJECT IN LIEU OF THESIS. *Eight to fifteen hours credit.*

Optional for Master of Arts and Master of Science students in the School of Educational Change and Development.

SECD 622. INDIVIDUAL STUDIES. *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 School of Educational Change and Development.

SECD 699. MASTER'S THESIS. *Eight to fifteen hours credit.*

Optional for Master of Arts and Master of Science students in the School of Educational Change and Development.

SECD 700. PROJECT IN LIEU OF SPECIALIST PRACTICUM. *Eight hours credit.*

Project or supervised professional activity, required of all candidates for Specialist in Education degree.

SECD 701. SPECIALIST PRACTICUM. *Eight hours credit.*

Project or supervised professional activity, required of all candidates for Specialist in Education degree.

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.

SECD 703. PROJECT IN LIEU OF A DISSERTATION. *Six to eighteen hours credit.*

A doctoral student in the School of Educational Change and Development may, with the approval of his Resource Board, elect a project in lieu of a dissertation. A PROJECT IN LIEU OF A DISSERTATION FORM is completed and signed by the members of the Resource Board at the first Resource Board meeting. The requirements are similar to the requirements for all other doctoral students in the same degree program.

SECD 799. DISSERTATION. *Eighteen hours credit.*

Required of all doctoral candidates who do not write a project in lieu of a dissertation.

SECD 703. PROJECT IN LIEU OF A DISSERTATION. *Six to eighteen hours credit.*

A doctoral student in the School of Educational Change and Development may, with the approval of his Resource Board, elect a project in lieu of a dissertation. A PROJECT IN LIEU OF A DISSERTATION FORM is completed and signed by the members of the Resource Board at the first Resource Board meeting. The requirements are similar to the requirements for all other doctoral students in the same degree program. Student must earn eighteen (18) hours of credit.

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. 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 592. COMPUTER SIMULATIONS IN SCIENCE. *Three hours credit. (NSF In-Service Institute.)*

Restricted to high school science teachers. Through the concept of modeling and the application of modeling to the science curriculum, computer simulations will be studied. Students will become aware of, use and match computer simulations to science curriculum. Large group instruction, special interest group activities and independent study will be included.

SCI 593. COMPUTER PROGRAMMING IN SCIENCE. *Three hours credit. (NSF In-Service Institute.)*

An introduction to flow-charting, programming in the BASIC language and on-line computer operation in developing programs to use the BASIC language to solve problems, modify existing computer simulations and generate original simulations in the natural sciences. Large group instruction, special interest group activities and individual study will be included.

SCI 595. ADVANCED COMPUTER APPLICATIONS IN SCIENCE. *Three hours credit. (NSF In-Service Institute.)*

Restricted to high school science teachers. The application of computer techniques to high school science will be accomplished through identification of course material which lends itself to computer instruction. Instruction modules using computers will be developed, evaluated and field tested. Rudimentary computer theory will also be covered.

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 sciences, 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.*

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.*

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.*

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 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 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. EVALUATION OF CLASSROOM PERFORMANCE IN SCIENCE. *Three hours credit.*

A study of test construction and use by the science teacher. Students construct test items and a complete test. Topics include philosophy, purposes, and values of classroom tests including standardized tests. Kinds of achievement tests are studied with attention given to administration, scoring, and proper physical form. Use of performance objectives in test construction, with attention given to affective psychomotor and cognitive areas.

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.*

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 696. SCIENCE CONCEPTS -- A SCIS APPROACH. *Twelve hours credit.*

A course designed to provide teachers with a "hands-on" learning experience using the Science Curriculum Improvement Study Materials. These laboratory experiences will be used as the basis for discussing problems associated with teaching and implementing this elementary science program.

SCED 699. THESIS. *Fifteen hours credit.*

Optional for Master of Arts programs on recommendation of the major adviser.

SCED 701. SPECIALIST DEGREE PRACTICUM. *Maximum 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 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 attention 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 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 an 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 515. SEMINAR IN SOCIALIZATION. *Three hours credit.*

A sociological approach to the field of socialization theory and research, particu-

larly as it relates to child development. The primary emphasis is upon the socialization process and the social situation in which the child grows and develops. Children found in low income areas will be emphasized.

SOC 520. SEMINAR IN THE FAMILY. *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 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 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 554. CRIMINOLOGICAL THEORIES. *Three hours credit.*

Analysis and evaluation of the major historical and contemporary theories of criminal behavior.

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 574. DEMOGRAPHIC ANALYSIS. *Four hours credit.*

Prerequisite, one course in statistics or permission of instructor. Research procedures in demographic research, including the computation of standard demographic statistics (life tables, birth and death rates, population projections, etc.) and interpretation of demographic trends.

SOC 602. SEMINAR IN PERSPECTIVES IN SOCIOLOGY. *Three to nine hours credit.*

This course is a variable topic seminar. Possible topics will be theory construction, research and theoretical development as it occurs in various areas of sociology or current issues and problems within the profession. This course may be taken three times if the topic is different each of the three times.

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 prehistoric 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 622. INDIVIDUAL STUDIES. *Maximum 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 500 level requirement unless the student is in full-time residence at UNC during the quarter the course is taken.

SOC 645. 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 scientists. Problems related to the school system and disturbed children will be discussed at some length.

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 principle 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 680. 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 503. THE MULTIHANDICAPPED. *Three hours credit.*

Prerequisite, EDSE 100 or 602. A study of assessment techniques, approaches to the problems, remediation strategies, aids, and materials for the multihandicapped (i.e., retarded/crippled, blind/emotionally disturbed, etc.).

EDSE 504. PRACTICUM FOR THE MULTIHANDICAPPED. *Maximum fifteen hours credit.*

Prerequisites, EDSE 503 and 505. A laboratory type experience in which the student participates as a teacher in a classroom of children under the direction and supervision of a master teacher.

EDSE 505. CURRICULUM FOR THE MULTIHANDICAPPED. *Three hours credit.*

Prerequisite, EDSE 503. A study of educational and training techniques used with the multihandicapped. Study will include motor, language, social, emotional, behavioral, and intellectual development. The primary focus is on curriculum modification, adaptation, and implementation.

EDSE 508. 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 interests.

EDSE 510. SEVERELY INTELLECTUALLY HANDICAPPED. *One hour credit.*

A study of assessment and treatment of the severely intellectually handicapped individual. Implications in the education and training process will be examined.

EDSE 520. SEVERELY EMOTIONALLY DISTURBED. *One hour credit.*

A study of severe emotional problems exhibited by children. Emphasis will be placed on characteristics which might lead to institutionalization and/or special class, if not corrected.

EDSE 530. SEVERELY PHYSICALLY DISABLED AND OTHER HEALTH IMPAIRED. *One hour credit.*

A study of medical involvements, terminology, self-help skills and ancillary personnel for the severely physically disabled and other health impaired (OHI) will be discussed. Problems associated with self-concept, prosthetic and orthotic devices, transportation and environmental adaptations will be studied.

EDSE 540. LOW FUNCTIONING VISUALLY IMPAIRED. *One hour credit.*

A study of the educational problems of the low functioning visually impaired child, including identification procedures, general etiology, and learning and training techniques.

EDSE 541. TECHNIQUES OF DAILY LIVING FOR THE VISUALLY HANDICAPPED. *One hour credit.*

Study and use of adapted materials and techniques for teaching to the visually handicapped such skills as grooming, eating, cleaning, cooking, sewing, and simple home repairs. Additional one hour lab. required.

EDSE 543. BRAILLE AND OTHER COMMUNICATION SKILLS FOR VISUALLY HANDICAPPED I. *Three hours credit.*

Adaptation and preparation of materials -- whether tactual, auditory, visual -- and use of special devices and equipment. These skills are those needed by the teacher rather than how to teach them to children. Two hour lab.

EDSE 544. MEDIA AND METHODS FOR THE VISUALLY HANDICAPPED I. *Three hours credit.*

Prerequisite, EDSE 440 or consent of instructor. Special instructional techniques in teaching to blind and partially seeing reading and other language arts, mathematics, science, social studies, physical education, fine arts. Teaching these content areas through use of tactual, auditory, and visual aids. Consideration of needs based on growth and development of visually impaired child. Two hour lab.

EDSE 545. MEDIA AND METHODS FOR THE VISUALLY HANDICAPPED II. *Three hours credit.*

Prerequisite, EDSE 544. Practical aspects of programming for visually impaired children: evaluation procedures, records, staffings, appropriate placements, sourcing materials and equipment, scheduling, consulting with staff, legislative and

financial provisions, parent conferences, coordination of volunteer services, community agencies, and other related services. Two hour lab.

EDSE 546. PRINCIPLES OF ORIENTATION AND MOBILITY FOR THE VISUALLY HANDICAPPED. *Three hours credit.*

Independence in exploration of the environment as a life need. Techniques in developing orientation skills; pre-cane mobility instruction. Philosophy and history of cane instruction, dog guides, and other methods of travel. Current programs review. Observation of cane travel.

EDSE 547. INDEPENDENCE IN ORIENTATION AND MOBILITY. *Three hours credit.*

Prerequisite, permission of instructor. Skills involved in general navigation and environmental awareness are gained while working under a blindfold. Insight into the travel problems of blind individuals is stressed.

EDSE 548. ADVANCED INDEPENDENCE IN ORIENTATION AND MOBILITY. *Three hours credit.*

Prerequisite, EDSE 547. A continuation of EDSE 547. Development of mobility skills in the advanced travel situation. Emphasis is placed on the maximum effective use of the remaining senses.

EDSE 550. LOW FUNCTIONING ACOUSTICALLY HANDICAPPED. *One hour credit.*

A study of hearing losses, problems, remediation, and education. Emphasis will be placed on language and communication.

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 361, 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 our programs of speech improvement in their classrooms. Not open to speech pathology majors.

EDSE 563. CLINICAL SUPERVISION IN SPEECH PATHOLOGY. *Three hours credit.*

This course is designed for advanced clinicians who are interested in clinical supervision. Focus will be on both theoretical and practical aspects of supervision.

EDSE 565. LANGUAGE AND RELATED DISORDERS OF ADULTS. *Three hours credit.*

Prerequisites, EDSE 363, 369, or consent of instructor. Consideration of the etiological factors, diagnosis, evaluation and remediation of adult language disorders, especially aphasia, apraxia, and dysarthria.

EDSE 572. INDUSTRIAL AUDIOLOGY. *Three hours credit.*

Prerequisite, EDSE 372. Investigation of noise; its effect on man's behavior and the auditory mechanism; methods for noise measurement and its attenuation; fundamentals for establishing a hearing conservation program. Interpretation of governmental regulations on noise control.

EDSE 573. THE AUDITORY MECHANISM. *Three hours credit.*

Prerequisites, EDSE 265 and 372. A detailed study of the structure of the human ear and its function.

EDSE 575. PEDIATRIC AUDIOLOGY: ETIOLOGY AND ASSESSMENT. *Three hours credit.*

Prerequisites, EDSE 371, 372, or consent of instructor. Differential diagnosis of infants and children with suspected auditory disorders and their habilitation or rehabilitation.

EDSE 576. ELECTROPHYSIOLOGICAL AUDIOMETRY. *Three hours credit.*

Prerequisites, EDSE 372 and 573. Electrophysiological techniques for measurement of auditory and vestibular function. Emphasis is placed on acoustic impedance measures, electronystagmography, and E.E.G.

EDSE 577. THE PSYCHOLOGY AND 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 590. INTRODUCTION TO VOCATIONAL REHABILITATION COUNSELING. *Three hours credit.*

An orientation to the rehabilitation process including a survey of history, principles, philosophy and legal aspects of herabilitation and related fields. Rehabilitation as a concept of integrated service is stressed an understanding of the objectives and the organizational basis of rehabilitation programs is provided.

EDSE 591. COMMUNITY RESOURCES FOR REHABILITATION, GUIDANCE AND COUNSELING. *Three hours credit.*

Designed to acquaint the student with an understanding of the needs 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. *Four 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 593. INTRODUCTION TO CORRECTIONAL REHABILITATION. *Three hours credit.*

This course is designed to provide students with an orientation to the general field of corrections and correctional rehabilitation. Emphasis is on the correctional system of justice from the point of arrest throughout, with discussion of alternative possibilities. Innovative programs and points of rehabilitation intervention are explored.

EDSE 594. PRACTICUM IN CORRECTIONAL REHABILITATION. *Three hours credit per quarter, maximum two quarters.*

Prerequisite, EDSE 593, permission of instructor. Individual observation and supervised community experience in a law enforcement, judicial or correctional agency or facility. Approximately 10 hours per week is required.

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 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. *Four hours credit.*

Prerequisite, EDSE 604, and consent of instructor. 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 the handicapped adults and develop skills in vocational diagnosis.

EDSE 609. BASIC CONCEPTS OF MENTAL RETARDATION. *Four hours credit.*

Prerequisite, EDSE 100 or 602. 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.*

Prerequisite, EDSE 310 or EDSE 609. 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 fifteen hours credit.*

Prerequisites, EDSE 100 or 602, 412 and 413. 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.*

Prerequisites, EDSE 100 or EDSE 602, EDSE 320. The role of the special teacher in the development of a hygienic educational atmosphere and an adequate correction program for socially maladjusted and emotionally disturbed children is stressed. Student should take EDSE 625 (3 hours) concurrently.

EDSE 622. INDIVIDUAL STUDIES. *Maximum 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. 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 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. Student should take EDSE 629 (3 hours) concurrently.

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. *One to fifteen hours credit.*

Prerequisites, EDSE 100 or 602, 326, 627, and 628. 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, spina 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 graduate students working in special education. The aim of the course is to discuss COHI problems in-depth and work on an individual project.

EDSE 634. PRACTICUM WITH PHYSICALLY HANDICAPPED. *Maximum 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.*

Prerequisite, EDSE 544. An ophthalmologist presents the anatomy and physiology of the eye and procedures for the medical eye examination. An educator presents the functional implications of various pathologies in the educational setting.

EDSE 642. LOW VISION AND ITS EDUCATIONAL IMPLICATIONS. *Two hours credit.*

Prerequisites, EDSE 641 or consent of instructor. Principles of preparation, selection and effective use of instructional materials for the low vision child. Also includes educational interpretation of eye reports, educational implication of diagnosis, techniques for observation of child's use of vision, visual efficiency testing and training.

EDSE 643. BRAILLE AND OTHER COMMUNICATION SKILLS II. *Three hours credit.*

Prerequisite, EDSE 543. Mastery of special braille codes: Mathematical and science notations, music, and foreign languages; textbook formats for braille, large type and recorded transcriptions. Operation and use of Cranmer Abacus. Two hours lab.

EDSE 644. PRACTICUM WITH VISUALLY HANDICAPPED. *Maximum 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 647. METHODOLOGY IN ORIENTATION AND MOBILITY. *Two hours credit.*

Prerequisite, EDSE 547. A practicum course in which students work on an individual basis with blind youngsters in the development of independent travel techniques. Emphasis is placed on teaching methodology.

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 correlation 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 adviser 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 360 or consent of instructor. Advanced study of articulation problems.

EDSE 661. NEUROLOGICAL MOTOR SPEECH DISORDERS. *Three hours credit.*

Prerequisites, EDSE 369 and 267 or consent of instructor. Causation, diagnosis and treatment of speech disorders resulting from neurological dysfunction.

EDSE 662. STUTTERING II. *Three hours credit.*

Prerequisite, EDSE 362, 464 or consent of instructor. Study and evaluation of major theories, therapies, and current research on stuttering, with special emphasis on the adult stutrer.

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 666. CLEFT PALATE. *Three hours credit.*

Prerequisite, EDSE 267, 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.*

Emphasis on current problems in speech pathology. May be repeated for credit. Speech Pathology and Audiology majors only.

EDSE 674. INTERNSHIP IN AUDIOLOGY. *Maximum fifteen hours credit.*

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. SEMINAR IN AUDIOLOGY: PEDIATRIC AURAL REHABILITATION. *Three hours credit.*

Prerequisite, permission of instructor. A study of the habilitation and/or rehabilitation of infants and children with hearing handicap. Emphasis is placed on determination of appropriate remediation, language and speech therapy, auditory training and counseling parents for home programming.

EDSE 678. SEMINAR IN AUDIOLOGY: HEARING AIDS AND USES OF AMPLIFICATION. *Three hours credit.*

Prerequisite, permission of instructor. A study of the effective use of hearing aids and auditory trainers, including their component parts, hearing aid orientation and counseling, and approaches to hearing aid evaluation procedures.

EDSE 679. SEMINAR IN AUDIOLOGY: GERIATRIC AUDIOLOGY AND AURAL REHABILITATION. *Three hours credit.*

Prerequisite, permission of instructor. An in-depth study of the aging process as it affects the auditory mechanism. Emphasis is placed on the rehabilitation of the hearing impaired aged person, along with the psychological impact of presbycusis.

EDSE 680. 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 sixteen hours credit.* (Open to Rehabilitation Counseling Majors Only.)

Prerequisite, PCG 612. 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 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 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 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 794. ADVANCED PRACTICUM. *Maximum 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.**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 candidates.

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 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 610. SEMINAR IN TECHNICAL THEATRE. *Three hours credit. (Maximum nine hours credit.)*

Prerequisite, THEA 310, 411, and 420, or permission of instructor. A seminar study of specialized topics in scene design, stage lighting, theatre architecture, staging techniques or stage costuming, the topics to be determined by the instructor in consultation with the students in the course. Emphasis is placed on research study.

THEA 622. INDIVIDUAL STUDIES. *Maximum 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. (Maximum nine hours credit.)*

Prerequisite, THEA 430, 431, 432, or permission of instructor. A seminar study of specialized topics in the history of the theatre, to be determined by the instructor in consultation with the students in the course. Emphasis is placed on research studies dealing with theatre as a social and cultural institution.

THEA 650, 651, 652. GRADUATE SUMMER THEATRE WORKSHOP I, II, III. *Eight hours credit each.*

Prerequisite, acceptance by Theatre Arts staff. Graduate workshop in acting and

technical theatre; eight weeks of eight hour daily rehearsal for six summer productions. This course may be counted in lieu of two hours in Individual Performance in Theatre for graduate majors.

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.

THEA 685. SEMINAR IN EDUCATIONAL THEATRE. *Three hours credit. (Maximum nine hours credit.)*

Prerequisite, permission of instructor. A seminar study of specialized topics in creative dramatics, children's theatre, teaching in the high school, theatre production activities in the high school, curricula and other concerns of educational theatre, the topics determined by the instructor and the students in the course. Emphasis is placed on educational research study.

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, and post-secondary.

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, and post-secondary.

VE 508. WORKSHOPS IN VOCATIONAL EDUCATION. *Maximum nine hours credit.*

Workshops provide opportunities for vocational educators to concentrate their study on common instructional or administrative problems. Each workshop will have a subtitle and no subtitle may be repeated for credit. S-U final mark.

VE 509. SEMINARS IN VOCATIONAL EDUCATION. *Maximum six 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 610. FOUNDATIONS OF VOCATIONAL EDUCATION -- ADVANCED SEMINAR. *Three hours credit.*

This basic core requirement is present and future oriented and designed for individuals with a limited background in vocational education. The course is based upon a coverage of five selected modules entitled: (1) Milestones and Legislative Mandates, (2) Organization and Administration of Vocational Education, (3) Current Topics in Vocational Education, (4) Structuring an Ideal System, and (5) Career Opportunities for Vocational Education Graduate Students.

VE 612. PROGRAMS AND PROCESSES IN VOCATIONAL EDUCATION. *Four hours credit.*

This is a basic core course and takes a comprehensive survey approach by examining secondary and post-secondary VE programs as to: (1) Occupational Program Areas -- scope and depth of training, (2) Staffing patterns, (3) Facilities and Equipment, (4) Cost Information, (5) Utilization of Community Resources, and (6) Methods and Techniques -- (a) Cooperative Education, (b) Project Method, (c) Simulation, (d) On-The-Job Training, and (e) Work Sampling Strategies.

VE 614. CAREER DEVELOPMENT THEORIES (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 and 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 616. PERFORMANCE-BASED CURRICULA. *Five hours credit.*

This is a basic core course. The course covers eight important modules: (1) Curriculum Planning and Structuring for Vocational Education Programs, (2) Job-Task Analysis, (3) Specification of Performance Objectives, (4) Identification of Curriculum and Instruction Resources, (5) Development of a Preliminary Instructional System, (6) Curriculum Validation, (7) Strategies for Individualizing/Personalizing the Instructional System, and (8) Product and Process Evaluation. This course is considered as a prerequisite for further work in the Program Leadership Series of courses.

VE 623. ASSESSMENT OF NEEDS FOR PROGRAM PLANNING. *Three hours credit.*

This program leadership seminar has five modules: (1) Population Analysis, (2) Job-Market Analysis, (3) Individual Needs Assessment, (4) Individual Program Planning, Monitoring, and Evaluation, and (5) Follow-up and Follow-through Activities.

VE 624. PROGRAM RESOURCES. *Three hours credit.*

This program leadership seminar has two modules and related units. Module One is entitled *Community Resources -- Identification and Utilization*. This module has three related units: (1) Human Resources, (2) Environmental Resources, and (3) Material Resources. Module Two is entitled *Occupational Facilities and Equipment* and contains four units: (1) Planning, (2) Specifications for Specific Vocational Education Programs and/or Functions, (3) Purchasing, Installing, and Maintaining, and (4) Controlling.

VE 625. PROGRAM PROPOSALS AND BUDGETS. *Three hours credit.*

This program leadership seminar has two large modules. Module One is entitled *Financing Occupational Programs* and contains four units: (1) State Board Funding Practices and Procedures, (2) Program Proposal Requirements, (3) Budget Categories, and (4) Budget Estimating. Module Two is entitled *Proposal Writing*

and contains four units: (1) Sources of funds, (2) Current Funding Priorities, (3) A Basic Proposal Format, and (4) Individual Project.

VE 626. PROGRAM MANAGEMENT. *Three hours credit.*

This program leadership seminar takes a survey approach and focuses on nine modules: (1) A Parallel Management System, (2) Personnel, (3) Operational Management, (4) Communication Skills, (5) Community Relations and Involvement, (6) Promotional Activities, (7) Laws and Regulations Affecting Programs in Vocational Education, (8) Professional Organizations and Personal Growth Opportunities, and (9) Practical Politics. Each module is a self-contained seminar.

VE 627. COMPONENTS OF A VE SYSTEM. *Three hours credit.*

This program leadership seminar is the analysis and synthesis of the basic core and the program leadership courses; therefore, this course should be taken toward the end of the student's graduate program. The seminar is designed to assist students conceptualize a comprehensive system for occupational education by examining four sub-systems and nine related components for a VE System.

VE 630. COMMUNITY AND ADULT VOCATIONAL EDUCATION. *Three hours credit.*

This seminar presents concepts, plans, and illustrations of a comprehensive community-based system of education and the important role of adult vocational education within the community educational structure. The course is organized into four modules: (1) A Community-based System of Education, (2) Adult Vocational Education Programs, (3) Legislative Mandates Affecting Community and Adult Vocational Education, and (4) Innovative Approaches.

VE 631. MANPOWER ORGANIZATION AND POLICIES SEMINAR. *Three hours credit.*

This seminar provides an overview of numerous manpower activities carried out under separate Federal legislative mandates. The seminar is divided into six topics: (1) Current Legislation, (2) Policies and Practices, (3) Programs and Processes, (4) Planning Thrusts and Trends, (5) Needs, Issues, Implications for Vocational Education, and (6) Career Opportunities in Manpower Programs and Administration.

VE 641. SYSTEMS APPROACHES IN CAREER GUIDANCE. *Three hours credit.*

This seminar is planned for assisting elementary, secondary, and post-secondary counselors and other guidance personnel in providing for the intensification of career guidance services for the school/district and community. Specific attention will be given to: (1) defining systems approaches to career guidance, (2) identification of major sub-components of a career guidance system(s), and (3) designing a specific delivery system.

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). *Four hours credit.*

Prerequisites, VE 640. This course is designed to aid counselors and other profes-

sional 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.

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 690. FIELD EXPERIENCES. *One to twelve hours credit.*

Students who have completed a minimum of nine quarter hours of graduate work in vocational education at UNC may elect professional development field experiences. The nature of the experience and the credit hours must be approved by the Coordinator of Graduate Vocational Education prior to enrollment.

VE 691. PRACTICUMS. *One to six hours credit.*

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 research project. A "prospectus" must be submitted to the Coordinator of Graduate Vocational Education prior to enrollment.

VE 696. VOCATIONAL INTERNSHIP PROGRAM (VIP). *One to twelve hours credit.*

VIP is open to students who have completed a minimum of twelve graduate vocational education hours at UNC. The internship may be included as an integral part of a graduate program by written authorization from the student's adviser to the Coordinator of Graduate Vocational Education. VIP is designed to provide the student with relevant culminating experiences under the supervision of a recognized vocational leader at the local, state, regional, or national level. Guidelines for VIP may be secured from the office of the Coordinator for Graduate Vocational Education.

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. *Four hours credit. (Three hours lecture, two 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, ZOO 121 or 326 or equivalent, CHEM 333 or 281 recommended. This course is an introduction to advanced physiology with major emphasis placed on the cardiovascular and pulmonary systems along with the integrative functions of the nervous and endocrine systems.

ZOO 552. MAMMALIAN PHYSIOLOGY II. *Four hours credit. (Three hours lecture, three hours laboratory.)*

Prerequisites, ZOO 121 or 325 and 326, 551, CHEM 333 or 281 recommended. This course includes a detailed consideration of the muscular and excretory systems. Major emphasis is placed on the integrative functions of these 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 554. GASTROINTESTINAL PHYSIOLOGY. *Four hours credit. (Three hours lecture, three hours laboratory.)*

Prerequisites, ZOO 121 or 326, 250. A detailed course centering on the function of the normal human digestive tract. Emphasis is placed on the mechanisms available for propulsion, secretion, digestion, absorption and motility of substances in the alimentary canal.

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.

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