

University of Northern Colorado
Graduate Bulletin
1979 - 1980



University of Northern
Colorado
Graduate Bulletin

1979 - 1980

Greeley, Colorado 80639

The University of Northern Colorado does not discriminate on the basis of race, color, creed, national origin, sex, age, individual handicap or veteran status in the recruitment and admission of students, the recruitment and employment of faculty and staff, and the operation of any of its programs and activities, as specified by federal laws and regulations. The designated coordinator for university compliance with Section 504 of the Rehabilitation Act of 1973 is the Associate Dean of Students. The Affirmative Action Officer of the university is the Director of Personnel and Equal Employment Opportunity.

NOTE: Courses in this Bulletin are subject to change without notice. Also, all rates quoted are subject to a provision that the university reserves the right to change tuition, fees and other charges without notice.

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Guide to Campus Offices

Post Office Address:

University of Northern Colorado
Greeley, Colorado 80639

Telephone:

(Area Code 303) 351-1890

Admissions

Admissions Office, Carter 209 (351-2881)

Affirmative Action

Affirmative Action Office, Frasier 201
(351-2957)

Bulletins and Catalogs

Publications Office, Carter 206A (351-2772)

Counseling Services

Counseling and Testing Center, 103 Gray Hall
(351-2497)

Fee Payments

Accounting Office, Frasier 11 (351-2201)

Financial Assistance and Student

Employment

Financial Aids Office, Carter 209 (351-2502)

Graduate Program Information

Graduate Office, Frasier 105 (351-2831)

Housing

Housing Office, Gordon Hall (351-2721)

Off-Campus and Correspondence Courses

Center for Non-Traditional and Outreach
Education, Faculty Apts. Unit 1, Garden Level
(351-2891)

University Calendar

Summer, 1979

Pre-session and 10-Week Session

Mon., June 11

Registration and classes begin for 1-week (June
11-15) pre-session and 10-week session (June 11
- Aug. 17)

Tues., June 12

Classes begin for 10-week session

Fri., June 15

Last day of classes for 1-week pre-session

Regular Sessions*

Mon., June 18

Registration for 8-week session
(June 18 - Aug. 10)

Tues., June 19

Classes begin for 8-week session

Wed., July 4

No classes

Fri., Aug. 10

Last day of classes for 8-week session

Sat., Aug. 11

Commencement

Post-session

Mon., Aug. 13

Classes begin for post-session

Fri., Aug. 17

Last day of classes for post-session and
10-week session

Interim Session

Mon., Aug. 20 through Fri., Sept. 14

Registrations for courses within the interim
session will be conducted during the first day of
classes in the classroom assigned to the course.

*One-week, two-week and other short term courses
are offered during the regular session. Consult the
Summer 1979 Bulletin for the specific beginning and
ending dates of courses.

Fall, 1979

Thurs. and Fri., Sept. 20 - 21

GA, TA, and new faculty meetings

Tues. and Wed., Sept. 25 - 26

Fall Registration

Thurs., Sept. 27

Classes begin

Fri., Nov. 9

Pre-registration for Winter (classes will meet)

Wed., Nov. 21

Classes dismissed 12 noon, Thanksgiving Break

Mon., Nov. 26

Classes resume

Fri., Dec. 7

Last day of classes

Sat., Dec. 8

Commencement, quarter ends

Winter, 1980

Wed. and Thurs., Jan. 2 - 3

Registration

Fri., Jan. 4

Classes begin

Fri., Feb. 8

Pre-registration for Spring (no classes)

Fri., Mar. 14

Last day of classes

Sat., Mar. 15

Commencement, quarter ends

Spring, 1980

Mon. and Tues., Mar. 24 - 25

Registration

Wed., Mar. 26

Classes begin

Thurs. and Fri., May 8 - 9

Pre-registration for Fall 1980 (no classes)

Fri., June 6

Last day of classes

Sat., June 7

Commencement

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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 growing interest area at the university is Liberal Education through several new programs.

A wide variety of program offerings are organized within eight schools and colleges (College of Arts and Sciences, College of Education, College of Performing and Visual Arts, School of Business, School of Educational Change and Development, School of Health, Physical Education and Recreation, School of Industrial Technology and Home Economics, 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, National Association for Business Teacher Education, American Assembly of Collegiate Schools of Business, the American Speech and Hearing Association, the Council on Education for the Deaf, and other educational organizations.

Graduate Council

Timothy D. Cavanagh, Ph.D., Chairperson
Judith A. Praul, Ed.D., Vice Chairperson
College of Arts and Sciences — Timothy D. Cavanagh, Ph.D.; Charles O. Collins, Ph.D.; John E. Loftis III, Ph.D.; Edmund A. Richards, Ph.D.; Joan Richardson, Ph.D.; Leo B. Varner, Ph.D.
School of Business — William L. Duff, Jr., Ph.D.
College of Education — Douglas S. Burrton, Ed.D.; Donald B. Montgomery, Ed.D.; Joe Nichols, Ed.D.; Judith A. Praul, Ed.D.; Maurice B. Ward, Ed.D.
School of Educational Change and Development — Gerald N. Burns, Ed.D.
School of Health, Physical Education and

Recreation — D. Allen Phillips, Ed.D.
 School of Industrial Technology and Home
 Economics — John M. Kruger, Ed.D.
 College of Performing and Visual Arts —
 Charmaine Coppom, M.A.; Sanford A
 Linscome, D.M.A.
 Student Members — Jerry Harris, John Hunt,
 Kenneth Powell
 Advisory Members — Judith K. Underwood,
 Ph.D., Faculty Senate; Dennis A. Gay, Ph.D.,
 Graduate School; George Leach, Ed.D.,
 Graduate School; Arthur R. Reynolds, Ph.D.,
 Dean of the Graduate School

Academic Information

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 fall, winter, spring, or summer quarter; more than 16 hours in an eight week summer quarter; no more than 10 hours in a five week enrollment. The maximum number of hours includes work completed in both the on-campus programs or in a combination of the two types of programs.

Graduate credit is not given for any course taken through correspondence, although graduate credit may be awarded for certain multi-media learning package courses completed through the UNC Center for Non-Traditional and Outreach Education. These courses must first be given approval by the student's major academic department and the Dean of the Graduate school.

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.

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

No graduate student may count in his or her 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

committee approval. Educational Field Experiences courses bearing catalog numbers of 499 or below, EDCI 340, EDCI 341, EDCI 351, and IS or departmental prefix 422 or any courses numbered in the 100's and/or 200's (courses open to freshmen and sophomores) may *not* be taken for graduate credit.

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 or she *must* complete a Petition to Count Work in 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.

Effective Dates of this Catalog. The effective dates of this catalog are from June 1, 1979 to May 31, 1980. Students *enrolling* for the first time in a graduate degree program during these effective dates will follow the regulations and requirements in this catalog until their graduation.

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. The work to remove an "Inc." is to be completed and the official grade change card recorded in the Records Office by the last day of the succeeding quarter in attendance, which must occur within one year of the assignment of the grade. If the process has not been completed within the time limit, the "Inc." remains on the record and is computed as an F in the student's grade average.

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.

A course in which a grade of "D" is earned shall *not* be counted toward meeting the requirements of a graduate degree.

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 or Project in Lieu of 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.

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.

If the student does not complete all requirements for the degree and does not

graduate at the end of the proposed quarter, his or her application will be placed in the deferred file. The student must give the Graduate School Office written notification when he or she wishes his or her name to again appear on the tentative list of graduates. This must be done before the end of the second week of the quarter in which he or she plans to graduate.

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 622, Individual Study:

1. The study must be limited to four hours per quarter.
2. The approved IS or Departmental Prefix 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 chairperson 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 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 or above and *taken in residence in Greeley*.

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 chairpersons, and approval of the Graduate Council. The graduate faculty, through its representative body, the Graduate Council, shall have the power to establish policies and procedures for all graduate programs of the university (on and off campus), and to enact such rules and regulations as it may deem desirable to promote or enforce such policies, subject to the discretionary approval of the Faculty Senate and the University Faculty.

Program. The University of Northern Colorado offers advanced programs of professional work leading to Master of Arts, Master of Music, Master of Music Education, Master of Science, Specialist in Education, Doctor of Arts, Doctor of Education, Doctor of Music Education and Doctor of Philosophy degrees. 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.

Registration and Advisement. The Dean of the Graduate School will request the department chairperson or school dean to appoint an adviser for each student who has been admitted to a degree program when the student first registers in his or her graduate degree program. All degree programs will be planned with and approved by the student's adviser.

A request for change in adviser may be initiated by the adviser or by the student. All such requests must be presented to the major department for review. The department will decide whether the request shall be granted and, if approved, will designate the necessary replacement. The replacement also must be approved by the Dean of Graduate School.

If a student wishes to change his or her major, he or she 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 chairperson to appoint an adviser and notifies the former adviser of the change.

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

Enrichment Course Work for Graduate Students. The Graduate Council reserves the right to send a graduate student at the request of the student or of the department to another accredited institution which offers graduate degrees to earn a maximum of 15 quarter hours in specific courses.

In addition, the university has a Reciprocal Course Agreement with Colorado University, Colorado State University and Colorado School of Mines whereby a full-time graduate student on one campus may take one course per term at one of the other institutions which will count as residence credit and will not involve an additional tuition charge. Those interested should contact the Dean of the Graduate School in the term *prior* to the term in which the student proposes to take the course.

Academic Standards and Requirements

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*. * 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

*Foreign students must file application and transcripts ninety days before registration.

the Graduate Record Examination Aptitude Test scores accompany the doctoral application.

An applicant must satisfy the minimum admission criteria established by the Graduate School and must be approved by the college, school, or department in which he or she wishes to major before he or she is admitted to a graduate degree program. Variations exist in the admission requirements of the colleges, schools and departments. Therefore, it is important for the student to become acquainted with specific admission requirements (tests, personal interviews, recommendation letters, artistic portfolios, auditions, submission date deadlines, etc.) of his or her proposed program. (See the Departmental Program Requirements section of this catalog.)

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

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

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 preclude satisfactory progress in his or her curriculum.

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 or her class and the way in which he or she will evaluate attendance as a factor in the achievement of the student.

The instructor has the responsibility to

inform students of his or her 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.

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 or her to progress satisfactorily in his or her chosen curriculum and to perform adequately when in his or her 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*, Fourth Edition, 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 or her major department to determine the specific style form to be used in that discipline. Turabian manual is available for purchase in the University Bookstore.

Limitations on Enrollment.

1. University of Northern Colorado faculty are not admitted to UNC graduate programs unless their program is approved by the Academic Administrative Council.

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 or her major department in order 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 or she drops below 3.00; he or she is sent a warning letter. If he or she drops below 3.00 a second quarter, his or her 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 or a project in lieu of 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 or she will not be admitted to another graduate degree program.

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

*The calculation of the cumulative G.P.A. may include only the most recently completed fifteen (15) credits in courses numbered in the 300's and 400's. Courses numbered in the 100 and 200 levels may not be included in the cumulative G.P.A.

report of the project done in lieu of a dissertation by some doctoral students in the SECD must furnish to the graduate school three copies of the final document to be bound. However, the student must provide a complete copy of the study for each official member of the committee for the dissertation defense. 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 two copies are to be reproduced on twenty-pound bond paper.

The original copy of the dissertation proposal 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 proposal 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.

Unclassified Graduate Student. Each student is urged to apply for a degree program at the beginning of his or her 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 or her, 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 or her degree program if not needed to satisfy the minimum grade average for admission. An unclassified graduate student who wishes to have his or her unclassified course work made applicable to his or her degree program must complete a petition at the Graduate School Office to transfer work to a degree program during his or her *first* quarter of residence following his or her admission. A minimum of 45 quarter hours of work applicable to the master's degree must be started and completed after the Dean has admitted a student on departmental recommendation.

Withdrawal from Class. When a student registers for a class, he or she is considered to be a member of that class. If he or she should wish to withdraw from the class, he or she must first obtain a withdrawal form from the Records Office and obtain the signature of the faculty member teaching the class from which he or she desires to withdraw. If the faculty member refuses to sign the withdrawal form the student should contact the Student Personnel Office. The last day to withdraw from a course is the mid-point of the course. The last day to withdraw from ten-week courses will be published in the University Schedule of Classes for that Quarter. The last date to withdraw from other courses will be 4:00 p.m. of the mid-point day (count class days only) of the course.

Graduate Degrees

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 of A,B,C,D,F grades 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 started and completed after the Dean has admitted the student on departmental recommendations.

Transfer of Credit. A maximum of nine (9) 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 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.

Residence and Time Requirement. Candidates must satisfactorily complete a minimum of ten week 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.² *With departmental approval*, the following alternative method of satisfying the residence requirements may be used: In exactly four quarters (any four quarters, not necessarily consecutive) within an overall maximum time period of eight consecutive quarters (i.e., two consecutive years), the student must satisfactorily accumulate on-campus at least twenty-four (24) quarter hours of graduate academic credit by satisfactorily completing not less than three (3) quarter hours of graduate academic credit nor more than nine (9) quarter hours of graduate academic credit in each of these four quarters of residency. If the student carries more than nine (9) hours in one quarter, the extra hours will count towards the degree but will not count to satisfy the alternative residence requirement. IS or Departmental Prefix 622 cannot be used to satisfy this requirement or the requirement that at least half of a student's credit must be in courses numbered 500 or above and *taken in residence in Greeley*. 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 residence requirement.

The maximum time limit for completion of the graduate program is five calendar years from the beginning of the student's first quarter. If the student does not complete his or her program within the time limit, his or her 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. 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 or her adviser during his or her first quarter.

The student must have a minimum of 64

¹A mature student who has had extensive practical experience in the field in which he or she proposes to study may apply to the Committee on Admission of Applicants Who do not have a Baccalaureate Degree.

²Unless the student is registered for at least six (6) additional hours of classes taken on campus in Greeley, the student shall not count IS or Departmental Prefix courses 601, 622, 691, or 699 to satisfy the residence requirement or the requirement that at least half of the student's credit must be in courses numbered 500 or above and taken in residence in Greeley.

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 or her graduate credit in these areas.

Specific Requirements for Graduation.

In addition to the general requirements of the Graduate School, Colleges or Schools, and/or 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 numbered 500 or 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 may satisfy a maximum of 11 hours of the 22 hours. No student may count in his or her degree program more than 15 hours of work in courses numbered in the 300's and/or 400's (courses open to juniors and seniors).² Educational Field Experience courses bearing catalog numbers of 499 or below, EDCI 340, EDCI 341, EDCI 351, and IS or Departmental Prefix 422 or any courses numbered in the 100's and/or 200's (courses open to freshmen and sophomores) 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 and

¹Following research-oriented course substitutions which have been approved by the Graduate Council may be made in lieu of Introduction to Graduate Study: Anthropology, ANT 600; Biological Science, BIO 694; Chemistry, at least CHEM 390 and two hours in CHEM 599; Curriculum and Instruction; EDCI 600; Educational Administration, EDAD 600; Elementary Education — Early Childhood Education, EDEC 662; Elementary Education and Reading, EDRD 645; Earth Sciences, ESCI 500; Health, Physical Education and Recreation, HPER 602; Industrial Arts, IA 730; Mathematics (Liberal Arts), MATH 510, 3 hours; Mathematics (Teacher Education), MED 672; Music, MUS 600; Outdoor Education, OED 652; Physics, at least 4 hours in PHYS 661; Science Education, SCED 673; Social Science with concentration in Sociology, SOC 660; Special Education, EDSE 689. A STUDENT SHALL NOT USE IS OR DEPARTMENTAL PREFIX 622 AS A SUBSTITUTE.

²Only the most recently completed fifteen (15) hours may be counted for graduate credit or in the official cumulative grade point average.

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

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 or she initiates his or her program.

The comprehensive examination or the departmentally approved equivalent may not be completed until the student has completed at least thirty (30) quarter hours with a grade average of at least 3.00 and has the approval of his or her 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 the Graduate School or School or College Office. If the student does not take the examination or does not demonstrate competency during the quarter authorized by the permit, he or she *must* secure a new permit for the quarter in which he or she wishes to take the examination or demonstrate competency. The signed "Permit to Take Written Comprehensive Examination or Otherwise Demonstrate Competency" *must be received in the Graduate School Office no later than 4:00 p.m. on the Friday of the second week of the quarter in which the examination is to be taken.*

- 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 chairperson 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. The retake may not occur until the following quarter. A special fee will be charged for this. The student must pay the fee at the Accounting Office and present his or her 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 or she 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.*

If the student does not complete all requirements for the degree and does not graduate at the end of the proposed quarter, his or her application will be placed in the deferred file. The student must give the Graduate School Office written notification when he or she wishes his or her name to again appear on the tentative list of graduates. This must be done before the end of the second week of the quarter in which he or she plans 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 program.

Each applicant for admission to the program will be considered as an individual case in terms of the area in which he or she wishes to specialize, his or her background and experience preparing him or her for such specialization and the possibility of a program being provided to offer him or her the opportunity he or she desires. The applicant will be expected to have a very clear idea of his or her 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; and 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 or her 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 Doctoral 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 or her 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 or her 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 of A, B, C, D, F grades. An applicant may be admitted who is slightly below the 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.*

Advisement. When a student has been admitted to a specialist program, he or she is notified of his or her admission and that the chairperson of the department of his or her specialization will appoint his or her 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 or her department will submit to the Graduate Council a recommendation that he or she continue in his or her present program or that his or her present program should be terminated. The recommendation will be based on multiple criteria such as: the faculty interview; 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 this 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 or her department of its recommendation that his or her program should be terminated, the student may file and appeal in the Graduate School Office. The student will be notified in writing that he or she 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 or her program terminated by the Graduate Council

**Psychology, 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 Administration requires work experience that indicates probable success as a College Student Personnel Administrator.*

†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, 8 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.

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 or she may use as many of his or her previous courses as the department of his or her 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. No later than the second quarter in residence, the candidate will work out a long range plan of study with his or her adviser. One copy of this proposed plan will be placed in the student's folder in the Graduate School Office, one copy will be presented to the adviser, and one copy to the second member of the Supervising Committee.

Research. A Specialist Degree Practicum (IS or Departmental Prefix 701) is required.† For those students who do a Specialist Degree Practicum, a Written Report of the Specialist Practicum is required. The proposal and the Written Report shall be under the direction of and approved by the Supervising Committee. Three copies of the practicum proposal are required. One copy of the proposal shall be filed in the Graduate School Office no later than the last day of the quarter preceding the quarter in which the student graduates. The proposal will not be recorded as accepted in the Graduate School Office until the signed nonplagiarism affirmation form is on file in the Graduate School Office. (See *Graduation Requirements for filing of the Written Report of the Practicum.*)

Paper Standards for Dissertations, Theses, et cetera, are stated on page 3.

Transfer of Credit. A maximum of nine (9) 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 equals two-thirds of a regular load and by definition enables the candidate to be technically classified as a full-time student.* With departmental approval, the following alternative method of satisfying the residence requirements may be used. "In exactly four quarters (any four quarters, not necessarily consecutive) within an overall maximum time period of eight consecutive quarters (i.e., two consecutive years), the student must satisfactorily accumulate on-campus at least twenty-four (24) quarter hours of graduate academic credit by satisfactorily completing not less than three (3) quarter hours of graduate academic credit nor more than nine (9) hours in one quarter, the extra hours will count towards the degree but will not count to satisfy the alternative residence requirement. (IS or Departmental Prefix 622 cannot be used to satisfy this requirement or requirement that at least half of a student's credit must be in courses numbered 500 or above and taken in residence in Greeley.)" 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 requirements.

The maximum time limit for completion of the graduate program is six calendar years from the beginning of the student's first quarter. If the student has completed a master's degree at the time he or she begins a specialist degree program, he or she shall have a maximum time limit of five calendar years to complete the degree requirements. If the student does not complete his or her program within the time limit, his or her degree program will be terminated.

Specific Requirements for Graduation. In addition to the general requirements of the Graduate School, Colleges or Schools, and/or 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 may satisfy a maximum of 12 hours of the 24 hours. The

*Unless the student is registered for at least six (6) additional hours of classes taken on campus in Greeley, the student shall not count IS or Departmental Prefix courses 601, 622, 691, 699, 701, 703 or 799 to satisfy the residence requirement or the requirement that at least half of the student's credit must be in courses numbered 500 or above and taken in residence in Greeley.

required practicum or its equivalent, hours may be counted to meet this requirement. No student may count in his or her 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)! 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 340, EDCI 341, EDCI 351 and IS or Departmental Prefix 422 or any courses numbered in the 100's and/or 200's (courses open to freshmen and sophomores) 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 Study (622) or Internship in Educational Administration (EDAD 680).

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, three copies of the approved written report of the practicum shall be filed in the Graduate School Office. The three copies will be bound. The original 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 microfilming, binding and mailing fee will be charged.

Paper Standards for Dissertations, Theses, et cetera are stated on page 3.

4. Pass a written comprehensive examination over his or her speciality and his or her Specialist Degree Practicum, and meet such other final requirements as his or her committee may prescribe. The student must obtain from the Graduate School or School or College Office, a "Permit to Take Written Comprehensive Examination". *The signed "Permit to Take Written Comprehensive Examination or Otherwise Demonstrate Competency" must be received in the Graduate School Office no later than 4:00 p.m. on the Friday of the second week of the quarter in which the examination is to be taken.* The comprehensive examination may not be taken until the student has completed at UNC at least 30 quarter hours, not including the practicum, with a grade average of at least 3.00 and has the approval of his or her major adviser and the Graduate School Office.² If the student does not take the examination during the Quarter authorized by the permit, he or she must secure a new permit for the quarter in which he or she wishes to take the examination. His or her

¹Only the most recently completed fifteen (15) hours may be counted for graduate credit or in the official cumulative grade point average.

²A student who has entered the Specialist program without having previously acquired a master's degree will have to complete seventy-five (75) quarter hours, not including the practicum, with a grade of at least 3.00 and the approval of the adviser before the comprehensive examination may be taken.

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 written comprehensive examination the student may retake the test. The retake may not occur until the following quarter.

A special examination fee will be charged for this additional test. The student must pay the fee at the Accounting Office and present his or her receipt at the Graduate School Office to secure 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 or she 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 or she 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.*

If the student does not complete all requirements for the degree and graduate at the end of the proposed quarter, his or her application will be placed in the deferred file. The student must give the Graduate School Office written notification when he or she wishes his or her name to again appear on the tentative list of graduates. This must be done before the end of the second week of the quarter in which he or she plans to graduate.

Doctor of Arts, Education, Music 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.), the Doctor of Music Education (D.M.E.) 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 Doctor of Music Education degree was first offered in 1975.

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 or she plans to teach.

2. Adequate flexibility in each student's program is provided so that he or she may have an adequate opportunity to work in supportive areas based upon his or her needs and interests.

3. The student will be prepared for college teaching through courses which enable him or her 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 or her specific discipline.

4. Each student will be provided with supervised teaching experiences. 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. In cooperation with the major adviser, each Doctor of Arts student should tailor-make his or her course of study in order to best prepare himself or herself for a career as a professional college teacher together with a supplementary commitment to research. Students who plan to teach in "core city" two-year or four-year institutions where there will be a number of minority students should take some work in Black Studies and/or Mexican American Studies. Students who have not had courses in Educational Media should take some work in that area. Students should consider the advisability of taking some courses in communications and in data processing. Students considering a career in community junior college teaching should take EDHI 653 — The Junior and Community College and if possible EDHI 652 — Adult Education.

6. Through the course work and at least minimal experience in his or her own research the student will be trained to interpret research in his or her major discipline.

7. The student will be expected to write a dissertation incorporating the results of independent investigation in his or her subject matter area, in teaching problems or techniques in his or her 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. The minimum requirement for admission is that the student have a previous grade average of 3.00 (B) or better in the most recent 100 quarter hours, a satisfactory Graduate Record Examination Aptitude Test score and acceptance by the department in which the student wishes to major. *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, 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 or her 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.†

Advisement. When a student has been admitted he or she is notified of his or her admission and that the chairperson of his or her major department will assign his or her adviser. Each student will have two committees during his or her 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 chairperson of the department, and appointed by the Dean of the Graduate School. In addition, a faculty representative from a department other than the major department shall be appointed by the Dean of the Graduate School. No faculty member will be appointed to a doctoral committee without his or her 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 a 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 Proposal 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 Chairperson or School Dean must endorse the request that the Graduate Dean appoint the specified replacement.

Research Adviser. At the request of the adviser and the departmental chairperson, 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 and the

**Exception: Rehabilitation Counseling.*

†Psychology, 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.

research adviser will receive the bound copy of the completed dissertation normally sent to the major 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 or she is: a) encouraged to continue in his or her present program; b) discouraged from continuing in his or her present program; c) placed on review for one quarter. Multiple criteria such as: scores on the Graduate Record Examination; the faculty interview; 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 or her department will submit to the Graduate Council a recommendation that he or she continue in his or her present program or that his or her 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 or her department of its recommendation that his or her program should be terminated, the student may file an appeal in the Graduate School Office. The student will be notified in writing that he or she 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 or her 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 or she may use as many of his or her previous courses as the department of his or her 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. Not later than the second quarter in residence, the candidate will work out a long range plan of study with his or her adviser. One copy of this proposed

plan 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 or Music Education must complete the basic foundation courses which are EDF 785, Philosophic Foundations of Education; EDF 765, Sociological Foundations of Education; PCG 640, Psychological Foundations of Education.

Research. A dissertation (IS or Departmental Prefix 799, Doctoral Dissertation) is required. A student may register for some quarter hours of Doctoral Dissertation in addition to his or her regular course load during each quarter to reach the eighteen hour "blanket tuition" level. Each student should check with the Dean of the Graduate School at each registration to assure that he or she registers for the dissertation hours in the most advantageous manner.

The dissertation proposal and the dissertation shall be under the supervision of the adviser and the dissertation committee. The dissertation proposal must bear the signatures of all committee members. The official document explaining the required process which ensues when only one committee member will not sign the proposal is available in the Graduate School Office. Six copies of the dissertation proposal are required. One copy of the proposal must be filed in the Graduate School Office no later than the last day of the quarter preceding the quarter in which the student graduates. The proposal will not be recorded as accepted in the Graduate School Office until the signed nonplagiarism affirmation form is on file in the Graduate School Office. (See Graduation Requirements for filing of approved dissertation.)

Paper Standards for Dissertations; Theses, Et cetera are stated on page 3.

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

1. Earned at least 55 hours beyond the

*Following research-oriented course substitutions which have been approved by the Graduate Council may be made in lieu of Introduction to Doctoral Research; Biology, BIO 694; Chemistry, at least CHEM 39 and two hours of CHEM 599; Elementary Education — Early Childhood Education, EDEC 662; Elementary Education and Reading, EDRD 645; Health and Physical Education, HPER 602 and HPER 703; Mathematics, MATH 510, 3 hrs.; Mathematics Education, MED 672; Music, MUS 700; Outdoor Education, OED 652; Psychology, Counseling and Guidance, PCG 780; Research and Statistical Methodology, RSM 713; Science Education, SCED 673. A STUDENT SHALL NOT USE IS OR DEPARTMENTAL PREFIX 622 AS A SUBSTITUTE.

master's degree (100 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 dissertation proposal.

4. Met the research tools requirement in programs requiring such competency. If a student is using a collateral field of study as an approved substitute for one research tool he or she 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 or she is admitted to candidacy.

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

The maximum time limit for earning the doctoral degree is eight calendar years from the beginning of the student's first quarter. If a student who has completed a Specialist in Education degree is admitted to a doctoral program, he or she shall have a maximum time limit of five years to earn the 55 or more additional hours (including the 18 hours for the dissertation or project in lieu of a dissertation) that he must earn at the University of Northern Colorado plus satisfying all other doctoral degree requirements. *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

*Unless the student is registered for at least six (6) additional hours of classes taken on campus in Greeley, the student shall not count IS or Departmental Prefix courses 601, 622, 691, 699, 701, 703, or 799 to satisfy the residence requirement or the requirement that at least half of the student's credit must be in courses numbered 500 and above and taken in residence in Greeley.

program and cannot be used to meet the requirement that 36 hours of the course work must be in courses numbered 500 or above and taken in residence at Greeley. In some cases additional transfer credit may be accepted by the candidate's Oral Comprehensive Examination Committee after he or she has passed the Written and Oral Comprehensive Examinations. He or she may apply for transfer up to a maximum of 35 quarter hours (including the original 12 quarter hours previously accepted). Students 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.

Graduation. In addition to the general requirements of the Graduate School, Colleges or Schools, and/or departmental 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 may satisfy a maximum 18 hours of the 36 hours (58 quarter hours if the student enters the program with only a baccalaureate degree). No student may count in his or her 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 340, EDCI 341, EDCI 351, and IS or Departmental Prefix 422 or any courses numbered in the 100's and/or 200's (courses open to freshmen and sophomores) 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 48 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 examinations 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 Graduate School Office. (The student must obtain from the Graduate School or School or College Office a "Permit To Take Written Comprehensive Examination.") If the student does not take the examination during the quarter authorized by the permit, he or she must secure a new permit for the quarter in which he or she wishes to take the examination. *The signed "Permit to Take Written Comprehensive Examination or Otherwise Demonstrate Competency" must be received in the Graduate School Office no later than 4:00 p.m. on the Friday of the second week of the quarter in which the examination is to be taken.*

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. The retake may not occur until the following quarter. 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. 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 or she 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 Chairperson 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 must 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 chairperson 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), and 4) Failed (with retake NOT permitted). In this instance the student will have eliminated himself or herself from further work applicable to the doctorate and may not present himself or herself 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 or she meets stated conditions, the student must meet the stated conditions prior to his or her admission to candidacy. At least three-fourths of the Oral Comprehensive Examination Committee must affirm that the conditions have been met.

In case of failure to pass the Oral 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. The retake may not occur until the following quarter. Failure to pass the oral retest will terminate the degree program.

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 committee and to return the Report of the Oral Comprehensive Examination to the Graduate School Office.

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

The time and place of defense of the dissertation shall be arranged by the Graduate School Office (the major adviser,

who will serve as the chairperson 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 defense and may ask questions of the student after the Dissertation Committee members have completed their questioning. Graduate students may attend with permission from the chairperson of the committee.

The Dissertation must bear the signatures of at least all except one of the Committee members before it can be filed in the Graduate Office. If a Dissertation is filed without the signatures of *all* Committee members, however, the Dean of the Graduate School or his designee shall contact the Committee member who has not signed to ascertain whether such member desires to enter any formal objection. The official document which explains the procedures followed in the event of a formal objection is available in the Graduate School Office.

4. File in the Graduate School Office at least 17 days before graduation three copies of the corrected and approved dissertation and a 600-word abstract. If the abstract exceeds 600 words, University Microfilms necessarily reduces the copy without editing and thereby destroys content and continuity.

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

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.

6. Pay for the binding and mailing of the dissertation. At least three copies of the study, including the abstract are required to be bound. After being bound the original is 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.*

If the student does not complete all requirements for the degree and does not graduate at the end of the proposed quarter, his or her application will be placed in the deferred file. The student must give the Graduate School Office written notification when he or she wishes his or her name to again appear on the tentative list of graduates. This must be done before the end of the second week of the quarter in which he or she plans to graduate.

Postdoctoral Programs

Programs of research and advanced study for persons holding the earned Doctor of Arts, Doctor of Education, Doctor of Music 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 or her and to make an assessment of his or her progress at the end of the program. Work on the post-doctoral level may be taken in areas such as administration, college student personnel administration, 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.

Admission to Programs Within the College of Education

"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.

"Admission by the Graduate School does not guarantee that the student will be admitted by the Department. The final decision for admission to a specific program will be made by the appropriate department.

Graduate Non-Degree Certification Programs

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 certification is sought; 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 plus (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.

NOTE: Upon admission to this graduate program and upon arrival on campus, students must make formal application for admission to the program of Professional Teacher Education (PTE) prior to the Second Friday of the first quarter on campus. Make such application in McKee 518. Full admission to PTE requires documented evidence of at least 40 hours of school experience, recommendation of the major (endorsement) department, demonstration of competency in computation and composition, personal assessment, speech and hearing clearance, health report, and attendance at an information seminar.

Basis of Evaluation

A. Satisfactory completion of college or university course work in the general education areas of Computational Skills, Basic Composition, Intermediate Composition, Arts and Applied Language Studies, Professional and Applied Studies, Social and Behavioral Sciences, Humanities and Integrative Studies, Sciences, and Human Interactions.

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:		
PSY 347	Developmental Psychology for Teachers	3
PSY 348	Learning Processes in Education (Prerequisite: PSY 347)	3
EDF 366	Foundations of Education	4
EDF 367	Philosophy of Education	3
EDSE 405	Handicapped Students in the Regular Classroom	3
EDSE 406	Working with Handicapped Students in the Elementary School or	2
EDSE 407	Working with Handicapped Students in the Secondary School	2
EDRD 420	Reading in the Secondary School (Elementary Education and Special Education majors take EDRD 310)	3
EDLS 360, 361, 362, or 363	Clinical	

	Experience or departmental equivalent (certain majors may use EDSE 378, 379)	3
	Methods of Teaching (Check major for requirement)	3
EDFE 444	Supervised Teaching	18
	Hours credit:	44

NOTE: For majors in Special Education, EDSE 405-406-407 are not required. For students in appropriate program areas, the following are acceptable substitutes for EDSE 406 or 407:

EDEC 463	Diagnostic Teaching in Early Childhood
EDSE 306	Identification of Learning Disabilities in Early Childhood
FA 229	Art for the Exceptional Child
HECV 465	Home Economics Program for Special Needs
HPER 432	Adapted Physical Education
HPER 438	Physical Education/Recreation for the Mentally Impaired
HPER 439	Physical Education/Recreation for the Physically Handicapped
MUS 414	Music for Children with Learning Disabilities
VE 430	Vocational Education for Learners with Special Needs
SCED 360	Science for the Handicapped

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 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 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.

Certification. Upon satisfactory completion of a program of teacher education and any additional requirements that may be imposed by state law, a student is eligible for institutional recommendation to the State Commission on Teacher Education and Certification for certification in the State of Colorado. Near the end of the quarter in which the program is to be completed, the student should complete application forms in the College of Education office in McKee Hall. Applications are processed as soon as official transcripts, ordered by the applicant, are received from the Registrar showing completion of the program and the degree conferred.

Basis for Supervised Teaching Assignment
Supervised Teaching Assignments for certification are available in cooperating school districts throughout the state and out of state. Placements are made with the approval of the Director of Educational Field

experiences, upon the recommendation of the student's academic department and of the Professional Teacher Education Committee.

Minimum requirement for a teaching certificate is 18 quarter hours.

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

1. Met all specific departmental requirements for supervised teaching.
2. Received *full* admission to PTE.
3. Received health clearance from 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. All assignments are initiated and confirmed by the Office of Educational Field Experiences ONLY.

Quarterly application deadlines for student field experiences are as follows:

Fall placement: no later than May 1.

Winter placement: no later than November 1.

Spring placement: no later than February 1.

Summer placement: no later than May 1.

Student's Rights and Responsibilities

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 or her 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.

A Nonplagiarism Affirmation is required of each graduate student when the student files a doctoral dissertation, a written report of the specialist's practicum, a master's thesis, a detailed written explanation of a creative project's contribution to contemporary thought and life, or a written report of a project done in lieu of a dissertation by some doctoral students in SECD.

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. A mimeographed document entitled *Academic Freedom, Rights and Responsibilities of Students*, University of Northern Colorado, is available in the Office of the Dean of Men, Frasier 119, for those who desire a copy of the same. It is the student's obligation to conduct himself or herself 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.

Student Responsibility. The graduate student is expected to know the requirements for the degree he or she 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 of any error in his or her enrollment or in the interpretation of the rules rests with the student.

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.

UNC Services

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.

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 fees for services set on a cost basis.

Colorado State Committee, North Central Association of Colleges and Schools. The office of the Colorado State Committee, North Central Association of Colleges and Schools is in McKee Hall. It is a unit of the University of Northern Colorado. The North Central Association is a voluntary association of schools providing schools with accreditation, school improvement-evaluation and leadership services. The basic direction for the work of the NCA in Colorado is provided by the State Chairperson, Associate Chairperson and the members of an elected State Committee. The Colorado State Committee provides services to the following types of schools: senior high schools, junior high schools, middle schools, elementary schools, vocational occupational schools, adult high schools, optional schools and independent college preparatory schools.

Libraries

The main university library is located on the Darrell Holmes Campus and provides the materials and services necessary for student and faculty research and study.

The library materials collection, comprised of a total of over 1,200,000 units, or approximately 471,000 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 formats, such as print, microforms, filmstrips, slides, maps, phono records and tapes, braille writing, videotapes and cassettes.

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

UNC students, with proper identification, may borrow books from any state-supported college or university in Colorado, and the University of Denver. Students borrowing from these colleges are bound by the regulations of the lending institution.

The Educational Information Service, a computerized retrieval service, is available at the Reference Service Desk. Interlibrary Loan Services, also part of the Reference Department, borrows library materials for our students which are not readily available in our library.

The Multi-Media Services, located on the lower level of the Michener Library, are composed of: Microforms Reading and Storage; the Educational Resources Center,

which contains educational materials such as textbooks, curriculum guides, and testing materials for the student who is preparing to teach; a special Reserve Book Facility and Reading Area; and Services to the Handicapped.

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

The Laboratory School Library (K-6 and 7-12) is located in Bishop-Lehr Hall. The best of children's and young adult literature has been gathered in approximately 16,100 volumes, together with other learning media, for the Laboratory School student and faculty use. College students preparing to teach also find this facility and its collection an important resource.

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

Media Services

Assistance to faculty in the location, acquisition, production, duplication, and utilization of educational media materials and equipment is available from the Educational Materials Service (EMS) office, located in Michener Library, L171 south.

In addition to film rental services, EMS maintains a permanent library of films, videotapes, and other media materials, and is the central coordinating agency for all audio-visual equipment on the UNC campus.

A professional staff and facilities are available for the original production and/or duplication of audio-visual teaching materials including television programs, tape/slide programs, audio tape materials, and graphic art materials including overhead transparencies.

An engineering staff is available for maintenance of audio-visual equipment and consultation on design and installation of audio-visual equipment and systems.

In cooperation with the Department of Educational Media, EMS offers consultant services for all faculty on the design, development, and utilization of Educational Technology systems and devices.

EMS must approve all departmental requests for audio-visual type equipment and materials prior to purchase.

Speech/Language Pathology and Audiology Clinics

As good speech/language and hearing are considered necessary for the preparation of future professionals in all fields, the Speech/Language Pathology and Audiology Clinics provide assessment and treatment services for the students and faculty of this university.

The Speech/Language Pathology and Audiology Clinics are fully accredited for the provision of professional services by the American Boards of Examiners in Speech Pathology and Audiology of the American Speech and Hearing Association. The Speech/Language Pathology Clinic located in Bishop-Lehr Hall, Room 147, provides

complete assessment and treatment services for the wide range of speech/language problems which are found within the general categories of articulation, voice, stuttering and language. Services available do not include teaching English as a second language. For further information, please call 351-2012.

The Audiology Clinic, located in McKee Hall, Room 58, provides a full range of services for the assessment of hearing disorders and (re)habilitative treatment for those who possess hearing loss. Services include standard hearing assessment, all special hearing tests for site of lesion, hearing aid evaluations, hearing aid analysis, speechreading/auditory training, counseling regarding hearing impairment, noise measurement and evaluation, ear protection from noise, and other such services. For further information, please call 351-2734.

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.

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 or her 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.

Student Health Program

Student Health Services. A program of health services is available for the purpose of meeting health needs and promoting optimum health which in turn facilitates the students' progress toward educational and career goals. This is accomplished by providing medical and mental health services, preventive medicine, health education and counseling, and access to and coordination with local medical facilities within the limits of available resources. All full-time students currently enrolled in the university (ten (10) hours or more) have paid full health services fees and are entitled to receive all of the health services during the term in which they are enrolled. Part-time students have paid a partial health fee and are eligible to receive a portion of the available health services. A brief description of the program is as follows: The Student Health Center (On-Campus Outpatient 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, mental health professionals, registered nurses, first-aid, immunizations, administration of allergy medications. A supplemental off-campus program of medical services is available through a contract with

the Weld County Medical Society, which includes office calls and diagnostic laboratory services within the terms of the contract.

Student Health Insurance Plan. A health insurance plan is provided for all students registered for ten (10) hours or more. Enrollment is automatic (Fall, Winter & Spring only) and the premium is included in Student Fees. The main provisions of this basic plan are primary coverage for accidents and sicknesses including benefits for hospital room and board, outpatient laboratory and x-ray, surgical procedures, doctor's visits in-hospital, etc., within the terms of the policy. Enrolled students may also purchase this insurance for eligible dependents upon request during the week of registration. Students have an option to waive the Student Insurance if proof of current enrollment in a comparable accident/sickness insurance plan can be shown. Proof consists of a letter from the insurance company, insurance agent, or employer. This letter must show the name of the insurance company and address; policy number, if available; student's name; and current coverage. A letter from the policy holder (person paying the premium) showing the above information will also be accepted at the time a waiver is requested. To complete the waiver process, the student must present the above information to Student Health Center during registration or in the Student Health Center the first week of the quarter and sign the "Waiver of Student Health Insurance" form. This must be completed before the deadline date of 12 Noon on the last day to add classes. *Petitions for late waivers may be considered on an individual basis until the last day of fee payment week. After this date, no additional waivers will be made.*

A complete description of the services available at the Student Health Center and a summary of the insurance plan including the waiver process are listed in the Student Health Service and Insurance brochure. Copies are made available at registration. Additionally, they can be obtained by contacting the Student Health Center.

Counseling Center

Counseling services are available free of charge for all students of the university. Well qualified counseling psychologists provide assistance to students in dealing with a wide variety of problems.

In our complex society, students are beset by many situations which may require thoughtful and understanding consideration of a counselor. Concerns commonly discussed by students who come to the Counseling Center include: 1) Personal problems, 2) Academic planning, 3) Career planning, 4) Marriage counseling, and 5) Personality and vocational test data.

The Center's staff also sponsors encounter and personal growth groups, life planning seminars, marriage enrichment workshops, test and speech anxiety reduction programs, Career Planning Workshops, Assertive Training, 48-hour Weekend Marathons, Relaxation Groups, and others as requested.

The Counseling Center is the institutional

testing center for CLEP, ACT, SAT, GRE, GED, Miller Analogies, and the UNC department challenge program. *All Counseling Center files are confidential.*

Students in need of immediate assistance can usually see a counselor within a few minutes, but making an appointment assures the student of being seen at a particular time. The Counseling Center is located in Gray 103. Phone: 351-2496.

Housing

Student Residence Halls.

Accommodations are available in university residence halls for undergraduate and graduate students on a contract basis for the full school year consisting of the fall, winter and spring quarters. Graduate students admitted to the university must also be accepted by their academic department before a contract will be accepted for housing by the Department of University Housing.

Lawrenson Hall consists of two-bedroom apartments including kitchens for upperclass and graduate students. Thirteen apartments are reserved for graduate students only.

Graduate houses (2) are available for female graduate students. These university-owned houses are located within walking distance to the campus.

Married Student Housing. There are 98 two-bedroom furnished apartments available for students who are married and have no more than two children. These units are located at 509 18th Street.

Off-Campus Housing. The Off-Campus Renters Information Service provides bulletin board assistance in obtaining available facilities in the Greeley area. Current listings of private rooms, apartments, houses, mobile homes, and rentals to share are posted daily at the office in the University Center. Students are also encouraged to contact local newspapers for assistance. The university does not inspect nor approve off-campus housing. It is expected that landlords who list with the Renters Information Service will abide by the Colorado Fair Housing Act of 1959.

The Off-Campus Renters Information Service also provides assistance and referral in student-landlord-tenant disputes. General renter information and publications are also available. Students will derive the most benefit by using these services before they rent and before signing any lease or contract. Prospective UNC students are welcome to write, or call (303) 351-2172, for information. A visit to the Greeley area prior to enrollment is strongly encouraged to complete a housing search in time for the beginning of the academic year.

Meal Plans. Students living in the room and board residence halls have their meals in the dining rooms maintained on the campus. Students residing in the apartment-style facilities and off-campus may contract for meals in the dining halls during the first week of each quarter. Rates may vary slightly depending upon marked fluctuations in operating costs. Such changes are authorized by the UNC Board of Trustees.

The university reserves the right to change rates prior to the beginning of any academic quarter.

Application for Housing. Address the Department of University Housing, Gordon Hall, Greeley, Colorado 80639 when applying for any type of on-campus housing. A Residence Hall brochure and contract (for single students) or an application (for married students) will be forwarded. A deposit of \$50 must be advanced with the contract to confirm the single student reservation. Married student may return the Married Student Housing application without a deposit; however, a \$50 deposit will be required when a lease for a determined unit is forwarded to the student for signature.

If it is decided not to attend the University of Northern Colorado, and a written statement is received by the Department of Housing to that effect, the policy in regard to housing deposit refunds is as follows:

A \$25 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.

Students withdrawing from the university prior to the end of the contract period forfeit entire deposit. Any student graduating before the end of the contract period will receive the full \$50 deposit after all monies owed to the university are paid in full.

Resources for Disabled Students

The Office of Resources for Disabled Students provides assistance to the physically disabled in their pursuit of higher education. The various resources available through this office include counseling, tutors, attendants, readers, a Learning Laboratory, an adapted van, and job readiness skills training.

Counseling is provided on a one-to-one basis and in small groups for pre-admission assistance, academic concerns, and personal needs. The Learning Laboratory has equipment available such as a Visual-Tek to magnify printed matter, tape recorders, loaner wheelchairs, a battery charger, and study areas. A van equipped with a wheelchair lift is available to provide transportation to and from the university and between classes. The office assists disabled students in arranging for attendant care, tutors, readers, and/or interpreters. The

Department of Recreation coordinates an adapted recreation program which includes such sports as swimming, wheelchair basketball, archery, bowling, track events, and skiing.

Release of Student Information

The university has designated the following information as "directory information" under 348 (a)(5)(B) of the Family Educational Rights and Privacy Act of 1974. Directory information concerning students at the university will be released during the current school year (Fall, through Summer) *without prior consent of the student* as permitted by law unless within ten (10) days after registration, a student has notified the Registrar's Office, located in Frasier Hall, Room 123, that such information should not be released without his or her consent. This notification must be made each year during which the student is registered. "Directory information" at the University of Northern Colorado is as follows: a) name, address, and phone listing; b) date and place of birth; c) major field of study; d) participation in officially recognized activities and sports; e) dates of attendance; f) degrees and awards received; g) all previous educational agencies or institutions attended; and h) weight and height of members of athletic teams.

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 Director of the School of Special Education and Rehabilitation, University of Northern Colorado.

All students seeking financial assistance are required to submit an ACT Family Financial Statement (FFS). This form must be mailed to American College Testing Program in Iowa City. The deadline date for receipt of the IDS and the processed FFS from ACT in Iowa City is March 31. Applications received after March 31 will be considered late applications and will be processed pending availability of funds. Due to processing time of the FFS in Iowa City, the student should complete the ACT FFS prior to the end of February to insure that the processed FFS is received by the Aid Office prior to the March 31 deadline.

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 Aids 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. *Additional information available upon request from the Financial Aids Office.*

Other Awards

Oliver M. Dickerson Memorial Scholarship. The fund was established to perpetuate the memory of Oliver M. Dickerson by providing a fund, the income of which shall be at least \$1,000 annually, which amount is to be awarded annually to an able and deserving university graduate recommended by the Scholarship Committee of the Department of History to do graduate work for a 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 to otherwise, for financial reasons, enter the Graduate School of the University of Northern Colorado. The recipient will receive during the ensuing academic year ten installments of \$50 each.

Veterans Eligible for "G.I." Educational Benefits

Students with military service should contact the UNC Office of Veterans' Affairs to establish eligibility for state and federal veterans' benefits. Two photocopies of separation papers (DD-214) are usually required. Servicemen's dependents receiving V.A. benefits should also see the Veterans' Affairs Office. Important: V.A. regulations require students who withdraw from a course to report their last date of attendance immediately to the Veterans' Affairs Office.

Campus Ombudsman

The Office of the Campus Ombudsman has been created to act as an independent and an impartial channel through which any member of the academic community may express grievances, complaints, or problems which seemingly have not been addressed or reconciled within the existing university structures. The functions of the Ombudsman, depending on the circumstances and clarification of problem issues, research and investigation, mediation, and facilitation of policy development and change.

Although the Ombudsman assumes no actual authority to alter or reverse decisions, his independence and impartiality, coupled with the privilege of free inquiry, provides a viable, informal, and personal approach to problem solving.

If you are unsure as to which offices are designed to deal with your problems or if you feel that the existing university structures have not responded to your needs, you are encouraged to contact the Campus Ombudsman by calling 351-2889 or by writing to the Ombudsman, c/o University of Northern Colorado, Greeley, Colorado 80639.

The Center for Continuing Education and The Center for Special and Advanced Programs

Robert O. Singer, Dean
Richard J. Wood, Associate Director, and Executive Director of UNC/CSAP Foundation, Inc.

Robert R. Ross, Associate Director, UNC/CSAP Foundation, Inc.

Robert H. Taylor, Associate Director, UNC/CSAP Foundation, Inc.

C.O. Haeker, Director, Off-Campus Instruction

Bobbe L. Davey, Program Specialist III, Off-Campus Instruction

James H. Dech, Program Specialist III, Off-Campus Instruction

James R. Cobb, Coordinator for Program Development and Independent Study

Ladd L. Cochrane, Coordinator of External Degree Programs and Summer Inservice for Teachers

John A. Ketchum, Director, Administrative Services and Coordinator, Continuing Education for Health Care Personnel and Adult Education

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

Off-campus classes. Off-campus classes designed to provide educators with opportunities to improve their professional skills are provided upon request, and after approval by appropriate university officials to school districts and individuals having identified needs for educational services.*

Individual Studies. An individual enrolled on-campus may not take an IS 422/622 through off-campus. If not enrolled on-campus, he or she may take an IS 422/622 through off-campus when 1) the study is needed to complete a degree program and graduate; or 2) the study is one that can only be done at an off-campus location; or 3) enrolled in an external degree program. In all cases the student enrolling for an individual study needs to obtain the instructor's adviser's, departmental, and appropriate academic dean's signatures of approval on the IS form obtainable at the Center. These guidelines also include EDFE 501.*

Independent Study Courses. 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. Certain courses are delivered in cooperation with the mass

media. Independent study courses must be completed, graded, and recorded the quarter prior to that in which the student expects to graduate. It is not possible to earn a degree from UNC through independent study, although courses carry academic credit, and may be applied toward meeting degree program requirements if approved by the major adviser.*

External Degree Programs. The university, through the Center for Continuing Education, endeavors to meet the educational needs of its mature, career oriented, off-campus audience through many modes. One of these modes is the External Degree Program, which has for its major purpose the designing and delivery of high quality, on-site degree programs. The degrees earned in this format are designed to enable students to obtain a high quality education without undue interference with their full-time employment. Degrees earned in this fashion are awarded by the university and bear no distinction from resident degrees.

Adult Education Courses. Adult education courses allow professional people to earn non-academic credit in courses designed to improve job performance or foster cultural enrichment.

UNC/CSAP Foundation, Inc. The university, in association with UNC/CSAP Foundation, Inc., has developed and offers educational programs to meet the needs of the employed adult. These programs are delivered at established instate and outstate sites, and are designed to enable students to obtain degrees without undue interference with full-time employment.

Students must obtain a current copy of the Independent Study Bulletin or see current Off-Campus advertising for complete information and regulations concerning independent study and off-campus courses.

For detailed information, address inquiries to the Dean, Center for Continuing Education, University of Northern Colorado, Greeley, Colorado 80639, or call (303) 351-2891. For information about the Center for Special and Advanced Programs, address inquiries to the Executive Director, UNC/CSAP Foundation, Inc., University of Northern Colorado, Greeley, Colorado 80639, or call (303) 356-2442.

Fees and Expenses

All rates quoted below are subject to a provision that the university reserves the right to change tuition, fees and other charges

**A maximum of 23 quarter hours credit earned through Continuing Education may be applied toward completion of a master's program, provided that all coursework is approved by the major department and the Dean of the Graduate School. This would not, however, count toward completion of the residency requirement.*

without notice. As with all state-supported institutions, the tuition rates are affected by legislative action which may not be finalized until late spring of any given year. **Note:** The State of Colorado is considering a uniform hourly tuition assessment policy which, if put into practice in the Summer of 1979, might result in a per credit hour tuition charge which would differ from the estimated schedule shown below.

Revised information concerning tuition and fees may be available prior to registration. Contact the Office of Student Services, University Center, University of Northern Colorado, Greeley, Colorado 80639. (303) 351-2796.

TUITION (Effective June 1, 1979)	1979-80	
	Colorado Resident Under-graduate	Graduate
9 Credit Hours or Less, Tuition per Credit Hour	\$ 18	\$ 19
10-18 Credit Hours (full-time)	183	192
Tuition per Credit Hour for each Credit Hour above 18	12	13
	Non-Resident of Colorado	
9 Credit Hours or Less, Tuition per Credit Hour	\$ 75	\$ 79
10-18 Credit Hours (full-time)	753	789
Tuition per Credit Hour for each Credit Hour above 18	50	53

ESTIMATED FEES (a)	All Students
9 Credit Hours or Less, Fees per Credit Hour	\$ 4.00
10 or more Credit Hours	
University Fees	26.00
Student Fees	13.50
Health Services Fees	14.00
Health Insurance (b)	29.00
Total	\$ 82.50
COPIRG FEE (Optional, All Quarters)	\$ 1.50

(a) Each doctoral student should check with the Dean of the Graduate School at each registration to assure that he or she registers for the doctoral dissertation hours in the most advantageous manner. A student may register for seven to eighteen hours, including dissertation hours, at the full-time tuition charge.

(b) University, Student, and Health Service 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. Students will receive a Certificate of Registration upon completion of step 3 of the registration process. This Certificate of Registration will be required for university events. Student Services Fees for full-time Summer students may be set at a rate lower than the academic year.

(c) Health Insurance coverage is required for all students who register for ten academic hours or more each quarter, *except summer*. Details of this coverage may be obtained from the Student Health Center. Students who are currently enrolled in a comparable health and accident program may request a waiver of the UNC student health insurance plan. For information regarding this waiver procedure see the student health program description on page of this catalog.

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 Title 23, Article 7, Colorado Revised Statutes 1973, as amended. Administrative procedures fix status *before or at the time of registration*. If, following a registration, the status conferred on a student is questioned for revision, appeal may be made during the first five days of classes 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

Deferral Fee (based on amount deferred)	
Amount Deferred	Fee
\$ 25 - \$ 99	\$ 2.50
100 - 299	5.00
Amount Deferred	
Fee	Amount Deferred
\$ 300 - \$499	\$ 7.50
500 & over	10.00

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 (based on past due balance)	
Amount Owed	Fee
\$ 25 - \$ 99	\$ 5.00
100 - 199	7.50
200 - 299	10.00
300 - 399	12.50
400 - 499	15.00
Amount Owed	
Fee	Amount Owed
\$500 - \$599	\$17.50
600 - 699	20.00
700 - 799	22.50
800 - 899	25.00
900 & over	27.50

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*	30.50
(If a student was not enrolled full-time — for more than nine credit hours — Spring Quarter 1979, he does not have health insurance coverage for the Summer Quarter of 1979.)	
Special Program Fees such as bowling, skiing, field trips, golf	At Cost
Special Tests by the Counseling Service	At Cost
Library Identification Card Replacement	1.00
Transcript Evaluation Fee for application for the baccalaureate and master's degrees and graduate student certification program	10.00

*This insurance can be obtained only by requesting coverage at registration or at the Student Health Center during the first week of the quarter.

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
Second quarter	50
Third quarter	50
Fourth quarter	50
Fifth quarter	50
Sixth quarter	50
Doctoral Dissertation Abstract Publication (assessed at the time the study is accepted)	40
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
Second quarter	25
Third quarter	25
Binding and mailing Thesis, Practicum or Dissertation Study (3 copies required)	18
Microfiche copy of Thesis, Practicum or Dissertation Study (3 copies required)	7.50
Comprehensive Examination Retesting Fee	10
Foreign Language Examination required for doctoral program	10

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	\$15.00
Re-enrollment	15.00
First and subsequent copies of credentials mailed when applicant has not re-enrolled, per copy	2.00

Residence Hall Charges

Rates may be changed subject to the approval of the Board of Trustees in July 1979 to become effective Fall Quarter, 1979. Students planning to live in a residence hall for Fall Quarter will be notified during August 1979 of any rate adjustment.

RESIDENCE HALL WITH ROOM AND BOARD (Occupancy: 2 persons per room)	1978-79 QUARTERLY PER STUDENT
Harrison	510.00
McCowen, Wilson, Wiebking	505.00
Belford, Tobey-Kendel, Sabin, Snyder	490.00
Cross, Hadden, Hays, Troxel	485.00

*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.

**RESIDENCE HALLS,
APARTMENT STYLE,
WITHOUT BOARD**

(Occupancy: 4 persons per apartment)

Turner Hall	\$245.00
Lawrenson Hall	280.00

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.

1978-79
MONTHLY RATES
PER FAMILY

FAMILY FACILITIES

Student Family Apartments,
East Campus leased on

12-month contract (includes
furnishings & utilities) \$155.00

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

**Policy on Reassessment, Refunds
and Withdrawals**

Adjustments in tuition or fees are permitted after registration only under specified conditions. A change in a course of study which results in a change of registered hours during the period ending with the last day for adding classes will result in a reassessment of tuition and fees. Tuition and fees will not be adjusted after the last day for adding classes.

To be eligible for a refund of any kind upon withdrawal from school the student must present a formal, approved Notice of Withdrawal and Program Change Form(s) (Drop Slip) at the Cashier's Office. Refunds are not prorated; rather, they are made in terms of the policy statements below and the resident halls lease.

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

On programs of nine credit hours or less, the student will be assessed a \$15 withdrawal fee if withdrawal occurs during the first week of the term, \$30 if withdrawal occurs during the third week, and \$60 if withdrawal occurs during the fourth week. If the total tuition and fees is less than the withdrawal fee, the lesser amount will be charged. If the student withdraws after the fourth week of the term, the student will be required to pay the full amount of tuition and student services fees.

On programs of ten or more credit hours, the student will be assessed a \$25 withdrawal fee if withdrawal occurs during the first week of the term, \$50 if withdrawal occurs during the second week, \$75 if withdrawal occurs during the third week, and \$100 if withdrawal occurs during the fourth week. If the student withdraws after the fourth week of the term, the student will be required to pay the full amount of tuition and student services fees.

Refunds allowed against assessed quarterly board and room charges, apartment rentals, and the Housing Deposit are permitted under the terms of the housing lease. The Housing Office, when consulted at withdrawal, will provide information on the computations applied.

Incidental fees and health insurance are not refunded for any cause at anytime.

**Payment of Student
Accounts**

Any student who enrolls in the university is responsible for the payment of tuition, fees, housing, food service, or any other charges and should be prepared to pay the full amount at the beginning of the term.

Each student's financial obligation to the university must be paid prior to the end of the fifth day of classes before registration is considered final (Step 4 of the registration process). This payment is to be completed at the Cashier's Office in Frasier Hall through one of the following methods or combination thereof:

1. Payment in full.
2. Payment through financial aid.
3. Payment through the deferral plan of at least 50 percent of the total bill plus a deferral fee on the unpaid balance as shown on page 16.
4. Payment by a sponsor (not financial aid).

Two additional statements of account will be mailed to the student's local address if any additional charges are incurred. Every student is required to notify the Registrar's Office promptly of any change in his or her local address or permanent mailing address.

A student with a past due financial obligation to the university is subject to a late payment charge as indicated in the list of fees shown on page 16.

The university will not register a student, release a diploma, provide a transcript, nor provide placement services or other university services to any student or former student who has any financial obligation to the university (other than a loan not yet due).

Any student who presents to the university a check that is not accepted for payment by the bank, because of insufficiency of funds, nonexistence of an account, or other reason for which the student is responsible, is charged a fee of \$8. A notice of this fee and the amount of the "bad check" placed on the student's account is mailed to his or her local address or his or her permanent mailing address. A "bad check" presented in payment of tuition, fees, and housing charges will be considered as a nonpayment and may result in withdrawal of a student's enrollment.

Departmental Program Requirements

**Graduate Degrees Offered by
Departments or Disciplines**

Anthropology¹ - M.A.
Biological Science - M.A., D.A.
Botany - M.A.
Business - M.A., M.S., Ed.S., Ed.D.
Chemistry - M.A., Ed.S., D.A.
College Student Personnel Administration - Ed.S., Ph.D.
Communication - M.A., Ed.S.
Curriculum and Instruction - M.A., Ed.S., Ed.D.
Earth Science - M.A.
Economics¹ - M.A.
Educational Administration - M.A., Ed.S., Ed.D.
Educational Media - M.A., Ed.S.
Elementary Education - M.A., Ed.S., Ed.D.
Elementary Education: Bilingual/Bicultural - M.A., Ed.S.
Elementary Education: Early Childhood - M.A., Ed.S., Ed.D.
English - M.A., Ed.S., Ed.D.
Fine Arts - M.A.
Foreign Languages - M.A.
Geography¹ - M.A., D.A.
Gerontology - M.A.
Health Education - M.A.
Health and Physical Education - 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.M., M.M.E., Ed.S., D.A., D.M.E.
Physical Education - M.A.
Physics - M.A.
Political Science¹ - M.A.
Psychology, Counseling and Guidance - M.A., Ed.S., Ed.D.
Reading - M.A., Ed.S., Ed.D.
Recreation and Park Administration - M.A.
Research and Statistical Methodology - M.S., Ph.D.
Science Education - M.A., Ed.S., Ed.D.
School of Educational Change and Development - M.A., M.S., Ed.S., Ed.D., D.A.
Social Science - M.A.
Sociology¹ - M.A.
Special Education - M.A., Ed.S., Ed.D.
Theatre Arts - M.A.
Zoology - M.A.

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

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.

Business Teaching
 College Student Personnel Administration¹
 Curriculum and Instruction
 Educational Administration
 Educational Media¹
 Elementary Education¹
 English Education
 Health and Physical Education
 Higher Education¹
 History and Philosophy of Education¹
 Industrial Arts Education
 Mathematics
 Mathematics Education
 Music Education
 Outdoor Education
 Psychology, Counseling and Guidance
 Reading¹
 Science
 Science Education
 Social Science
 Statistics and Measurement¹

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 49.

In addition to the General Graduate School admission requirements for entrance, see page 4, the Anthropology Department reserves the right to screen candidates for admission to the program. Two letters of recommendation and a statement of interest written by the applicant are required for this purpose.

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

Biological Sciences

Degrees are offered in biological sciences, botany and zoology. Any student entering the graduate program in the Department of Biological Sciences may be required to take a diagnostic test administered by the department covering biological concepts. Deficiencies may be corrected by completing appropriate courses. Results of this exam will be used in planning the student's program.

Master of Arts Program

This program is intended for those students interested in broadening their preparation in Biological Sciences. It is recommended for students interested in teaching Biological Sciences.

Minimal Requirements

BIO 691	Seminar in Biological Sciences	1
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BIO 692	Special Topics in Biology	2
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 (as approved by student's advisor)	42
	Minimum Program	50

*BIO 697 is waived if the student elects to complete a thesis. Fifteen hours of thesis credit may be applied to the elective credit hours.

Early in the program the student should meet with his/her advisor to outline the course of study. The electives should be chosen to assure an understanding of the basic principles of botany and zoology. Any course bearing the prefix BIO, BOT or ZOO may be used in satisfying the Graduate School requirement that a minimum of 24 quarter hours must be taken in the major discipline. In the degree program a student may count no more than 15 hours of work in courses numbered at the 300 and/or 400 levels. A written and oral comprehensive examination is required.

Doctor of Arts Program

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 Graduate School admission policies (see current catalog) the Department of Biological Sciences requires that the scores of the Advanced Area Test (Biology) of the Graduate Record examination accompany the application. The results of this exam will be used as admission criteria and as an aid in designing the student's doctoral program.

It is recommended that the student have teaching experience prior to admission to the Doctor of Arts Program. One year of full-time or of full-time equivalent teaching experience is required before granting the degree. This experience may be gained from previous work experience, internship arranged through the university, or teaching experience in the department.

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

Minimal Requirements

ID 702	Seminar in College Teaching	3
BIO 691	Seminar in Biological Sciences	1
BIO 692	Special Topics in Biology	2
BIO 694	Foundations of Biological Research (Waived if a master's 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

BIO 799	Doctoral Dissertation	18
	Electives (to be selected upon consultation with the doctoral advisory committee)	54
	Minimum Program*	90

*Students entering the Doctor of Arts Program with a B.S. (B.A.) but without a Master's Degree will earn a minimum of 140 credit hours.

The student's individual program in biological sciences and related pedagogical areas will be determined by his/her graduate advisory committee after reviewing his/her transcripts. The student will be required to take course work in areas where he/she is deficient.

Each student must pass a written and oral comprehensive examination covering the subject matter in his/her graduate program. These exams should be scheduled as soon after 55 hours of course work as possible. The exams will be conducted by the graduate committee.

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

Botany

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

Master of Arts Program

Minimal Requirements

BIO 691	Seminar in Biological Sciences	1
BIO 692	Special Topics in Biology	2
BIO 694	Foundations of Biological Research (Substitute for ID 600. Should be taken as soon as possible after beginning of graduate program.)	3
BIO 697	Graduate Research*	2
	Electives (as approved by student's advisor)	42
	Minimum Program	50

*BIO 697 is waived if the student elects to complete a thesis (BOT 699). Fifteen hours of thesis credit may be applied to the elective credit hours.

Business

The degree of *Master of Arts*, is offered in Business Teaching. The degree of *Master of Science in Business Administration* is also offered.

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 advisor to fit individual needs.

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

Sometime prior to the completion of any graduate 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.

Within the School of Business exists a three-member graduate Committee and a graduate Coordinator. Their functions include assisting graduate students. The Graduate Committee originates policies for the graduate programs, makes admission and transfer decisions, and listens to any student appeals arising from the administration of the graduate degree programs offered by the School of Business. The Graduate Coordinator is responsible for administering the graduate programs, which includes the initial advising available to students. Students are urged to call upon either of these functionaries as necessary.

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
	Hours Credit:	12
	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
	Hours Credit:	45

During the student's first quarter on campus, the major adviser will be selected. The student, the adviser, and the department chairperson will select a committee of two more faculty members. During the first quarter, the student and the committee will develop the student's program of study.

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 Science in Business Administration Degree

General Requirements

BUS 592	Statistical Analysis for Business	4
BUS 600	Introduction to Graduate Study	3
	Hours Credit:	7

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

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. Take written examinations in the four areas of chemistry.
2. Thirty quarter hours of course work. At

least two-thirds of these hours must have a CHEM prefix.

3. 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.

4. Pass a written and oral comprehensive examination covering the subject matter in the graduate program.

5. 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

Recommended Electives

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

Thesis

CHEM 699	Thesis	15
	Complete program to 45 hours with chemistry courses numbered 482 or above with selected minor courses approved by the adviser.	3-12
	Hours Credit:	45

Master of Arts Degree (Teaching)

Prerequisites

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

2. Twelve hours in physics.
3. Mathematics through differential and 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.

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

Requirements. 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
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SCED 673 Seminar in Science Education Research	3
SCED 682 Problems in Teaching Chemistry	4
CHEM 390 Chemical Literature	1
CHEM 402 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 454 Physical Chemistry I Laboratory	1}
CHEM 455 Physical Chemistry II Laboratory	1}12-15
CHEM 456 Physical Chemistry III Laboratory	1}
or	
CHEM 551 Principles of Physical Chemistry I	6}
CHEM 552 Principles of Physical Chemistry II	6}
CHEM 599 Seminar in Chemistry Electives (with approval of major adviser)	3-4
	4-8
Hours Credit:	45

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

Recommended Electives

CHEM 482 General Biochemistry I	4
CHEM 483 General Biochemistry II	4
CHEM 484 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 or her 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 undergraduate 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 one year of physics and mathematics through differential and integral calculus.
4. Pass 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 or she enters the program with the baccalaureate degree; 90 quarter hours with the master's 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.

The student's individualized program in chemistry will be determined by his or her graduate advisory committee after reviewing his or her transcripts and qualifying examination scores. The student may be required to take course work in areas where he or she is deficient. Such course work may not apply toward the D.A. degree.

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 another 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/her committee) those courses which will afford a knowledge in the four fields of chemistry.

CHEM 402 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 454 Physical Chemistry I Laboratory	1}
CHEM 455 Physical Chemistry II Laboratory	1}12-15
CHEM 456 Physical Chemistry III Laboratory	1}
or	
CHEM 551 Principles of Physical Chemistry I	6}
CHEM 552 Principles of Physical Chemistry II	6}
CHEM 457 Selected Topics in Physical Chemistry	2
CHEM 482 General Biochemistry I	4
CHEM 483 General Biochemistry II	4
CHEM 484 Physical Biochemistry	4
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

Additional courses can be taken with the approval of the student's committee in areas such as physics and mathematics.

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 his 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. Each student must pass a written and oral comprehensive examination covering the subject matter in his or her 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.

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

College Student Personnel Administration

Specialist in Education Degree

The Department of College Student Personnel Administration offers the opportunity to earn the Specialist in Education degree in the following areas of specialization: student activities, financial aids, placement services, admissions and records, housing and student development.

Each person who enters the program selects one of the above areas of specialization and is assigned an adviser who plans an individual program of studies. Course work to be taken will be determined by the student's educational and professional background and his or her professional goals. The student will be expected to complete a minimal number of courses in the department. These usually will include CSPA 651, CSPA 658, CSPA 752 and CSPA 753. He or she will be required to gain practical experience through internships offered by the department. The student is responsible for meeting the Graduate School requirements for the Specialist in Education Degree as stated in the Graduate Catalog. Additional information concerning this degree can be obtained from the department chairman.

Doctor of Philosophy

The program of studies is especially planned for the preparation of persons for college and university positions in all divisions of college 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 administration, ability to teach college students, and skill in measurement, statistics and research. The doctoral program is designed to prepare generalists in the field of student personnel administration.

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 hours.

2. A total minimum of 136 quarter hours beyond the bachelor's degree must be completed.

3. Students who have earned a master's degree may count a maximum of 45 quarter hours toward the required 136 hours providing the course work is appropriate to the major or minor fields.

Following is the recommended composition of the doctoral program:

A. Courses in College Student Personnel Administration	33
B. Practica and Internships in College Student Personnel Administration	12
C. Courses in Psychology	24

D. Elective courses in social sciences, natural sciences, humanities, and measurement and statistics	25
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 doctoral program must meet the following requirements: 1) admission to the Graduate School for doctoral study, 2) a baccalaureate degree from an accredited institution, 3) successful experience in student personnel work, 4) an acceptable personal interview with the department admissions committee, 5) submission of scores on the Minnesota Multiphasic Personality Inventory (M.M.P.I.).

A Master's Degree is strongly recommended.

A. Courses in College Student Personnel Administration

CSPA 622 Individual Studies — Graduate	Max. 4
CSPA 650 The College and Student Development	4
CSPA 651 Philosophy and History of College Student Personnel Administration	3
CSPA 652 Student Housing	3
CSPA 653 College Counseling and Health Services	3
CSPA 654 Admissions and Records	3
CSPA 657 Financial Aids and Placement Services	4
CSPA 658 Organization and Administration of College Student Personnel Administration	3
CSPA 700 Introduction to Doctoral Research	3
CSPA 701 Specialists Degree Practicum	8
CSPA 752 Current Issues in College Student Personnel Administration	3
CSPA 753 Research and Evaluation in College Student Personnel Administration	3
CSPA 799 Doctoral Dissertation	18
CSPA 671 Student Personnel Management	3

B. Practica and Internships in College Student Personnel Administration

It is required that the student select 12 quarter hours of practicum and/or internships credit from the following:

CSPA 758 Seminar in College Student Personnel Administration	2
CSPA 659 Practicum in College Student Personnel Administration — Housing	2
CSPA 660 Practicum in College Student Personnel Administration — Health	2
CSPA 661 Practicum in College Student Personnel Administration — College Teaching	2
CSPA 662 Practicum in College Student Personnel Administration — Student Activities	2
CSPA 663 Practicum in College Student Personnel Administration — Counseling	2
CSPA 664 Practicum in College Student Personnel Administration — Placement Services	2
CSPA 665 Practicum in College Student Personnel Administration — Dean's Office	2
CSPA 666 Practicum in College Student Personnel Administration — Financial Aids	2

CSPA 667 Practicum in College Student Personnel Administration — Admissions and Records	2
CSPA 668 Practicum in Student Personnel Administration — Community College	2
CSPA 669 Practicum in Student Personnel Administration — International Education	2
CSPA 670 Internship in College Student Personnel Administration	6

Doctoral and Specialist students must register for CSPA 758 Seminar in College Student Personnel their first quarter in residence.

C. Internships are also offered in housing, health, counseling, student activities, placement, dean's office, financial aids, admissions, records, and community college on a limited basis with the permission of the supervisor. These internships are administrative experiences requiring 18 hours work each week for 6 quarter hours credit.

D. Courses in Psychology

The student shall select 24 hours of course work from approved graduate courses in psychology, counseling and guidance.

E. Elective Courses

F. Research Tools.

CSPA doctoral students must demonstrate competency in two acceptable research tools. These research tools include foreign language(s), applied statistics, computer science, 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 CSPA doctoral program.

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

Communication

Master of Arts Degree

The master's program in communication is a multipurpose program which offers a broad range of choices to the prospective candidate. The program permits in-depth study of two areas of emphasis: Communication Theory or Human Relations. The main objective of the program is to provide specialized learning opportunities that will prepare students for teaching, human relations work or additional graduate study. Students in either area may choose a thesis or a non-thesis option. All students should formulate their program in consultation with an adviser in accordance with the following requirements.

Non-Thesis Option

1. The master's candidates must complete a minimum of 45 quarter hours, of which a minimum of 30 hours must be communication courses. The student is encouraged to take additional hours but is not required to do so.

2. The student may count in his degree program up to 9 hours of work in courses numbered in the 300-400's. Graduate credit will be given in 300-400 level courses only with the permission of the department offering the course and of the student's major adviser.

3. A maximum of 5 hours of intern experience may be counted toward the candidate's 45 quarter hour requirement.

4. All candidates shall complete the requirements for one of the emphasis areas.

5. The student will plan his/her program in conjunction with his/her adviser.

6. All candidates must take written comprehensives.

Thesis Option

The student planning to do a thesis shall be subject to the guidelines specified for the non-thesis option in addition to the ones explained below. The thesis option is recommended for students who plan to do additional graduate study.

1. The master's candidate must complete a thesis for up to 9 hours of credit. Thesis credit may be included as part of the 30 hours in communication or may be used for additional hours. The student and adviser would contract for the number of hours given for the thesis.

2. The master's thesis can be descriptive, experimental, conceptual, critical or any combination of the above.

3. The thesis candidate will take written comprehensives. The candidate will defend his/her thesis before his/her committee and adviser.

4. The master's candidate who chooses to write a thesis shall have a three-member committee. The committee may consist of three persons from the Department of Communication or may consist of two members from communication and one member from outside the department.

5. The master's candidate who chooses to write a thesis should make that decision in conjunction with his/her adviser during the second quarter of graduate study.

6. The extensiveness of this thesis program should take no more than six quarters of study. The student may complete his/her study during one academic year and two summer sessions. However, students may decide on other time periods for their study.

7. Any student who wishes to do a thesis must spend at least two quarters in residence to complete the thesis.

**GENERAL COMMUNICATION EMPHASIS
Required Courses**

COMM 560	Rhetorical Theory and Practice	3
COMM 600	Graduate Study in Communication	3
COMM 603	Seminar in Research	3
COMM 620	Communication Theory	3
COMM 664	Seminar in Rhetorical Criticism	3
COMM 666	Seminar in Persuasion	3
	Hours Credit:	18
	Communication Electives	21
	Electives in Related Disciplines and/or Communication	6
	Hours Credit:	45

HUMAN RELATIONS EMPHASIS

Required Courses

COMM 600	Graduate Study in Communication	3
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COMM 603	Seminar in Research	3
COMM 620	Communication Theory	3
COMM 624	Seminar in Human Relations	3
COMM 632	Interpersonal Communication: Theory	3
COMM 666	Seminar in Persuasion	3
	Hours Credit:	18
	Communication Electives	12
	Electives in Related Disciplines and/or Communication	15
	Hours Credit:	45

Specialist in Education Degree

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

Intent. Designed to prepare classroom teachers, subject area supervisors, and technical program supervisors as specialists in the area of instructional improvement and/or curriculum development and evaluation.

Sufficient flexibility is built into the program to provide the student an opportunity to achieve her/his specific professional goals through the selection of appropriate elective courses in consultation with the student's departmental adviser.

Core Requirements (required of all candidates):

RSM 600	Introduction to Graduate Study (or departmental substitute, EDCI 600)	3
EDCI 655	Evaluation Related to the Process of Instruction	3
EDCI 662	The Development of Instructional Practice	3
EDCI 666	Foundations for Curriculum Development	3

A minimum of one of the following:

PCG 530	Human Growth and Development	3
PCG 541	Theories of Learning	5
PCG 631	Psychology of Early Childhood	3
PCG 632	Child Psychology	3
PCG 633	Psychology of Adolescence	3
PCG 540	Psychology of Perception and Learning	5

Electives. Determined by candidate's need to develop or strengthen understanding and competency in all areas related to his/her professional goals. Special consideration should be given to the professional growth activities approved and required by the student's school district or institution in planning the M.A. degree.

Comprehensive Exam. A comprehensive written examination related to the student's program of study.

It shall be the prerogative of the advisor to invite certain candidates to write a thesis or do a practicum in partial fulfillment of the requirements for the degree.

Junior High School Curriculum and Instruction

Master of Arts Degree

Intent. Designed to prepare classroom teachers and subject area supervisors for the middle school and junior high school.

Sufficient flexibility is built into the program to provide the student an opportunity to achieve her/his specific professional goals through the selection of appropriate elective courses in consultation with the student's departmental adviser.

Core Requirements (required of all candidates)

RSM 600	Introduction to Graduate Study (or departmental substitute, EDCI 600)	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 530	Human Growth and Development	3
PCG 540	Psychology of Perception and Learning	5
PCG 541	Theories of Learning	5
PCG 602	Foundations of Guidance	3
PCG 633	Psychology of Adolescence	3

Electives. Determined by candidate's need to develop or strengthen understanding and competency in all areas related to their professional goals. Special consideration should be given to the professional growth activities approved and required by the student's school district or institution in planning the M.A. program.

Comprehensive Exam. A comprehensive written examination related to the student's program of study.

It shall be the prerogative of the advisor to invite certain candidates to write a thesis or do a practicum in partial fulfillment of the requirements for the degree.

Specialist in Education Degree

The Department of Curriculum and Instruction 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/her area of interest and future plans.

Doctor of Education Degree

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.

Core Requirements:

RSM 700	Introduction to Doctoral Research (or equivalent)	3
EDCI 799	Doctoral Dissertation or	
EDCI 703	Project in Lieu of a Dissertation	18
EDF 785	Philosophical Foundations of Education	3
EDF 765	Sociological Foundations of Education	3
EDF 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. Specified 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 655	Evaluation Related to the Process of Instruction	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 Curriculum	3
EDCI 666	Foundations for Curriculum Development	3
EDCI 667	Modern Curricular Programs	3
EDCI 668	Seminar in Curriculum and Instruction	Maximum 9
EDCI 768	Advanced Seminar in Curriculum and Instruction	Maximum 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 505	Statistical Inference	5
RSM 603	Analysis of Variance and Covariance	3
EDRD 521	Reading in the Content Fields	3
EDRD 627	Remedial Reading in the Secondary School	4
EDEM 410	Introduction to Educational Resources	3-5
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

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.

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:

RSM 700	Introduction to Doctoral Research (or equivalent)	3
EDCI 799	Doctoral Dissertation or	
EDCI 703	Project in Lieu of a Dissertation	18
EDF 785	Philosophical Foundations of Education	3
EDF 765	Sociological Foundations of Education	3
EDF 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 655	Evaluation Related to the Process of Instruction	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	Maximum: 6
EDCI 666	Foundations for Curriculum Development	3
EDCI 667	Modern Curricular Programs	3
EDCI 668	Seminar in Curriculum and Instruction	Maximum 9
EDCI 768	Advanced Seminar in Curriculum and Instruction	Maximum 9
EDEL 612	The Elementary School Curriculum	3

EDHI 653	The Junior and Community College Curriculum	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 630	Methods of Comprehensive Educational 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 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 410	Introduction to Educational Media	3-5
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

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 Master's 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.

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:

RSM 700	Introduction to Doctoral Research (or equivalent)	3
EDCI 799	Doctoral Dissertation	
<i>or</i>		
EDCI 703	Project in Lieu of a Dissertation	18
EDF 785	Philosophical Foundations of Education	3
EDF 765	Sociological Foundations of Education	3
EDF 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	Maximum 4
EDFE 622	Independent Study in Educational Field Experiences	Maximum 4
EDFE 640	Supervision of the Educational Field Experience	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 655	Evaluation Related to the Process of Instruction	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	Maximum 9
EDCI 768	Advanced Seminar in Curriculum and Instruction	Maximum 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 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
EDD 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 410	Introduction to Educational Media	3-5
EDEM 520	Design and Construction of Audio-Visual Materials	3
PCG 670	Principles and Practices of Testing and Measurement	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.

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:

RSM 700	Introduction and Doctoral Research (or equivalent)	3
EDCI 799	Doctoral Dissertation	
<i>or</i>		
EDCI 703	Project in Lieu of a Dissertation	18
EDF 785	Philosophical Foundations of Education	3
EDF 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	1-4
EDEM 410	Introduction to Educational Media	3-5
EDEM 516	Utilization of Educational Resources	3
EDEM 520	Design and Construction of A-V Materials	3
EDEM 675	Administration of Educational Media II	5
EDEM 610	Instructional Technology, Philosophy, Theory and Practice	3
EDEM 620	Production of Photographic Teaching Materials	3
OED 650	Philosophy of 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 655	Evaluation Related to the Process of Instruction	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	Maximum 6
EDCI 666	Foundations for Curriculum Development	3
EDCI 667	Modern Curricular Programs	3
EDCI 668	Seminar in Curriculum and Instruction	Maximum 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 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 skills 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
PCG 671	Aptitude and Achievement Analysis	5
EDRD 521	Reading in the Content Fields	3
EDRD 627	Remedial Reading in the Secondary Schools	4

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

Oral Examination in Defense of the Dissertation.

SUPPORTING AREA

Those wishing to use Secondary Curriculum and Instruction as a Support 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:

EDCI 655	Evaluation Related to the Process of Instruction	3
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	Maximum 6
EDCI 666	Foundations for Curriculum Development	3
EDCI 667	Advanced Curriculum Programs	3
EDCI 668	Seminar in Curriculum and Instruction	Maximum 9
EDCI 768	Advanced Seminar in Curriculum and Instruction	Maximum 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

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

Economics

Master of Arts Degree

A concentration in Economics is offered within the major in Social Sciences. See Social Science, page 49.

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 recommendations 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.

To qualify for admission to any graduate program in educational administration, the applicant *must*:

1. Meet the Graduate School's minimum requirements for admission at the appropriate degree level or for departmental review.
2. Submit an autobiographical sketch which reveals a desire for a career related to administration and which describes past professional accomplishments.
3. Have had successful experience in education or related fields which indicates leadership ability, as verified by the present (or immediate past) employer's performance evaluation and recommendation for admission.
4. Have a favorable interview by a department committee. In those cases which cannot be conveniently scheduled prior to admission, the applicant may be conditionally admitted pending fulfillment of this requirement. This requirement may be waived at the discretion of the Department.

Master of Arts Degree

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

EDAD 521	Introduction to Organizational and Administrative Theory	2
EDAD 525	Introduction to Organization and Administration of Public Schools	3
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 650	School Personnel Administration	3
	Courses related to design, planning, implementation, and evaluation of curriculum	9

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

ELEMENTARY SCHOOL ADMINISTRATION

EDAD 670	Elementary School Organization, Administration, and Supervision	3
PCG 603	Guidance in the Elementary School	3
	Electives in Psychology	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	3
	Electives to complete graduation requirements	

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	3
	Electives in Psychology	3-6
	Electives to complete graduation requirements	

SECONDARY SCHOOL ADMINISTRATION

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

HIGHER EDUCATION ADMINISTRATION

The M.A. program also provides an emphasis for those preparing for administration of higher education, particularly at the community college level. Except for EDAD 525, 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 653	The Junior and Community College	3
CSPA 657	Financial Aids	4
	Electives to complete graduation requirements	

Specialist in Education Degree

ELEMENTARY SCHOOL ADMINISTRATION

The following is the required program.

1. Completion of all specific requirements for the M.A. in the Elementary School Administration.

2. Course requirements listed below:

RSM 504	Descriptive Statistics	4
RSM 505	Statistic Inference (EDAD 660 and EDAD 661 may substitute)	5
RSM 700	Introduction to Doctoral Research	3
EDAD 630	Methods of Comprehensive Educational 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	Two of the following:	
Three of the following:			
EDRD 645 Seminar in Analysis of Reading Programs	3	EDF 765 Sociological Foundations of Education	3
EDEL 625 Seminar in Elementary School Mathematics	3	EDF 785 Philosophical Foundations of Education	3
EDEL 645 Seminar in Elementary School English	3	EDF 740 Psychological Foundations of Education	3
EDEL 655 Seminar in Elementary School Social Studies	3	Two methods courses in elementary education	6
SCED 673 Seminar in Science Education Research	3	3. Electives to complete requirements for graduation, including at least six quarter hours outside the field of education.	
Two of the following:		Note. Completion of this degree qualifies for the superintendent's certification in Colorado.	
EDF 765 Sociological Foundations of Education	3	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.	
EDF 785 Philosophical Foundations of Education	3		
EDF 740 Psychological Foundations of Education	3		

SECONDARY SCHOOL ADMINISTRATION

The following is the required program.

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

2. Course requirements listed below:

RSM 504 Descriptive Statistics	4		
RSM 505 Statistical Inference (EDAD 660 and EDAD 661 may substitute)	5	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.	
RSM 700 Introduction to Doctoral Research	3	Specific courses should be selected from the following:	
EDAD 630 Methods of Comprehensive Educational Planning	3	RSM 700 Introduction to Doctoral Research	3
EDAD 641 Seminar in Decision Theory	3	BUS 340 Introduction to Insurance	3
EDAD 642 Seminar in Communication Theory	3	BUS 388 Systems and Procedures	3
EDAD 643 Seminar in Management Systems and Analysis	3	BUS 452 Office Management	3
EDAD 701 Specialist Degree Practicum in Administration	8	BUS 456 Business Policies and Management	3
Courses in curriculum	6	BUS 470 Financial Management	3
Two of the following:		BUS 520 Management Accounting	5
EDF 765 Sociological Foundations of Education	3	BUS 630 Applied Business Law	5
EDF 785 Philosophical Foundations of Education	3	BUS 653 Seminar in Personnel Management	2
EDF 740 Psychological Foundations of Education	3	BUS 680 Information Processing I	3
3. Electives to complete requirements for graduation, including at least six quarter hours outside the field of education.		BUS 695 Operations Analysis	3

3. 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. Completion of the common requirements for the M.A. in administration.

2. Course requirements listed below:

RSM 504 Descriptive Statistics	4		
RSM 505 Statistical Inference (EDAD 660 and EDAD 661 may substitute)	5		
RSM 700 Introduction to Doctoral Research	3		
EDAD 630 Methods of Comprehensive Educational Planning	3		
EDAD 670 Elementary School Organization, Administration, and Supervision	3		
EDAD 671 Secondary School Organization, Administration, and Supervision	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 Courses in curriculum	8		

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	3		
EDAD 612 School Purchasing and Warehousing	3		
EDAD 613 Auxiliary Management Services	3		
EDAD 620 School Law II	3		
EDAD 525 Introduction to Organization and Administration of Public Schools	3		
EDAD 630 Methods of Comprehensive Educational 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.

- General School Administration.** Students preparing for careers at the school district administrative level (e.g., superintendent, assistant superintendent, etc.) should select this emphasis.
- Elementary School Administration.**

Students preparing for administrative careers in elementary schools (e.g., principals, 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 or her program in consultation with his or her adviser, in light of his background and desired area of concentration. The following requirements apply to *all* doctoral students in educational administration.

1. 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.)

2. These specific courses:

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
PCG 541 Theories of Learning	5
Courses in Foundations of Education	6

3. Additional specific course requirements determined by the area of concentration.

4. Electives to complete graduation requirements, including at least twelve quarter hours of graduate work outside the field of education.

Educational Media

Graduate Certification in Elementary School — Media and/or M.A. Degree

At this time the Department has no specific admission requirements. The Colorado Teacher Certification Act of 1975 provides for two levels of media endorsement. **FIRST, AN ENTRY LEVEL media endorsement, (ELEMENTARY SCHOOL MEDIA)** for those persons who have or are eligible for a Colorado teaching certificate. *Candidates for elementary school media endorsement must:*

- Hold a bachelor's degree from an accredited four-year institution.
- Have completed an approved teacher preparation program.
- Have completed prior to the request for endorsement, two years of successful classroom teaching experience while holding

a valid elementary teaching certificate.

4. Satisfactorily complete the required and elective courses listed below for a minimum of 27 hours.

Required Courses:

EDEM 410 Introduction to Educational Media	3-5
EDEM 420 Design and Construction of Graphic Materials	3
EDEM 434 Reference Materials: Basic School Reference Service or	
EDEM 534 Reference Materials: Service in Specialized Subject Areas and Government Publications	3
EDEM 475 Administering Educational Media I*	3
EDEM 530 Cataloging and Classification*	3
EDEM 536 Evaluation and Selection of Educational Materials*	3

*Other media courses may be substituted where endorsement is not required.

For the Master's Degree with the Elementary School Media endorsement the candidate must complete a minimum of 45 hours. The following additional requirements applies to those seeking the Master's degree. Electives to complete the degree program may be taken from Outdoor Education, a subject area field (see appropriate catalog section) or Educational Media (see below).

Required for Degree

EDEM 600 Introduction to Graduate Study	3
EDEM 601 Practicum	4
EDEM 610 Instructional Technology: Philosophy, Theory and Practice or	
OED 650 Philosophy and Principles of Outdoor Education	3
Hours Credit:	28

Electives for Educational Media

EDEM 430 Problems of Organizing Classroom and Library Materials	3
EDEM 460 Television in Education	3
EDEM 500 Still Photography for Teachers	2
EDEM 520 Design and Construction of Audio-Visual Materials	3
EDEM 620 Production of Photographic Teaching Materials	3
EDRD 314 Improvement of Instruction in Literature in the Elementary School or	
EDRD 614 Literature in the Elementary School	2
EED 406 Literature for Adolescents or	
EED 602 Seminar in Literature for Adolescents	4
EDFE 601 Practicum or	
EDFE 610 Field Experience	2-6

Master of Arts in Educational Media

The Colorado Teacher Certification Act of 1975 provides also for a SECOND LEVEL, the professional media endorsement (EDUCATIONAL MEDIA SPECIALIST). The program, outlined below, has been designed to meet the requirement for Colorado endorsement as Educational Media Specialist and provide the Master of Arts Degree which is necessary for such endorsement.

Students pursuing this plan for the M.A. Degree in Educational Media, and the professional endorsement must plan their

programs to fulfill the following requirements. They must:

1. Have completed an approved teacher preparation program at the undergraduate or graduate level.
2. Have completed prior to the request for endorsement, three years of successful classroom teaching experience while holding a valid Colorado Type A or equivalent teaching certificate.
3. A person coming into the program with no course work in the field should expect to take at least six hours beyond the 45 minimum (51 hours). Any two of the following undergraduate courses or their equivalent would satisfy this requirement.

EDEM 410 Introduction to Educational Media	3
EDEM 420 Design and Construction of Graphic Materials	3
EDEM 434 Reference Materials: Basic School Reference Service	3
EDEM 475 Administering Educational Media I	3

4. Satisfactorily complete the required and elective courses as indicated below for a minimum of 45 hours (51 hours).

Required Core

EDEM 410 Introduction to Educational Media	3
EDEM 420 Design and Construction of Graphic Materials	3
EDEM 434 Reference Materials: Basic School Reference Service	3
EDEM 475 Administering Educational Media I	3
EDEM 530 Cataloging and Classification I	3
EDEM 536 Evaluation and Selection of Educational Materials	3

EDEM 600 Introduction to Graduate Study or	
RSM 600 Introduction to Graduate Study	3
EDEM 601 Practicum	4
EDEM 610 Instructional Technology: Philosophy, Theory and Practice or	
PCG 541 Theories of Learning	5
EDEM 675 Administering Educational Media II	3
EDEM 695 Trends and Issues in Educational Media	3
EDFE 601 Practicum or	
EDFE 610 Field Experience	2-6

One of the following four curriculum courses:

EDEL 612 Elementary School Curriculum	3
EDCI 661 Secondary Instruction	3
EDCI 663 Curriculum in Junior High School	3
EDCI 666 Foundations for Curriculum Development	3

One or more courses in literature for children and youth:

EDRD 314 Improvement of Instruction in Literature in the Elementary School	2
EDRD 614 Literature in the Elementary School	2
EED 406 Literature for Adolescents	4
EED 602 Seminar in Literature for Adolescents	4

Suggested Electives

MEDIA GENERALIST	
EDEM 460 Television in Education	3
EDEM 516 Utilization of Educational Resources	3
EDEM 520 Design and Construction of Audio-Visual Materials	3
EDEM 534 Reference Materials: Service in Specialized Subject Areas and Government Publications	3

EDEM 620 Production of Photographic Teaching Materials or	
OED 650 Philosophy and Principles of Outdoor Education	3

MEDIA LIBRARIAN

EDEM 430 Problems of Organizing Classroom and Library Materials	3
EDEM 531 Cataloging and Classification II	3
EDEM 534 Reference Service in Specialized Areas	3
EDEM 622 Individual Studies	4
EDRD 614 Literature in the Elementary School	2
EED 602 Seminar in Literature for Adolescents	4

MEDIA/TECHNOLOGY

EDEM 460 Television in Education	3-4
EDEM 500 Still Photography for Teachers	2
EDEM 516 Utilization of Educational Resources	3
EDEM 520 Design and Construction of Audio-Visual Materials	3
EDEM 620 Production of Photographic Teaching Materials	3
EDEM 622 Individual Studies	4
COMM 340 Introduction to Television Production	4
IA 442 Black and White Photography	5
IA 542 Color Photography	3
EDAD 630 Methods of Comprehensive Facility Planning	3

SPECIALIST IN EDUCATION DEGREE

The Department of Educational Media 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.

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, Bilingual, Bicultural, 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:

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
FA 625	Methods of Teaching Art in the Elementary School	2
HPER 288	Physical Education Activities for the Elementary School	2
HPER 303	Health Education in the Elementary School	2
MUS 206	Music Methods and Materials for Elementary Teachers	2
SCED 671	Science Curriculum 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 18 quarter hours in Elementary Teacher Education courses including EDEL 620, EDRD 612 or 613, and EDLS 360, 361 or 362. EDEL 620 and EDRD 612 or 613 must be completed before applying for student teaching.

5. Students applying for initial Colorado certification are required by the Colorado Department of Education to be prepared to meet the wide range of educational needs and abilities, including the mildly or moderately handicapped, typically encountered in the regular classroom. Required course work is specified under "Professional Education Requirements" in this catalog.

Master of Arts Degree

ELEMENTARY EDUCATION

The following are required:

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

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

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
EDRD 645	Seminar in Research and the Analysis of Reading Programs	3
SCED 671	Science Curriculum in the Elementary School	3

3. Background course requirements. The

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

EDEL 630	Handwriting and Spelling in the Elementary School	2
EDRD 612	Reading in the Primary Grades	3
EDRD 613	Reading in the Intermediate Grades	3
EDRD 614	Literature in the Elementary School	2

4. Course work of 20 hours or more for a minimum of 45 quarter hours should be selected in consultation with the adviser.

5. EDRD 645 is a course substitution for introduction to Graduate Study.

ELEMENTARY EDUCATION: BILINGUAL BICULTURAL

The following are required:

1. In addition to meeting Graduate School admission requirements, a comprehensive understanding of the Spanish language as spoken in Mexico and Southwestern United States must be demonstrated to the Department of Elementary Education and Reading.

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

3. Required courses:

EDEL 508	Workshop: Bilingual Bicultural Elementary Education	3
EDEL 620	Mathematics in the Elementary School*	3
EDEL 650	Social Studies in the Elementary School*	3
EDEL 671	Linguistics for the Bilingual Child	3
EDEL 673	Diagnostic Testing and Evaluative Instruments for Bilingual Programs	3
EDEL 675	Psychological Aspects of the Minority Family and Implications for Educational Experience	3
EDEL 676	Oral Language Extension for Bilingual Children	3
EDEL 677	Teaching Creative and Independent Thinking	3
EDEL 678	Curriculum Development for Bilingual Programs	3
EDRD 645	Seminar in Research and the Analysis of Reading Programs*	3
EDRD 670	Individualized Reading and Language Arts Through Language Experience	3
EDRD 674	Children's Literature for Bilingual Programs	3
SCED 671	Science Curriculum in the Elementary School	3

*Must be taken at the University of Northern Colorado.

4. EDRD 645 is a course substitution for Introduction to Graduate Study.

5. In consultation with adviser, select sufficient electives to complete 45 quarter hours of graduate academic credit.

ELEMENTARY EDUCATION: EARLY CHILDHOOD EDUCATION

The following are required:

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

2. Core course requirements.

A. Instructional techniques:

EDEC 648	Psycholinguistics in Early Childhood*	3
EDEC 660	Critical Issues in Nursery-Kindergarten Education*	3
EDRD 612	Reading in the Primary Grades*	3

B. Child growth and development:

CD 533	Child Development	3
CD 536	Seminar in Child Development	3
EDEC 662	Research in Early Childhood Education*	3

C. Compensatory programs:

EDEC 463	Diagnostic Teaching in Early Childhood Education*	3
EDEC 664	Seminar in Early Childhood Education*	3
EDEC 667	Nursery Schools for the Disadvantaged*	3

*Must be taken at the University of Northern Colorado.

3. Background course requirements. The following courses may be waived for a student who has had comparable courses at the undergraduate level.

EDEC 460	Nursery-Kindergarten Education	3
PCG 631	Psychology of Early Childhood	3

4. EDEC 662 is a course substitution for Introduction to Graduate Study.

5. Sufficient electives to complete 45 quarter hours of graduate academic credit. To be selected in consultation with the adviser.

READING: ELEMENTARY

The following are required:

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

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

EDRD 612	Reading in the Primary Grades	3
EDRD 613	Reading in the Intermediate Grades	3
EDRD 614	Literature in the Elementary School	2
EDRD 617	Remedial Reading in the Elementary School	4
EDRD 645	Seminar in Research and the Analysis of Reading Programs	3
EDRD 650	Remedial Reading Case Study	3-6
EDRD 652	Remedial Reading Internship	3

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

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 654	Reading Center Internship: Reading Clinic, College Reading, Adult Literacy	Maximum 9

EDRD 672 Teaching the Bicultured to Read	3	EDRD 701 Specialist Degree Practicum	8	in the amount of such excess of 15 quarter
EED 402 Methods and Materials for Teaching Literature in the Secondary School	5	EDRD 745 Seminar in Reading	3	hours.
EED 406 Literature for Adolescents	3	RSM 504 Descriptive Statistics	3	RSM 504 Descriptive Statistics
EDRD 645 is a course substitution for Introduction to Graduate Study.		RSM 505 Statistical Inference	3	RSM 505 Statistical Inference
5. 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.		2. EDRD 645 is a course substitution for Introduction to Doctoral Research.		Choose one of the following:
READING: SECONDARY		3. In consultation with adviser select a minimum of 19 quarter hours in reading, educational administration, curriculum and instruction, psychology, English, speech, and special education.		RSM 603 Analysis of Variance and Covariance
The following are required:				3
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.		Doctor of Education Degree		RSM 613 Introduction to Linear Models
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.		ELEMENTARY EDUCATION		Anthropology
EDRD 521 Reading in the Content Fields	3	The following are required:		Biological Sciences
EDRD 620 Developmental Reading in the Secondary School	3	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.		Chemistry
EDRD 627 Remedial Reading in the Secondary School	4	2. Core course requirements. EDEL 625, 645, 655 and EDRD 745 must be taken at University of Northern Colorado.		Communication
EDRD 645 Seminar in Research and the Analysis of Reading Programs	3	EDEL 625 Seminar in Elementary School Mathematics	3	Earth Science
EDRD 650 Remedial Reading Case Study	3-6	EDEL 645 Seminar in Elementary School English	3	Economics
EDRD 652 Remedial Reading Internship	3	EDEL 655 Seminar in Elementary School Social Studies	3	English
EED 402 Methods and Materials for Teaching Literature in the Secondary School	5	EDEL 799 Doctoral Dissertation	18	Fine Arts
EED 406 Literature for Adolescents	3	EDRD 745 Seminar in Reading	3	General Science
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.		EDF 740 Psychological Foundations of Education	3	Geography
EDRD 612 Reading in the Primary Grades	3	EDF 765 Sociological Foundations of Education	3	History
EDRD 613 Reading in the Intermediate Grades	3	EDF 785 Philosophical Foundations of Education	3	Humanities
EDRD 614 Literature in the Elementary School	2	SCED 677 Seminar in Modern Developments in School Science	3	Mathematics
EDRD 640 Linguistic Foundations of Reading Instruction	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.		Music
EDRD 654 Reading Center Internship: Reading Clinic, College Reading, Adult Literacy	Maximum 9	EDEL 612 The Elementary School Curriculum	3	Philosophy
EDRD 672 Teaching the Bicultured to Read	3	EDEL 620 Mathematics in the Elementary School	3	Physics
EED 602 Seminar in Literature for Adolescents	4	EDEL 630 Handwriting and Spelling in the Elementary School	2	Political Science
4. EDRD 645 is a course substitution for Introduction to Graduate Study.		EDEL 640 English in the Elementary School	3	Research and Statistical Methodology
5. 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.		EDEL 650 Social Studies in the Elementary School	3	Social Sciences
Specialist in Education Degree		EDRD 612 Reading in the Primary Grades	3	Sociology
READING		EDRD 613 Reading in the Intermediate Grades	3	5. EDRD 645 is a course substitution for Introduction to Doctoral Research.
The Specialist in Education Degree program is planned for each individual on the basis of his or her background and experience.		EDRD 614 Literature in the Elementary School	2	6. Sufficient electives to complete 90 quarter hours of graduate credit.
1. Core course requirements:		EDRD 645 Seminar in Research and the Analysis of Reading Programs	3	ELEMENTARY EDUCATION: EARLY CHILDHOOD EDUCATION
EDRD 654 Reading Center Internship: Reading Clinic, College Reading, Adult Literacy	Maximum 9	PCG 570 Tests and Measurements for Educators	4	The following are required:
		4. Subject matter requirements. RSM 504, 505 and either RSM 603 or 613 are required. 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		1. RSM 504 and an early childhood education course with the major adviser is 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:
				EDEC 648 Psycholinguistics in Early Childhood*
				3
				EDEC 660 Critical Issues in Nursery-Kindergarten Education*
				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 645 Seminar in Research and the Analysis of Reading Programs*
				3
				B. Child growth and development:
				CD 533 Research in Child Development
				3
				CD 536 Seminar in Child Development
				3
				EDEC 662 Research in Early Childhood Education*
				3
				C. Compensatory programs:
				EDCI 551 Problems in Teaching Minority Groups
				3
				EDEC 664 Seminar in Early Childhood Education*
				3
				EDEC 667 Nursery Schools for the Disadvantaged*
				3

D. Research tract:

EDEC 799	Doctoral Dissertation	18
RSM 504	Descriptive Statistics	3
RSM 505	Statistical Inference	3

Choose one of the following:

RSM 603	Analysis of Variance and Covariance	3
RSM 613	Introduction to Linear Models	3

E. Field Experiences:

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

**Must be taken at the University of Northern Colorado.*

4. EDEC 662 and EDRD 645 are course substitutions for Introduction to Doctoral Research.

5. Electives to complete a total of 90 quarter hours. To be selected in consultation with the adviser.

READING

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 645	Seminar in Research and the Analysis of Reading Programs	3
EDRD 650	Remedial Reading Case Study	3-6
EDRD 652	Remedial Reading Internship	3
EDRD 654	Reading Center Internship: Reading Clinic, College Reading, Adult Literacy	Maximum 9
EDRD 672	Teaching the Bicultured to Read	3
EDRD 745	Seminar in Reading	3
EDRD 755	Supervised Practicum in College Teaching	3-9
EDRD 799	Doctoral Dissertation	18
EED 402	Methods and Materials for Teaching Literature in the Secondary School	5
EED 406	Literature for Adolescents	3
RSM 504	Descriptive Statistics	3
RSM 505	Statistical Inference	3

Choose one of the following:

RSM 603	Analysis of Variance and Covariance	3
RSM 613	Introduction to Linear Models	3

3. EDRD 645 is a course substitution for Introduction to Doctoral Research.

4. In consultation with adviser select 24 quarter hours of course work in educational administration, curriculum and instruction, English, speech, psychology, and special education.

English**Master of Arts Degree**

As a minimum requirement in a 45-hour program, the student will take ENG 600 (Introduction to Graduate Study) and at least five English 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) may be taken. The student and his or her adviser will work out an individualized block of courses from these areas:

- Bilingual/Bicultural Education
- Curriculum and Instruction
- Educational Administration
- Educational Media
- Educational Foundations
- English Education
- Psychology
- Special Education
- 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, intended for the person who plans to teach at the college or university level. The other is the Ed.D. in English Education, 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, and World literature, and pedagogy. Specifically the course work will be as follows:

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

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

ENG 623	Studies in Old English	Maximum 16
ENG 624	Studies in Middle English	Maximum 16
ENG 625	Studies in the Renaissance	Maximum 16
ENG 626	Studies in Restoration and 18th Century	Maximum 16
ENG 627	Studies in the Romantic Period	Maximum 16
ENG 628	Studies in the Victorian Period	Maximum 16
ENG 629	Studies in 20th-Century British Literature	Maximum 16
ENG 630	Studies in American Literature (Beginnings to the Civil War)	Maximum 16
ENG 631	Studies in American Literature (Civil War to W.W.I)	Maximum 16
ENG 632	Studies in American Literature (W.W. I to the Present)	Maximum 16
ENG 633	Studies in the English Language	Maximum 16
ENG 634	Studies in Linguistics	Maximum 16
ENG 638	Studies in Literary Criticism	Maximum 16
ENG 639	Colloquium in Literature	Maximum 16
ENG 321	Generative-Transformational Grammar	4
ENG 402	The Short Story	4
ENG 403	Techniques of the Novel	5
ENG 404	Modern Literature about Childhood and Adolescence	4
ENG 405	Contemporary American Drama	4
ENG 407	Advanced Studies in Poetry	4
ENG 408	Elizabethan Drama Exclusive of Shakespeare	4
ENG 409	Literary Criticism	4
ENG 410	History of Ideas in Literature	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 or her 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 635	Studies in World Fiction	Maximum 16
ENG 636	Studies in World Poetry	Maximum 16
ENG 637	Studies in World Drama	Maximum 16
ENG 406	Modern Drama Since Ibsen	4
ENG 414	Greek and Comparative Mythology	4
ENG 415	Literature of the Old Testament	4
ENG 416	Literature of the New Testament	4
HUM 411	Advanced Course in Humanities	Maximum 12

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 635, 636, 637, 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 or her second quarter in residence.

From reports written by the student's supervising professor and others from whom the student has had classes, a committee of those professors will determine how much more guidance the student needs in teaching.

The hours in pedagogy will be chosen from:		
EED 754	Supervised Teaching in English	3-9
EED 681	Seminar in the Teaching of Literature	3
EED 502	The Teaching of Composition	3

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

Dissertation Activities

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

I. The student may choose any three of the four following areas in which he or she may write papers in lieu of the traditional dissertation:

A. A study of a scholarly, textual, biographical or pedagogical problem. The emphasis is to be on scholarship, but the student must demonstrate that the problem has some critical or interpretive relevance.

B. A second study of a single writer, a single work, or a problem in critical theory. The emphasis will be on a critical interpretation and the student will be expected to demonstrate a sound grasp of the historical contexts investing his subject.

C. A third study in yet another field of English, American, or world literature in

translation on a subject agreed to by the candidate and his or her committee in conference. This paper will be delivered orally to committee members concerned (the entire graduate English faculty being invited) and the collective body of English graduate students in residence. The paper will later be submitted in writing incorporating the various suggestions made by committee members and fellow students.

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

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

III. The traditional dissertation in literary criticism.

5. At the termination of the candidates course work, he or she will take written and oral examinations over his or her major area.

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

THE PROGRAM IN ENGLISH EDUCATION

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

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

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

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

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

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

Fine Arts

Master of Arts Degree

The Master of Arts degree in Fine Arts is a graduate program which permits in-depth study in the following areas: Art Education, Ceramics, Crafts, Drawing, Painting, Printmaking, or Sculpture. The main objective of the program is to provide highly specialized learning opportunities beyond the scope of the undergraduate program, which will allow students to gain expertise in an area of their choice.

General Application Procedures.

1. Students who have completed an undergraduate Fine Arts major in art and/or art education related areas, or the equivalent, and whose grade point average is a minimum of 2.80 (based on last 100 quarter hours of college work), make application to:

The Graduate School
University of Northern Colorado
Greeley, CO 80639

2. Initial clearance by the graduate school does not qualify a graduate student for a Master of Arts degree program in Fine Arts. This is done by the Department of Fine Arts after the evaluation and acceptance of the proposer's departmental application materials as follows:

3. Each student's application materials and transcripts will be reviewed by an art faculty committee composed of two instructors in the student's proposed area of emphasis. PLEASE INDICATE THE AREA OF EMPHASIS WHEN APPLYING. If not accepted, the student will be notified in writing with the reasons for rejection specified. A rejected applicant may have the opportunity of resubmitting another portfolio after one quarter has elapsed.

4. An applicant who does not have an undergraduate major in Fine Arts will be required to complete the basic requirements for a B.A. degree in Fine Arts (and/or other related areas), or the equivalent before being considered for admission to the Master of Arts degree programs and before materials may be presented. Application materials should be presented at least 60 days prior to the first quarter of attendance.

Art Education Application Procedures.

The applicant must include materials documenting three or more of the following:

1. A statement by the applicant of a personal philosophy of art education.
2. Material showing success in previous teaching or similar work which may include directing programs and/or building curriculum.
3. Material showing consistent strength in both academic areas and previous college work in the art studio.
4. Ten or more professional quality slides of applicant's art work.
5. Ten or more professional quality slides of applicant's student's art work.

6. A personal interview with committee members (if possible).

The applicant must submit:

- a. a transcript of *all* undergraduate work.
- b. Three letters of recommendation.

At the time of application to the Graduate School, departmental application materials should be sent to:

The Department of Fine Arts
Graduate Coordinator
University of Northern Colorado
Greeley, CO 80639

Application Procedures in Ceramics, Crafts, Drawing, Painting, Printmaking, or Sculpture.

Each applicant must submit the following:

1. A portfolio of at least 10 different pieces of work on 135 mm color slides of professional quality in the proposed area of study. This may be supplemented with up to ten additional slides of other art work.

2. Three letters of recommendation.

At the time of application to the graduate school, application materials should be sent to:

The Department of Fine Arts
Graduate Coordinator
University of Northern Colorado
Greeley, CO 80639

General Program Requirements

1. After the student's application has been evaluated and accepted, the student will be assigned an adviser in the area of emphasis selected by the student.

2. It shall be the joint responsibility of the student and the major adviser to select a committee of at least three faculty, including the adviser, to outline a course of study and to determine a subject for the final thesis.

3. Each student shall be subject to a graduate review at least once a quarter by the student's committee and the department chairperson.

4. Permit forms to take the comprehensive examinations must be secured from the Graduate School Office. The student's committee must unanimously approve the candidate for graduation.

5. All students will be required to complete the following:

- a. A minimum of 45 quarter hours including a concentration of 30 quarter hours in a specific area of study.

- b. Students having less than 16 quarter hours of Art History in their undergraduate program should include enough hours in Art History, to make up the deficiency over and above the 45 quarter hours required for a masters degree.

- c. FA 600, Introduction to Graduate Study — Fine Arts, one hour per first three quarters the student is enrolled. The exception is Summer Quarter when students must take the three quarter hour summer course, ID 600.

- d. A creative project for up to 15 hours of credit is required of all students except Art Education (see point 9 under "Additional Program Requirements in Art Education," below). (Creative project credit may be included as part of the 30 hours of concentration.) The student and the committee should contract for the number of

hours given for the creative project. Four copies of the finished creative project are required to be turned into the Graduate School for binding when the degree is completed. The student will be sent one of these copies.

Additional Program Requirements in Art Education.

In order to meet the individual and particular needs of the student the art education program is designed to afford the student the opportunity to identify future needs and develop an individual course of study for the master's degree in Art Education. The Fine Arts Department wishes to create an intellectual climate and to provide resource materials from within the department and from the university at large in order for the program to efficiently fulfill these needs. The purpose of the program is to bring about significant improvement in quality teacher education and to provide the opportunity for effecting needed continuing change through the arts education. The student program is developed and proposed by the student with the assistance from the resource people available at the University of Northern Colorado.

The proposed program may be interdisciplinary in nature; it will take into account the individual needs of the student, and the student should establish relevant goals.

1. After admission to the Department of Fine Arts graduate program, an Art Educator will be selected as the adviser and this adviser will act as chairperson of the student's committee.

2. It shall be the joint responsibility of the student and the major adviser to select a committee of at least three Fine Arts faculty, two of whom are Art Educators, including the adviser, to outline the course of study. (Resource people may be drawn from any part of the university.)

3. With the assistance of the major adviser the student will submit a proposal to his/her committee. See No. 2 above.

4. When the student's program is approved by the committee, the student will begin completion of the program.

5. The proposal will be submitted to the Graduate Coordinator for final acceptance on behalf of the department.

6. The committee and Graduate Coordinator will have the authority to make all final decisions in reference to the student's proposal and program. The committee and the student accept the standards set by the university for a master's degree. When the student's program is completed, the student will present evidence of completion to the committee who will approve the student for graduation.

7. Any changes in the program can be made subject to approval of the committee and Graduate Coordinator.

8. Final graduate review may consist of an oral or written examination. An exhibit may also accompany the examination.

9. A traditional thesis (FA 699) is normally required in Art Education for up to 15 hours of credit. Under certain circumstances a

creative project (FA 691), with research paper for up to 15 hours of credit may be permitted. One bound copy of either the thesis or creative project materials, will be retained by the major adviser.

Additional Program Requirements in Ceramics, Crafts, Drawing, Painting, Printmaking, and Sculpture.

1. The student and the selected graduate committee will develop a course of study that will be in keeping with the university and departmental policies culminating in an exhibition of creative work or thesis. This program will emphasize the student's ability to do self-directed work in the selected area of emphasis. When a graduate exhibition is involved, it will be installed in an area approved by the Department of Fine Arts. The final graduate review will consist of an exhibit and/or written or oral examination or a combination of both examination and exhibit, agreed upon at the discretion of the student and the committee.

2. One of the works from the Graduate Exhibit may be retained by the Department of Fine Arts for its permanent collection and will be selected by the student's graduate committee. In cases where no art works are produced, a bound copy of the thesis or creative project is to be retained by the major adviser.

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.

Courses in 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 Middle 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

Courses in other disciplines to be chosen from the following groups and counted toward a 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 Media	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
EDEC 648	Psycholinguistics in Early Childhood	3
PCG 540	Psychology of Perception and Learning	5
PCG 670	Principles and Practices in Testing and Measurement	3

GROUP 3: A MAXIMUM OF 6 HOURS WITH THE FOLLOWING COURSES SUGGESTED:

HIST 592	Seminar in Southwest History	3
HIST 506	Seminar in Latin American History	3
HIST 566	Seminar in the French Revolution and Napoleon	3
HIST 570	Seminar in Modern German History	3
HIST 596	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

Specific Course Requirements:

EDF 367	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

EDF 785	Philosophical Foundations of Education	3
EDF 765	Sociological Foundations of Education	3
EDF 565	Social and Cultural Differences and Education	3
EDF 655	Anthropological Foundations of Education	3
SOC 650	Seminar in Sociological Theory	3
EDF 566	American Social Problems and Education	3
EDF 567	Strategies for Social Change	3

Recommended Courses

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

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 the 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 to Geography. Depending upon the needs of the student credit will be from three to nine hours.
8. GEOG 681 — Seminar in Teaching College Geography.

Health Occupations – Vocational Teacher Education

Advanced Credentialing Program

A student holding a baccalaureate degree and current licensure, registration, or certification as a health practitioner may wish to pursue an advanced vocational credentialing program in Health Occupations. Students are assisted in meeting the Colorado vocational credentialing requirements, as established in the Colorado State Plan for Vocational Education, through the following course content and the documentation of work experience.

The courses which have been approved for obtaining this credential in health occupations are: VTE 310, 400, 401, 402, 403, 404, 405, 406, 419, 453, *VTE 500, 506, 507, 610.

*Please refer to page 104 for course descriptions.

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
Master of Arts Degree

HEALTH EDUCATION

The following are the required courses in the major:

HPER 503 Drug Abuse Education

HPER 506 Contemporary Issues in Sex Education	3 or 4	HPER 580 Advanced Prevention, Care, and Rehabilitation of Athletic Injuries	3	HPER 624 Advanced Maturation Kinesiology	4
HPER 509 Seminar in Health Behavior	3-4	HPER 641 Advanced Elementary Physical Education	3	HPER 626 Advanced Physiological Kinesiology	4
HPER 550 Environmental Health	3	HPER 625 Laboratory Techniques in Kinesiological Research	3	HPER 670 Sociology of Sports and Physical Education	3
HPER 602 Introduction to Research in HPER	4			RECREATION	
HPER 603 Scientific Foundations of Health Education	3-4			<i>(Students with this major may select an emphasis in Therapeutic Recreation.)</i>	
HPER 604 School Health Administration	3-4	*Another course from this group is highly recommended.		The following are the required courses in the major:	
HPER 605 Public Health Problems	4	**Select any two.		HPER 602 Introduction to Research in Health, Physical Education, and Recreation	4
Electives (to be selected with advisement) to meet the student's professional objectives and complete deficiencies apparent following evaluation of previous college work	16-20	Specialization in Administration of Physical Education and Athletics		HPER 610 Evaluation and Research in Parks and Recreation	4
Hours Credit: 45		The following courses are required:		HPER 675 Areas and Facilities in Physical Education and Recreation	4
		HPER 640 Curriculum in Health and Physical Education	4	HPER 676 Seminar in Contemporary Problems in Recreation	4
		HPER 635 Seminar in Sports Psychology or	2	HPER 677 Parks and Recreation Management	4
		HPER 636 Seminar in Sports Mechanics or	2	HPER 678 Organization and Operation of Park and Recreation Services	4
		HPER 637 Seminar in Sports Physiology	2	Electives (to be selected with advisement to meet the student's professional objectives and complete deficiencies apparent following evaluation of previous college work)	21
		HPER 660 Administrative Interrelationships in Health, Physical Education, and Recreation	4	Hours Credit: 45	
		EDAD 620 School Law II	3	Emphasis in Therapeutic Recreation	
		Electives:		<i>The following courses are required:</i>	
		HPER 620 Advanced Anatomical Kinesiology*	4	HPER 520 Therapeutic Recreation Services	3
		HPER 621 Advanced Mechanical Kinesiology*	4	HPER 522 Seminar in Recreation Program Development for Special Populations	3
		HPER 623 Advanced Psychological Kinesiology*	4	GERO 530 Recreation for the Older Adult	3
		HPER 624 Advanced Maturation Kinesiology*	4	HPER 652 Graduate Internship in HPER	4-16
		HPER 626 Advanced Physiological Kinesiology*	4	Selected courses from physical education and special education may be taken through advisement to meet the student's professional objectives.	
		HPER 450 Administration of Physical Education	3	GERONTOLOGY	
		HPER 470 Administration of Athletics	3	The following are the required courses in the major:	
		HPER 690 Issues and Trends in Health Education, Physical Education, and Recreation	4	GERO 525 Seminar in Contemporary Problems of Older Adults	4
		HPER 675 Areas and Facilities in Physical Education and Recreation	4	HPER 602 Introduction to Research	3
		EDAD 610 School Finance	3	GERO 535 Organization, Operation, and Management of Gerontological Services	4
		EDAD 626 Philosophy and Techniques of Public Relations	3	GERO 530 Recreation for the Older Adult	3
		HPER 644 Supervision of Physical Education and Recreation	4	HPER 531 Health Aspects of Gerontology	3
		HPER 670 Sociology of Sports and Physical Education	3	GERO 534 Movement Problems in Geriatrics	3
				GERO 590 Community Resources for the Elderly	3
		*Another course from the group is highly recommended.		ANT 620 Spanish American Culture	3
		Specialization in Coaching		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)	
		The following courses are required:		Hours Credit: 19	
		HPER 549 Advanced Techniques in Teaching (Sport to be selected)	2	45	
		HPER 565 Advanced Coaching Procedures (Sport to be selected)	2	Doctor of Education Degree	
		HPER 580 Advanced Prevention, Care and Rehabilitation of Athletic Injuries	3	HEALTH AND PHYSICAL EDUCATION	
		HPER 635 Seminar in Sports Psychology or	2	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.	
		HPER 636 Seminar in Sports Mechanics or	2	2. The following common courses or their	
		HPER 637 Seminar in Sports Physiology	2		
		Electives:			
		HPER 450 Administration of Physical Education	3		
		HPER 470 Administration of Athletics	3		
		HPER 660 Administrative Interrelationships in Health, Physical Education and Recreation	4		
		HPER 620 Advanced Anatomical Kinesiology	4		
		HPER 621 Advanced Mechanical Kinesiology	4		
		HPER 623 Advanced Psychological Kinesiology	4		

equivalent are required: (when the word equivalent is used it indicates a student possesses and can demonstrate the necessary knowledges and competencies, whether acquired through previous course experience, substitute courses, or by experience). Competency examinations are required for the demonstration of equivalency.

HPER 702 History of Health, Physical Education and Sport	4
HPER 703 Research Seminar in Health and Physical Education	4
HPER 624 Advanced Maturational Kinesiology*	4
HPER 799 Doctoral Dissertation (See adviser for guidelines relating to development of dissertation)	18

Students may select three of the four Statistics classes as follows:

RSM 504 Descriptive Statistics	4
RSM 505 Statistical Inference	5
RSM 603 Analysis of Variance and Covariance	3
RSM 613 Introduction to Linear Models	3

*A background in neuro-psychology and physiology is required as a prerequisite for this course. (Courses are available at the University of Northern Colorado to provide this background.)

3. All doctoral students must select one or more of the following emphasis areas for their programs:

Health Education
Recreation Education
Physical Education

- Curriculum and Administration
- Social Science of Sport
- Kinesiology with specializations

available in:

- Physiological Kinesiology
- Psychological Kinesiology
- Mechanical Kinesiology

The specific requirements for each emphasis area may be obtained from the Department heads or from the Dean of the School of HPER.

Higher Education – Minor

Any five or more of the following courses including EDHI 651:

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

Total Program: A minimum of 24 quarter hours.

Suggested electives:

EDHI 655 Seminar in Non-Traditional Programs in Higher Education	3
EDAD 663 Seminar in Higher Education Data Systems	2

CSPA 651 Philosophy and History of College Student Personnel Work	3
CSPA 650 The College and Student Development	3
CSPA 658 Organization and Administration of College Student Personnel Administration	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 on 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 or her 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. No more than three of these hours may be earned in HIST 622, Individual Studies, without obtaining prior approval from the Department Chairperson.

4. A candidate for the M.A. in history should, after consultation with his or her 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 the fourth quarter of graduate work. The candidate will be examined orally by a departmental committee on his or her thesis, and will be held responsible for a general knowledge of his or her thesis area. The candidate may not choose as a comprehensive field the area in which he or she has written his or her thesis.

The following fields are offered by the department:

Category I: (U.S. History)

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

Category II: (European History)

- Ancient History
- Medieval History
- 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 or her comprehensive examinations, he or she may be permitted, upon written request of his or her major adviser, to retake the entire examination. If the candidate fails just one field he may be permitted, upon written request of his or her major adviser, to retake only that part of the examination he or she 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 or her 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 or her adviser regarding the advisability of writing a master's thesis and preparing himself in foreign language. Candidates who elect to write a thesis are eligible for consideration for the Oliver M. Dickerson Scholarship which is a \$1,000 stipend granted to a master's candidate majoring in history.

Doctor of Arts Degree

The object 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 or she will take an oral examination in history which will serve as a

screening examination and as a basis for planning course work for the remainder of his or her 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 American
- e. Third World (Asia, Latin America, Africa)

The candidate will also have two secondary areas in History, normally drawn from outside his or her field of concentration. Such secondary areas, e.g., Europe Since 1789, Recent English History, Recent American Diplomatic 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 or her, take an interdisciplinary, or specific department, minor of at least 18 hours which he or she must pass satisfactorily.

6. The candidate is also to demonstrate reading proficiency in two foreign languages, or one foreign language and demonstrate 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, Doctoral Dissertation, 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 or her adviser, the candidate will take written and oral comprehensive examinations over his or her major and minor areas.

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

Home Economics

Master of Arts Degree

The Master of Arts degree in Home Economics is a graduate program which permits in-depth study in the following areas: Home Economics Education, Child Development, Clothing, Consumer Economics, and Management, Food, Housing, Furnishings and Equipment, and Nutrition. The student may plan a program to meet his individual needs and interests.

Program Requirements:

1. Meet Graduate School admission requirements.
2. Consult departmental chairperson concerning policies and adviser assignment.
3. Candidates with a bachelors degree in home economics must complete a total of 45 quarter hours as outlined in Plan A or Plan B.
4. Candidates entering without a bachelors degree in home economics must complete undergraduate and graduate hours of credit in home economics to total at least 64 hours.

5. Consult major adviser regarding English usage competencies.

6. Acceptance of a Master's Project or Creative Project by the candidate's adviser.

7. Satisfactory performance in a written comprehensive examination based on graduate course work in the Home Economics department.

8. Complete the following courses in the Home Economics core plus the requirements in Plan A or Plan B.

Core Courses:

HEC 608	Directions in Home Economics	1
ID 600	Introduction to Graduate Study	3
	or	
RSM 600	Introduction to Graduate Study and Research	3
HEC 696	Master's Project*	4-9
	or	
HEC 691	Creative Project*	4-9

*It is recommended that HEC 696 or HEC 691 credits be dispersed over two to three quarters.

Subject Matter Programs

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

A. HOME ECONOMICS EDUCATION

A minimum of 12 hours of courses selected from:

Methods
Curriculum
Evaluation
Reading
FHA/HERO
Career Education
Supervision
Wage Earning Home Economics

19 hours recommended electives of graduate number courses in Home Economics subject matter and vocational teacher education.

6 hours of electives.

B. SUBJECT MATTER AREAS

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

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

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

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

Child Development
Clothing
Consumer Economics and Management
Food
Housing, Furnishings and Equipment
Nutrition
Textiles

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 86 for humanities course descriptions. Consult with

the Director of Humanities for a list of humanities courses which will be offered during the respective quarters.

Industrial Arts and Technology

Master of Arts Degree

Students pursuing the M.A. degree with a major in Industrial Arts and Technology 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 and technology in all his studies (bachelor's and master's) and is encouraged to have at least one course with a passing grade on his transcript at the graduate or undergraduate level in each of the following areas:

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

Basic technical concepts from these areas may be included on the comprehensive examination.

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, IAT 308 and IAT 422 may not be taken for graduate credit.

Additional course work in history and philosophy, organization and administration, curriculum development, instructional materials, evaluation and industrial occupations are highly recommended and may be required by the department. Material from these courses may be included on the comprehensive examination.

Students concentrating in industrial arts and technology must successfully complete RSM 504, Descriptive Statistics. Material from this course may be included on the comprehensive examination.

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 student, with his or her major adviser, will plan a program of studies within the guidelines listed under number one and may elect areas of specialization from the following list: crafts, drafting, electricity-electronics, graphic arts, metals, power, and wood.

3. The comprehensive examination will be given after the third week of the last quarter in residence if possible. This means the third quarter or at a time when the student has completed a minimum of 30 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 purpose, philosophy, history, evaluation, and subject matter areas within industrial arts and technology.

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 may retake the examination.

Specialist in Education Degree

The Department of Industrial Arts and Technology 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.

Doctor of Education Degree

Students pursuing the Ed.D. degree with a major in industrial arts and technology must have an adequate academic background in industrial arts and technology or related areas. If inadequate, coursework in addition to the minimum requirements for the Ed.D. degree will be required of the student.

Advisers will be assigned when the student arrives on campus to register for work on his doctoral degree. The student with his major adviser will plan a program of studies to fit the needs of the student and to fulfill the following requirements:

Program Requirements

1. The Doctor's degree is designed to make the candidates: industrial arts and technology 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 and technology. 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 and technology will be developed to make the candidate an effective teacher in the classroom and laboratory.

2. A student will complete 48 or more hours in industrial arts and technology. This does not include credit for his or her research study. Course work in history and philosophy, organization and administration, curriculum development, instructional materials, evaluation and industrial occupations are highly recommended and may be required by the department.

3. Students concentrating in Industrial Arts

education must successfully complete RSM 505, Statistical Inference or its equivalent. (RSM 504, Descriptive Statistics, is considered as a deficiency course and cannot be applied to the doctoral program.)

It is highly recommended that industrial arts and technology doctoral students complete three courses from the following areas of study (a maximum of one course per area): Psychology, Counseling and Guidance; Vocational Education; Educational Administration; Higher Education; Educational Media; Business; Curriculum and Instruction; and Educational Foundations. Doctoral students in industrial arts and technology are also encouraged to enroll in RSM 700, Introduction to Doctoral Research during the quarter they are ready to isolate their dissertation topic. These courses may count toward the industrial arts and technology program of 48 hours.

4. When the student completes approximately 50 quarter hours of course work (30 hours in IAT beyond the masters and 20 hours in his or her supporting areas beyond the masters), the student will take a written examination over his or her 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.

In addition to all the general requirements for a doctor's degree the student shall:

A. Have completed two years of successful teaching experience before the degree will be conferred.

B. Submit a 250 word abstract 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.

5. Build an area of specialization in a technical area of industrial arts education.

6. Complete IAT 730 — Research in Industrial Education, maximum of 6 hours credit.

7. Complete a minimum of 24 quarter hours in a supporting area of concentration outside the area.

Journalism

(See requirements in the Specialist in Education Section.)

Information Specialist for Public Schools, Colleges, Universities, Business, Industry, and Government.

This program is designed to prepare personnel to do most types of public relations work in the public schools, colleges, and universities and many types of work in

business, industry, and government. The program is also designed to prepare journalism teachers for the public schools and two-year colleges.

In addition to courses, qualified students will serve as interns in the university's Department of Public Services. The students will work in publications, news (newspaper, radio, TV), speakers bureau.

Students admitted to the program should have completed undergraduate or graduate courses in newswriting and other selected courses in journalism. It is preferable that candidates also have some practical experience in journalism either as teachers or with commercial media.

Students will select courses for a broad general background plus an area of specialization. Courses would be chosen from such areas as public relations, graphic arts, photography, advertising, public opinion and pressure groups; methods of teaching journalism, speech, semantics, philosophy of education, group dynamics, school administration, higher education, psychology.

Mathematics

Master of Arts (Liberal Arts)

The program leading to the Master of Arts degree in mathematics is designed to prepare the student in several areas of applied mathematics. Mathematical statistics, computer science, and numerical analysis will form the core of the program.

A student who completes this degree should be prepared to seek employment in industry, to enter a Ph.D. program in statistics, or to teach in a community or junior college.

Departmental Prerequisites

It is assumed the applicant has:

1. An undergraduate mathematics major.
2. A knowledge of the FORTRAN programming language.

Course Requirements:

MATH 482 Computer Mathematics II	4
MATH 483 Computer Mathematics III	4
MATH 510 Seminar in Mathematics	3
MATH 525 Linear Algebra	3
MATH 535 Introductory Analysis I	4
MATH 536 Introductory Analysis II	4
MATH 551 Introduction to Mathematical Statistics I	4
MATH 552 Introduction to Mathematical Statistics II	4
MATH 553 Introduction to Mathematical Statistics III	4
MATH 585 Numerical Analysis I	3
MATH 586 Numerical Analysis II	3
MATH 611 Special Topics in Analysis of Variance	3
Electives	2
Hours Credit:	45

Course offerings are designed for the student to begin the program Fall quarter with expected completion the end of the following Summer quarter.

Comprehensive Examinations

Written closed book examinations will be given over the areas of mathematical statistics, computer mathematics.

introductory analysis and linear algebra. These examinations will be given the first week of Summer quarter. A two-hour oral examination will be given upon successful completion of the written comprehensives.

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.

MED 672	Curriculum in Secondary School Mathematics (Substitute for ID 600)	4
MED 673	Problems in the Teaching of Junior High School Mathematics or	4
MED 674	Problems in the Teaching of Senior High School Mathematics Mathematics education and/or mathematics courses Electives Minimum Program	4 22 15 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 and either 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 program leading to the Doctor of Arts degree in mathematics is designed to provide the student with a variety of courses to broaden and enrich his or her knowledge of mathematics. A student successfully completing this program should be qualified to teach most courses offered in an undergraduate mathematics curriculum.

Departmental Prerequisites

It is assumed that the applicant has the following subject matter background:

1. Master's degree competency in modern algebra and analysis, e.g., Modern Algebra I and II (MATH 521, 522), and Introductory Analysis I, II, and III (MATH 535, 536, 537).

2. At least one course in topology, e.g., Introduction to Topology (MATH 540).

3. At least one course in complex variables, e.g., Introduction to Complex Variables (MATH 560).

The candidate satisfactorily completing MATH 540 may count it as an elective toward the program if MATH 646 (or its equivalent) is not satisfactorily completed. Also, the candidate satisfactorily completing MATH 560 may count it as an elective toward the program provided MATH 632 (or its equivalent) is not satisfactorily completed.

Course Requirements

1. Courses in Group A below	9
2. Sequence in Group B below	9
3. One two-quarter sequence in Group C below	6
4. One sequence in Group D below	6-12

5. MATH 510 — Seminar in Mathematics	3
6. MED 681 — Seminar in Teaching Community College and College Mathematics	3
7. ID 702 — Seminar in College Teaching	3
8. MATH 754 — Intern Teaching in Mathematics	2-6
9. Electives (Subject to approval of adviser).	
a. At least 9 additional hours in mathematics (other than MATH 754)	9
b. At least 3 additional hours in mathematics education	3
10. Additional electives (Subject to approval of adviser).	
a. Of the above electives, a maximum of 12 hours may be taken in courses numbered 500 or above in departments other than Mathematics. The remaining hours may be taken from MATH or MED courses numbered 500 or above with the exceptions noted in the prerequisites. In addition, selections from MATH 464, 481, 482, and 483 are acceptable	13-19
11. MATH 799 — Doctoral Dissertation	18
	Hours Credit: 90

Program Outline

Group A		
MATH 525 and 526	Linear Algebra I and II	6
MATH 620	Theory of Fields	3
Group B		
MATH 635, 636, 637	Real Analysis I, II, and III	9
Group C		
MATH 626 and 628	Theory of Rings and Theory of Groups	6
MATH 632 and 633	Complex Variable I and II	6
MATH 646 and 647	General Topology I and II	6
Group D		
MATH 551, 552, 553	Introduction to Mathematical Statistics I, II, III	12
MATH 565 and 566	Differential Equations I and II	6
MATH 585 and 586	Numerical Analysis I and II	6

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 each of the four basic areas under the program outline (Groups A, B, C, and D). These examinations are given winter and summer quarters.

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

Doctor of Education Degree

MATHEMATICS EDUCATION

The program for the Doctor of Education degree in mathematics education is 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 or her major adviser and will be subject to the approval of his or her 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 or her 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 work 72 hours

Music

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

The Master of Music degree is offered in the following areas of concentration: Conducting and Literature, Performance*, or Theory and Composition

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

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

The Doctor of Arts degree is offered in the following areas of concentration: History and Literature, Theory and Composition, Performance*, Conducting, or Performance and Pedagogy*

Graduate Admission

Admission by the Graduate School does not guarantee admission to the School of Music. For application forms and admission requirements for programs in the School of

*Bassoon, clarinet, flute, horn, oboe, percussion, piano, alto saxophone, string bass, bass trombone, tenor trombone, trumpet, tuba, tenor tuba, viola, violin, violoncello and voice.

Music, students should write the Graduate Coordinator, 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.

Residence Requirement

Students seeking the Master's or Specialist's degree program may not use the alternative method of satisfying the residence requirement (see Graduate Degree section).

Individual Performance

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

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.*

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*.*

269, 469, 669. Individual Performance in Voice for Those with Non-Voice Emphasis. (2).

270, 470, 670. Individual Performance in Voice. (2-4).

271, 471, 671. Individual Performance in Piano. (2-4).

272, 472, 672. Individual Performance in Organ. (2-4).

273, 473, 673. Individual Performance in Strings. (2-4).

274, 474, 674. Individual Performance in Woodwinds. (2-4).

275, 475, 675. Individual Performance in Brass. (2-4).

276, 476, 676. Individual Performance in Percussion. (2-4).

277, 477, 677. Individual Instruction in Composition. (2-4).

278, 478, 678. Individual Performance in Harp. (2-4).

279, 479, 679. Individual Performance in Guitar. (2-4).

Performance Organizations

621. Jazz Sextet. *One hour credit.*

624. Vocal Jazz Ensemble. *One hour credit.*

626. Antiphonal Brass Choir. *One hour credit.*

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. Classical and/or Jazz Guitar Ensemble. *One hour credit.*

636. Dixieland Jazz Band. *One hour credit.*

637. Jazz Octet. *One hour credit.*

638. Old Times Jazz Band. *One hour credit.*

639. Jazz Nonette. *One hour credit.*

640. Jazz Septet. *One hour credit.*

641. Jazz Bebop Quintet. *One hour credit.*

642. Jazz Quintet. *One hour credit.*

668. Festival Orchestra. *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.*

687. Symphonic Band. *One hour credit.*

688. Opera Orchestra. *One hour credit.*

689. Laboratory Orchestra. *One hour credit.*

690. Wind Ensemble. *One hour credit.*

691. Concert Band. *One hour credit.*

692. Marching Band. *One hour credit.*

693. University 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 200 series may be used to indicate a deficiency in applied music at the graduate level; however, 400 may count toward Master of Music Education Degree in Music Education.*

Graduate Advisory Examinations

Advisory examinations in music history and literature, music theory, music education, writing skills, and instrumental techniques are given during the first week of graduate study.

Consult the appropriate program for the specific examinations required. Courses required on the basis of Advisory results become part of the degree requirement.

Graduate Advisory Examinations

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Consult the appropriate program for the specific examinations required. Courses required on the basis of Advisory results become part of the degree requirement.

Master of Music Education Degree

Advisory examinations are required in music history and literature, music theory, writing skills, music education and for instrumental majors, instrumental techniques.

Each graduate music education major will include the following core courses in his or her curriculum: MUS 519, 533, 610, 615, and 618. MUS 615 will be taken during the first quarter in residence.

Qualified graduate students may follow one of the four tracts 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 musical growth.

Each candidate will audition on his or her major instrument and will take advisory examinations in history, music education and theory. All of these examinations 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 individual performance and ensemble participation, a candidate following this track may choose study outside his or her major individual performance area and work in small ensembles under the following conditions:

1. Candidate must audition on his or her major instrument before the performance faculty.

2. If the candidate qualifies at the 400 level or above on his or her major instrument he or she may elect individual or class instruction on an instrument other than his or her own major instrument.

3. The candidate who qualifies at the 400 level or above on his or her major instrument may also elect to use two of his or her three ensemble credits in small ensembles. He or she must, however, use the other ensemble credit in his or her 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 six hours in their major instrument and three hours in their major large ensemble.

Courses in Music Content 12-15

Courses in Music Performance 9

(6 hours individual performance, 3 hours ensemble)

MUS 600

Introduction to Musical Scholarship 3

Courses in Music Education 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 the 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, individual performance and/or ensembles.

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 or her music teaching competencies.

Each candidate will audition on his or her 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 performance, he or she may elect 1) individual instruction on his or her major instrument (or voice), 2) individual or class instruction on instruments (or voice) other than his or her major instrument (or voice) and/or 3) to participate in small or large ensembles. Individual performance and ensemble work must be decided in consultation with his or her major advisers on a criteria of teaching competency needs. Candidates on this track who do not qualify at the 400 level or above must take six (6) hours in 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 and interviews.

If the student receives an average grade of 3.00 or above in the areas of music history and/or theory he or she 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 or she may be required to complete certain deficiencies prior to admission to the program.

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.

Courses in music content	6
Courses in individual performance and/or ensembles	9
MUS 600	
Introduction to Musical scholarship	3
Courses in music education	18-21
Individual music education project	minimum 4
Electives in or outside of School of Music	6-9

Each student is required to pass a written comprehensive in the major field (Music Education).

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.

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 or her adviser develops a program uniquely matched to his or her professional objectives, interests, strengths, and weaknesses.

Each candidate will audition on his or her major instrument and will take advisory examinations in history, music education and theory. All of these examinations 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 performance, he or she may elect 1) individual instruction on his or her major instrument (or voice), 2) individual or class instruction on instruments (or voice) other than his or her major instrument (or voice), and/or 3) to participate in small or large ensembles, individual performance work and ensemble work must be decided in consultation with his or her major and performance advisers on a criteria of teaching competency needs. Candidates on this track who do not qualify at the 400 level or above must take six (6) 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 and interviews.

If the student receives an average grade of 3.00 or above in the areas of music history and/or theory he or she 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 or she may be required to complete certain deficiencies prior to admission to the program.

Music Theory	3-6
Music History	3-6
MUS 600	
Introduction to Musical Scholarship	3
Individual Performance and Ensembles	9
Electives in or outside of School of Music	15-21
Courses in music education	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 or her major instrument, and will take advisory examinations in history, music education, theory and instrumental techniques. All of these examinations 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 performance, he may elect 1) individual instruction on his or her major instrument (or voice), 2) individual or class instruction on instruments (or voice) other than his or her major instrument (or voice), and/or 3) to participate in small or large ensembles. Individual performance and ensemble work must be decided in consultation with his or her major and performance advisers on a criteria of teaching competency needs. Candidates on this track who do not qualify at the 400 level or above must take six (6) 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 and interviews.

If a student receives an average grade of 3.00 or above in the areas of music history and/or theory he or she 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 or she 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.

Courses in music content	6
Courses in individual performance and/or ensembles	9
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.

**Elective courses will be determined after consultation with adviser.*

Master of Music Degree

PERFORMANCE

1. Admission requirements include advisory examinations in music history and literature, music theory, writing skills, and for brass, woodwind, string and percussion majors a techniques examination on their instrument area.

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

3. On the basis of the qualifying audition and conferences with the faculty jury, the student will be advised as to his or her 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 individual performance 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:

MUS	Individual Performance	12
MUS	Major Performing Organization	3
MUS 502	Eighteenth Century Harmony and Forms	3
MUS 600	Introduction to Musical Scholarship	3

MUS 601	Practicum (recital and paper)	4
MUS 643	to 648 (Music History)	6
MUS 657	Symphonic Literature* Additional electives to satisfy degree requirements	3

*Vocal candidates may substitute a history or literature course with approval of the adviser.

CONDUCTING AND LITERATURE

Required Courses:

MUS	Music Performance (a minimum of 3 hours in a major ensemble and 6 hours in individual performance)	9-12
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)*	4
MUS 643	to 648 (Music History)	6
MUS 656	Choral Literature (Choral Conducting candidates only) Additional electives to satisfy degree requirements through consultation with major adviser.	3

*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 paper will also be required.

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 or she 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 643	to 648 (Music History)	6
MUS 655	History of Music Theory	3
MUS 677	Individual Instruction in Composition	12
MUS 699	Thesis	8-12
MUS	Major Performing Organizations Additional electives to satisfy degree requirements	3

Students who are able to prove genuine competency in any of the required courses listed above may substitute electives chosen in consultation with the adviser. The following list contains courses which would enhance studies in Theory and Composition.

Suggested Electives:

MUS 501	Practical Arranging	3
MUS 507	Performance Practices	3
MUS 603	Analytical Studies I	3
MUS 604	Analytical Studies II	3
MUS 605	Practicum in Arranging and Performance	3
MUS 643	Seminar: Medieval Music	3
MUS 644	Seminar: Renaissance Music	3
MUS 645	Seminar: The Baroque Period	3
MUS 646	Seminar: The Classic Period	3
MUS 647	Seminar: The Romantic Period	3
MUS 648	Seminar: New Music	3

MUS 649	Seminar: Beethoven	2
MUS 650	Seminar: Choral Music	3
MUS 652	Historical Analysis of Music Structure	3
MUS 657	Symphonic Literature	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 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.

*Performance and performance and pedagogy emphases are available in bassoon, clarinet, flute, horn, oboe, percussion, piano, alto saxophone, string bass, bass trombone, tenor trombone, trumpet, tuba, tenor tuba, viola, violin, violoncello and voice.

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 or her graduate advisory committee after reviewing with the student his or her 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, Music Performance, Conducting, or Performance and Pedagogy.

Dissertation Requirement

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 18 hours allotted to the doctoral dissertation may be divided between performance 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
B. Dissertation	6
	Hours Credit: 18
2. D.A. in Pedagogy and Performance	
A. One recital	6
B. Dissertation	12
	Hours Credit: 18

3. D.A. in Music History and Literature Dissertation 18
 4. D.A. in Theory and Composition 18
 Credit may be divided in blocks of 6 hours between Composition and Theoretical Research 18

A letter grade will be given by the Research and Dissertation Committee, in consultation with faculty members of the candidate's individual 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 the degree emphasis.

Area of Secondary Emphasis

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

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. The 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 of School of Music will be administered by the candidate's committee.

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

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 623 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
Hours Credit:	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.

Comprehensive Examinations

At a time approved by the major professor, the candidate will take written and oral examinations covering the primary and secondary areas of emphasis, plus Music History and Literature and Music Theory if these are not part of his or her primary or secondary emphasis. Candidates should typically expect three and one-half days of examinations, one day each for Music History, Music Theory, and primary emphasis and one-half day of secondary emphasis. This time requirement may be varied to fit individual circumstances.

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 the 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 of one foreign language required.
 - b) Piano — Reading knowledge in one foreign language required.
 - c) Strings — Reading knowledge in one foreign language required.
 - d) Vocal — Translation 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 of one foreign language required. (A substitute research tool may be permitted after consultation with the approval by the candidate's committee.)
 - f) Pedagogy — Same as in the respective performance areas.

Research and Examination Committee for Doctor of Arts Candidate in Music

1. The candidate's major adviser shall be appointed by the director 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 Director of the School of Music to the Dean of the Graduate School for appointment.

a. This committee shall include the major adviser, the secondary emphasis adviser, and represent the following departments in the School of Music: music history and literature, music theory and composition; the respective performance or conducting area for D.A. candidates whose primary emphasis is in performance, performance/pedagogy or conducting; and a 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 Academic section "Graduation.")

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 Director 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. For additional information see "Doctor of Arts Sequence and Check List" published by the School of Music.

Doctor of Music Education Degree

The DME program is designed to prepare students as comprehensively-oriented educator-musicians, and to develop expertise in teaching, in consulting and in administration within public schools, college music education, and community cultural responsibilities.

Admission Requirements

Prospective candidates must meet the general Graduate School requirements for admission. School of music requirements are as follows:

1. Advisory Examinations in Music

Education, Music History, and Music Theory, administered by the School of Music Faculty, upon the student's arrival on campus. The results of these examinations will aid in program formulation. Also, students with an instrumental emphasis will be required to take techniques examinations in their performance area. (The fulfillment of remedial requirements will not apply toward the degree.)

2. Major applied area audition, from which recommendations will be made regarding continued study and ensemble participation.

3. A minimum of two years of successful music teaching, within K-12.

4. Three letters of recommendation.

The Director of the School of Music, after consultation with the Chairperson of the Music Education Department, will assign the major adviser.

Program Formulation

The student's individualized program will be determined by members of the Music Education Department and other involved members of the School of Music (including a representative from History and Theory) after reviewing, with the student, his or her educational objectives and deficiencies as reflected in transcripts, advisory examinations, performance audition results, and the three letters of recommendation. A minimum of 90 hours are to be earned in graduate studies beyond the master's level and distributed throughout the following areas:

Area of Primary Emphasis

The primary emphasis is designed to develop a comprehensive working-knowledge of contemporary music education practices pertaining to public school and college music programs and community cultural life. This is based on philosophy, psychology, contemporary and past history, and supported by scholarly musicianship through the areas of music history and literature, theory and composition, and performance.

Doctoral dissertations should be limited only by the scholarship and creativity of the candidate. Research tools, therefore, may cover a wide range, such as media, research methods of anthropology, and the social sciences, chronology, clinical and observational techniques from psychology, descriptive or narrative techniques, statistics computer technology, and foreign languages according to the requirements of the dissertation subject. The dissertation should include goals, such as: 1) the extension of the student's knowledge and/or improvement of his or her teaching ability in his field; 2) the development of new knowledge that can be added to common knowledge in the field of music education; and 3) the implementation of music education theory to the practical aspects of on-going school music programs.

Area of Secondary Emphasis

The secondary emphasis is designed to develop an understanding of the role of specialized instruction integrated within a comprehensive music education framework. As part of the secondary emphasis expectation, a creative project integrating one or more subject areas with music

education must be developed. This project is given on an Individual Study basis. Integrative ideas such as recital-demonstration, lecture-demonstration, performance-demonstration, minor thesis, multi-media, etc., may be considered. Projects within the secondary emphasis may be extended into the framework of the dissertation.

Distribution of Hours

Credit hours listed below are approximate, unless required, and may vary for any reason approved by the student's advisory committee.

Primary Emphasis	27
Secondary Emphasis	15
MUS 601 Practicum in Music (required)*	3
MUS 615 Seminar in Music Education (required)	2
MUS 622 Individual Studies in Music (required)*	3
MUS 700 Research Seminar (required)	3
MUS 799 Doctoral Dissertation (required)	18
Three Foundation Courses (required)	9
Electives	10
Hours Credit:	90

*Requirement for secondary emphasis project.

Comprehensive Examinations for Candidates in the DME Program

At a time approved by the major adviser, the candidate will take written and oral examinations covering music education and the secondary area(s) of emphasis. In order to integrate content areas with music education, questions from music history and music theory will be submitted for the examination at the discretion of the history and theory departments in consultation with the music education department.

Research and Examination Committees for the Doctor of Music Education Candidate

1. The candidate's major adviser shall be appointed by the Director of the School of Music after consultation with the Chairperson of the Department of Music Education.

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 Director of the School of Music to the Dean of the Graduate School for appointment.

a) This committee shall include the major adviser, secondary emphasis adviser, one other professor in the Music Education Department, two professors in the School of Music whose expertise are closely allied to the interests of the candidate, and one faculty representative outside of the School of Music, appointed by the Dean of the Graduate School.

b) The departments represented by the above committee shall design, administer, and evaluate the written comprehensive examination in their respective areas, 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 "Graduation" under "Academic

Information" in the Graduate Bulletin.)

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 Director 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.

The majority of the committee must approve the topic for a dissertation and the topic proposal must be signed by all committee members.

Outdoor Education – Environmental Education

The purpose of this program is to prepare teachers, administrators and specialists in the area of Outdoor Education and Environmental Education. Numerous opportunities are provided for student 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 may participate in Outdoor Laboratory School Programs conducted in the University Laboratory School, in the public schools, and in outdoor education centers.

Support Area to the Master of Arts Degree

While outdoor education can be used as a support area in a number of degree programs the following majors seem to be particularly suited for an Outdoor Education support area:

MAJOR	DEGREE REQUIREMENTS
Biology	See page
Curriculum and Instruction	See page
Educational Media	See page
Recreation	See page
School of Educational Change and Development	See page

In addition to the major departmental requirements, the candidate may pursue the courses listed below to complete a supporting area in Outdoor Education:

OED 450 Programs in Outdoor Education	3
OED 508 Workshop in Outdoor Education	1-5
OED 601 Practicum in Outdoor Education	4
OED 650 Philosophy and Principles of Outdoor Education	3
OED 651 Organization and Administration of Outdoor Education Programs	4
OED 652 Research Seminar in Outdoor Education*	3
EDCI 666 Foundations for Curriculum Development	3
EDEM 410 Introduction to Educational Media	3
PCG 541 Theories of Learning	5

*Your major department may have another research requirement.

Electives

The following courses are particularly appropriate to the interdisciplinary concept of Outdoor Education. Consult your adviser regarding these or other courses to complete your program. (Workshops in Outdoor

Education may be taken for elective credit through the Center for Non-Traditional and Outreach Education at off-campus tuition rates.)

BIO 475	Biological Photography	3
BIO 501	Environmental Conservation	4
COMM 556	Communication Strategies	3
EDEM 420	Design and Construction of Graphic Materials	3
EDEM 500	Still Photography for Teachers	2
EDEM 520	Design and Construction of Audio-Visual Materials	3
EDEM 536	Evaluation and Selection of Educational Materials	3
ENST 361	Art and the Environment	3
FA 335	Aesthetic Education	3
FA 550	Art in Recreation and Outdoor Education	3
HPER 550	Environmental Health	3
JOUR 496	Opinion Formation	3
MUS 315	Music in Recreation	2
OED 350	Education for Leisure through Outdoor Education	4
OED 508	Workshop in Outdoor Education	3
OED 550	Internship in Outdoor Education	1-18
RSM 504	Descriptive Statistics	4

Specialist in Education Degree

Course work in Outdoor Education/Environmental Education is available for those interested in a Specialist of Education degree in this area. 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.

Physics

Master of Arts Degree

This is a broad degree under which programs 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 specialties 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 specialties are available in the Physics Department office.

Political Science

Master of Arts Degree in Social Science (Political Science)

A concentration in Political Science is offered within the major in Social Science. See Social Science, page 49. Because of special problems in completing the Political Science concentration, any student wishing

to major in Political Science must consult with the Chairman of the department before applying for this degree.

Psychology, Counseling and Guidance

Degree Programs Offered

1. Master of Arts in:
 - a. Psychology
 - b. Educational Psychology
 - c. Agency Counseling
 - d. Elementary School Counseling
 - e. Secondary School and Postsecondary Counseling
2. Specialist in Education in:
 - a. School Psychology
 - b. Psychology, Counseling and Guidance (an individually tailored program to prepare unique specialists)
3. Doctor of Education in:
 - a. Counseling Psychology
 - b. Counselor Education
 - c. Pupil Personnel Administration
 - d. Educational Psychology
 - e. School Psychology

Admissions

Applications for admission to graduate programs in the Department of Psychology, Counseling and Guidance will be considered only after applicants have made application to and met the requirements of the UNC Graduate School. Applications will be reviewed by, and decisions made by, the faculty of the specific program for which the applicant has applied. The following criteria, information, and deadlines will be used for making departmental admission decisions.

M.A. Programs in Elementary School Counseling, Secondary School and Postsecondary Counseling, and Agency Counseling.

Attendance at an on-campus pre-admission workshop is required. Workshops are a day and one-half in length and will be scheduled during the Winter, Spring and Summer Quarters.

M.A. Program in Educational Psychology.

Educationally related work experience (highly desirable), statement of purpose, three letters of reference. Applicants are screened twice a year. Closing dates are October 1, with decisions announced by October 31, and March 15, with decisions announced by April 15.

M.A. Program in Psychology.

Requires a statement of goals and three letters of reference. GRE or MAT scores desirable but not required. Applications considered once a year in April.

Ed.S. Program in Psychology, Counseling and Guidance.

Applicants for individually designed Ed.S. programs must indicate whether they wish to study within the general areas of counseling or educational psychology. Admission within the area of counseling requires participation in an on-campus pre-admission workshop, which will be a day and one-half in length and will be scheduled during the Winter, Spring and Summer Quarters. Admission within the

area of educational psychology requires educationally related work experience, statement of purpose, and three letters of reference; applicants are screened twice a year, with closing dates of October 1 (decisions by October 31) and March 15 (decisions by April 15).

Ed.S. Program in School Psychology.

The same criteria, information, and deadlines are required for application to the Ed.S. in School Psychology as for the Ed.D. in School Psychology (see below).

Ed.D. Program in School Psychology.

Data listed below to be in PCG Department office by March 1. Decisions announced by March 31.

1. GRE scores of at least 500 Verbal and 450 Quantitative, or a total of 1050 with a minimum of 420 on either part is desired.
2. Grade-point average of 3.50 in last 100 hours of academic work is desired.
3. School or child related experiences are preferred.
4. Three letters of recommendation from an immediate supervisor or professor.
5. Written statement regarding the relationship of the graduate program to the future career goals of the applicant.
6. A personal interview may be required of finalists, at the option of the program faculty.

Ed.D. Programs in Counseling Psychology, Counselor Education, and Pupil Personnel Administration.

Data listed below to be in PCG Department office by March 1, with decisions announced by March 31.

1. GRE scores of at least 500 Verbal and 450 Quantitative, or a total of 1050 with a minimum of 420 on either part.
2. A master's degree in counseling or a related area, or the equivalent.
3. Three letters of recommendation.
4. Grade-point average of 3.5 in the last 100 hours of academic work is desired.
5. Written statement regarding the relationship of the doctoral program to the future career goals of the applicant.
6. Two years of counseling, teaching, or other acceptable work experience.
7. Attendance at an on-campus pre-admission workshop. Workshops will be scheduled during the Winter Quarter.

Ed.D. Program in Educational Psychology.

The same closing and decision dates will be used as for the M.A. in educational psychology (see above). The data listed below must be in the PCG Department by the closing date for the application to be considered.

1. GRE scores of at least 1050 total.
 2. A description of teaching experience (highly desirable). Applicants are to use PCG Form 101, obtained from the department office.
 3. Grade-point average of at least 3.0 in the last 100 hours of academic work.
 4. Three letters of recommendation.
- Applicants should request that letters be addressed to the Coordinator of Educational Psychology.

Proficiency Areas

Candidates for the Doctor of Education degree are required to demonstrate basic proficiency in the following six areas: 1)

psychological testing and measurement, 2) learning, 3) developmental psychology, 4) research and statistics, 5) personality and psychopathology, and 6) counseling an guidance.

Certification and Credentialing SCHOOL COUNSELOR CERTIFICATION

The following requirements must be met by persons requesting institutional recommendation for school counselor certification from the Department of Psychology, Counseling and Guidance (PCG) at the University of Northern Colorado:

I. For those persons who have completed a master's specialist, or doctoral degree in an area other than PCG: A) Two years of public school teaching experience or recent comparable work experience (2260-R-8.01(10) of certification standards for school counselor certification in Colorado). B) Must have completed the following courses and requirements in PCG, or their equivalent: For secondary school endorsement: PCG 602, 604, 606, 607, 608, 611, 612, 614, 671. For elementary school endorsement: PCG 603, 605, 606, 607, 608, 611, 612, 613, 672. C) Must pass Master's comprehensive examination in school counseling prior to being recommended.

II. Persons who have not completed a master's degree are required to complete the M.A. program in elementary or secondary school counseling at UNC in order to receive institutional recommendation.

CREDENTIALING AS VOCATIONAL GUIDANCE SPECIALIST

Students desiring this credential must complete the PCG requirements for school counselor certification, plus twelve designated hours of specific coursework in vocational education/career guidance (VTE 610, PCG 615, 616, and 619) and have a minimum of two years (4,000 hours) of work experience at wage-earning pursuits other than the profession.

SCHOOL PSYCHOLOGIST CERTIFICATION

Institutional recommendation for endorsement in School Psychology is based on the completion of the Ed.S. degree in School Psychology.

Application for Certification

Upon satisfactory completion of a certification program and any additional requirements which may be imposed by state law, a person is eligible for institutional recommendation to the State Commission on Teacher Education and Certification for the appropriate certification in Colorado. Near the end of the quarter in which the certification program is to be completed, the candidate should complete application forms in the College of Education Office, McKee Hall 518. Applications are processed as soon as official transcripts, ordered by the applicant, are received from the Registrar showing completion of requirements. Departmental recommendations are required before institutional endorsement is granted; this involves recommendations of the Program Coordinator, the adviser, and the program faculty.

Students desiring certification in states other than Colorado should note that

requirements for certification are set by each state's Department of Education, and should become familiar with the requirements for any other state in which they desire certification.

Master of Arts Degree

M.A. IN ELEMENTARY SCHOOL COUNSELING

The following is a suggested sequence of required courses:

First Quarter

PCG 603	Guidance in the Elementary School	3
PCG 605	Occupational Information for Guidance in Elementary Schools	3
PCG 607	Principles and Practices of Counseling Theories	5
RSM 504	Descriptive Statistics	3
	One course from Group I*	3-4
	Hours Credit:	17

Second Quarter

PCG 606	Theories and Practices in Group Guidance	3
PCG 612	Introductory Supervised Practice in Counseling	5
PCG 670	Psychological Testing and Measurement	4
PCG 540	Psychology of Perception and Learning	4
PCG 641	Theories of Learning	4
	Hours Credit:	16

Third Quarter

RSM 600	Introduction to Graduate Study and Research	3
PCG 608	Organization and Administration of Guidance Services	3
	Any non-sequenced elective course	3
PCG 672	Aptitude & Achievement Analysis, K-6	5
	One course from Group II*	3

Fourth Quarter

PCG 662	Group Dynamics and Facilitation	3
PCG 611	Supervised Practice in Guidance Services	3
PCG 613	Supervised Practice in Counseling with Children	3
	One course from Group III*	3
	Any non-sequenced elective course	3
	Comprehensive Examination	
	Hours Credit:	15

*One course is required from each of the following groups: Group I: PCG 530, 631, 632; Group II: PCG 558, 650, 651; Group III: PCG 565, 623, PSY 468.

Elective courses should be selected in consultation with the adviser. A minimum of sixty quarter hours of graduate credit are required.

M.A. IN SECONDARY SCHOOL AND POSTSECONDARY COUNSELING

The following is a suggested sequence of required courses:

First Quarter

PCG 602	Foundations of Guidance	3
PCG 604	Occupational Information and Analysis in Vocational Guidance (Secondary-Adult)	3
PCG 607	Principles and Practices of Counseling Theories	5
RSM 504	Descriptive Statistics	3
	One course is required from Group I*	3-4
	Hours Credit:	17

Second Quarter

PCG 612	Introductory Supervised Practice in Counseling	5
PCG 670	Psychological Testing and Measurement	4
PCG 540	Psychology of Perception & Learning	4
PCG 641	Theories of Learning	4
PCG 606	Theories and Practices in Group Guidance	3
	Hours Credit:	16

Third Quarter

RSM 600	Introduction to Graduate Study and Research	3
PCG 608	Organization and Administration of Guidance Services	3
PCG 671	Aptitude and Achievement Analysis	5
	Any non-sequenced elective course	3
	One course is required from Group II*	3
	Hours Credit:	17

Fourth Quarter

PCG 662	Group Dynamics and Facilitation	3
PCG 611	Supervised Practice in Guidance Services	3
PCG 614	Supervised Practice in Counseling with Youth and/or Adults	3
	Any non-sequenced elective course	3
	One course is required from Group III*	3
	Comprehensive Examination	
	Hours Credit:	15

*One course is required from each of the following groups: Group I: PCG 530, 633, 634; Group II: PCG 558, 650, 651; Group III: PCG 565, 623; PSY 468.

Elective courses should be selected in consultation with the adviser. A minimum of sixty quarter hours of graduate credit are required.

M.A. IN AGENCY COUNSELING

The following is a suggested sequence of required courses

First Quarter

PCG 607	Principles and Practices of Counseling Theories	5
RSM 504	Descriptive Statistics	3
PCG 530	Human Growth and Development	4
	Any non-sequenced elective course	3
	One course is required from Group I*	3
	Hours Credit:	18

Second Quarter

PCG 612	Introductory Supervised Practicum in Counseling	5
PCG 540	Psychology of Perception and Learning	4
PCG 641	Theories of Learning	4
PCG 670	Psychological Testing and Measurement	4
	One course is required from Group II	3
	Hours Credit:	16

Third Quarter

RSM 600	Introduction to Graduate Study & Research	3
PCG 651	Theories of Personality	3
PCG 692	Internship	4
	Any non-sequenced elective course	3
	One course is required from Group III*	3
	Hours Credit:	16

Fourth Quarter

PCG 558	Abnormal Psychology	3
PCG 662	Group Dynamics & Facilitation	3
	Any non-sequenced courses	9
	Comprehensive Examination	
	Hours Credit:	15

*One course is required from each of the following groups: Group I: PCG 631, 632, 633, 634; Group II: PCG 650, 655, 664; Group III: PCG 565, 623, PSY 468.

Elective courses should be planned in consultation with the adviser. A minimum of sixty quarter hours of graduate credit are required.

M.A. IN EDUCATIONAL PSYCHOLOGY

The M.A. course of study in educational psychology is addressed to the preparation of professional educators who may involve themselves in teaching more effectively, instructing present or future teachers in educational psychology, or in carrying out educational research.

Core Studies:

PCG 600	Research Methodology	3
RSM 504	Descriptive Statistics	3
PCG 541	Principles of Learning	4
PCG 530	Human Growth and Development	4
PCG 660	Systems Analysis and Consultation Theory	3
PCG 570	Tests and Measurements for Educators	4
PCG 640	Psychological Foundations of Education	4
	One course which examines a culture/subgroup other than one's own	3
	A noncredit orientation to educational psychology and graduate study (10 contact hours)	
	Hours Credit:	28
	Required practicum and/or thesis	9-15
	Emphasis area (developed with adviser)	17-23
	Total credit requirement for degree	60

M.A. IN PSYCHOLOGY

The department offers a program of study leading to the M.A. with an emphasis in general psychology. This program is designed for students planning to pursue 1) the teaching of psychology at the junior college or college level, 2) research in psychology, or 3) further graduate study in a more specific area, such as clinical or experimental psychology. Central to each student's program is an individually designed Master's project. This project will allow the student an in-depth investigation of an area of interest while avoiding traditional restrictions of theses format and protocol. The project may involve any of the following: the development of a complete outline for an original college course, a review of the literature related to a given topic, an empirical research study, or a case study.

Required Courses:

PCG 600	Research Methodology	3
RSM 603	Analysis of Variance and Covariance	3
RSM 505	Inferential Statistics	3
PCG 530	Human Growth and Development	4
PCG 641	Theories of Learning	4
PCG 651	Theories of Personality	3

PCG 649	Master's Project in General Psychology (total of six credits required)	3-6
	One course in Minority Understanding, from the following: BLS 350, 380, 495, MAS 304, 306	3
	Hours Credit:	29

Elective Courses

Total required for the M.A. degree 53

It is expected that all students will have completed a course in experimental psychology of research methodology before taking, or concurrent with, RSM 505.

Elective courses strongly recommended include the following: PCG 542, 543, 558, 565, 620, 624 or PSY 480, PCG 650, and 670. Additional electives may be selected from catalog listings. A student's total course of study will be planned in consultation with the adviser. A maximum of 15 quarter hours of 300-400 level courses may be counted toward the degree program.

Specialist in Education Degree**ED.S. IN PSYCHOLOGY, COUNSELING AND GUIDANCE**

Upon entrance, a candidate must be able to satisfy the requirements for an M.A. degree in the specialization sought, or must take additional courses to meet these requirements. Since the purpose of this degree is to prepare one to become a specialist in an area of interest (within the general areas of counseling and educational psychology), there is no common set of course requirements. The program of studies is planned in consultation with the major adviser and supervisory committee. This program requires a minimum of *forty-five* quarter hours of graduate study beyond the appropriate Master's degree.

ED.S. IN SCHOOL PSYCHOLOGY

Completion of the Specialist degree in school psychology requires a minimum of *ninety* quarter hours (usually two academic years) of graduate study. The Master's degree is not required for admission. Undergraduate courses in tests and measurements, abnormal psychology, descriptive statistics, and experimental psychology are prerequisite to the program. Satisfactory completion of this program provides the candidate with the requirements for departmental recommendation for certification in School Psychology in Colorado.

All courses in the following area are required.

Assessment and Intervention

PCG 675	Intelligence Assessment	4
PCG 676	Personality Assessment	4
PCG 677	Educational/Academic Assessment	4
PCG 679	Diagnostic/School Psychology Practicum	4-8
PCG 617	Play Therapy	4
PCG 618	Behavior Modification	4
PCG 612	Introductory Supervised Practice in Counseling	5

The remainder of the program will be comprised of course work in the areas of *Psychological Foundations, Professional Education, and Related Studies*. All candidates for the Ed.S. must also complete

an internship in School Psychology, PCG 789, for 16 credits.

Additional information regarding requirements and opportunities may be obtained from the Coordinator of School Psychology.

Doctor of Education Degree**ED.D. IN COUNSELING PSYCHOLOGY, COUNSELOR EDUCATION, OR PUPIL PERSONNEL ADMINISTRATION**

Doctoral students in these programs are expected to complete the suggested courses listed below in addition to having completed the courses required for the M.A. degree in this area, or must take additional courses to meet these requirements.

Core:

PCG 558	Abnormal Psychology	3
PCG 632	Child Psychology	3
	and/or	
PCG 633	Psychology of Adolescence	3
	and/or	
PCG 634	Psychology of College Students and Other Adults	3
PCG 635	Psychology of Individual Differences	3
PCG 641	Theories of Learning	4
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	4
PCG 799	Doctoral Dissertation	Maximum 18
RSM 505	Statistical Inference	3
RSM 603	Analysis of Variance and Covariance	3

One of the following: BLS 350, 380, 495, MAS 304, 306, PCG 565, PCG 623
Internship (12 hours minimum: PCG 612 is prerequisite).

PCG 713	Internship in Supervision of Guidance Services	Maximum 12
PCG 714	Internship in Supervision of Counseling	Maximum 12
PCG 792	Internship	Maximum 16
PCG 755	Supervised Practicum in College Teaching	Maximum 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 or her individual needs to help him or her develop essential competencies, and to prepare him or her for the particular types of positions he or she plans to take upon graduation. The courses thus selected are as essential to a particular candidate's program as the general requirements listed above.

ED.D. IN EDUCATIONAL PSYCHOLOGY

Upon entrance, a candidate must be able to satisfy the core course requirements for the M.A. degree in educational psychology, or must take additional courses to meet those requirements. The doctoral program in educational psychology has two options: 1) an individually tailored program negotiated between student and major adviser, and 2) a structured program of studies involving a specialization in one of the following areas: learning and instruction, human growth and development, and professional teacher education. For detailed descriptions of these three program emphases write to the Coordinator of Educational Psychology.

ED.D. IN SCHOOL PSYCHOLOGY

The following are the requirements for all students in the Ed.D. program in School Psychology. The following are prerequisites to the program (may be taken at the undergraduate level): descriptive statistics, abnormal psychology, tests and measurements, and experimental psychology.

Psychological Foundations:

PCG 763	Introductory Seminar in School Psychology	3
RSM 505	Statistical Inference	3
PCG 541	Principles of Learning	4
	or	
PCG 641	Theories of Learning	4
PCG 530	Human Growth and Development	4
	or	
PCG 632	Child Psychology	3
PCG 651	Theories of Personality	3
PCG 780	Introduction to Psychological Research	4
PCG 607	Principles and Practices of Counseling Theories	5
RSM 603	Analysis of Variance and Covariance	3
PCG 660	Systems Analysis and Consultation Theory	3
PCG 781	Evaluation of Psychological Services	3
PCG 543	Theories of Motivation	3
	or	
PCG 624	Human Neuropsychology	4
	or	
PSY 481	Comparative Psychology	4
PCG 664	Social Psychology	4
	or	
SOC 610	Seminar in Social Psychology	3
	or	
PCG 665	Community Mental Health	3
	Hours Credit: 40	

Professional Education

PCG 647	Psychological Aspects of Learning Disabilities	3
EDRD 617	Remedial Reading in the Elementary School	4
EDSE 602	Education and Psychology of Exceptional Children	3
	or	
EDSE 704	Trends in Special Education	3
EDAD 520	School Law	3
	or	
EDAD 744	Seminar in Administrative Theory and Research	3
	Minority Understanding: one course from the following list: BLS 350, 380, 495, MAS 304, 306, PCG 565, 623, PSY 468	3
	Hours Credit: 16	

Assessment and Intervention

PCG 675	Intelligence Assessment	4
PCG 676	Personality Assessment	4
PCG 677	Educational/Academic Assessment	4
PCG 679	Diagnostic/School Psychology Practicum	4-8
PCG 617	Play Therapy	4
PCG 618	Behavior Modification	4
PCG 612	Introductory Supervised Practice in Counseling	5
PCG 681	Systems Intervention Practicum	4
PCG 762	Group Dynamics in Human Relations	3
	Hours Credit: 40	

Supervised Field Work

PCG 789	Internship in School Psychology	Maximum 24
	(Three quarters full-time, 8 quarter hours per quarter)	

Dissertation

PCG 799	Doctoral	18
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Related Coursework

The student must select a minimum of 10 credits from the following:

EDSE 610	Sociological and Educational Aspects of Mental Retardation	4
PCG 628	Behavioral Counseling	3
PCG 665	Marriage and Family Therapy	3
PCG 680	Special Populations Practicum	2-4
PCG 758	Advanced Psychopathology	3
PCG 782	Introduction to Rorschach Administration and Scoring	3
	Hours Credit: 10	

Research and Statistical Methodology

Master of Science Degree**Evaluation and Statistics**

This program is designed to offer research expertise for positions in program evaluation units, research and development centers, and agencies involved in educational evaluation. Areas of emphasis are: measurement, applied statistics, and data processing. Due to course sequencing, students are required to begin their M.S. program in Fall Quarter or possibly the preceding summer. The written comprehensive examination is offered only during the first or second week of Summer Quarter.

Admission Requirements

In addition to the minimum admission criteria set by the Graduate School, admission requirements for the department are:

1. Minimum GRE Aptitude total of 1,000 and minimum GRE Quantitative score of 550.
2. Completion of RSM departmental application form.
3. Recommendation of admission by the RSM faculty to the Graduate School after reviewing application.

Degree Requirements

1. A minimum of 45 quarter hours of graduate credit beyond the Bachelor's degree is required.
2. A minimum of 10-18 quarter hours in one or more elective areas.
3. Successful performance on a written comprehensive examination.

4. Thesis (optional).**Required Courses:**

RSM 506	Statistical Inference	3
RSM 542	Computer Programming	3
RSM 600	Introduction to Graduate Study and Research	3
RSM 603	Analysis of Variance and Covariance	3
RSM 613	Introduction to Linear Models	3
RSM 670	Evaluation: Theory and Procedures	3
RSM 672	Seminar in Evaluation	3
RSM 674	Evaluation and Measurement I	3
RSM 675	Evaluation and Measurement II	3
RSM 699	Thesis (optional)	8
	Elective courses	10-18
	Hours Credit: 45	

Doctor of Philosophy Degree**Objectives**

The Ph.D. program is planned to prepare persons for 1) performing or directing applied or institutional research in colleges, universities, public agencies, and research laboratories; and 2) teaching applied statistics, measurement, evaluation and research methods in colleges and universities. Program emphasis is placed upon research methodology, applied statistics, computer processing, and measurement. Research methodology will emphasize the application of analytical techniques to problems in applied areas. Statistical topics considered in detail are: sampling, linear models, factor analysis, complex analysis of variance, multivariate analysis, nonparametric statistics, and time series analysis.

Admission Requirements

In addition to the minimum admission criteria for the doctorate established by the Graduate School, the following are specific admission requirements for the Ph.D. program:

1. Minimum GRE Aptitude total of 1,100 and minimum GRE Quantitative score of 600.
2. Complete RSM Departmental Application Form.
3. Professionally relevant experience.
4. Recommendation of RSM faculty after reviewing application.

A departmental interview is recommended.

General Degree Requirements

A minimum of two years residence is required by the department. Credit hours will be distributed among the following areas:

1. Statistics.
2. Information processing and computer applications.
3. Theory and practices of measurement, evaluation, and research methodology.
4. Research seminars and internship experiences.
5. Elective hours in one or more disciplines.

Due to course sequencing, students are required to begin their Ph.D. program in Fall Quarter or possibly the preceding summer. The written comprehensive examination is offered only during the first or second week of Winter Quarter and is usually taken during the second year of residence.

Degree candidates are required to demonstrate the ability to use two research

tools; knowledge of computers and computer programming will be one of these requirements and is satisfied by taking RSM 542 and RSM 543. The second research tool may be satisfied by one of the following:

1. A basic general reading knowledge of an acceptable foreign language.
2. Twelve hours in Mathematical Statistics.
3. Twelve hours in Research Methods and Philosophy from other disciplines. The election of options 2 or 3 may be satisfied by previous course work taken at an accredited institution or elected in addition to the student's 90-hour program.

Students lacking a background in matrix algebra are required to complete MATH 321 or its equivalent during their first year on campus.

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

Ph.D. Program Description

Candidates for the Ph.D. with a major in RSM complete the common core and supporting area courses. The supporting area is determined through consultation with the student's adviser. These courses may be selected from offerings at the University of Northern Colorado or other academic institutions.

1. Common Core

RSM 506	Statistical Inference	3
RSM 542	Computer Programmng	3
RSM 543	Computers and Information Processing	3
RSM 603	Analysis of Variance and Covariance	3
RSM 604	Advanced Experimental Design	3
RSM 605	Multivariate Analysis of Variance	3
RSM 613	Introduction to Linear Models	3
RSM 623	Nonparametric Statistics	3
RSM 633	Factor Analysis	3
RSM 635	Sampling	3
RSM 675	Evaluation and Measurement II	3
RSM 676	Evaluation and Measurement III	3
RSM 713	Planning and Methodology of Research	3
RSM 742	Seminar I	3
RSM 743	Seminar II	3
RSM 744	Seminar III	3
RSM 799	Doctoral Dissertation	18

2. Supporting Area Courses

Hours Credit: 90

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
SCED 685	Administration and Supervision of Science K-12	4
SCI 676	History of Science	3
SCI 679	Philosophy of Science	3
RSM 505	Statistical Inference	5
SCED 601	Practicum (1-4 hrs.) max.	8 1-8
SCED 622	Individual Studies (1-4) max.	8 1-8
SCED 699	Thesis Electives	8-15 0-3

Supporting Area Requirements:

Minimum 21 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 intelligently to direct a program and help the teachers. His training therefore must be sufficient to make possible intelligent supervision and curriculum planning.

A minimum of 21 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 Science, General Science, Physics (5 hours of mathematics may be included), Physical Science, Zoology, or other appropriate areas as determined by the student and his adviser.

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

(45 quarter hours beyond Master's 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 Science K-14 Curriculum Development in Science K-14 Other areas of specific interest and concern to the student and adviser
SCED 701, Specialist Degree Practicum, 1-8 hrs., is a required course.

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 with 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 or her adviser will develop a program during his or her first quarter on campus. The program will be reviewed by the faculty and upon approval, a faculty adviser 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.

Courses Offered in the Program:

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

Science Education

Master of Arts Degree

Major Requirements:

SCED 673	Seminar in Science Education Research	3
SCED 671	Science Curriculum in the Elementary School	3
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. 12 hrs.)	2-12
RSM 504	Descriptive Statistics	4

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 (2 hrs. min., 12 hrs. max.)	2-12
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 755	Supervised Practicum in College Teaching	1-9
SCED 756	Internship in Supervising College Teaching	3
SCED 777	Evaluation and Testing in Science	3
SCED 799	Doctoral Dissertation	18

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 Dean. Departments, schools, and colleges within the university may request the services of the Dean. Public schools, institutions, and other colleges and universities who desire the services of the school may work with the Dean to develop programs and projects.

Social Sciences

Master of Arts

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 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 or her first quarter in residence.

5. Each student's program is worked out individually in conference with his or her adviser.

6. By permission of the department, a student may submit a thesis as a part of his or her work.

7. A comprehensive examination is given.

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

Sociology

Master of Arts Degree

A concentration in Sociology is offered within the major in Social Sciences. See social sciences, page

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

Special Education and Rehabilitation

The School of Special Education and Rehabilitation offers several majors at the graduate level, including the Master of Arts degree in the following areas: Teaching the Acoustically Handicapped, Mentally Retarded, Multihandicapped, Physically Handicapped,

Socially and Emotionally Disturbed, Learning Disabled, and the Visually Handicapped; and Audiology, Speech/Language Pathology, and Rehabilitation Counseling. The doctorate in Special Education is offered with major emphases in University Teaching or Special Education Administration and in Rehabilitation Counseling.

A campus Special Education School, a cooperative project of the University of Northern Colorado and the Greeley Public Schools provides a laboratory for observation and limited participation. Also included, are speech and hearing facilities and provision for comprehensive evaluation and assessment of exceptional children.

Master of Arts Degree

SPECIAL EDUCATION: AUDIOLOGY

The following is the required program:

EDSE 474	Practicum in Audiology	Maximum 10
EDSE 475	Practicum in Rehabilitative Audiology: Pediatric	Maximum 10
EDSE 476	Practicum in Rehabilitative Audiology: Adult and Geriatric	Maximum 10
EDSE 570	Adult/Geriatric Audiology & Aural (Re)habilitation	3
EDSE 571	Hearing Science	3
EDSE 572	Noise and Noise Control	3
EDSE 573	The Auditory Mechanism	3
EDSE 575	Pediatric Audiology: Etiology & Assessment	3
EDSE 576	Electrophysiological Audiometry	3
EDSE 577	Advanced Problems in Audiology	3
EDSE 578	Pediatric Aural (Re)habilitation	3
EDSE 579	Administrative Aspects of Communication Disorders	3
EDSE 674	Externship in Audiology	Minimum 12
EDSE 675	Differential Diagnosis of Auditory Problems	3
EDSE 678	Hearing Aids & Uses of Amplification	3
ZOO 652	The Central Nervous System and Special Senses	3
EDSE 689	Interpretation and Evaluation of Behavioral Research	3
RSM 600	Introduction to Graduate Study and Research	3

Advisement into Speech/Language Pathology courses and practicum experiences as needed for certification requirements.

For those students desiring to complete certification requirements in School Audiology, and do not have an adequate undergraduate background, the following additional courses are required:

EDSE 302	Counseling Parents of Exceptional Children	3
EDSE 568	Counseling in Communication Disorders	3
EDSE 455	Methods of Teaching Reading to the Hearing Impaired	3
EDSE 457	Curriculum, Speech and Language for the Hearing Impaired	3
EDSE 471	School Audiology	3

The following courses are among those highly recommended as electives:

EDSE 361	Voice Disorders I	3
EDSE 471	School Audiology	3

School of Educational Change and Development

Donald M. Luketich, Dean
Master of Arts
Master of Science
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. SECD is not an external degree program. Admission will be by invitation and based upon the program that an applicant submits and has been approved by the SECD Advisory Board and the student's 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 at the University Bookstore. It contains information

EDSE 565	Language and Related Disorders of Adults	3
EDSE 568	Counseling in Communication Disorders	3
EDSE 571	Psychoacoustics and Auditory Perception	3
RSM 504	Descriptive Statistics	3
EDSE 667	Research in Communication Disorders	3

The Master's Degree Program in Audiology is capped in its enrollment. For information regarding admission procedures, contact the Director of Audiology, Bishop-Lehr Hall No. 147. 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) writing skills; and 4) personal interview (recommended).

Admission to the Graduate School does not guarantee admission to the audiology graduate program. Further, they require separate application procedures. For information regarding admission to the Graduate School, contact the UNC Graduate School. For admission information for the Audiology Program, contact the Director of Audiology, Bishop-Lehr Hall 147. Applications and all supporting materials must be received no later than March 1. The department of Communication Disorders will notify applicants regarding acceptance into the program approximately March 30. Because the training program is sequenced, one-half of the admitted class must begin training during Summer Quarter, and one-half during Fall Quarter immediately following notification of admission.

It is the philosophy of the Area of Audiology that the audiologist should possess knowledge and expertise in both the (re)habilitative and diagnostic aspects of this field. Graduates are, thus better prepared for employment in a variety of settings including the schools. Within that context, the student and his or her 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.

For those students who desire certification through the Colorado State Department of Education as a School Audiologist, additional requirements may have to be met.

The above 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 or her 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 in audiology, 150 of which must be obtained at the graduate level. The Clinical externship will be initiated only after the student has had experience dealing with a wide range of

clients from infancy to the elderly in both the diagnostic and (re)habilitative aspects of audiology, and their practical expertise has been assessed by the Audiology faculty.

SPECIAL EDUCATION: SPEECH/LANGUAGE PATHOLOGY

The following is the required program:

EDSE 561	Voice Disorders II	3
EDSE 563	Clinical Supervision in Speech/Language Pathology	3
EDSE 564	Advanced Practicum in Speech/Language Pathology	6
EDSE 565	Aphasia and Related Disorders of Adults	3
EDSE 566	Clinical Writing in Speech/Language Pathology	3
EDSE 568	Counseling in Communication Disorders	3
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/Language Pathology	15
EDSE 666	Cleft Palate	3
RSM 600	Introduction to Graduate Study and Research	3

The student and his or her adviser shall select courses to complete a minimum of 45 quarter hours in academic courses and 21 quarter hours in practicum courses. Students' programs must consist of courses and practicum experiences which will allow them to meet American Speech and Hearing Association Certification Standards. These are minimum requirements and assume an adequate undergraduate background in Speech/Language 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/Language 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; 75 hours with language impaired persons; 50 hours of diagnosis of speech/language disorders; and 35 hours in audiological assessment and aural rehabilitation. All eligible graduate speech/language pathology majors whether full or part-time, are required to register for EDSE 564 during each quarter. Students who complete the master's degree are eligible for the Type E certification from the Colorado Department of Education.

The following courses are highly recommended as electives:

EDSE 575	Pediatric Audiology: Etiology and Assessment	3
EDSE 577	The Psychology and Rehabilitation of the Acoustically Handicapped	3
EDSE 604	Principles and Practices of Measurement of the Handicapped	3

EDSE 605	Appraisal of Exceptional Children	4
EDSE 667	Research in Communication Disorders	3
EDSE 668	Seminar in Speech/Language Pathology	Maximum 15
PCG 624	Human Neuropsychology	4
PCG 647	Learning Disabilities: Diagnosis and Remediation	3
EDEC 648	Psycholinguistics in Early Childhood	3
ZOO 652	The Central Nervous System and Special Senses	3

The Master's Degree program in Speech/Language Pathology is limited in its enrollment in order to provide students with individual attention in both academic and clinical training. For information regarding admission procedures, contact the Director of Speech/Language Pathology, Bishop-Lehr Hall 147. Students applying to the program will be selected according to the following criteria: 1) promise of academic achievement; 2) a minimum of two (2) letters of recommendation; 3) goals of the student in relation to the needs in the field; and 4) personal interview, if possible. Admission by the Graduate School is a minimal requirement for admission to the Speech/Language Pathology program and does not guarantee admission to the program.

Applications and all supporting materials must be received by our office no later than March 1. Each year a great many students are disappointed because their materials are received too late for processing since applications must be processed by the Graduate Office before they are sent to our department. Prospective students are therefore advised to begin application procedures in the fall. The Department of Communication Disorders will notify applicants regarding acceptance into the program around April 1.

Because the training program is sequenced, students must plan to begin their training either Summer or Fall Quarter following notification of admission. Approximately one-half of the students admitted must begin their training Summer Quarter, and the other half must begin Fall Quarter. Although an attempt is made to admit students for the quarter (Summer or Fall) requested, it might be necessary to begin during the other quarter.

SPECIAL EDUCATION: TEACHING THE ACOUSTICALLY HANDICAPPED

The following is the required program:

EDSE 575	Pediatric Audiology: Etiology and Assessment	3
EDSE 578	Pediatric Aural (Re)habilitation	3
EDSE 605	Appraisal of Exceptional Children	4
EDSE 606	Practicum in Appraising Exceptional Children	4
EDSE 626	Behavior Management in the Classroom	3
EDSE 650	Advanced Problems in Teaching the Acoustically Handicapped	3
EDSE 654	Practicum with the Acoustically Handicapped	15
EDSE 667	Seminar in Speech and Hearing Science	3
EDSE 690	Counseling the Handicapped	3
RSM 600	Introduction to Graduate Study and Research	3

The University of Northern Colorado offers a continual five-year program which includes a Bachelor of Arts in Early Childhood, Elementary or Secondary Education, and a Master of Arts Degree in the area of the Acoustically Handicapped. This program is designed to meet the needs of the Colorado State Department of Education and the Council on Education for the Deaf. The Bachelor of Arts degree is developed during the first four years of the program. Please refer to the undergraduate catalog for further description of the undergraduate program.

Due to the large number of students desiring admission to the UNC graduate program, the Department of Communication Disorders is finding it necessary to restrict enrollment so that our faculty can provide to the student the individual attention so necessary for training in this field. The Acoustically Handicapped area is limiting enrollment to 12-15 full-time graduate students.

Typically, the duration of the program should be three to four quarters for a graduate of the University of Northern Colorado undergraduate program. This period of time in the Program includes a one quarter of full-time internship public residential or day-school program in the Colorado area.

The admission requirements for the M.A. Degree Program are:

1. Admission to the Graduate School, University of Northern Colorado is a minimum requirement for application to this program.

2. The applicant must successfully complete B.A. level requirements in Elementary or Secondary Education equivalent to those of the University of Northern Colorado.

3. Graduate record examination scores are strongly recommended.

The student must also complete the following:

1. Write a letter of intent stating your future goals as a teacher of the hearing impaired. State your major area of interest (pre-school, elementary or secondary). Enclose this letter with your application.

2. Two letters of recommendation from professors in your undergraduate program of study are required. Letters must come from professors in your major field of study, not necessarily the acoustically handicapped. It is necessary that these letters be received within the same time period as the arrival of your application. Your application cannot be acted upon until these letters are received. Letters of recommendation should be sent to: Director of Acoustically Handicapped, Department of Communication Disorders; School of Special Education and Rehabilitation, Michener Library L-139, University of Northern Colorado, Greeley, Colorado 80639.

3. Enclose a copy of your experience and observation hours accumulated during your undergraduate work and/or on the job. All forms must be signed by the supervisor for each experience, if possible.

The retention requirements in the M.A. degree program in Acoustically Handicapped are:

1. Maintain a 3.0 GPA for retention in the UNC Graduate School and the Program in Acoustically Handicapped.

2. Satisfactorily complete pre-professional responsibilities as listed in the Acoustically Handicapped Handbook.

3. Satisfactorily complete the Oral/Practical Examination to be taken the quarter prior to the internship.

4. Satisfactorily complete the written comprehension examination to be completed the quarter prior to the internship.

5. Submit the first day of classes each quarter the "grade report" from the previous quarter to be placed in the student's file.

6. At the end of each quarter of the program, the student's progress is considered by the faculty admissions committee. Accomplishments in theory and practice, relationship with students and towards others, and general development are considered. The Acoustically Handicapped faculty reserve the right to place on probation, or require withdrawal from the program any student who, in their professional judgment, fails to satisfy the requirements of scholarship, performance or personal suitability.

SPECIAL EDUCATION: TEACHING MENTALLY RETARDED CHILDREN

The following is the required program:

EDSE 412	Curriculum Development and Methodology for the Mentally Retarded: Elementary Level	4
EDSE 562	Speech and Language Disorders for the Special Educator	3
EDSE 602	Education and Psychology of the Exceptional Child	3
EDSE 604	Principles and Practices of Measurement of the Handicapped	3
EDSE 605	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	Psychology Aspects of Mental Retardation	4
EDSE 612	Advanced Curriculum for the Mentally Retarded	4
EDSE 614	Practicum with the Mentally Retarded	Maximum 15
EDSE 626	Behavior Management in the Classroom	3
EDSE 689	Interpretation and Evaluation of Behavioral Research	3
RSM 600	Introduction to Graduate Study and Research	3

Elective Courses

EDSE 302	Counseling Parents of Exceptional Children	3
EDSE 311	Education of Trainable Mentally Retarded	4
EDSE 312	Seminar: Teaching the TMR	2
EDSE 330	Care and Pathology of the Physically Handicapped	3
EDSE 350	Pathology and Introduction to Education of Hearing Impaired	3
EDSE 413	Curriculum Development and Methodology for the Mentally Retarded: Secondary Level	4
EDSE 414	Problems in Teaching Trainable Mentally Retarded Children	4
EDSE 415	Vocational Training for TMRs	4

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
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 414	Music for Children with Learning Disabilities	3
VTE 610	Foundations of Vocational Education — Advanced Seminar	3
VTE 612	Programs and Processes in Vocational Education	4
VTE 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 330	Care and Pathology of the Physically Handicapped	3
EDSE 331	Problems of Teaching the Physically Handicapped	3
EDSE 562	Speech and Language Disorders for the Special Educator	3
EDSE 602	Education and Psychology of the Exceptional Child	3
EDSE 604	Principles and Practices of Measurement of the Handicapped	3
EDSE 609	Basic Concepts of Mental Retardation	4
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
RSM 600	Introduction to Graduate Study and Research	3

Elective Courses (*Strongly Recommended)

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 404	The Resource Program Teacher	3
EDSE 603	Administration and Supervision of Special Education	3
EDSE 605	Appraisal of Exceptional Children*	4
EDSE 626	Behavior Management in the Classroom	3
EDSE 693	Medical Aspects of Disabilities	3

EDRD 612 Reading in the Primary Grades	3
or	
EDRD 613 Reading in the Intermediate Grades	3
HPER 369 Therapeutic Recreation	3
HPER 432 Adapted Physical Education	3
FA 629 Art for the Exceptional Child	3

Total Program: 45 quarter hours minimum. When a student enters the Master of Arts program without teacher certification, he/she is required to add to the program course requirements listed under Professional Teacher Education, plus three methods courses.

SPECIAL EDUCATION: TEACHING SOCIALLY AND EMOTIONALLY DISTURBED CHILDREN

Students applying for admission to the Master's program in ED will be selected according to the following criteria:

1. Two years of teaching experience or its equivalent.
2. A grade average of 2.70 or above on the most recent 100 quarter hours of A, B, C, D, F grades.
3. A minimum of two letters of recommendation from previous employers.
4. A statement of philosophy and goals of the applicant in relationship to the needs in the field.
5. A personal interview, if possible.

Acceptance or rejection of an applicant will be made after an evaluation of the above criteria.

The Master's program in E.D. is a four-quarter program for students who are fully certified in some area of education. For students holding non-teaching degrees in a related area without teacher certification (e.g., psychology), an additional two quarters will be required which will include basic certification requirements and related field experiences.

EDSE 625 Practicum with the Socially and Emotionally Disturbed (final quarter of the program) must be applied for within the first two weeks of the quarter previous to the quarter in which the student plans to do his or her practicum. (Exception: Application for fall quarter practicum must be made during the previous Spring.)

Students who are required to take a 10-15 hour practicum will not be able to complete their final quarter (practicum) during the Summer Quarter.

Evaluation of the student's professional potential will be an on-going process throughout the program. Continuation in the program will be based on multiple criteria such as: faculty interview, professional recommendations, recommendations of the adviser, and other departmental faculty, academic ethics and potential for teaching E.D. children. The multiple criteria approach does not assume that each of these factors carry equal weight; any one factor might well outweigh all others.

The following is a required program:

EDSE 320 Introduction to the Education of Socially and Emotionally Disturbed Children	3
EDSE 326 Introduction to Teaching Learning Disabled Children	3
EDSE 421 Introduction to Classroom Management*	2

EDSE 523 Language Development and Disorders in Emotionally Disturbed and Learning Disabled Children	3
EDSE 602 Education and Psychology of Exceptional Children*	3
EDSE 604 Principles and Practices of Measurement of the Handicapped	3
EDSE 605 Appraisal of Exceptional Children	4
EDSE 606 Practicum in Appraising Exceptional Children	4
EDSE 609 Basic Concepts of Mental Retardation	4
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	Maximum 15
EDSE 626 Behavior Management in the Classroom	3
EDSE 689 Interpretation and Evaluation of Behavioral Research	3
or	
RSM 600 Introduction to Graduate Study and Research	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
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 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	3
PCG 507 Counseling Theories	5
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 655 Mental Hygiene	3
MUS 414 Music for Children with Learning Disabilities	3
SOC 415 The Sociology of Child Development	3
SOC 645 Seminar in the Sociology of Mental Health and Illness*	3

Total Program: 45 quarter hours minimum.

SPECIAL EDUCATION: LEARNING DISABILITIES

Students applying for admission to the Master's program in L.D. will be selected according to the following criteria:

1. Two years of teaching experience or its equivalent.
 2. A grade average of 2.70 or above on the most recent 100 quarter hours of A, B, C, D, F grades.
 3. A minimum of two letters of recommendation from previous employers.
 4. A statement of philosophy and goals of the applicant in relationship to the needs in the field.
 5. A personal interview, if possible.
- Acceptance or rejection of an applicant will be made after an evaluation of the above criteria.

The Master's program in L.D. is a four-quarter program for students who are fully certified in some area of education. For students holding non-teaching degrees in a related area without teacher certification (e.g., psychology), an additional two quarters will be required which will include basic certification requirements and related field experiences.

EDSE 629 Practicum with Learning Disabled Children (final quarter of the program) must be applied for within the first two weeks of the quarter previous to the quarter in which the student plans to do this practicum. (Exception: Application for Fall Quarter practicum must be made during the previous Spring.) Students who are required to take a 10-15 hour practicum will not be able to complete their final quarter (practicum) during the Summer Quarter.

Evaluation of the student's professional potential will be on an on-going process throughout the program. Continuation in the program will be based on multiple criteria such as: faculty interview, professional recommendations, recommendations of the adviser and other departmental faculty, academic ethics and potential for teaching L.D. children. The multiple criteria approach does not assume that each of these factors carry equal weight; any one factor might well outweigh all others.

The following is the required program:

EDSE 320 Introduction to the Education of Socially and Emotionally Disturbed Children	3
EDSE 326 Introduction to Teaching Learning Disabled Children	3
EDSE 421 Introduction to Classroom Management*	2
EDSE 523 Language Development and Disorders in Emotionally Disturbed and Learning Disabled Children	3
EDSE 602 Education and Psychology of Exceptional Children*	3
EDSE 604 Principles and Practices of Measurement of the Handicapped	3
EDSE 605 Appraisal of Exceptional Children	4
EDSE 606 Practicum in Appraising Exceptional Children	4
EDSE 609 Basic Concepts of Mental Retardation	4
EDSE 626 Behavior Management in the Classroom	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	Maximum 15

EDSE 689	Interpretation and Evaluation of Behavioral Research	3
RSM 600	Introduction to Graduate Study and Research	3
EDEL 620	Mathematics in the Elementary School	3
EDRD 612	Reading in the Primary Grades*	3
EDRD 613	Reading in the Intermediate Grades*	3
EDRD 617	Remedial Reading in the Elementary School	4
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.

Elective Courses (*Strongly Recommended)

EDSE 302	Counseling Parents of Exceptional Children	3
EDSE 404	The Resource Program Teacher	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 624	Human Neuropsychology	4
PCG 632	Child Psychology*	3
PCG 635	Psychology of Individual Differences*	3
PCG 641	Theories of Learning*	5
MUS 414	Music for Children with Learning Disabilities	3
SOC 415	The Sociology of Child Development	3

Total Program: 45 hours minimum.

SPECIAL EDUCATION: TEACHING THE VISUALLY HANDICAPPED

Students entering the Master's Program in V.H. will be selected according to the following criteria: 1) GPA of 2.7 or better in the last 100 hours of undergraduate course work, 2) Teaching certificate in any area. (Students without teacher certification may complete work in any field at UNC prior to entering the V.H. program), 3) Work experience appropriate to the area is desirable, 4) Promise of academic achievement, 5) References.

For the Basic Degree in Education of Visually Handicapped the following is the required program: (Four quarter - 60 hour minimum). Students may enter either summer, fall or spring quarters.

Generic Requirements (Four courses required):

EDSE 689	Interpretation and Evaluation of Behavior Research	3
RSM 600	Introduction to Graduate Study and Research	3
PCG 600	Introduction to Graduate Study and Research	3
EDSE 604	Principles and Practices of Measurement of the Handicapped (Section for V.H. Majors)	3

EDSE 602	Education and Psychology of Exceptional Children	3
EDSE 302	Counseling Parents of Exceptional Children	3
EDSE 690	Counseling the Handicapped	3
EDSE 692	Psychological Aspects of a Disability	3
VISUALLY HANDICAPPED REQUIREMENTS:		
EDSE 440	Survey of Education of Visually Handicapped (or equivalent)*	3
EDSE 443	Teaching Daily Living for the Visually Handicapped	2
EDSE 540	Introduction to the Severely/Profoundly Handicapped Blind	3
EDSE 503	The Multihandicapped	3
EDSE 543	Braille and Other Communication Skills for V.H.I.*	3
EDSE 544	Media and Methods for V.H.I.*	3
EDSE 545	Media and Methods for V.H.II.*	3
EDSE 546	Principles of Orientation and Mobility for V.H.*	3
EDSE 591	Community Resources for Rehabilitation, Guidance, and Counseling	3
EDSE 641	Structure and Function of the Eye*	3
EDSE 642	Low Vision and Its Educational Implications*	3
EDSE 643	Braille and Other Communication Skills II*	3
EDSE 644	Practicum with Visually Handicapped**	Maximum 15

*Courses required to obtain an endorsement to teach V.H. children. Students may elect not to enroll in a M.A. degree program but simply seek an endorsement to teach V.H. children. (30 hour minimum including 6 hour practicum. Must maintain 3.0 grade point average.)

**Practicum sites are often located elsewhere than in Greeley. Students are responsible for providing their own transportation.

Electives (or any other courses, with adviser approval):

EDSE 320	Introduction to Education of Socially and Emotionally Disturbed Children	3
EDSE 326	Introduction to Teaching Learning Disabled Children	3
EDSE 330	Care and Pathology of the Physically Handicapped	3
EDSE 350	Pathology and Introduction to Education of the Hearing Impaired	3
EDSE 441	Listening Skills for Learning	3
EDSE 503	The Multihandicapped	3
EDSE 505	Curriculum for the Multihandicapped	3
EDSE 562	Speech and Language Disorders for the Special Educator	3
EDSE 590	Introduction to Vocational Rehabilitation Counseling	3
EDSE 603	Supervision and Administration of Special Education	3
EDSE 609	Basic Concepts of Mental Retardation	4
EDSE 626	Behavior Management in Classroom	3
EDSE 645	Optacon for Teachers of Visually Handicapped	3

Additional Areas of Emphasis

With special departmental application and

departmental consent, students may elect an additional area of emphasis either in orientation and mobility or in S.P.H.B. (One extra quarter required). With special department consent both areas of emphasis can be acquired through a six-quarter, 90-hour program.

Students may not enroll in either the Orientation and Mobility Program or the Severely and Profoundly Handicapped Blind until they have been approved by the Departmental Admissions Committee.

ORIENTATION AND MOBILITY

Requirements:

Students earning certification in orientation and mobility through the American Association of Workers for the Blind must complete the following additional requirements. Students must enter Fall or Spring Quarters. (Total program, 5 quarters, 75 hours minimum.)

EDSE 547	Independence in Orientation and Mobility	3
EDSE 548	Advanced Independence in Orientation and Mobility	3
EDSE 647	Methodology in Orientation and Mobility	2
EDSE 648	Practicum with Visually Handicapped Orientation and Mobility**	12

**Practicum sites are often located elsewhere than in Greeley. Students are responsible for providing their own transportation.

SEVERELY AND PROFOUNDLY HANDICAPPED BLIND

EDSE 540	Introduction to the Severely/Profoundly Handicapped Blind	3
EDSE 541	Early Developmental Needs of Severely/Profoundly Handicapped Blind	3
EDSE 542	Meeting Educational Needs of Severely/Profoundly Handicapped Blind Child	3
EDSE 605	Appraisal of Exceptional Children (section for VH majors)	4
EDSE 644	Practicum in (SPHB) Visually Handicapped**	6-12
One additional course required for SPHB majors		

**Practicum sites are often located elsewhere than in Greeley. Students are responsible for providing their own transportation.

SPECIAL EDUCATION: MULTIHANDICAPPED

The following is the required program:

EDSE 503	The Multihandicapped	3
EDSE 504	Practicum with the Multihandicapped	Maximum 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	Introduction to the Severely/Profoundly Handicapped Blind	1
EDSE 550	Low Functioning Acoustically Handicapped	1
Elective Courses		19

Total Program: 45 quarter hours minimum. Students will be required to be certified

and/or endorsed in a minimum of two emphasis areas from the following:
 Physically Handicapped
 Mental Retardation (EMR or TMR)
 Emotionally Disturbed
 Acoustically Handicapped
 Visually Handicapped
 Learning Disabilities

These endorsement areas are in addition to the multihandicapped courses and will be planned with an adviser in that speciality. If the student enters the program with a major or endorsement in some area of special education, then only one additional endorsement is required.

Concentration 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 (or the program must be completed while working on the Multihandicapped degree or certification), 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 90 quarter hours) (no teaching certificate required for admission) (no teaching certificate available upon graduation)

The following program is required. The student's adviser, however, has the prerogative of waiving or adding specific requirements on the basis of the student's previous work experience, education, and professional goals.

EDSE 590	Introduction to Rehabilitation Counseling	
EDSE 591	Community Resources for Rehabilitation, Guidance, and Counseling	3
EDSE 592	Vocational Placement and Adjustment of the Severely Disabled in Rehabilitation	4
EDSE 607	Special Problems in Diagnosis and Evaluation of the Handicapped	4
EDSE 609	Basic Concepts of Mental Retardation	4
EDSE 689	Interpretation and Evaluation of Behavioral Research	3
EDSE 690	Counseling the Handicapped	3
EDSE 691	Practicum: 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	3
	Maximum 16	
EDSE 695	Seminar in Rehabilitation: Individualized Written Rehabilitation Program Development	3
EDSE 696	Seminar in Rehabilitation: Professional Problems	3
EDSE 697	Seminar: Administration and Supervision of Vocational Rehabilitation Programs	3

PCG 507	Counseling Theories	3
PCG 558	Abnormal Psychology	3
PCG 604	Occupational Information and Analysis in Vocational Guidance (include GATB practicum)	5
PCG 612	Introductory Supervised Practice in Counseling	6
PCG 623	Understanding and Counseling Minorities	3
PCG 651	Theories of Personality	3

Specific generic courses in the areas of blind and deaf will be required by the adviser (2-6 hours).

Recommended Electives:

EDSE 330	Care and Pathology of the Physically Handicapped	3
EDSE 350	Pathology and Introduction to Education of 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 440	Survey of Education of the Visually Handicapped	3
EDSE 593	Introduction to Correctional Rehabilitation	3
EDSE 594	Practicum in Correctional Rehabilitation	3
EDSE 595	Seminar: Psychiatric Rehabilitation	3
EDSE 596	Seminar: Rehabilitation of the Alcohol and Drug Abuser	3
EDSE 611	Psychological Aspects of Mental Retardation	4
PCG 565	Psychology of Prejudice	3
PCG 602	Foundations of Guidance	3
PCG 650	Psychology of the Healthy Personality	3
PCG 655	Community Mental Health	3
PCG 673	Individual Tests of Intelligence	3
PCG 675	Individual Intelligence Testing: Wechsler Scales	4

Post-Master's 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 Director of the School 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. This program is not available in all departments.

Doctor of Education Degree in Special Education

Admission to the doctoral program is

dependent upon meeting graduate school admission standards and a positive recommendation by the School to Special Education and Rehabilitation doctoral review committee.

When a prospective student has met general university requirements for admission, his or her application is submitted to the School of Special Education and Rehabilitation for evaluation. Additional information and materials which attend to criteria established by the School of Special Education and Rehabilitation usually are required and requested from the prospective student.

The committee reviews each application for admission to determine evidence of:

1. Potential for scholarship.
2. Relevant previous formal training at the undergraduate and/or graduate level.
3. Evidence of successful teaching or clinical experience with the handicapped (minimum of two years).
4. Potential for leadership.
5. Professional commitment.
6. Clarity and rationality of professional and personal goals.
7. Potential for conceptualization and reporting research.

Each applicant must receive a positive recommendation from a majority of the doctoral review committee members to be recommended for admission to the graduate school.

Each student, upon admission to the doctoral program will be assigned an adviser within the School of Special Education and Rehabilitation. In consultation with this adviser, he or she 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 for 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. If the board is concerned with elements of such plan, it will make recommendations for revisions or additions. Enrollment in third quarter courses of the doctoral program without an approved program may lead to the inclusion of courses which will not be ultimately approved as a part of the doctoral plan.

The Ed.D. in Special Education is a flexible doctoral program with provision for major emphases 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 emphases 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.)

EDSE 605 Appraisal of Exceptional Children	4
EDSE 702 Research Seminar in Special Education and Rehabilitation	3
EDSE 703 Problems Seminar in Special Education and Rehabilitation	3-12
EDSE 704 Trends in Special Education (The student is required to take a total of at least 18 hours in EDSE 703 and EDSE 704 combined)	3-12
RSM (Selected courses in Statistics as appropriate to the student's background)	Minimum 9
EDSE 799 Doctoral Dissertation	18
Total Required Hours	52

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	Minimum 4
EDSE 705 Internship in Special Education (Supervision for Student Teachers)	Minimum 4
Total Required Hours	8

Required for Special Education Administration Emphasis:

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

Required for Special Education Visually Handicapped Emphasis

Candidates emphasizing Education of Visually Handicapped are required to take EDSE 741 Seminar in Visually Handicapped. This course also serves those students in Special Education Administration.

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, visually handicapped, etc.).
4. Emphasis in education of minority, ethnic, and cultural groups.
5. Emphasis in research.
6. Emphasis in curriculum development.
7. Emphasis in appraisal/interpretational/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.

The following program is required. The student's adviser, however, has the prerogative of waiving or adding specific requirements on the basis of the student's previous work experience, education, and professional goals.

EDSE 595 Seminar: Psychiatric Rehabilitation	3
EDSE 596 Seminar: Rehabilitation of the Alcohol and Drug Abuser	3
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 702 Research Seminar in Special Education and Rehabilitation	3
EDSE 703 Problems Seminar in Special Education and Rehabilitation	6
EDSE 704 Trends in Special Education and Rehabilitation	3
EDSE 755 Supervised Practicum in College Teaching	Maximum 9
EDSE 756 Internship in Supervising College Teaching	3
EDSE 790 MDWES: Introduction to Human Neuropsychological Assessment	4
EDSE 794 Advanced Practicum	Maximum 8
EDSE 799 Doctoral Dissertation	18
PCG 541 Principles of Learning	4
PCG 671 Aptitude and Achievement Analysis	5
PCG 712 Analysis of the Individual	3
PCG 762 Group Dynamics in Human Relations	4
RSM 505 Statistical Inference	3
RSM 603 Analysis of Variance and Covariance	3
RSM 613 Introduction to Linear Methods	3
RSM 700 Introduction to Doctoral Research	3

Recommended Electives:

EDSE 592 Vocational Placement and Adjustment of the Severely Disabled in Rehabilitation	4
EDSE 593 Introduction to Correctional Rehabilitation	3
EDSE 594 Practicum in Correctional Rehabilitation	3
EDSE 692 Psychological Aspects of Disability	3

EDSE 695 Seminar in Rehabilitation: Individualized Written Rehabilitation Program Development	3
PCG 525 Clinical Applications of Biofeedback	3
PCG 526 Principles of Biofeedback Control	3
PCG 543 Theories of Motivation	3
PCG 558 Abnormal Psychology	3
PCG 624 Human Neuropsychology	4
PCG 628 Behavioral Counseling	3
PCG 651 Theories of Personality	3
PCG 664 Social Psychology	4
PCG 665 Marriage and Family Therapy	3
PCG 675 Intelligence Assessment	4
PCG 676 Personality Assessment	4
RSM 543 Computer and Information Processes	3
RSM 623 Nonparametric Statistics	3
RSM 633 Factor Analysis	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 the 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:

THEA 600 Introduction to Graduate Study	3
THEA 505, 506, 507, 508 Graduate Individual Performance in Theatre	6
THEA 610 Seminar in Technical Theatre (Maximum 9 hours)	3}
THEA 630 Seminar in Theatre History (maximum 9 hours)	3}
THEA 650, 651, 652 Graduate Summer Theatre 1, 2, 3 (maximum 24 hours)	8} 21
THEA 685 Seminar in Educational Theatre (maximum 9 hours)	3}
Electives	15
Hours Credit:	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 of credit 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.

General Tryouts. The Department of Theatre Arts conducts general tryouts the first week of Fall Quarter each year. The fall productions are cast from these tryouts and the entire faculty assess the progress of students in acting at this time. Each tryout will consist of two short contrasting speeches (two minutes each), which are memorized and performed. If musical material is used, the sheet music and accompanist must be provided. For an assessment of your acting abilities, make individual appointments with the member of the faculty from whom you wish to receive an evaluation.

Vocational Teacher Education

Robert F. Barnes, Director

Through graduate studies and in-service education, the Department provides services consistent with the professional needs of the department chairperson, teacher, guidance, and support personnel. The offerings are organized around competency modules and units delivered through courses which have been grouped according to: 1) Basic Core Requirements, 2) Program Leadership

Seminars, and 3) Professional Development Experiences.

The Basic Core is a nine-hour series divided into three concentrated courses: VTE 610, 612, 616. The VTE 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 develop personnel for leadership roles in conceptualizing, planning, designing, developing, implementing, and evaluating comprehensive vocational education systems at the secondary and post-secondary/adult levels with emphasis upon four synergistic sub-systems: Curriculum & Instruction, Guidance, Support Services, and Management. To enter the leadership seminars individuals are required to have successfully completed VTE 616.

Students are asked to take the seminars, if at all possible, according to the proposed sequence: VTE 623, 624, 625, 626, and 627.

The seminars are designed to be linked to a variety of graduate degree plans. This reflects a philosophy that encourages students not only to engage in professional development for self-renewal and career mobility but to become instruments for change and improvement of vocational education.

Students taking a "content area" in Vocational Teacher Education through the Department of Curriculum and Instruction will be expected to demonstrate the identified leadership competencies. The Basic Core and the Program Leadership Seminars may be elected as a "supporting area" to other graduate degree programs in the College of Education, the School of the Arts, and the School of Business.

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 (VIP). For further information examine the following course descriptions: VTE 627, 690, 691, and 696.

Other Areas of Emphasis are related to Community/Adult/Manpower (VTE 630 and VTE 631); and Career Guidance (PCG 615, 616, and 619).

Individuals interested in the graduate program at UNC should contact Dr. Louise J. Keller, Coordinator of Graduate Vocational Teacher Education, McKee Hall of Education, College of Education, University of Northern Colorado, Greeley, CO 80639.

Health Occupations — Vocational Teacher Education

Advanced Credentialing Program

An advanced credentialing program for Health Occupations teachers is offered by Vocational Teacher Education and serves as an integral part of Health Occupations Vocational Teacher Education. Please refer to page 104 for further description and a list of approved courses.

Graduate Courses

The Health Occupations Education Course

offerings include: VTE 500, 506, and 507 along with many special workshops and seminars for health occupations personnel. Individuals interested in planning a component part of a graduate program including health occupations should contact Dr. Dora Johnson, Coordinator, Health Occupations, Carter Hall, 5th Level, along with the Coordinator of Graduate Vocational Teacher Education.

Zoology

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

Master of Arts Program

Minimal Requirements:

BIO 691	Seminar in Biological Sciences	1
BIO 692	Special Topics in Biology	2
BIO 694	Foundations of Biological Research (Substitute for ID 600. Should be taken as soon as possible after beginning of graduate program)	3
BIO 697	Graduate Research*	2
	Electives (as approved by student's adviser)	42
	Minimum Program	50

*BIO 697 is waived if the student elects to complete a thesis (ZOO 699). Fifteen hours of thesis credit may be applied to the elective credit hours.





Course Descriptions

Anthropology

ANT 537. Seminar in Cultural Anthropology. (3-9). Prerequisite, 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 (2-8). 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. (3-9). Prerequisite, 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. (3-9). Prerequisite, two courses in archaeology of a particular geographical area, or chronological period, or specific artifactual materials. Subjects to be selected in terms of current student interest.

ANT 577. Seminar in Physical Anthropology. (3-9). Prerequisites, two courses in physical anthropology, or permission of 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. (3). 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. (3). 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. (4 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. (12 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 the instructor.

ANT 681. Research Methods in Anthropology. (4). 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. (1-4). 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. (4

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.

Business Teacher Education

BEVE 566. Development of Distributive Education Instructional Materials. (2). Course offers 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. (1-4). Workshops are designed for intensive study of current business education topics. Not more than 9 quarter hours may be applied to any one degree.

BEVE 581. Workshop in Distributive Education. (1-4). An intensive course designed primarily for distributive education coordinators. Not more than 9 quarter hours may be applied to any one degree.

BEVE 601. Practicum in Business Teaching. (1-6). Supervised practical application of previously studied theory with consent of adviser.

BEVE 622. Individual Studies in Business Teaching. (1-4). 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.

BEVE 651. Principles and Strategies in Business Teaching. (2). Study of the concepts of business education and an analysis of the instructional strategies currently utilized.

BEVE 653. Improvement of Instruction in Bookkeeping/Accounting and Basic Business. (3). Course is designed primarily for those who have had experience teaching accounting and basic business; content, competency-based instruction, teaching techniques, grading procedures, and other issues selected by the members of the class will be included.

BEVE 655. Improvement of Instruction in Distributive Education. (3). Important procedures and effective techniques used in teaching high school cooperative classes in the distributive occupations and in evening classes for employment sales and supervisory personnel.

BEVE 657. Improvement of Instruction in Office Skills. (3). Course is designed primarily for those who have had experience teaching shorthand, typewriting, office practice and/or the coop related class. Identification of teaching trends, current practices in curriculum development, and the development of learning activities are the focus of the course.

BEVE 665. Post-Secondary Programs in Business. (3). 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 Program. (3). Emphasis will be placed upon the personal and professional requirements as well as the role and responsibilities of individuals preparing for leadership positions in business education. Budgeting, equipment selection, state vocational procedures, and management functions and leadership styles will also be included.

BEVE 671. Tests and Measurements in Business Courses. (3). Prerequisite, BUS 291. 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 competency-based testing and evaluations, evaluative criteria, norm referenced and criterion referenced tests.

BEVE 672. Curriculum Construction for Business Teachers. (3). A review of the overall program for business education to examine the scope and sequence of the curricula. Developmental procedures, curriculum trends, and the practical application of the principles involved. Principles and procedures of curriculum design trends, and the development of course content will be emphasized.

BEVE 674. Cooperative Techniques in Business Teaching. (2). The aim of the course is to define cooperative programs in office and distributive 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 675. Seminar in Distributive Education. (1-4). Prerequisite, consent of instructor. Selected topics studied in-depth. Emphasis on theoretical bases and practical applications.

BEVE 701. Seminar in Analysis of Research in Business Teaching. (1). To be taken each quarter in residence — a minimum of three one-hour seminar credits required. Prerequisite, RSM 505. Critical analysis of research in business teaching emphasizing research techniques and methodologies, review of literature, determining needed research, and evaluation of research.

BEVE 702. Issues and Trends in Business Teaching. (3). Seminar 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. (3). Course 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. (3). 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.

Biology

BIO 502. Environmental Conservation. (4). (3 lecture, 2 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 402.

BIO 505. Special Topics in Biology. (4, maximum 12). (2 lecture, 4 laboratory). Advanced studies in the areas of microbiology, cell biology, or genetics.

BIO 506. Radiation Biology. (3). Prerequisites, BIO 103, recommended CHEM 281 and PHYS 150. 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. (1-10). This course will be concerned with various topics of biological interest. The topic will depend on the instructor conducting the workshop. Each workshop will have a subtitle and no subtitle may be repeated for credit.

BIO 531. Human Genetics and Social Issues. (3). Prerequisite, BIO 231. 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. (5). (4 lecture, 3 laboratory). 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. (3). Prerequisite, BIO 336 or 231. The current concepts, evidence of species will be explored. The impact of recent genetic discoveries and the relationship of radiation to mutagenic 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. (3). A study of the structure, function and methods of analysis of various ecosystems will be emphasized. The flow of energy through such ecosystems will be investigated by ecosystem modeling and manipulation while the potential and actual impacts of man's activities on his environment will be examined through assessments of various Environmental Impact Statements.

BIO 550. Drugs, Society and Human Behavior. (4). A multidisciplinary course

which puts information about drugs, drug use and drug users into a sociohistorical context. The course covers the pharmacology of drugs and the manner in which drugs elicit or suppress various behaviors. Emphasis is placed upon counseling, teaching and curriculum development.

BIO 561. Pathogenic Microbiology. (3). Prerequisites, BIO 261 or 361. 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. (3). Prerequisites, BIO 261 or 361. 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. (3). Prerequisites, BIO 261 or 361. A study of the viruses 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. Zoonoses and Epizootiology. (3). 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 580. Public Schools and Venereal Disease Education. (3). An introduction to the history, epidemiology control, human impacts and medical aspects of the common venereal and other sexually transmitted diseases.

BIO 581. Human Sexuality for the Teacher and Student. (3). A study of the human as a reproductive and sexual being. Emphasis is on the development of teachers who are competent and secure in the understanding of their own sexuality and that of their students. The biology of sex, cycles of sexual development and sexual behavior patterns will be examined.

BIO 622. Individual Studies. (4 maximum). 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 residency at UNC during the quarter the course is taken.

BIO 631. Problems in Human Genetics. (3). 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. (3). 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. (4). (3 lecture, 3 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. (3). 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. (1). Invited speakers will present topics of interest pertinent to biology. S-U final mark.

BIO 692. Special Topics in Biology. (1). Study of topics of current biological interest. Students will research and present various segments of the selected topics.

BIO 694. Foundations of Biological Research. (3). An introduction to the philosophy and methods of research in the biological sciences. Required of all first-year graduate students in biological science.

BIO 697. Graduate Research. (10 maximum). 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. (15 maximum). Optional for Master of Arts candidates in Biological Sciences.

BIO 755. Doctoral Supervised Teaching. (2, maximum 9). 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. (6-18). Required of all doctoral candidates.

Black Studies

BLS 508. Workshop in Black Studies. (1-3). 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 505. Special Topics in Botany. (4, maximum 12). (2 lecture, 4 laboratory). Advanced studies in the areas of taxonomy, physiology, ecology, vascular or nonvascular botany.

BOT 510. Taxonomy of Grasses. (3). (2 lecture, 3 laboratory). Prerequisites, BOT 310. Identification of native and introduced grasses with emphasis on the historical development of important economic species. Study of grass morphology, the major grass tribes and their evolution.

BOT 524. Morphogenesis of the Vascular Plants. (5). (3 lecture, 4 laboratory). Prerequisites, BOT 421. Structure, morphogenesis and phylogenetic relationships of the ferns, gymnosperms, and angiosperms.

BOT 525. Mycology. (5). (3 lecture, 6 laboratory). Prerequisites, BIO 101, 102. A survey of the groups of fungi including taxonomy, phylogeny, physiology, reproductive patterns and cultural techniques. Credit not allowed for both BOT 525 and BOT 425.

BOT 543. Physiological Plant Ecology. (5). (3 lecture, 6 laboratory). Prerequisites, BOT 340 and BOT 350 or consent of instructor. 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. (3). 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. (4). (3 lecture, 3 laboratory). 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 movement. Practical problems connected with fruit setting, defoliation, herbicides, and other physiological phenomena are considered.

BOT 561. Plant Pathology. (5). (3 lecture, 6 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 622. Individual Studies. (4 maximum). 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 residency at UNC during the quarter the course is taken.

BOT 654. Mineral Nutrition of Plants. (3). 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. (3). A study of the properties, uptake, distribution, metabolism and loss of water by plants. **BOT 699. Thesis. (15 maximum).** Optional for Master of Arts candidates in Botany.

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 (including Management Information Systems)

90-99 Quantitative (Mathematical) Courses

BUS 502. Seminar in Business English. (3).

A study of the language of business, including a review of the essentials of grammar, punctuation, sentence and paragraph structure. Emphasis is placed on clear, concise, and forceful writing.

BUS 505. Consumer Behavior. (3). 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 506. Public Relations in Government and Industry. (4). A course designed to show relationships between government and principal private interest groups, such as business and labor, and to diagnose and improve an organization's communications.

BUS 507. Seminar in Business Communications. (3). A seminar designed to study business communication processes, analyze selected readings, develop a research report. Areas of concentration involve organizational behavior, business ethics, and applied human relations.

BUS 508. Workshop. (1-4). 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. (5). The use of accounting for control and

planning will be emphasized after a review unit on accounting principles.

BUS 521. Seminar in Accounting Standards and Procedures. (4). Prerequisite, BUS 322. A study of the development and present status of financial accounting standards and procedures problems with emphasis on current literature in this area.

BUS 522. Seminar in Accounting Problems I. (4). Prerequisite, consent of instructor. This course will include an in-depth study of current and complex problems confronting the profession.

BUS 523. Contemporary Readings in Accounting. (2). A study of current publications in accounting. Emphasis will be given in articles on tax, theory, auditing, systems, managerial accounting, and management services.

BUS 524. Seminar in Accounting Problems II. (4). Prerequisite, consent of instructor. This course will include an in-depth study of current and complex problems confronting the profession.

BUS 526. Seminar in Internal Auditing and Report Writing. (4). Prerequisite, Intermediate and Cost Accounting. This seminar will include a study of needs and procedures of internal auditing and the preparation and writing of accounting reports.

BUS 527. Seminar in Auditing Problems. (4). This course will include a detailed study of current auditing procedures and the application of these procedures in actual auditing problems and cases.

BUS 528. Accounting for Health Care Institutions. (4). Introductory course emphasizing methodology of accounting for health care institutions in general, with particular emphasis on hospitals. Basic principles of accounting stressed with the required specialized applications for health care institutions.

BUS 529. Administrative Controls. (4). An examination of administration control methods in health care facilities with particular emphasis on management accounting and other control systems.

BUS 540. Risk and Insurance Management. (3). Prerequisites, BUS 240, 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 542. Seminar in Insurance for Accountants. (4). This course is a survey of insurance problems with which accountants are frequently confronted. Topics will include commercial property coverages, commercial liability coverages, life insurance, and risk management. Special attention will be given to valuation methods, and choice of coverage amounts.

BUS 552. Seminar in Office Management. (3). Prerequisite, consent of instructor. Students will examine current literature to study the organizational and environmental changes in the modern office. Emphasis is placed on new technology as it affects office production and personnel. Included are the areas of word processing, electronic mail

systems, reprographics, paperless information reporting, and records management in an electronic environment. **BUS 560. Marketing Management. (4).** 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. (4). 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. Computer Applications in Accounting. (4). This course provides an overview of computer systems applications in accounting. Topics include system analysis and design, hardware and software controls, data base management, management information systems and an introduction to COBOL.

BUS 592. Statistical Analysis for Business. (4). 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 progression analysis, and statistical design.

BUS 600. Introduction to Graduate Study. (3). 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. (3). 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 reading and discussion course for graduate students to provide a background for other business content courses.

BUS 603. Social Issues in Business. (3). 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 Controllorship. (4). Prerequisite, consent of instructor. An in-depth study of some concepts of controllorship. Emphasis is on the importance of theoretical principles, and adapting the procedures followed for the needs and capacities of the organization and individuals.

BUS 622. Business Individual Studies. (1-4). 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.

BUS 624. Seminar in Accounting Control Systems and Budgeting. (4). Prerequisite, one course in cost or managerial accounting or consent of instructor. Design, implementation, and evaluation of accounting control systems and budgets.

BUS 628. Seminar in Income Taxation. (4). Prerequisite, BUS 428. An in-depth study of some of the more complex areas of tax law.

BUS 630. Applied Business Law. (5). 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 631. Seminar of Law in Professional Accounting. (4). Law applicable to the various forms of business organizations, transactions conducted by these businesses, and liability of accountants.

BUS 650. Administrative Theory. (4). 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, relate 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. (4). A seminar designed to study small work groups and their impact on organizational behavior, from development through membership roles and satisfactions into influence in 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. Student is presumed to have had prior exposure to a principles of management course or equivalent experience.

BUS 653. Seminar in Personnel Management. (2). 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. (4). 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. (4). 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. (4). 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. (4). 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 663. Seminar in Retail Management. (4). Prerequisite, BUS 361, or consent of instructor. A study of the buying function in retail stores. Included will be a study of the buyers job, demand determination, and vendor relations.

BUS 665. Seminar in Marketing. (4). 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. (4). 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 671. Seminar in Financial Management. (4). Prerequisites, Introductory Course in Finance and one year of Intermediate Level Accounting. 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.

BUS 678. Seminar in Managerial Economics. (4). 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. (4). 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. (4). 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. (4). 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 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. (4). A seminar designed to introduce the topics 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. (4). 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.

Child and Family Studies: Preschool Education

CD 508. Child Development Workshop. (1-15). 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 533. Child Development. (3). An introductory study of the historical and contemporary theories in child development. Examination, analysis, and practical integration of developmental sequences (physical, social, emotional, and cognitive) from birth through age eight will be the main focus.

CD 533. Research in Child Development. (3). An introductory study of the historical and contemporary theories in child development and guidance research. Examination, analysis and practical integration of current research findings as they apply to the young child's life will be the major points of debate and discussion in this course.

CD 534. Curriculum Development in Preschool Education. (3). 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. (3). This seminar provides opportunities for observations, discussions and interaction with young children, parents and professionals involved in the area of preschool education. Designed to further interrelate research on curriculum and child development with the contemporary critical issues surrounding teachers and administrators of young children's programs today.

CD 538. Internship in Child Care Centers. (3-6). Prerequisite, 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. (3). 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. (1-4). 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. (1-4). 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.

Chemistry

CHEM 501. Special Topics in Inorganic Chemistry. (3, maximum 6). Prerequisite, CHEM 302. This course provides a critical review of current topics in inorganic chemistry.

CHEM 502. Advanced Inorganic Chemistry. (3). Prerequisite, CHEM 402. 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 402.

CHEM 503. Organometallic Chemistry. (3). Prerequisite, CHEM 302. 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. (2, maximum 6). 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 531. Stereochemistry of Organic Compounds. (3). 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. (3). 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. (3). 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. (2, maximum 6). 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. (3). 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. (6). (5 lecture, 3 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. (6). (5 lecture, 3 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. (2). 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. (2). 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. (3). 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. (3). 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 560. Introductory Physical Chemistry. (3). Prerequisite, one year college chemistry or CHEM 391. The basic ideas of thermodynamics are presented in a manner appropriate to the needs of the nonchemist. Applications will be made to the living system and to the world about us. This course is not applicable to a graduate chemistry degree.

CHEM 562. Chemistry and the Environment. (3). Prerequisite, one year college chemistry or CHEM 391. This course will cover the natural chemical cycles, the impact of man's activities on those cycles, and the limits and restrictions to their restoration. Topics to be covered will include nuclear wastes, wastes, food additives, water and air pollution, and pesticides. This course is not applicable to a graduate chemistry degree.

CHEM 563. Chemical Evolution. (3). Prerequisite, one year college chemistry or CHEM 391. This course will explore the following topics: the origin and evolution of the elements, the accumulation of these elements to form the earth, the formation of small biochemical molecules from abiotic source molecules, the formation of biochemical polymers, and possible mechanisms for the formation of primitive cells. This course is not applicable to a graduate chemistry degree.

CHEM 564. Practical Organic Chemistry. (3). Prerequisite, one year college chemistry or CHEM 391. A survey of the organic chemistry used by practicing chemists in preparing synthetic materials. An overview will be given as to how success in this area has led to materials that are superior to natural products. Consideration of such things as explosives, insecticides, drugs, flavors, and fragrances will be made. This course is not applicable to a graduate chemistry degree.

CHEM 565. The Chemistry of Life. (3). Prerequisite, one year college chemistry or CHEM 391. An introduction to the chemistry of living systems and their relationship to each other. The importance of carbon cycles, nitrogen cycles, and bioenergetics to all organisms will be emphasized with special reference to the human. Nutritional biochemistry will be presented. This course is not applicable to a graduate chemistry degree.

CHEM 585. Current Biochemical Literature. (1, may be repeated up to a total of 3 hours). Prerequisite, a background in organic and biochemistry is recommended. To introduce students to current literature in biochemistry and provide them with experience in interpreting data and evaluating research reports.

CHEM 599. Seminar in Chemistry. (1, maximum 6). 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 4). 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. (3). 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. (2, maximum 6). 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, nuclear, radiation and photochemistry.

CHEM 658. Quantum Chemistry I. (2). 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. (2). 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 15). Required of Master of Arts candidates in the Arts and Sciences Chemistry program.

CHEM 755. Supervised Practicum in College Teaching. (Maximum 9). 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. (6-18). Required of all doctoral candidates.

Communication

COMM 510. Internship in Communication. (Maximum 15). This course is designed to encourage interdisciplinary and interprofessional communicative experience. The internship hours may not be credited toward the thirty basic hours in the communication graduate program. The student must submit a proposal to his or her adviser and/or committee members two weeks prior to registration.

COMM 520. The Psychology of Human Communication. (3). 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. (3). (Maximum 9). A seminar designed to involve students in issues of current concern. Subject matter will vary according to faculty expertise and students' needs and interests. For example: Intercultural Communication, Leadership and Conference Planning. The course may be repeated only under the different subtitles.

COMM 524. Seminar in Organizational Communication. (3). 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 540. Seminar in Mass Communication. (3). Prerequisite, Graduate standing. Graduate level survey of major theories, seminal research findings and cultural critiques relevant to mass communication processes.

COMM 554. Communication in the Courtroom. (3). This course is a lecture-discussion seminar designed to investigate the relationship between communication and the law with a special emphasis on legal argumentation and persuasion within courtroom advocacy and including an analysis of the role of communication throughout the legal profession.

COMM 560. Rhetorical Theory and Practice. (3, maximum 9). A systematic review of the development of rhetorical theory with attention to the probable impact of theory upon public communication events during the period stipulated. Periods to be covered include: 1) Homer to Quintilian, 2) St. Augustine to George Campbell, and 3) Campbell to present theorists.

COMM 570. Advanced Oral Interpretation. (3). (2 lecture, 2 laboratory). A study in oral communication of literature, which includes both individual and group performance, directed to students of graduate level ability.

COMM 584. Current Trends in Teaching Communication. (3). A seminar study in the philosophy of learning and methods of teaching 1) trends and techniques in an institutional setting, and 2) professional communication consulting.

COMM 600. Graduate Study in Communication. (3). 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. Seminar in Research. (3). Prerequisite, COMM 600. This course will provide graduate students with a knowledge of design and methodology in experimental research in Communication.

COMM 620. Communication Theory. (3). A study of the functions of communication, the process and outcome variables associated with defining communication theory.

COMM 622. Individual Studies. (Maximum 4). 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 624. Seminar in Human Relations. (3). 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 632. Interpersonal Communication: Theory. (3). 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 633. Interpersonal Communication: Practice. (3). (2 lecture, 2 laboratory). Prerequisite, COMM 632. This is the second of a two quarter sequence. A course designed to give the student laboratory experience in interpersonal communication.

COMM 664. Seminar in Rhetorical Criticism. (3). A course designed to explore contemporary theories of rhetorical criticism.

COMM 666. Seminar in Persuasion. (3). A course designed to investigate the implications of research methodologies in the study of persuasion, particularly attitude research.

COMM 680. Teaching Communication. (2). A course required of all T.A.'s and prospective T.A.'s. Requires participation in a two-day pre-quarter workshop; one class meeting per week for the purpose of discussing classroom techniques and problems; one hour per week visitation in a 100 level course taught by a communication department faculty member for the purpose of preparing the T.A. to teach alternate courses to 110 and 111.

College Student Personnel Administration

CSPA 508. Workshop. (1-3). Special short courses concerning topics or issues in College Student Personnel Administration will be offered during summers and other quarters as the need arises and the resources are available.

CSPA 622. Individual Studies. (Maximum 4 per quarter). An individual learning experience is provided to CSPA students in an area of student personnel or higher education not regularly covered in academic courses.

CSPA 650. The College and Student Development. (4). Seminar concerning the various relationships of the student to the college, characteristics of students and the non-class activities that contribute to the student's development.

CSPA 651. Philosophy and History of College Student Personnel Administration. (3). Seminar in the history, philosophy, principles and functions of student personnel work in higher education.

CSPA 652. Student Housing. (3). Seminar in the organization, practices and problems of student housing services in colleges and universities.

CSPA 653. College Counseling and Health Services. (4). Seminar in the organization, practices, and problems of student counseling service, including health counseling, in higher education.

CSPA 654. Admissions and Records. (3). The organization, practices and problems, and problems of services of admissions and records in colleges and universities.

CSPA 657. Financial Aids and Placement Services in Higher Education. (4). The philosophy, organization, and practices of the administration of student financial aids and placement services in institutions of higher education.

CSPA 658. Organization and Administration of College Student Personnel Administration. (3). Seminar in the organizational and administrative practices of systems for providing student personnel services in higher education.

CSPA 659. Practicum in College Student Personnel Administration — Housing. (2).

CSPA 660. Practicum in College Student Personnel Administration — Health. (2).

CSPA 661. Practicum in College Student Personnel Administration — College Teaching. (2).

CSPA 662. Practicum in College Student Personnel Administration — Student Activities. (2).

CSPA 663. Practicum in College Student Personnel Administration — Counseling. (2).

CSPA 664. Practicum in College Student Personnel Administration — Placement Services. (2).

CSPA 665. Practicum in College Student Personnel Administration — Deans Office. (2).

CSPA 666. Practicum in College Student Personnel Administration — Financial Aids. (2).

CSPA 667. Practicum in College Student Personnel Administration — Admissions and Records. (2).

CSPA 668. Practicum in College Student Personnel Administration — Community College Personnel Work. (2).

CSPA 669. Practicum in College Student Personnel Administration — International Education. (2).

Each practicum listed above consists of practical experience and training for a minimum of six hours per week for one quarter. The practicum is designed to provide an overview of the basic service which can be related to a general understanding of college student personnel work.

CSPA 670. Internship in College Student Personnel Administration. (6). Provides graduate students with a part-time administrative assignment in a student service area or university office under the supervision of the professional or administrative staff. The student is required to spend 18 hours work per week for 6 hours credit.

CSPA 671. Student Personnel Management. (3). A seminar on effective practices in the management of student personnel services. Includes the study of budgeting for student services, management by objectives, communications, and personnel management.

CSPA 700. Introduction to Doctoral Research. (3). A seminar for the introduction to research and advanced study in College Student Personnel Administration.

CSPA 701. Specialist's Degree Practicum. (8). Project of supervised professional activity, required of all candidates for the Specialist in Education degree.

CSPA 752. Current Issues in College Student Personnel Administration. (3). Seminar in the current problems and issues affecting student personnel work in higher education. Prerequisite: Permission of the instructor.

CSPA 753. Research and Evaluation in College Student Personnel Administration. (3). 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.

CSPA 758. Seminar in College Student Personnel Administration. (2). Majors in CSPA are required to register for this course their first quarter in residence and any two succeeding quarters. The student will meet for two hours each week with the faculty of the major.

CSPA 799. Doctoral Dissertation. (18). Required of all doctoral candidates.

Economics

ECON 500. Microeconomic Theory. (3). 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. (3). Prerequisite, ECON 200. Examination of the normative decision-making processes through the uses of microeconomic theory with applications to business practice through operations research. Open to graduates, approved seniors and juniors.

ECON 502. Advanced Economics. (5). Prerequisite, ECON 100. The purpose of this course is to provide a summary exposition of contemporary economic theory for those students intending to undertake other graduate courses in economics. Emphasis upon value and distribution theory. It is assumed that students will have had an introductory course in economics.

ECON 503. Monetary Theory. (3). Prerequisites, ECON 202, 250. Survey of monetary, interest, and income theories.

ECON 541. Theory of Public Finance. (3). Prerequisites, ECON 200, 241. A study of government revenue collection, government services, shifting, the effects of taxation, alternative types of taxes and the pricing of services.

ECON 550. Macroeconomic Theory. (3). Prerequisite, ECON 350. Considers an in-depth study of a theoretical framework for the analysis of problems of unemployment, economic instability, inflation, and economic growth.

ECON 600. Seminar in Microeconomic Theory. (3). Prerequisite, ECON 500. Examination of recent contributions to microeconomic theory including advanced quantitative models of applied microeconomics as they are used by both the private and public sectors. Open only to graduate students or approved seniors.

ECON 602. Seminar in Monetary Economics. (3). Prerequisites, ECON 202, 350. A study of the major contributions to monetary theory.

ECON 641. Seminar in Public Finance. (3). Prerequisites, ECON 200, 241. Advanced study of the theory and problems of public expenditures, revenue, budgets and debt, including a detailed examination of the economic effects of taxation on resource

allocation, production and distribution.

ECON 650. Seminar in Macroeconomic Theory. (3). Prerequisite, ECON 550. A rigorous examination and evaluation of advanced macroeconomic theory as derived from recent publications and public policy. Emphasis will be upon both theory and practice of macroeconomic policy. Open to graduates or approved seniors.

ECON 652. Seminar in International Economics. (3). Prerequisite, ECON 100. This course will be primarily concerned with current issues facing nations engaged in international trade. Specific interest will be directed toward problems facing the United States in the world economy.

ECON 665. Seminar in Labor Economics. (3). Prerequisites, ECON 100, 304, or 305, or consent of instructor. Students will pursue guided research in labor economics or labor-management relations giving particular attention to selected readings, documents, and research materials pertinent to this economic field.

ECON 672. Seminar in Government and Business. (3). Prerequisites, ECON 100, 200, 377, or the consent of the instructor. This course is aimed at aiding the student in research in the area of government regulation of business in the modern economy of the United States. Regular meetings will be held to evaluate progress in research work and to discuss points of interest in the related readings.

ECON 680. Seminar in Money and Banking. (3). Prerequisites, ECON 202, 200, 350, or consent of the instructor. An examination of the possibilities of monetary regulation of an economy. Emphasis will be on modern controversy.

ECON 685. Seminar in Public Finance. (3). Prerequisites, ECON 200, 241, or consent of the instructor. The course will examine the role of government in the determination of the allocation of resources, distribution of income, and the level of employment in a modern economy.

Educational Administration

EDAD 508. Workshop in Administration. (1-3). This course is concerned with the instructional problems of the participants, insofar as these problems pertain to one or more of the many facets of educational administration. Each workshop will have a subtitle and no student may repeat a given subtitle for credit. Course graded on S/U basis.

EDAD 510. Special Resources for Financing Education. (3). This course acquaints the student with various special funding programs available to schools and colleges: e.g., the numerous federal aid and foundations grant programs. The course also helps the student develop proficiency in proposal writing. Qualified seniors may enroll with instructor's permission.

EDAD 520. School Law I. (3). This course gives primary emphasis to the law as it

affects classroom teachers and building principals, with special attention to liability for personal injury, discipline, and teacher rights and responsibilities.

EDAD 521. Introduction to Organizational and Administrative Theory. (2). This course is designed to introduce the student to the basic theories, concepts, and vocabulary of organization and administration. It will provide the student with a framework from which to discuss and clarify organizational and administrative behavior.

EDAD 525. Introduction to Organization and Administration of Public Schools. (3). Introduces the student to administrative problems and provides an overview of our educational system at federal, state and local levels. The purpose of the course is to relate the key issues at each level to the roles of educational personnel.

EDAD 600. Seminar in Research in Educational Administration. (3). Content includes an orientation to graduate study and writing, the nature and methods of research, and procedures for analyzing and evaluating recent research in the field of educational administration. This course required of all first-year graduate students majoring in educational administration. It should be taken during the first quarter of graduate study.

EDAD 610. School Finance. (3). This course deals with the financial implications of the educational program. Budgeting, management of funds, fiscal policies, and the business management function in the school are included in this course.

EDAD 611. School Budgeting. (3). This course will examine the process of allocating resources within the framework of program planning and evaluation. The integral relationship between the budget process (decision about allocation of resources) and the financial recording and reporting system (accounting) will be examined as well as strategies for allocating resources at various administrative levels.

EDAD 612. School Purchasing and Warehousing. (3). 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. (3). This course covers the problems and procedures of school transportation, school lunch programs, and other auxiliary services.

EDAD 620. School Law II. (3). 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. (3). 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 4). 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. Instructor, adviser, and department chairman approval required. Course graded on S/U basis.

EDAD 626. School Community Relations. (3). 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. Methods of Comprehensive Educational Planning. (3). This is a survey course, introducing the student to concepts and techniques of comprehensive planning as applied to education. Application of techniques will center on facility planning in the public schools.

EDAD 640. Seminar on the Principalship. (2). 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. (3). 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. (3). The communication seminar is designed to develop an improved and refined theory of communication for the student. Topics include relevant communication concepts, communication research, community power structure, communication in small groups, and theory.

EDAD 643. Seminar in Management Systems and Analysis. (3). This course is devoted to the study of organizations using a systems model. Relevant concepts will be analyzed in depth in terms of their effect upon the functioning of an organization. When making adjustments to the system one must be aware of numerous variables, their interrelationships, and their effect upon the system's processes.

EDAD 650. School Personnel Administration. (3). This course presents an overview of the personnel administration function in the public school setting. Major focus is on the functions of the chief school personnel officer. The following tasks are dealt with: manpower planning; transfers and promotions; staffing patterns; in-service training; compensation plans; and management by objectives as applied to personnel administration.

EDAD 651. Collective Bargaining in Education. (1). Prerequisite, EDAD 650. (May be taken concurrently.) This course is

designed to provide school administrators and teachers with a basic understanding of the process of collective bargaining in the school setting. Students will have an opportunity to learn about the strategies employed in collective bargaining through role-playing or simulation.

EDAD 655. Seminar on Initiating and Managing Change. (3). This course will focus upon planned change as it relates to organizations. A major emphasis will be devoted to change theory, research, and organizational development. Students will participate in methods and strategies for implementing and coping with change. Instructor approval required.

EDAD 656. Practicum on Management of Change. (1-5). This course requires actual experience in an organizational setting in a) determining the need for change, b) planning, initiating and implementing change, and c) evaluating the effectiveness of change. Department approval required. Course graded on S/U basis.

EDAD 660. Management Research and Statistical Analysis. (4). This course introduces the student to basic concepts of descriptive 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 measures of central tendency and variability, normal curve, percentiles, correlation, parametric and non-parametric statistical tests. EDAD majors only, or permission of chairman.

EDAD 661. Management Research and Computer Utilization I. (4). 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. (4). Prerequisite, EDAD 660, EDAD 661. Students learn basic fortran programming and data preparation for computer analysis of management data. A variety of problems are analyzed via the computer.

EDAD 663. Seminar in Higher Education Data Systems. (2). 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. Course grade S/U.

EDAD 670. Elementary School Organization, Administration, and Supervision. (3). Prerequisite, EDAD 521. (May be taken concurrently.) 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 are emphasized.

EDAD 671. Secondary School Organization, Administration and Supervision. (3). Prerequisite, EDAD 521. (May be taken concurrently.) Designed to assist secondary school administrators and supervisors to acquire information about acceptable solutions to some of the major problems in the secondary school. Consideration is given to the duties and responsibilities of the principal, the nature and role of supervision in the educational program and other pertinent topics.

EDAD 680. Internship in Educational Administration. (1-6). 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. Adviser and department chairman approval required. Course graded on S/U basis.

EDAD 699. Thesis in Administration. (1-15). Optional for M.A. students in educational administration on recommendation of the major adviser.

EDAD 701. Specialist Degree Practicum in Administration. (8). 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 24). 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 in Foundations of School Management. (1-10). 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. (3). 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. (3). 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). (3). 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. (4). 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 of problems of administrative structure. Permission of instructor.

EDAD 781. Development of Information Systems: Practicum. (4). Students assist selected educational agencies and their communities in the solution and communication problems through the application of communication theory. Emphasis is on analysis of communication networks, information flow, message content, and public opinions structure. Permission of instructor.

EDAD 782. Development of Facility Plans: Practicum. (4). 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. (4). Students assist selected educational agencies in the development of long-range plans for program improvement, program budgeting, and cost analysis of existing budget. 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. (4). *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. (1-18). 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. (1-5). Concerned with instructional problems of the participants; problems attacked would vary 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. (3). In-depth study of minority groups — emphasis on the psychological, educational and social needs of the Mexican American schoolchild of the Southwest. Will acquaint educators with teaching methods and techniques with minority children.

EDCI 560. Professional Responsibilities of Teachers. (PTE). (3). Provides a basic understanding of roles and responsibilities within education profession. Includes consideration of professional organizations, teacher rights and responsibilities, personnel policies and working conditions. *Enrollment limited to beginning teachers.*

EDCI 600. Research in Instruction. (3). Orientation to graduate study in Curriculum and Instruction; and nature and methods of research related to Curriculum and Instruction.

EDCI 601. Practicum. (1-15). 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 (1-4). 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.

EDCI 651. Teaching Minority Groups. (3). In-depth study of minority groups with special emphasis on the economically deprived Spanish-American and Afro-American in the Southwest.

EDCI 652. History, Philosophy and Organization of the Non-Graded School. (3). Designed to provide teachers and administrators study of the Nongraded Movement. Emphasis on organizational structure from kindergarten through the senior high school. Theory and practice systems are considered in terms of the child and his or her several abilities.

EDCI 655. Evaluation Related to the Process of Instruction. (3). Designed to develop an understanding of the function between instruction and evaluation. Attention directed to teacher-made instruments with emphasis on improvement of instruction and selection of more appropriate learning experiences. Basic statistical processes explored.

EDCI 660. Professional Roles and Responsibilities. (3). A comprehensive understanding of the role and responsibilities within the education profession. Examines specific issues in personnel policies and working conditions.

EDCI 661. Secondary Instruction. (3). 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. (3). Appraises the

development of instructional practices through the subsequent stages of American educational growth to the present. 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. (3). 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. (3). 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. This course repeatable for a maximum of 2 times or 6 hours.

EDCI 666. Foundations for Curriculum Development. (3). 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. (3). 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. (3). 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. This course repeatable for a maximum of 3 times or 9 hours.

EDCI 669. Curriculum Analysis and Design Processes. (3). Appraises select emerging curricular programs against criteria drawn from various processes. Emphasis 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. (8). Project or supervised professional activity, required of all candidates for the Specialist in Education degree.

EDCI 703. Project in Lieu of a Dissertation. (18). A doctoral student may, with the approval of his or her Dissertation Committee, elect to do a project in lieu of a dissertation. 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.

EDCI 768. Advanced Seminar in Curriculum and Instruction. (3). 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. This course repeatable for a maximum of 3 times or 9 hours.

EDCI 799. Doctoral Dissertation. (18). 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.

Elementary Education: Early Childhood

EDEC 508. Early Childhood Workshop. (1-15). 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. (1-4). 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. (1-4). 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. (3). 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 Nursery-Kindergarten Education. (3). 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. (3). This course is designed to provide the student with a background in research concerning factors affecting the development of young children.

EDEC 664. Seminar in Early Childhood Education. (3). This seminar is designed to explore topics in early childhood education in planned sequence which includes research, field settings, and discussions.

EDEC 667. Nursery Schools for the Disadvantaged. (3). This course is designed to examine the topic of compensatory early childhood education from several aspects: historical development, legislation, curricular design, model programs, research and socioeconomic and cultural factors associated with teaching the educationally disadvantaged young child.

EDEC 699. Thesis. (1-15). Optional for Master of Arts programs on recommendation

of the major adviser. S/U final mark.

EDEC 701. Specialist Degree Practicum. (8). 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. (3). 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. Course may be repeated for a maximum of nine quarter hours.

EDEC 799. Doctoral Dissertation. (18). Required of all doctoral candidates. S/U final mark.

Elementary Education

EDEL 508. Elementary Education Workshop. (1-15). 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. (1-4). 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. (3). 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. (3). A series of seminar experiences designed to provide 1) an overview of innovations, problems 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. (3). 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. (1-4). 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. (3). 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. (2). 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. (3). 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. (3). 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. (3). A detailed consideration of problems concerned with the 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. (3). 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 671. Linguistics for the Bilingual Child. (3). Comparative analysis of the structures of the Spanish and English languages. Emphasis will be placed on understanding methodology and techniques useful in the application of linguistic knowledge in the bilingual bicultural educational setting.

EDEL 673. Diagnostic Testing and Evaluative Instruments for Bilingual Programs. (3). This course is designed to provide a basic understanding of diagnostic tests which may be used in a bilingual setting. Students will evaluate different approaches to diagnostic testing and will develop different alternative methods for evaluating students in a bilingual setting.

EDEL 675. Psychological Aspects of the Minority Family and Implications for Educational Experience. (3). A study of the cultural characteristics of the minority family and its relationship to the child's educational experience. This approach will be utilized to give students a basic understanding of what teachers should know about minority children and their families.

EDEL 676. Oral Language Extension for Bilingual Children. (3). Techniques for developing and cultivating the oral languages of bilingual children will be presented. Students will be encouraged to demonstrate techniques through material development in interaction in actual classroom settings.

EDEL 677. Teaching Creative and

Independent Thinking. (3). This course is designed to provide the necessary background to assess a child's level of linguistic capability and design a program based on each level. The participants will investigate different approaches to the divergent questioning process through a bilingual process in planning, communicating, forecasting, creativity, evaluating, and decision making.

EDEL 678. Curriculum Development for Bilingual Programs. (3). The components for curriculum development will serve as the basis for exploring bilingual programs. The students will be exposed to the aspects of 1) surveying program needs, 2) developing program objectives, 3) implementing the program, 4) planning the instruction, 5) formulating formative and summation program evaluation.

EDEL 699. Thesis. (1-15). Optional for Master of Arts programs on recommendation of the major adviser. S/U final mark.

EDEL 701. Specialist Degree Practicum. (8). 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. (3). 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. Course may be repeated for a maximum of nine quarter hours.

EDEL 799. Doctoral Dissertation. (18). Required of all doctoral candidates. S/U final mark.

Educational Media

EDEM 500. Still Photography for Teachers. (2). Teachers are introduced to the basic techniques of photography. Primary emphasis will be placed on taking and using of photographs and slides to aid communication. A minimum amount of information on darkroom procedures is provided. No darkroom is provided. S/U final mark.

EDEM 508. Workshop. (1-4). 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. (3). 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. (3). Prerequisite EDEM 420 or permission of instructor. This

course provides additional experience in the production of instructional materials. Emphasis is on instructional value rather than mechanical skills.

EDEM 530. Cataloging and Classification I. (3). 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. (3). 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. (3). 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. (3). 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 600. Introduction to Graduate Study. (3). Students are introduced to a variety of university resources which can aid in researching and developing media projects. Orientation to the understanding of research in Education with emphasis on the educational use of media is provided. Formal writing and media presentation of research are important aspects of the course.

EDEM 601. Practicum. (1-4). 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. (3). Graduate students are provided the opportunity to develop a philosophical and theoretical foundation of instructional technology and to translate it into practice.

EDEM 620. Production of Photographic Teaching Materials. (3). Provides experience in the more complex production techniques. The course will emphasize three major aspects of production: 1) scripting a production, 2) filmstrip and slides set techniques, and 3) motion picture production techniques. Actual production experience will be gained through laboratory experiences and required individual projects.

EDEM 622. Individual Studies. (1-4). 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 course requirement unless the student is in full-time residence at UNC

during the quarter the course is taken.

EDEM 675. Administering Educational Media II. (3). Prerequisite, EDEM 475. An advanced course in the organization and administration of school and district media programs. Special consideration is given to problems generated by class members. Course will serve to meet the requirements for endorsement as an Educational Media Specialist.

EDEM 691. Creative Project. (1-15). 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 695. Trends and Issues in Educational Media. (1-3). 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 701. Specialist Degree Practicum. (8). Project or supervised professional activity, required of all candidates for the Specialist in Education degree.

Foundations of Education

EDF 508. Workshop in Foundations of Education. (1-6). 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. (3). 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. (15). 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. (3). 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. (3). 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. (3). 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. (3). Education 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. (1-4). 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. (3). An analysis of contemporary American Education using anthropological concepts and methods of research. Special emphasis is placed upon the concepts of culture, subculture, enculturation and acculturation as they relate to educational problems and issues.

EDF 675. Historical Foundations of Education. (3). Course is designed to study important historical and philosophical concepts that shaped the identity and destiny of the American nation. Focal attention is paid to the tension of ideas in education and society and to the larger cultural changes they foreshadowed.

EDF 690. Advanced Topics in Foundations of Education. (3). 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. (3). 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. (3). A study of education in relation to the sociological realities of American and world societies, contemporary and primitive.

EDF 785. Philosophical Foundations of Education. (3). 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. (3). 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.

Educational Field Experiences

EDFE 501. Educational Field Experiences Studies. (1-4). (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 teacher education. S/U final mark.

EDFE 601. Practicum. (1-4). Open only by invitation to resident graduate students.

Supervised professional activity in the student's major field. (Two copies of a well-written paper must be filed before credit is given, one with the instructor and one with the chairperson of the department. S/U final mark.

EDFE 610. Field Experience. (1-15). Individually arranged field experiences under supervision of university and school or community staff. A variety of sites are available year-round. S/U final mark.

EDFE 622. Individual Studies. (1-4). 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 chairperson of the department.

EDFE 640. Supervision of the Educational Field Experience. (3). 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.

Higher Education

EDHI 622. Individual Studies. (1-4). 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.

EDHI 651. Higher Education in the United States. (3). 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. (3). 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. (3). The history, functions, present status, and problems of the junior college and

the community college.

EDHI 654. The College and University Teacher. (3). 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 functions of the college instructor.

EDHI 655. Seminar in Non-Traditional Programs in Higher Education. (3). 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 751. The College and University Curriculum. (3). 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. (3). 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.

Reading

EDRD 508. Reading Workshop. (1-15). 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 521. Reading in the Content Fields. (3). 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. (1-4). 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. (3). 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. (3). 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. (2). 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. (4). 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. (3). 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. (1-4). 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. (4). 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. (2). 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. (3). 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 645. Seminar in Research and the Analysis of Reading Programs. (3).

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. (3). 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. May be repeated only if seeking Specialist endorsement.

EDRD 652. Remedial Reading Internship. (3). 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. (3). Prerequisite, EDRD 617 or 627. Separate practicums in reading clinic, college reading, or teaching illiterate adults may be taken for three credits each for a maximum of nine quarter hours. 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 670. Individualized Reading and Language Arts Through Language Experience. (3). This course is designed to develop and enhance the student's understanding of the "Language Experience Approach." This approach will be studied as a means of aiding teachers to help meet reading and language arts needs of children in a bilingual bicultural setting.

EDRD 672. Teaching the Bicultured to Read. (3). 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 674. Children's Literature for Bilingual Programs. (3). This course will survey, analyze, and evaluate children's literature. The sources of such literature will also be explored. The students will devote part of the class time to development of children's literature in Spanish and English.

EDRD 699. Thesis. (1-15). Optional for Master of Arts program in recommendation of the major adviser. S/U final mark.

EDRD 701. Specialist Degree Practicum. (8). Project or supervised professional activity, required of all candidates for the Specialist in Education degree. S/U final mark.

EDRD 745. Seminar in Reading. (3). 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. (3). 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. Course may be repeated for a maximum of nine quarter hours.

EDRD 799. Doctoral Dissertation. (18). Required of all doctoral candidates. S/U final mark.

Special Education and Rehabilitation

EDSE 503. The Multihandicapped. (3). Prerequisite, EDSE 100 or 602. A study of assessment techniques, approaches to the problems, remediation strategies, and characteristics of the multihandicapped (e.g., retarded/crippled, blind/emotionally disturbed, etc.).

EDSE 504. Practicum for the Multihandicapped. (3-15). Prerequisites, EDSE 503 and 505. A laboratory type experience in which the student participates as a teacher in a classroom of teacher under the direction and supervision of a master teacher.

EDSE 505. Curriculum for the Multihandicapped. (3). 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, implementation, and activities.

EDSE 508. Workshop in Special Education. (1-6). 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. (1). 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. (1). 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 521. Introduction to the Kephart Rationale of Perceptual-Motor Development. (3). To provide students with a survey of research on Perceptual-Motor

theory in general, and specifically focus on research pertaining to the Kephart rationale.

EDSE 523. Language Development and Disorders in Emotionally Disturbed and Learning Disabled Children. (3). Basic information about speech and language development and how it relates to disorders of speech and language in emotionally disturbed and learning disabled children.

EDSE 530. Severely Physically Disabled and Other Health Impaired. (1). 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 communication, prosthetic and orthotic devices, transportation, and environmental adaptations will be studied.

EDSE 540. Introduction to the Severely/Profoundly Handicapped Blind. (1 or 3). One credit component — cause and characteristics of impairments resulting in severely/profoundly handicapped blindness, interpretation and application of medical information. Three credit component — in addition to the above, study will be made of cross developmental effects of multihandicapping condition upon normal development, survey of program alternatives for Severely/Profoundly Handicapped Blind.

EDSE 541. Early Developmental Needs of Severely/Profoundly Handicapped Blind. (3). Prerequisite, EDSE 540: Developmental approach to designing strategies for working with severely and profoundly handicapped blind children functioning at 0-2 years. Development of IEP's through process of assessment, planning, implementation and evaluation; roles of aides, consultants, ancillary personnel and families.

EDSE 542. Meeting Educational Needs of Severely/Profoundly Handicapped Blind Child. (3). Prerequisite, EDSE 540. Strategies for working with Severely and Profoundly Handicapped Blind Children functioning at 3-7 years developmentally. Through IEP process, students learn to design appropriate developmental programs, adapt existing materials and curricula, and develop individualized materials.

EDSE 543. Braille and Other Communication Skills for Visually Handicapped I. (3). 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. (3). Prerequisite, EDSE 440, EDRD 612 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. (3). Prerequisite, EDSE 440, EDRD 612. or consent of

instructor. Practical aspects of programming for visually impaired children, evaluation procedures, records, staffing, 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. (3). 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. (3). 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. (3). 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. (1). A study of hearing losses, problems, remediation, and education. Emphasis will be placed on language and communication.

EDSE 551. The Anatomy of the Auditory Mechanism for the Rehabilitation Counselor. (1). An overview of the structure, function and common pathologies of the auditory mechanism and the implications for the rehabilitation counselor.

EDSE 556. Laboratory in the Advanced Manual Communication Skills. (2). Prerequisites, EDSE 356 and EDSE 456, or permission of instructor. Advanced training in the 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. (3). Prerequisite, EDSE 361 and 464, or consent of instructor. Causation, diagnosis, and treatment of voice disorders with emphasis on those disorders occurring primarily in adults.

EDSE 562. Speech and Language Disorders for the Special Educator. (3). Basic information for teachers pertinent to their planning and carrying out language and speech improvement programs. Not open to Speech/Language Pathology and Audiology majors.

EDSE 563. Clinical Supervision in Speech/Language Pathology. (3). Prerequisite, EDSE 564 and consent of instructor. EDSE 564 must be taken concurrently. 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 564. Graduate Practicum in

Speech/Language Pathology. (2-12). Prerequisite, EDSE 464 or consent of instructor. Performance in supervised diagnosis and therapy. Open to graduate students only. Each student clinician is responsible for all information in the latest revision of the Clinic Handbook. S/U final mark.

EDSE 565. Aphasia and Related Disorders of Adults. (3). Prerequisites, EDSE 363, 366, 369, or consent of instructor.

Consideration of the etiological factors, diagnosis, evaluation, and remediation of adult language disorders, especially aphasia, apraxia, and dysarthria.

EDSE 566. Clinical Writing for Speech/Language Pathology. (3). Prerequisites, consent of instructor. Must take EDSE 464 or EDSE 564 concurrently. Designed to improve the clinician's ability to write clinical reports. Lecture and practical writing experience. S/U final mark.

EDSE 567. Auditory Processing Disorders. (3). In-depth study of auditory processing disorders and the implications for therapeutic and educational intervention.

EDSE 568. Counseling in Communication Disorders. (3). Prerequisite, EDSE 464 or EDSE 564 must be taken concurrently. Theory and practice of interaction with parents, teachers, and others involved with the communicatively impaired.

EDSE 569. Advanced Laboratory in Diagnostics. (1-6). Prerequisite, EDSE 564 or consent of instructor. Performance in supervised screening and diagnostic evaluations.

EDSE 570. Adult/Geriatric Audiology and Aural (Re)habilitation. (3). Prerequisite, EDSE 372, or consent of instructor. In-depth study of aging process as it affects auditory mechanism. Emphasis placed on rehabilitation of hearing impaired adult and elderly, with psychological impact of presbycusis.

EDSE 571. Hearing Science. (3). Course to present information on peripheral routing of acoustic signal, psychoacoustic factors related to human perception of sound, physiological basis for auditory processing as it relates to integration system.

EDSE 572. Noise and Noise Control. (3). Prerequisite, EDSE 372. Investigation of noise; its effect on behavior and auditory mechanism; methods for noise measurement and attenuation; fundamentals for establishing hearing conversation program. Interpretation of governmental regulations on noise control.

EDSE 573. The Auditory Mechanism. (3). Prerequisite, consent of instructor. A detailed study of structure of human ear and its function.

EDSE 575. Pediatric Audiology: Etiology and Assessment. (3). Prerequisites, EDSE 371, 372 or consent of instructor. Differential diagnosis of infants and children with suspected auditory disorders.

EDSE 576. Electrophysiological Audiometry. (3). Prerequisites, EDSE 372 and 573. Electrophysiological techniques for measurement of auditory and vestibular function. Emphasis placed on electronystagmography.

EDSE 577. Advanced Problems in Audiology. (3). Prerequisites, consent of instructor. Consideration of physiological 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 placed on techniques of parent and client counseling, with the effect of hearing loss on communication.

EDSE 578. Pediatric Aural (Re)habilitation. (3). Prerequisite, EDSE 372 or consent of instructor. Study of habilitation and/or rehabilitation of infants and children with hearing handicap. Emphasis placed on determination of appropriate remediation, language and speech therapy, auditory training and counseling parents for home programming.

EDSE 579. Administrative Aspects of Communication Disorders. (3). An in-depth look at the administrative aspects of clinical management including professional liability in a clinical setting, third party payment for services, Federal health insurance, designing and budgeting service programs, and others are presented.

EDSE 580. Education of Children with Special Abilities. (3). 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 588. Vocational Evaluation of the Severely Disabled. (4). To identify and demonstrate the principle methods, processes, and skills needed by the vocational evaluator.

EDSE 589. First Line Supervision in Vocational Rehabilitation. (3). An orientation to duties, responsibilities, philosophies of first line supervision. Develop competencies and skills in first line management, budgeting, and quality assurance.

EDSE 590. Introduction to Rehabilitation Counseling. (3). An orientation to the rehabilitation process including a survey of history, principles, philosophy and legal aspects of rehabilitation 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. (3). Designed to acquaint the student with an understanding of the needs for community resources. Provides 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. S/U final mark.

EDSE 592. Vocational Placement and Adjustment of the Severely Disabled in Rehabilitation. (4). 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 severely 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. (3). This course is designed to provide students with an orientation to the general field of corrections and correctional rehabilitation. Emphasis is on the correctional systems 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. (3). (Maximum 2 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. S/U final mark.

EDSE 595. Seminar: Psychiatric Rehabilitation. (3). Prerequisites, PCG 558. The course is designed to give an understanding of the roles and activities of a rehabilitation counselor working with the psychiatric client. A study of the nature of the psychiatric client and his interaction with employers and society will be explored.

EDSE 596. Seminar: Rehabilitation of the Alcohol and Drug Abuser. (3). A seminar to provide basic knowledge of types and effects of commonly abused chemicals, treatment modalities, available facilities for treatment; and basic rehabilitation techniques. Emphasis will be upon drug and alcohol abuse as the primary handicap but consideration will be given to abuse as a concomitant to other existing disabilities.

EDSE 597. Sexuality and Disability. (3). Course designed to give student a working familiarity of current trends and theories involving issues of sexuality and the disabled.

EDSE 600. Introduction to Graduate Study. (3). An orientation to graduate study 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. (1-4). 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.

EDSE 602. Education and Psychology of Exceptional Children. (3). 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. (3). 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. Principles and Practices of Measurement of the Handicapped. (3). This course is designed to provide students with the basic statistical concepts needed to interpret the results of psychological and educational tests. Study is given to those special tests used to evaluate and diagnose educational problems in handicapped children.

EDSE 605. Appraisal of Exceptional Children. (4). Prerequisite, EDSE 604. Evaluation and interpretation of case study data to appraise the cognitive, motive, and effective areas of handicapped children. The emphasis is on diagnosis and problems encountered in evaluating handicapped children.

EDSE 606. Practicum in Appraising Exceptional Children. (4). Prerequisite, EDSE 605 or consent of instructor. Provides supervised practice in administering and interpreting specialized tests to handicapped children.

EDSE 607. Special Problems in Diagnosis and Evaluation of the Handicapped. (4). 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. Students will investigate methods of client appraisal unique to the handicapped adults and develop skills in vocational diagnosis.

EDSE 609. Basic Concepts of Mental Retardation. (4). Prerequisites, 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. (4). 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. (4). 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. (4). 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. (3-15). Prerequisite, 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. (3). Prerequisites, 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. (1-4). 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. (3). 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. (3). Prerequisites, EDSE 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 and psychiatry, psychology, social work and others as a team approach.

EDSE 625. Practicum with the Socially and Emotionally Disturbed. (3-15). Prerequisites, EDSE 602, 320, 621, 623. Individual observation and supervised practice in the education of the socially and emotionally disturbed. S/U final mark.

EDSE 626. Behavior Management in the Classroom. (3). Prerequisite, EDSE 421.

The purpose of this course is to apply and critically evaluate major concepts and techniques underlying the application of behavior modification techniques to the problems of children with academic and behavioral difficulties in the classroom.

EDSE 627. Methods of Teaching Learning Disabled Children. (3). Prerequisites, EDSE 326, 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. (3). Prerequisites, EDSE 602, 326, 627. Synthesis of experiences and course work in the education of the learning disabled.

EDSE 629. Practicum with Learning Disabled Children. (3-15). Prerequisites, EDSE 602, 326, 627. EDSE 628 is taken concurrently if student is enrolled for nine (9) or more hours. Practice in programming and teaching learning disabled children. S/U final mark.

EDSE 631. Advanced Problems in Teaching Children with Physical Defects. (3). 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. (3). This course is designed to augment other seminar courses in the area with shared experiences. The aim of the course is to discuss COHI problems in-depth and work on an individual project.

EDSE 634. Practicum with Physically Handicapped. (3-15). 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. (3). Prerequisite, EDSE 440, or consent of instructor. An ophthalmologist presents the anatomy and physiology of the eye and procedures for the medical eye examination. An educator presents the function implications of various pathologies in the educational setting.

EDSE 642. Low Vision and Its Educational Implications. (3). 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. (3). 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. (3-15). Supervised teaching experience with both blind and partially seeing children; placement evaluations; preparation of materials. Observation of varied programs, including resource room and residential school plans, rehabilitation agencies.

EDSE 645. Optacon Training for Teachers of Visually Handicapped. (3). This course introduces teachers of VH students to the reading process accomplished with the Optacon. The Optacon is an electronic machine that converts regular ink-print symbols into tactile, vibrating images of those symbols read with a finger.

EDSE 647. Methodology in Orientation and Mobility. (2). 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. (12). 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. (3). Prerequisites, EDSE 451, 452, 453, 455, or by consent of 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 in specific problems.

EDSE 651. Advanced Problems in Speech for the Hearing Impaired. (3). 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. (3). 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. (3-15). Registration by permission of major adviser only. Individual observation and supervised practice in the education of the deaf and hard of hearing.

EDSE 659. Seminar in Education of the Hearing Impaired. (3). 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. (3). Prerequisite, EDSE 360 or consent of instructor. Advanced study of articulation problems.

EDSE 661. Neurological Motor Speech Disorders. (3). Prerequisites, EDSE 369 and 267 or consent of instructor. Causation, diagnosis and treatment of speech disorders resulting from neurological dysfunction.

EDSE 662. Stuttering II. (3). Prerequisite, EDSE 362 and 464 or consent of instructor. Study and evaluation of major theories, therapies and current research on stuttering, and with special emphasis on the adult who stutters.

EDSE 663. Language Disorders in Children II. (3). Prerequisites, EDSE 365 and 464, or consent of instructor. Causation, diagnosis and therapy for children with language disorders.

EDSE 664. Internship in Speech/Language Pathology. (15). Prerequisite, 45 graduate academic hours in Speech/Language Pathology and Audiology, six hours EDSE 564, minimum of 100 clinical clock hours, and consent of adviser. Supervised clinical experience in diagnosis and therapy with speech and language handicapped individuals. Arranged in a clinical setting within a 60 mile radius from Greeley. S/U final mark.

EDSE 666. Cleft Palate. (3). Prerequisite, EDSE 363, 366, and 464, or consent of instructor. Causation, diagnosis and treatment of individuals with speech/language disorders arising from oro-facial deformities.

EDSE 667. Research in Communication Disorders. (3). Theoretical and practical aspects of conducting research in

communication disorders.

EDSE 668. Seminar in Speech/Language Pathology. (3-15). Emphasis on current issues in speech/language pathology. May be repeated for credit. Speech/Language Pathology and Audiology majors only. S/U final mark.

EDSE 669. Neurological Bases of Language and Learning for the Special Educator. (3). Basic neurophysiology relative to speech, language, and learning. Not open to speech/language pathology majors.

EDSE 674. Externship in Audiology. (3-15). Full-time supervised clinical experience in assessment and treatment with auditorily handicapped persons.

EDSE 675. Differential Diagnosis of Auditory Problems. (3). Differential diagnosis theory and procedures with emphasis on data synthesis.

EDSE 678. Hearing Aids and Uses of Amplification. (3). Prerequisite EDSE 357, its equivalent or consent of instructor. Study of effective use of hearing aids and auditory trainers, including component parts, hearing aid orientation and counseling, and approaches to hearing aid evaluation procedures.

EDSE 689. Interpretation and Evaluation of Behavioral Research. (3). 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. (Required of Rehabilitation Counseling Majors.)

EDSE 690. Counseling the Handicapped. (3). 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. Practicum: Principles and Techniques of Rehabilitation Counseling. (Meets 6-9 hours per week). (3). (Maximum 2 quarters). 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. S/U final mark.

EDSE 692. Psychological Aspects of Disability. (3). To develop a sensitive awareness of the handicapping nature of specific disabilities and the relation 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. (3). 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. (8-16). (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 10 weeks.

EDSE 695. Seminar in Rehabilitation: Individualized Written Rehabilitation Program Development. (3). This course introduces the student to the basic principles and techniques peculiar to the rehabilitation process and the purpose of the IWRP. The student will learn the essential content of the client study process and the techniques in IWRP development and implementation.

EDSE 696. Seminar in Rehabilitation: Professional Problems. (3). To provide the student with a thorough understanding of his responsibilities and duties as regards non-case 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. (3). 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. (3). 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. (8). 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. (3). 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. (3-12). (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. (3-12). (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 of Special Education. (4-15). 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. (3). A course designed to allow educational programming for the visually handicapped, e.g., rapid changes in braille systems, techniques for reproduction, development and distribution of educational materials, and application of low vision aids and the utilization of residual vision.

EDSE 755. Supervised Practicum in College Teaching. (3-9). 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. (1-3). 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 790. McCarron-Dial Work Evaluation System (MDWES): An Introduction to Human Neuropsychological Assessment.

(4). Course designed for Specialist/Doctoral students in rehabilitation and related disciplines interested in neuropsychological aspects of human assessment. MDWES is a battery of tests designed to identify aptitudes and traits which adult mentally disabled require to perform successfully in world of work. MDWES based on neuropsychological theory.

EDSE 794. Advanced Practicum. (4-8). (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. (18). Required of all doctoral candidates.

English Education

EED 502. The Teaching of Composition. (PTE or certification at the Undergraduate Level). (4). Methods of improving composition. The organization of paragraph and theme. The improvement of sentence structure.

EED 602. Seminar in Literature and Adolescents. (PTE or certification at the Undergraduate Level). (4). 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 603. Reconstructing the English Curriculum. (PTE or certification at the Undergraduate Level). (4). A study of the place of English in the curriculum of the secondary school, with a consideration of appropriate materials and their placement.

EED 681. Seminar in the Teaching of Literature. (3). A seminar in the study of the methods of teaching literature at the college level. Theories of literature, explications, and literary analysis.

EED 754. Supervised Teaching of English: Literature and Composition. (3-9). Student will prepare and teach classes under the supervision of instructors chosen or designated in order to give practice in and to evaluate teaching.

English

ENG 508. Workshop in English. (3). 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. (3). 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 622. Individual Studies (Maximum 4). Qualified graduate students outline and spend a minimum of 25 clock hours per quarter hours on a problem. Two copies of a well-written paper must be filed 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. **ENG 623 through ENG 639 will carry a subtitle each time the class is offered. Although each course carries up to 16 hours of credit, a student may not repeat a subtitle.**

ENG 623. Studies in Old English. (Maximum 16). Various seminars with readings in Germanic and Christian lyrics, elegies and heroic poetry; selected prose; linguistic studies, including grammar, phonology, vocabulary, especially for the West Saxon dialect; backgrounds of Anglo-Saxon culture.

ENG 624. Studies in Middle English. (Maximum 16). Various seminars with readings in Chaucer's works and in non-Chaucerian drama, romance, ballads, lyrics and selected prose; linguistic studies; including grammar and phonology, with emphasis on the East Midland dialect; backgrounds of medieval culture.

ENG 625. Studies in the Renaissance. (Maximum 16). Seminars in various ideas of the period. Genres (drama, prose, and poetry), and representative authors (e.g., Shakespeare, Milton, Spenser, Donne, Jonson, and Marlowe).

ENG 626. Studies in Restoration and 18th Century. (Maximum 16). Seminars in various ideas of the period, genres (criticism, drama, fiction, and poetry), and representative authors (e.g., Dryden, Swift, Pope, Boswell, and Johnson).

ENG 627. Studies in the Romantic Period. (Maximum 16). Seminars in the origin, purpose, and nature of the Romantic Movement focusing on two or more of these representative authors — e.g., Blake, Wordsworth, Coleridge, Shelley, Keats, Byron, Lamb, Hazlitt, and DeQuincey.

ENG 628. Studies in the Victorian Period. (Maximum 16). Seminars in various genres of the period (criticism, drama, fiction, and poetry), representative authors (Arnold, Tennyson, Browning, Thackeray, Meredith, Hardy, and others), and ideas that give distinctive meaning to the term "Victorian."

ENG 629. Studies in 20th Century British Literature. (Maximum 16). Seminars in various ideas of the period, genres (criticism, drama, fiction, and poetry), and representative authors (Yeats, Auden, Thomas, Hughes, Shaw, Pinter, Conrad, Joyce, Woolf, Greene, Durrell, and Burgess).

ENG 630. Studies in American Literature (Beginnings to the Civil War). (Maximum 16). Seminars in various ideas, genres (criticism, drama, prose, and poetry), and representative authors (e.g., Edwards, Franklin, Cooper, Emerson, Thoreau, Poe, Hawthorne, and Melville during the colonial, Federal, and early 19th century periods).

ENG 631. Studies in American Literature (Civil War to W.W.I.). (Maximum 16). Seminars in various ideas, genres (criticism, drama, fiction, and poetry), and representative authors (e.g., Whitman, Twain, Dickinson, James, Robinson, and Dreiser during the late 19th century and early 20th century).

ENG 632. Studies in American Literature (W.W.I to the Present). (Maximum 16). Seminars in various ideas, genres (criticism, drama, fiction, and poetry), and representative authors (e.g., Pound, Eliot, Frost, O'Neill, Hemingway, Faulkner, Stevens, Williams, R. Lowell, Bellow, and Mailer during the mid-20th Century).

ENG 633. Studies in the English Language (Maximum 16). Different seminars will be used to investigate the theoretical stances underlying various studies of the evolution of English from its beginnings in the Indo-European family of languages to the present. The investigation will concentrate on selected topics drawn from

the major morphological, phonological, and syntactical changes which characterize this evolution.

ENG 634. Studies in Linguistics. (Maximum 16). Seminars in dialectology, syntax, semantics, stylistics, grammatical analysis, sociolinguistics, psycholinguistics.

ENG 635. Studies in World Fiction. (Maximum 16). Seminars in various short stories and novels in translation to illustrate a generic and ideological approach to fiction beyond Britain and the United States.

ENG 636. Studies in World Poetry. (Maximum 16). Seminars in various poets and aspects of poetry in translation to illustrate a generic, ideological, and cultural approach to poetry beyond Britain and the United States.

ENG 637. Studies in World Drama. (Maximum 16). Seminars in various plays in translation to illustrate a generic and ideological approach to drama beyond Britain and the United States.

ENG 638. Studies in Literary Criticism. (Maximum 16). Seminars in various schools of criticism from the Greeks to the 20th century; the analysis of these schools will be combined with the practical application of the theories to works of literature.

ENG 639. Colloquium in Literature. (Maximum 16). Seminars in various topics (e.g., the tragic hero, alienation, the experimental novel) related in form and/or idea and drawn from American, British, and world literature in translation.

ENG 691. Creative Project. (Maximum 15). With the approval of the major adviser and the Dean of the Graduate School, a creative project may be prepared as the equivalent of the thesis.

ENG 799. Doctoral Dissertation. (18). Required of all doctoral candidates.

Environmental Studies

ENST 510. Environment and Environmental Problems. (3). An in-depth examination of the structural patterns and functional relationships of the environment with an emphasis on present and long-term environmental problems. Previous experience or course work in the natural and social sciences is useful but not required.

Earth Science

ESCI 500. Earth Science Research. (3). 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. (3). 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. (3). 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. (3). 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. (3). 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.

Fine Arts

FA 502. Life Drawing. (3). Prerequisite, FA 402. Study from life emphasizing individual interpretation, personal imagery, multifigure composition.

FA 503. Watercolor Painting. (3). 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. (2). 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. (3). Prerequisite, FA 405. Practical application of design theories with emphasis on individual student experiences.

FA 506. Special Problems in Art Education. (3). Supervised research and reporting of student design and originated problems in art education.

FA 507. Sculpture: Methods and Materials. (3). 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. Workshop in Fine Arts. (3). Workshops in specialized areas of Fine Arts conducted by specialist 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 509. Intermediate Printmaking. (3). Prerequisite, FA 409. Advanced creative work in selected printmaking. Experimental methods of etching print.

FA 510. Advanced Intaglio and Relief Printmaking. (3). 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 511. Lithography. (3). Prerequisite, FA 259. Problems in Lithography including advanced technical processes and photo-plate combined and color lithography printing processes. Emphasis on developing individual competency, both technically and conceptually, through assigned projects. Drawing as related to graphics will be stressed.

- FA 515. Crafts: Design on Fabric. (3).** Consent of instructor. Advanced design conception in textile surface treatments.
- FA 516. Craft Expression in Construction. (3).** Consent of instructor. Advance concentration in selected off-loom fiber technique/techniques.
- FA 517. Pottery. (3).** 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. Weaving. (3).** Consent of instructor. Advanced design conception and techniques in loom-controlled weaving.
- FA 519. Silk Screen Printing Process. (3).** 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. (3).** 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. (3).** Prerequisite, FA 421. Advanced study in oil painting to provide the student with more time to develop individual expression and mastery of the medium.
- FA 525. Figure Painting Studio. (3).** Prerequisites, FA 220, 302. Painting from the human figure.
- FA 527. Ceramic Design. (3).** This course is primarily concerned with innovative approaches to the design, forming, glazing and firing of ceramic objects.
- FA 531. Sculpture Studio. (3).** Prerequisites, FA 258, 308, 408. Individual application of design and technical skills in making sculpture. Emphasis on significant form and expression.
- FA 533. Mixed Media Painting Studio. (3).** Prerequisite, FA 433. Experimental approaches to problems in painting emphasizing a variety of media and techniques.
- FA 537. Glaze Formulation. (3).** 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. (3).** 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. (3).** 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. (3).** 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. (3).** Prerequisite, experience in basic jewelry design. An individual approach to involve casting problems and flatware production.
- FA 590. Contemporary Imagery and Ideas. (3).** A study of current imagery and ideas prevalent in the main stream of contemporary aesthetic practice.
- FA 600. Introduction to Graduate Studies: Fine Arts. (1-3).** 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 602. Life Drawing. (3).** Prerequisite, basic background in life drawing. Study from life emphasizing personal imagery.
- FA 603. Watercolor. (3).** Prerequisite, basic background in water mediums. Individual painting problems in water mediums including: caseins, polymers, and watercolor.
- FA 605. Problems in Advanced Design. (3).** Prerequisite, experience in basic design organization. Practical application of design theories with emphasis on individual student experiences.
- FA 607. Sculpture: Methods and Materials. (3).** Prerequisite, experience in basic sculpture techniques. Theoretical and practical experience in traditional and experimental approaches to making sculpture. Emphasis on aesthetic and functional consideration.
- FA 609. Intermediate Printmaking. (3).** 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. (3).** Prerequisite, FA 510. Individual investigation, advanced intaglio and relief printmaking and experimental methods of intaglio printmaking.
- FA 611. Lithography. (3).** Prerequisite, FA 259. Problems in Lithography including advanced technical processes and photo-late combined and color lithography printing processes. Emphasis on developing individual competency, both technically and conceptually, through assigned projects. Drawing as related to graphics will be stressed.
- FA 615. Crafts: Design on Fabrics. (3).** 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. (3).** Prerequisite, experience with basic crafts media. Advanced study of the trends in craft expressions with special interest in combining materials. Emphasis on form and creative expression.
- FA 617. Pottery. (3).** 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. Weaving. (3).** 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. (3).** 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. (3).** 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. (3).** Prerequisite, basic interpretive drawing. Study from nature, still-life, imagination. Emphasis on personal imagery.
- FA 622. Individual Studies. (1-4).** Individual studies in Fine Arts.
- FA 624. Elementary Art. (3).** Practical creative experiences in a variety of art media. To be taken concurrently with FA 625. Designed for non-art majors.
- FA 625. Methods of Teaching Art in the Elementary School. (2).** 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. Designed for non-art majors.
- FA 627. Ceramic Design. (3).** 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 629. Art for the Exceptional Child. (3).** 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 631. Sculpture Studio. (3).** Prerequisite, experience in basic sculpture techniques. Individual application of design and technical skills in making sculpture. Emphasis on significant form and expression.
- FA 633. Mixed Media Painting Studio. (3).** Prerequisite, experience in mixed media painting. Experimental approaches to problems in painting emphasizing a variety of media and techniques.
- FA 635. Aesthetic Education: Enhancing Creativity. (3).** An interdisciplinary approach, through the arts (visual arts, language arts, speech and dramatic arts, music), to involve students in affective learning situations where the intuitive and cognitive dimensions of problem solving are integrated into the development of specific learning activities.
- FA 641. Readings in Art Education. (3).** A survey of selected contemporary literature on present day art education.
- FA 642. Leading Ideas in Art for Teachers (elem/sec.). (2).** The study of the philosophy of art education in American schools as an integral part of the education of the citizens of a democracy. Advanced reading and research.
- FA 643. Special Problems in Art Education. (3).** Supervised research and reporting of student design and originated problems in art education.
- FA 644. Elementary Art for Art Majors and Minors. (3).** Designed to help the graduate art major translate previous studio

experiences into media activities appropriate for elementary children. To be taken concurrently with FA 645.

FA 645. Methods of Teaching and Coordinating Art in the Elementary School for Art Majors and Minors. (2). Includes advanced experiences in philosophy, teaching techniques, and evaluation. To be taken concurrently with FA 644.

FA 646. Seminar in Art Education. (2). Research, participation, and presentation concerning advanced concepts in art education.

FA 647. Learning Experiences in Elementary Art Education. (3). Research and creative experience in the various art activities of the elementary school art education program.

FA 648. Patterns of Experience in Arts. (3). 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 a curriculum and significant units for teaching art.

FA 649. Supervision of Art. (3). 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 659. Intaglio and Relief Printmaking. (3). 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. (3). Prerequisite, FA 570. An advanced course for the experienced student to explore individual problems in creative jewelry design.

FA 691. Creative Project. (Maximum 15). 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.

FA 699. Thesis. (Maximum 15). Normally required for the Masters degree with an emphasis in Art Education.

UNC Program for Comparative Arts in Florence, Italy

FA 508. Workshop in Fine Arts. (3). Workshops in specialized areas of Fine Arts conducted by specialist 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 512. Mosaics, Intaglio, and Intarsio. (3). Class will meet six hours a week to study the technical application and historical background of these techniques.

FA 513. Filmmaking and Photography Techniques — Florence. (3). *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 520. Oil Painting Studio — Florence. (3). Advanced study in oil painting to provide the student with more time to develop individual expression and mastery of the medium.

FA 531. Sculpture Studio — Florence. (3). Individual application of design and technical skills in making sculpture. Emphasis on significant form and expression.

FA 540. Craft Studio — Florence. (3). 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 559. Intaglio and Relief Printmaking — Florence. (3). Advanced problems in intaglio, printmaking including advanced technical processes and monoprint media. Emphasis is on fine print quality and the color process.

FA 608. Sculpture Studio — Florence. (3). 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. (3). 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 659. Intaglio and Relief Printmaking — Florence. (3). 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 508. Workshop. (Maximum 15). For language teachers or those planning to be teachers, this workshop will focus on specific, practical techniques for teaching French, German and Spanish with special emphasis on performance objectives and individualization of instruction. Intensive preparation in a number of successful aural-oral and cognitive techniques will be provided.

FL 510. Linguistics. (3). 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, resemblance, differences and relationships of English, French, German and Spanish.

FL 531. The Teaching of Foreign Languages. (4). 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 Middle School. (3). Especially for teachers of the middle 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.

FL 601. Practicum. (Maximum 15). 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. (3). *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 508. Workshop. (Maximum 15). For language teachers or those planning to be teachers, this workshop will focus on specific, practical techniques for teaching French with special emphasis on performance objectives and individualization of instruction. Intensive preparation in a number of successful aural-oral and cognitive techniques will be provided.

FR 521. Advanced French Composition. (3). Prerequisite, a very good knowledge of French, equivalent to four years of college French. The course will be conducted in French. Emphasis will be on written expression, on style, and idiomatic usage.

FR 575. French Reading. (1-4). Prerequisite, two years of college French. Designed to fit the reading abilities and interests of various students. Extensive outside reading assignments will be discussed in class and in conference with instructor.

FR 622. Individual Study in French. (Maximum 4). 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.

Geography

GEOG 505. The Evolution of Geographic Thought. (3). 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. (3).

GEOG 571. Seminar in Urban Geography. (3).

GEOG 572. Seminar in Physical Geography. (3).

GEOG 573. Seminar in Economic Geography. (3).

GEOG 574. Seminar in Geographic Geography. (3).

- GEOG 575. Seminar in Quantitative Geography.** (3).
GEOG 576. Seminar in Settlement Geography. (3).
GEOG 577. Seminar in Agricultural Geography. (3).
GEOG 578. Seminar in Research Methodology. (3).
GEOG 580. Seminar in Latin America. (3).
GEOG 581. Seminar in Africa. (3).
GEOG 582. Seminar in the Soviet Union. (3).
GEOG 583. Seminar in Europe. (3).
GEOG 584. Seminar in Asia. (3).
GEOG 585. Seminar in Anglo-America. (3).
GEOG 586. Seminar in Australia and the Pacific. (3).

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 592. Field Courses in Geography.** (3-15). Study and application of the techniques used 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. (3). 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 4). 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 4). 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. Seminar in Teaching College Geography. (3). 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. (3). (Maximum 9). 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 18). Required of all doctoral candidates.

Geology

- GEOL 500. Survey of geology.** (5). (4 lecture, 3 laboratory). This course is designed primarily for graduate students who have a good background in science, but no credit in geology. Earth materials, aggradational and degradational processes and Earth history will be investigated at depth and at an accelerated rate. Offered summers only.
GEOL 530. Igneous and Metamorphic Petrology. (4). (3 lecture, 3 laboratory). Prerequisites, GEOL 420, consent of instructor, igneous and metamorphic rocks and processes; plutonism, volcanism, origin of magmas, phase relationships of minerals, regional aspects of plutonism, and metamorphism.
GEOL 550. Sedimentary Petrology. (4). (2 lecture, 6 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.
GEOL 564. Quaternary Stratigraphy. (3). 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.
GEOL 565. Studies in Quaternary Geology. (2). Prerequisite, 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.
GEOL 567. Volcanic Geology. (4). (3 lecture, 3 laboratory). Prerequisite, GEOL 420 or consent of instructor. A study of volcanoes, and volcanic processes and products. Emphasis on the origin, classification, and interpretation of volcanic rocks and ejecta, and volcanic structures and landforms.
GEOL 570. Geotectonics. (3). 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.
GEOL 580. Advanced Field Geology. (8). Prerequisite, consent of instructor. This course is designed for graduate students who wish to gain experience in geologic 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. (10). 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.** (1-4). 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 4). 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.

German

- GER 500. Problems in Oral German.** (3). Prerequisite, three years college German or permission of instructor. To provide advanced oral training. Stress will be on sharpening the pronunciation, comprehension and fluency of conversational ability of the student. Individual problems will be discussed and aided by means of drills, tape work in the language laboratory and outside help.
GER 508. Workshop. (Maximum 15). For language teachers or those planning to be teachers, this workshop will focus on specific, practical techniques for teaching German with special emphasis on performance objectives and individualization of instruction. Intensive preparation in a number of successful aural-oral and cognitive techniques will be provided.
GER 622. Individual Study in German. (Maximum 4). 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.

Home Economics

- HEC 501. Art in Contemporary Living.** (3). Consideration of the scope of design and artistic philosophies relative to developing design awareness.
HEC 508. Workshop in Home Economics. (Credit varies 1-6). 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.

HECV 508. Workshop in Home Economics, Vocational. (1-4). Each workshop will have a subtitle; no subtitle may be repeated for credit. The workshop subjects and teaching approaches will vary according to the needs of the students and faculty conducting the workshop.

HEC 511. Family Decision Making. (2). Decision making in family living and factors which affect it.

HEC 512. Managing Personal and Family Resources. (3). Concepts of management in terms of individual and family goals with emphasis directed toward the importance of decision-making.

HEC 516. Consumer Protection. (3). 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 517. Consumer Issues. (3). Issues of current interest in the consumer area will be explored.

HEC 518. The Consumer and the Environment. (3). Current environmental issues focusing on air, water, energy concepts and their effect on consumers.

HEC 523. Selected Topics in Family Life. (3). Study of the functions of the family and forces affecting it; family values and practices; roles, adjustment, relations and problems of adult and child members. Designed for teachers of adolescents and adults.

HEC 524. Family Communications. (3). A new approach to parent-child communication and conflict resolution, with attention given to specific communication and problem solving skills. Materials for potential instructors of parents classes are available.

HECV 532. Teaching Child Development and Human Relationships. (3). Prerequisite, undergraduate class in Child Development and in Family Relations. An overview of materials available to teachers, examination of teaching techniques, particularly related to Secondary Child Care Occupations.

HEC 543. Food Preservation. (3). (2 lecture, 2 laboratory). Analysis of current trends in the technology of food preservation and distribution and its relationship to commercial and home preservation.

HEC 551. Nutrition for the Older Adult. (3). Prerequisites, HEC 250 or 251 or successful completion of self-study program. Nutrition principles applied to changed needs of the mature adult focusing on bio-psychosocial factors.

HEC 552. Nutrition Education. (3). Methods of teaching nutrition in various educational environments.

HEC 558. Who's Who and "Right" in Nutrition. (2). A course evaluating the research findings and publications of past and present nutrition scientists and pseudo scientists.

HEC 559. Foods: Facts and Fallacies. (3). An investigation of beliefs, attitudes and understandings about food, superstitions, food taboos; counter-culture beliefs will be discussed in relation to food choices.

HECV 563. Curriculum in Vocational Home Economics. (3). Assist teachers in

improving their ability to plan functional programs in home economics and to solve curriculum problems. Implications of social and economic conditions, research findings, trends in education and current issues are determined.

HECV 564. Advanced Techniques in Teaching Home Economics. (4). Planned for the advanced student who wishes to improve teaching competencies in home economics.

HECV 565. Effecting Positive Relationships Between Home and School. (3). Exploring techniques which may be used in working effectively with parents. Special emphasis given to the needs of low income families, minority groups and educationally disadvantaged.

HECV 566. Exploration of Occupations in Home Economics. (6). Opportunity to survey home economics occupations through field trips to business and industries in the Denver metropolitan and Greeley area.

HECV 567. Evaluation in Vocational Home Economics Education. (3). Principles and procedures in appraising student achievement of educational goals. Experience provided in developing procedures and instruments for use in teaching situations.

HEC 571. Design for Shelter. (3). (2 lecture, 2 laboratory). 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 and finance fundamentals.

HEC 573. Applied Home Furnishings. (3). (1 lecture, 4 laboratory). Individual and class projects will include drapery, slipcovers and simple upholstery techniques.

HEC 574. Man, Environment and Change. (3). 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 Human Identity. (3). Consideration given to social, economic and political factors which influence the availability, kind and quality of housing and the consequences for human identity and family functioning.

HEC 577. Interior Design Theories — Practicum. (3). (2 lecture, 2 laboratory). Prerequisite, HEC 372. Actual involvement in the design of full-scale living spaces and their furnishings in order to facilitate recognition and manipulation of the plastic elements as used in interiors — lined, form, color, texture and space.

HEC 578. Survey of Furniture Design. (3). The dominant influences and characteristics of historical and modern furniture, ornamental and architectural design.

HEC 584. Seminar in Textiles and Clothing. (3). Discussion and interpretation of current literature and research in the fields of textiles and clothing as a means of developing increased understanding of the selection, use and care of modern textile products.

HEC 593. Field Experiences in Cultural Awareness. (1-15). Opportunity to develop an appreciation of cultural and historical backgrounds, contributions of various population groups in the USA or foreign countries in Home Economics related areas.

HEC 594. Trends and Techniques in Clothing Construction. (3). (2 lecture, 2 laboratory). Development of greater skills in construction processes, fitting techniques and alteration of ready-to-wear garments.

HEC 595. Fashion Design-Flat Pattern Drafting. (4). (2 lecture, 4 laboratory). Prerequisites, HEC 395 or consent of instructor. Advanced flat pattern drafting techniques.

HEC 596. Fashion Design in Draping. (4). (2 lecture, 4 laboratory). Prerequisites, HEC 396 or consent of instructor. Advanced creative experiences in fashion design through draping fabric on a form.

HEC 608. Directions in Home Economics. (1). Analysis of home economics profession with emphasis on review and discussions of student's graduate program in relation to his philosophy and purposes for pursuing an M.A. degree.

HEC 609. Home Economics Internship. (3-18). Prerequisites, majors only, minimum graduate standing, minimum GPA of 2.7, consent of faculty sponsor. Field experiences which integrate academic knowledge into a practical setting for career preparation.

HEC 611. Current Trends in Management. (3). Developments of home management concepts and their application in a changing society.

HEC 622. Individual Studies. (Maximum 4). 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 presented to the department before credit will be granted; one to the instructor and one to the department chairperson. Does not satisfy the 500 level requirement unless the student is in full-time residence at UNC during the quarter the course is taken.

HEC 642. Advanced Experimental Foods. (4). (2 lecture, 4 laboratory). Prerequisite, HEC 445, chemistry background or consent of instructor. Recent findings in food research and individual investigation of food problems.

HEC 655. Research in Foods. (4). (2 lecture, 4 laboratory). Prerequisites, HEC 445, CHEM 315 or consent of instructor. Current food research and application of advanced research techniques to the theory of food chemistry.

HEC 656. Infant and Child Nutrition. (3). Prerequisites, HEC 250 or 251. A study of changing nutritional needs to promote maternal, infant, and child health.

HEC 657. World Food Problems. (3). Interrelationship of food supply and world conditions, problems of production, marketing, U.S. consumer practices and protection.

HEC 659. Seminar in Nutrition. (3). Discussion and interpretation of current literature and research in the field of nutrition.

HECV 666. Supervision of Student Teaching in Home Economics. (3). Leadership behaviors for cooperating teachers are analyzed. Principles of supervision are emphasized so that the course can apply to any leadership or supervisory role in vocational home economics.

HEC 683. Fabric Analysis. (3). (1 lecture, 4 laboratory). Laboratory experiments which correlate fundamental facts and concepts of textile fibers with their use and care.

HEC 691. Creative Project. (4-9). With the approval of the major adviser, a creative project in home economics may be prepared as the equivalent of a master's project.

HEC 694. Tailoring. (4). (2 lecture, 4 laboratory). Prerequisite, HEC 494 or consent of instructor. Advanced tailoring techniques suitable for use in modern fabrics.

HEC 695. Advanced Fashion Design and construction. (3). (2 lecture, 2 laboratory). Advanced fitting and construction techniques; fashion design using flat pattern and draping techniques.

HEC 696. Master's Project. (4-9). Two copies of a well-written paper must be filed with the student's adviser at least two weeks before the end of the quarter in which the student plans to graduate.

HEC 697. Evolution of Fashion. (3). Development of costume through the ages and its influence on designs of present day clothing. Development of costumes in the couturier houses of Europe and America.

HEC 699. Thesis. (8-15). Optional for Master of Arts programs on recommendation of the major adviser.

History

A research component is required in each History course numbered in the 500 and 600 level.

HIST 500. Seminar in Japanese History. (3). The course deals with intellectual, social and institutional trends in Japanese history up to and including the modern period.

HIST 502. Seminar in Chinese History. (3). The course deals with intellectual, social and institutional trends in Chinese history up to and including the modern period.

HIST 504. Seminar in Modern African History. (3). 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 506. Seminar in Latin American History. (3). 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 508. Workshop in History. (3). Workshops in specialized areas of History will stress the practical aspects of either teaching or of field work. The subject of the workshop will be determined by subtitle. No subtitle may be repeated for credit.

HIST 520. Seminar in American Colonial History. (3). This course is designed for the

student who wishes to deepen his knowledge of the history of Colonial America through directed research.

HIST 522. Seminar in the Jacksonian Era: 1815-1850. (3). 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 524. Seminar in the American Civil War. (3). 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 526. Seminar in the Populist — Progressive Age: 1887-1920. (3). 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 528. Seminar in the Emergence of Industrial America. (3). A study of 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 530. Seminar in Recent American History. (3). 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 532. Seminar on Franklin D. Roosevelt and the New Deal. (3). A study of the political, social, economic and diplomatic history of the 1932-1945 era.

HIST 560. Seminar in Ancient History. (3). A graduate course in ancient history designed to acquaint the student with select problems and sources in either Ancient, Greek, or Roman history.

HIST 562. Seminar in Medieval History. (3). 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 564. Seminar in Renaissance and Reformation History. (3). A graduate seminar 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 566. Seminar in the French Revolution and Napoleon. (3). 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 568. Seminar in Modern British History. (3). 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 570. Seminar in Modern German History. (3). An intensive study of selected aspects of 20th century German will be undertaken, based on readings and directed research.

HIST 572. Seminar in Russian History. (3). 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 574. Readings in Modern European History. (3). An analysis of selected works concerning a selected topic in modern European history.

HIST 584. Seminar in European Ideologies. (3). 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 590. Seminar in United States Diplomatic History. (3). This course will examine in depth important issues in American foreign policy from the founding of the nation to the present day.

HIST 592. Seminar in Southwest History. (3). 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 will be analyzed.

HIST 594. Seminar in American Intellectual History. (3). 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 596. Seminar in Modern European Intellectual History. (3). 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 610. Readings in American Diplomatic History. (3). 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. (3). 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 3). 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 and chairman before credit is given. Does not satisfy the 30 hour 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. (3). 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. (3). An analysis of significant works from the bibliography of the Civil War era.

HIST 690. Seminar in Teaching Community College or College History.

(3). 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 15). Optional for Master of Arts programs on recommendation of the major adviser.

HIST 755. Supervised Teaching in History. (3-9). 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 of all Doctor of Arts candidates.

HIST 799. Doctoral Dissertation. (18). Required of all doctoral candidates.

Health, Physical Education and Recreation

HPER 503. Drug Abuse Education. (3). 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. (3). This course is designed to provide the student with current scientific findings and orient him or her 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. (3-4). This course shall be structured to synthesize current theories and trends within the sciences of human sexuality and education in order to prepare professionals involved in the promotion of sexual well-being.

HPER 508. Workshop in Health, Physical Education and Recreation. (1-3). 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.

GERO 508. Workshop in Gerontology. (1-3). 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. Each workshop will have a subtitle, and no subtitle may be repeated by a student for credit.

HPER 509. Seminar in Health Behavior. (3-4). The general purpose of this course is to review the research literature regarding personal health behavior and to analyze various models put forth recently to explain health behavior. Such an analysis of health behavior will assist the student in the planning and development of effective health education programs.

HPER 520. Therapeutic Recreation Service. (3). A study of the history, philosophy, and practice of providing recreation services for special populations. The course covers the organization, administration, and leadership of the 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. (3). 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 525. Seminar in Contemporary Problems of Older Adults. (3). Designed for in-depth study by graduate students. Present contemporary topics and problems concerning older adults in society.

GERO 530. Recreation for the Older Adult. (3). 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. (3). 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 533. Administration and Supervision of GERO Personnel. (3). This course is designed to acquaint the graduate student with the principles and practice related to administration, supervision, and leadership of gerontology programs. Included will be such special areas as local, state, and federal program development; grant

preparation and related areas.

GERO 534. Movement Problems in Geriatrics. (3). 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. (4). 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 549. Advanced Techniques in Teaching Sports. (2). Course number may be repeated, but sport designation may not. Designed to assist the high school or college teacher in teaching various sports activities as indicated in the schedule of classes.

HPER 550. Environmental Health. (3). 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. (3-4). 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 Coaching Procedures. (2). Designed to assist the in-service teacher of major sports for men and women with special problems, including organization, strategy, personnel.

HPER 580. Advanced Prevention, Care and Rehabilitation of Athletic Injuries. (3). Prerequisite, HPER 380 or equivalent. Advanced study of 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.

GERO 585. Social Policies in Aging. (3). This course deals with the Older American Act, past and present amendments, and important policy developments in aging. It provides exploration as to how professionals can contribute to policy development, evaluate it, and influence social change.

GERO 586. Professional Intervention With the Elderly. (3). Course will cover human service strategies, treatment modalities, team work, environmental factors, and appropriate assessment techniques in working with the elderly.

GERO 588. Direct Services with Older Persons. (3). Emphasizing counseling techniques, communication skills and procedures in working with older persons on a one-to-one basis. Issues such as assessment and evaluation procedures are also introduced.

GERO 590. Community Resources for the Elderly. (3). Designed to acquaint the student with an understanding of the needs

for community resources, to make students aware of the programs (both public and private) presently serving older adults, and to identify service gaps.

HPER 602. Introduction to Research in Health Education, Physical Education, and Recreation. (3-4). 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. (3-4). Designed to increase the graduate student's awareness of important health facts and principles as they apply to the quantitative and qualitative improvement of individual, family, community, and world health.

HPER 604. School Health Administration. (3-4). 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. (3-4). (3 lecture, 2 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. (3-4). 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. (4).

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. (4). 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. (4). Prerequisite, HPER 221 or equivalent. 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 4). 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. (4). Prerequisite, HPER 223 or equivalent. An advanced study of the neuropsychological components of human movement with special attention being given to the analysis of movement problems.

HPER 624. Advanced Maturational Kinesiology. (4). Prerequisite, 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 Reserach. (1-4).

Prerequisite, consent of instructor. This course can be repeated for a maximum of four hours credit per enrollment with no duplications of areas. It is designed to provide separate experiences in: Computer Programming; Electronic Analysis Systems; Anthropometry; Cinematography; Work Capacity Systems; Biochemical Systems; Biofeedback Systems; Perceptual and Motor Analysis Systems.

HPER 626. Advanced Physiological Kinesiology. (4). Prerequisites, HPER 220, 221, 222 or equivalent. An advanced study of the physiological components of human movement with special attention given to the analysis of movement problems.

HPER 629. Concepts in Kinesiology. (1-4).

Prerequisite, consent of instructor. This course can be repeated for a maximum of four hours credit per enrollment with no duplications of areas. It is designed to provide separate experiences in: Mechanical Components of Skill; Projection Skills; Locomotor Skills; Manipulation Skills; Muscle Physiology; Cardiopulmonary Physiology; Conditioning Physiology; Exercise for Cardiac Programs; Motor Learning; Motor Control; Perception; Motivation; Special Topics.

HPER 635. Seminar in Sports Psychology. (2). A study of the applications of psychological facts and principles to learning, performance, and associated human behavior to the field of sports.

HPER 636. Seminar in Sports Mechanics. (2). An advanced study of the applications of mechanical kinesiology in the analysis of specific sport skills.

HPER 637. Seminar in Sports Physiology. (2). An advanced study of the physiological effects of acute and chronic participation and conditioning for effectiveness and safety in various sports and physical activities, including factors influencing performance in sports and physical activity.

HPER 640. Curriculum in Health and Physical Education. (4). 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 641. Advanced Elementary Physical Education. (3). A course to further the knowledge of physical education teachers in the area of elementary physical education. The course will include current program planning, methods, learning activities, and organization for teaching.

HPER 644. Supervision of Physical

Education and Recreation. (3-4). 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. (2-4). (Each 2 will require 1 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 provided different subtitles are scheduled.

HPER 652. Graduate Internship in Health, Physical Education, and Recreation. (4-16).

This course is designed primarily to give graduate students an opportunity to put into practice the knowledge and skills they have learned in the classroom. Opportunity is provided for the student to assume responsibilities in Administration, Supervision, and Evaluation, along with conducting various activities. (One full quarter of full-time placement is required in Recreation).

HPER 653. Introduction to Air Pollution. (3-4).

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. (3-4). 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. (3). 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. (3-4). 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. (3-4). Detailed study of important problems in the area of leisure and recreation in America.

HPER 677. Parks and Recreation Management. (3-4). 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. (3-4).

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 680. Perspectives in Physical Education. (4). A course designed to draw together basic issues and trends in physical education under a philosophical approach to contemporary American education. By the incorporation of sub-group specialization areas, the student will have an opportunity to problem solving in his or her area of specialization: teaching, coaching, or administration.

HPER 690. Issues and Trends in Health Education, Physical Education, and Recreation. (4). A course designed to provide detailed examination of the forces affecting the allied field of Health Education, Physical Education, and Recreation. A study, in-depth, of problems will be expected of each student according to his or her areas of specialization.

HPER 702. History of Health, Physical Education, and Sport. (4). 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. (4). 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. (4). Prerequisite, possession of the knowledge 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. (6-18). Required of all doctoral candidates.

Humanities

(Administered by English Department)

HUM 508. Workshop in the Humanities. (Maximum 12). 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 students, the approach may differ; for example, it may be thematic, historical, stylistically analytic, or other.

HUM 510. Comparative Studies in Italian Arts and Letters. (Maximum 12). Seminars dealing with various aspects of Italian arts and letters, their relationships in form, idea, content; their creators and audiences; their

cultural milieu. They may include studies of Classic, Byzantine, Medieval, Renaissance or more modern times. No subtitle may be taken more than once.

HUM 512. Studies in World Humanities. (Maximum 12). Seminars in the interrelationships between predominating art forms and modes of thought at certain crucial times in man's history and their influence on artists and writers of differing times or countries. No subtitle may be taken more than once.

Industrial Arts and Technology

IAT 508. Workshop. (1-6). Concerned with instructional problems of participants; however, problems attacked would vary according to experts conducting workshop. Each workshop will have a subtitle and no subtitle may be repeated for credit.

IAT 515. Industrial Crafts. (3). (2 lecture, 3 laboratory). Design, construction and demonstration experiences in crafts, materials and areas as they apply to industrial arts shops, general shops, club activities and recreational craft programs.

IAT 516. Leathercraft. (3). (2 lecture, 3 laboratory). Basic skills in leathercraft, including designing, tooling, carving and constructing leather projects for industrial arts programs, club activities and recreational programs.

IAT 517. Industrial Plastics. (3). (2 lecture, 3 laboratory). Development of skills and knowledge in use of thermosetting and thermoplastic materials with emphasis on industrial applications including the designing and construction of molds and forms.

IAT 519. Plastic Problems and Design. (3). (2 lecture, 3 laboratory). Plastic processes and materials including reinforcing, lamination, expandable and foaming materials. Emphasis on development of molds, forms, aids, resource materials and projects.

IAT 521. Technology and Its Impact on Western Civilization. (3). Deals with history of technology, study of today's capability and look into what technology holds for man in the future. Emphasis on 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.

IAT 530. Organization and Administration in Industrial Arts and Technology. (3). For teachers, supervisors, and administrators of industrial arts and technology. Emphasis on shop planning, organization, administration, supervision, teacher/school liability, accounting procedures, maintenance problems and procurement of equipment and supplies for industrial arts and technology.

IAT 531. A Critique of Modern Industrial Arts and Technology. (3). Industrial arts

philosophies, objectives, content, methods and evaluation with emphasis on current and future implications of industrial arts education.

IAT 540. Graphic Arts Design and Layout. (3). (2 lecture, 3 laboratory). Typographic design — its origin, development and applications.

IAT 541. Copy Preparation and Camera Procedures. (3). (2 lecture, 3 laboratory). Hot type, cold type, phototype, paste-up and camera techniques.

IAT 543. Color Separation for Photomechanical Reproduction. (3). (2 lecture, 3 laboratory). Subtractive color theory including transparent and reflection copy, proofing, platemaking and press operation.

IAT 544. Photography in Education. (3). (2 lecture, 3 laboratory). Production and evaluation of black and white and color photographs for classroom use.

IAT 551. Woodturning. (2). (1 lecture, 3 laboratory). Basic skills and techniques in spindle and faceplate woodturning.

IAT 553. Furniture and Cabinet Making. (3). (2 lecture, 3 laboratory). Design and construction of period and modern furniture.

IAT 556. Upholstery. (3). (2 lecture, 3 laboratory). Techniques and processes in the various types of upholstery for all grade levels.

IAT 563. Descriptive Geometry. (3). (2 lecture, 3 laboratory). Points, lines and planes in space.

IAT 565. Technical Illustrations. (3). (2 lecture, 3 laboratory). Axonometric, oblique and perspective drawings. Airbrush and other special treatments.

IAT 570. Advanced General Metalwork. (3). (2 lecture, 3 laboratory). Advanced bench metalwork, sheet metalwork, forge and foundry work.

IAT 571. Metal Arts. (3). (2 lecture, 3 laboratory). Tooling, etching, forming and spinning.

IAT 572. Advanced Welding. (3). (2 lecture, 3 laboratory). Advanced skills in welding developed by exercises in AC-DC arc welding and oxy-acetylene welding of various metals. Experiences in TIG and MIG welding of both ferrous and non-ferrous metals are provided. Consideration given to principles of teaching, curriculum, supplies and equipment for teaching welding at the secondary and post-secondary levels.

IAT 573. Jewelry Design and Construction. (3). (2 lecture, 3 laboratory). Processes and techniques in jewelry and lapidary.

IAT 574. Machine Tool Technology. (3). (2 lecture, 3 laboratory). Provides advanced experiences in the operation of machine tools with emphasis on machine tool curriculum development and utilization at the secondary and post-secondary levels. Units include: tool and die making, precision jigs and fixtures, selection, testing and utilization of materials and heat treatment.

IAT 575. Advanced Machine Tool Technology. (3). (2 lecture, 3 laboratory). Operation of maintenance of machine tools, precision measurement and metals testing techniques and instructional methods

applicable to the secondary and junior college levels.

IAT 590. Solar Energy. (3). (2 lecture, 3 laboratory). Solar energy systems. Emphasis on solar energy system component design and construction. Thorough study of underlying principles of solar energy collection and utilization.

IAT 601. Practicum in Industrial Arts and Technology. (Maximum 4). 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.

IAT 622. Individual Study in Industrial Arts and Technology. (Maximum 4). 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.

IAT 629. Industrial Internship. (Maximum 15). Prerequisite, adviser's recommendation and department permission. Provides industrial arts and technology majors an opportunity to improve their technical and professional skills and knowledge in a specific occupational field related to their major area of study. Each field experience is carefully planned by the student and adviser to meet the needs of the student. A complete report of experiences is required. S/U final mark.

IAT 634. Industrial Occupations. (3). Industrial occupations as related to vocational, technical and industrial arts education. Includes types of occupations, entrance requirements, sources of training and other related information which would be of benefit to the industrial education teacher.

IAT 635. History and Philosophy of Industrial Education. (3). Origin and development with philosophical thought of selected leaders.

IAT 636. Critique for General Shop Organization. (3). (2 lecture, 3 laboratory). Philosophy of the program, objectives, techniques of teaching and organization of general shops. Special problems of instruction and administration are also considered.

IAT 637. Development of Learning Activity Packages. (3). Deals with development of individualized learning activity packages. Emphasis on motivation, performance objectives, instructional systems and devices, student evaluation media development in learner centered instruction environment. Open to all academic disciplines as students choose area and level of package development.

IAT 638. Curriculum Development. (3). Develop understanding of content, objectives and equipment to conduct classes of industrial arts and technology in the public schools and colleges. Emphasis on objectives, methods of selecting course content and discussion of curriculum

approaches to content in industrial arts and technology.

IAT 639. Evaluation Techniques. (3). Problems in measuring industrial arts and technology achievement. Purposes of evaluation and the kind and types of instruments used. Interpretation of data leading to the improvement of instruction.

IAT 640. Organization of the Graphic Arts Laboratory. (3). (2 lecture, 3 laboratory). Planning techniques, including objectives, educational specifications, equipment, management and content.

IAT 642. Black and White Photography. (3). (2 lecture, 3 laboratory). Experimental, interpretive and communicative photography. Advanced camera and printing techniques.

IAT 643. Fundamentals of Photo Offset Lithography. (3). (2 lecture, 3 laboratory). Copy preparation, camera work, platemaking and offset press operation.

IAT 644. Problems of Design in the Graphic Arts. (3). (2 lecture, 3 laboratory). Selection and development of individual projects for the classroom which emphasizes various design principles.

IAT 645. Color Photography — Transparencies. (3). (2 lecture, 3 laboratory). Exposing, processing and finishing color reversal films and materials for effective visual presentations.

IAT 646. Color Photography — The Print. (3). (2 lecture, 3 laboratory). Current methods and techniques of color printing from negatives and transparencies.

IAT 647. Photographic Illustration. (3). (2 lecture, 3 laboratory). Still life photography in black and white and color. Studio techniques for architectural, industrial-technical and commercial applications.

IAT 648. Portrait Photography. (3). (2 lecture, 3 laboratory). Posing, lighting, printing and finishing portraits in black and white and color.

IAT 652. Problems in Woodworking. (3). (2 lecture, 3 laboratory). Problems the specialized teacher in woodworking in secondary schools must meet.

IAT 657. Construction Technology. (3). (2 lecture, 3 laboratory). To give students experience with tools and practices associated with various trades of the construction industry.

IAT 662. Problems in Drafting and Planning. (3). (2 lecture, 3 laboratory). Content from selected areas in terms of individual needs.

IAT 674. Organization of the Metal Shop. (3). (2 lecture, 3 laboratory). Includes objectives, course content, shop organization, evaluation and problems of teaching various phases of metalwork.

IAT 675. Problems of the Metal Shop. (3). (2 lecture, 3 laboratory). Advanced study in organization of both unit and general metal shops and shop practice handled on seminar basis, giving graduate students an opportunity to work on problems in the field.

IAT 677. Manufacturing Technology. (3). (2 lecture, 3 laboratory). Concepts and techniques associated with manufacturing.

IAT 680. Electronic Circuit Application. (3). (2 lecture, 3 laboratory). Electronic

hardware and component applications to common circuits found in electronic equipment. Emphasis on control circuits, power supplies, amplifiers, oscillators, transmitters, receivers and fundamentals of TV. Assignments established on individual needs and interests.

IAT 685. Digital and Microprocessor Basics. (Maximum 9). (For 3 credit hours — 2 lecture, 3 laboratory). Emphasis on digital IC's, counters, peripherals, interfacing, storage and retrieval, registers, binary codes and systems and D-A or A-D converters. May be repeated for credit.

IAT 690. Power Fundamentals. (3). (2 lecture, 3 laboratory). Advanced study of energy sources and machines that convert into useful work. Emphasis on two-cycle and four-cycle engines and their principles of operation.

IAT 693. Automotive Electrical Systems. (3). (2 lecture, 3 laboratory). Automotive electrical systems from basic electricity to electronic ignition and voltage regulation. Balance of theory and practical laboratory exercises.

IAT 695. Problems in Teaching Power. (3). (2 lecture, 3 laboratory). Objectives, course content and teaching procedures in all units in power and power transmission. Problems are set up on the basis of individual needs.

IAT 696. Automotive Engine Overhaul and Repair. (3). (2 lecture, 3 laboratory). Disassembly, analysis, reassembly and calibration of internal combustion reciprocating engines. Careful, accurate standards in all procedures common to engine overhaul and repair. Required project, overhaul and calibration of an automotive engine.

IAT 699. Thesis. (8-15). Optional for master of arts program on recommendation of major adviser.

IAT 701. Specialist Degree Practicum. (8). Project of supervised professional activity, required of all candidates for the Specialist in Education degree. The purpose of the project or professional activity is to further the student's background and knowledge in his area of specialization. A written report of the project or activity must be submitted.

IAT 730. Research in Industrial Education. (Maximum 6). Series of courses designed to 1) study the results of research in education, their implication to industrial arts and technology; 2) to identify and isolate major problems facing research in industrial arts and technology; 3) to discuss the various means of designing, interpreting and reporting research information in industrial arts and technology. Three hour course offered in summers only, designed for new doctoral students. One hour seminar offered each fall, winter and spring quarters. Sequence is recommended for the doctoral students who are in residence working on their dissertations.

IAT 755. Supervised Practicum in College Teaching. (Maximum 9). Provides experience 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.
IAT 799 Doctoral Dissertation. (18).
 Required of all doctoral candidates.

Interdisciplinary

ID 508. Workshop. (1-10). This course is concerned with the instructional problems of the participants; however, the problems attacked would vary according to the experts conducting the workshop. The nature of the workshop might cover such areas as Administration, Reading, Kindergarten, and Curriculum. Each workshop will have a subtitle and no subtitle may be repeated for credit.

ID 600. Introduction to Graduate Study. (3). An orientation to graduate study in general and the nature and methods of research in particular. Required of all first-year graduate students (except for those departments which have substitutes for this course). Should be taken during the first quarter of graduate work.

ID 624. Orientation to Educational Accountability. (3). Educational accountability and procedures essential to its implementation. Covers terminology, historical development, professional and lay involvement, implications for state departments and means of planning for accountable programs. Emphasis on performance contracting, educational vouchers and program evaluation. Offered by Department of Industrial Arts and Technology.

ID 625. Professional Teacher Competencies. (3). Ten basic functions of classroom teacher and specific tasks which must be performed within each. Organization of class material is such that competencies are on facilitating instruction, managing the learning environment, improving individual competencies, designing programs, designing instruction, providing professional service, evaluation programs, nurturing humaneness and utilizing research. Offered by Department of Industrial Arts and Technology.

ID 626. Orientation to Computer Assisted/Managed Instruction. (3). Orientation in utilizing computer for both instructional tool and management tool. Emphasis on systems terminology, basic problem language for classroom teachers, and steps of procedures for converting traditional teacher-lecture materials to computer managed instruction. Opportunities to experience interactive and non-interactive instruction program also provided. Discussion will provide information on commercial CAI/CMI systems available to public school personnel. Offered by Department of Industrial Arts and Technology.

ID 700. Introduction to Doctoral Research. (3). An introduction to research and advanced study. Required of all specialist and doctoral candidates (except for those departments which have substitutes for this course).

ID 702. Seminar in College Teaching. (3). 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.

Individual Studies

Unless the student is registered for at least six (6) additional hours of classes taken on campus in Greeley, the student shall not count IS or Departmental prefix courses 601, 622, 691, 699, 701, 703 and 799 to satisfy the residence requirement or the requirement that at least half of the student's credit must be in courses numbered 500 and above and taken in residence in Greeley.

Students wishing to take an Individual Studies course through The Center for Non-Traditional and Outreach Education should see the Center's section of the catalog.

Journalism

JOUR 501. Seminar in Photojournalism. (3). Advanced camera skills, communicating with pictures. Composition and enlarging techniques. Production of the student's portfolio of various picture situations.

JOUR 505. Seminar for School Publications Sponsors. (PTE) (3). Designed for beginning and experienced advisers of student newspapers. Organization of the newspaper staff, management techniques, and freedom of the high school press will be covered. New ideas and procedures for publishing student newspapers will be presented and students will be issued materials designed to help them motivate and organize a student newspaper staff.

JOUR 508. Workshop. (1-4). Special workshops or short courses in various content areas of journalism and journalism education will be offered during summers and other quarters as the need and opportunity arises. Courses may be graded S/U.

JOUR 591. Newswriting Methods. (3). Prerequisite, a basic college-level newswriting course, or permission of the instructor. Designed primarily for graduate students who wish to update writing and reporting skills. Course also caters to interests of students in specialized areas of journalism (sportswriting, consumer reporting, as examples).

JOUR 595. Philosophy and Procedures of Public Relations. (3). A case study approach to the advanced study of the public relations process, and its application to a variety of institutions from business to education.

JOUR 597. Public Relations Techniques. (3). The study and development of effective tools and techniques used by the professional public relations practitioner.

JOUR 601. Practicum. (3-12). Open only by invitation to resident graduate students in journalism. Supervised professional activity in the student's area of specialization. Two copies of a well-written paper must be filed with the instructor before credit is given.

JOUR 622. Journalism Individual Studies. (1-4). 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.

JOUR 701. Specialist Degree Practicum. (8). 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.

Mexican American Studies

MAS 508. Workshop. (1-12). This course is concerned with various topics of interest relating to Mexican American Studies. The topic will depend on the instructor conducting the workshop. Each workshop will have a subtitle and no subtitle may be repeated for credit.

MAS 521. Seminar in Mexican American Studies. (3, maximum 6). A seminar designed to involve students in topics or issues of current concern to the Chicano community. Subject matter will vary according to faculty expertise and student needs and interests.

MAS 622. Individual Studies. (1-4). Qualified graduate students outline and spend a minimum of 25 clock hours per quarter hour on a problem related to Mexican American studies. Two copies of a well-written paper must be filed with the instructor before credit is given.

Mathematics

MATH 510. Seminar in Mathematics. (1). (Maximum 6). Study and discussion of topics from mathematics. S/U grading.

MATH 521. Modern Algebra I. (4). Prerequisite, MATH 322 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. (4). Prerequisite, MATH 521 or equivalent. A continuation of MATH 521.

MATH 525. Linear Algebra I. (3). 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. (3).

Prerequisite, MATH 525. A continuation of MATH 525.

MATH 535. Introductory Analysis I. (4). Prerequisite, MATH 133. The first course of a sequence designed to study the topics of modern analysis which arise in applied mathematics. The sequence will include the following topics: sequences, series, continuity, sequences and series of functions, differentiation, partial differentiation, integration and the theory of functions of several variables.

MATH 536. Introductory Analysis II. (4). Prerequisite, MATH 535. Continuation of MATH 535.

MATH 537. Introductory Analysis III. (4). Prerequisite MATH 536. Continuation of MATH 536.

MATH 540. Introduction to Topology. (4). Prerequisite, MATH 133. Elementary pointset topology. General topological spaces with emphasis on metric spaces.

MATH 543. Modern Geometry I. (4). 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. (4). 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. (4). Prerequisites, 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. (4). 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. (4). Prerequisite, MATH 552. Tests and hypotheses, analysis of variance, non-central, t , F , and Chi-square distributions, multivariate normal distributions.

MATH 555. Probability Theory. (4). 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. (4). 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. (3). Prerequisite, MATH 430 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. (3). Prerequisite, consent of instructor. The student will explore a period time, an area of mathematics, and/or a group of mathematicians. Consult instructor for emphasis.

MATH 565. Differential Equations I. (3). 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. (3). 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. (3). 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. (3). 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. (2). 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. (4). 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. Practicum. (1-4). 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.

MATH 603. Foundations of Mathematics. (3). 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. (3). (Maximum 18). Prerequisite, approval of the instructor. Advanced topics in the areas of analysis, algebra, topology and statistics. Specific topics to be covered will be determined at the instructor's discretion and by the current needs of the students. Such topics as functional analysis, advanced differential equations, algebraic topology and others may be covered.

MATH 620. Theory of Fields. (3). 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 622. Individual Studies. (Maximum 4). 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. (3). 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. (3). 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. (3). 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 numbers and their algebra, analytic functions, Cauchy-Riemann equations, and differential calculus of analytic functions.

MATH 633. Complex Variable II. (3). 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. (3). 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. (3). 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. (3). Prerequisite, MATH 635. An introduction to general topology and to the theory of general Banach spaces.

MATH 637. Real Analysis III. (3). Prerequisite, MATH 636. A treatment of general measure and integration theory.

MATH 646. General Topology I. (3). Prerequisite, MATH 433 or 536. Point set and algebraic topology.

MATH 647. General Topology II. (3). Prerequisite, MATH 646. A continuation of MATH 646.

MATH 648. General Topology III. (3). Prerequisite, MATH 647. A continuation of MATH 647.

MATH 754. Intern Teaching in Mathematics. (2). (Maximum 6). This course is designed primarily for Doctor of Arts candidates preparing for a career in college of 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. (6-18). Required of all Doctoral candidates.

Mathematics Education

MED 577. Mathematics Teachers Workshop. (1-3). (Maximum 18). 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/U grading.

MED 622. Individual Studies. (Maximum 4). 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. (4). 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. (4). Prerequisite, 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. (4). 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. (3). (Maximum 18). 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. (3). 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/U grading.

MED 772. Theory and Practice of Teaching Mathematics. (3). 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. (3). Prerequisites, MED 772, RSM 505. 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. (3). Prerequisite, MED 773. A continuation of MED 773.

MED 775. Seminar in Literature for Mathematics Education. (2). (Maximum 6). 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/U grading.

MED 799. Doctoral Dissertation. (6-18). Required of all doctoral candidates.

Meteorology

MET 500. Survey of Meteorology. (5). (4 lecture, 3 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. (3). Prerequisite, MET 200 or 301 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 discussions of a variety of topics, including air pollution and artificial control of plant and animal environments.

MET 599. Special Topics in Meteorology. (1-4). 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 4). 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. (3). Prerequisite, MUS 303. A project course in arranging for school instrumental and vocal groups. Projects include arranging for small ensembles or large ensembles in both standard and unusual combinations, utilizing given melodies and chord symbols.

MUS 502. Eighteenth Century Harmony and Forms. (3). A study of eighteenth century harmonic practice and tonality concepts. Binary, ternary, variation, rondo, and sonata principles in historic perspective in music of the Classic Period.

MUS 503. Nineteenth Century Harmony and Forms. (3). 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. (3). 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 648, Seminar: New Music.

MUS 506. Arts and Ideas for Teachers. (3). An integrated study of humanistic values in the Arts. Emphasis will be placed upon involvement activities which encourage the development of aesthetic and creative growth

and how these activities may be incorporated into the classroom.

MUS 507. Performance Practices. (3). 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. (1-4). 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. (3). 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 learning to use the synthesizer.

MUS 511. History of the Wind Band. (2). A survey of the origins and historical significance of the wind band, including a survey of its instrumentation and development in the United States and Europe from the seventeenth century to the present.

MUS 519. Foundations of Music Education. (3). A study of the philosophical and sociological foundations of music education.

MUS 523. Advanced Conducting I. (3). Prerequisites, MUS 320, 321, 322 or 323, 324, 325. A laboratory course in advanced problems of instrumental or choral conducting. Supervised conducting experience is provided.

MUS 524. Advanced Conducting II. (3). A course designed to study selected scores from the viewpoint of the musical conductor with rehearsal techniques.

MUS 525. Survey of Wind Literature. (3). A study of the literature for the wind ensemble/symphonic band from the time of Hayden and Mozart to the writings of present day composers. The course seeks to expose the great wealth of wind literature available to the conductor. Specific literature studied will vary from quarter to quarter.

MUS 532. Leadership in Music Education. (3). A study of the music educator as an instructional leader, the goals of music education, and the necessary teaching skills needed to achieve these goals.

MUS 533. Trends in Music Education. (3). A course designed for study of existing, new and developing trends in music education.

MUS 545. The History and Literature of Jazz. (3). 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. (3). 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. (3). An introduction to

problems facing the graduate student in music. This will include methods for dealing with such problems as: attitude and aims of the music scholar, studies in bibliography, reference materials, sources, editions, and editing procedures. Included will be oral and written reports, review, 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. (1-4). 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. (3). 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. (3). Prerequisite, mastery of traditional harmony. Studies in analyzing the structure of music to 1700.

MUS 604. Analytical Studies II. (3). Prerequisite, mastery of traditional harmony. Studies in the analysis of music structure from 1700-1830.

MUS 605. Practicum in Arranging and Performance. (3). This course will deal with transcribing, editing, and performing of valuable music from unusable original forms to useful available material for pedagogic, historic, and concert occasions. Stylistic practices will be given major consideration. Music of the Baroque and Pre-Baroque eras will be the chief sources of material.

MUS 607. Graduate Seminar in Instrumental Music in Junior and Senior High Schools. (3). This course is designed to address some of the problems encountered by instrumental music teachers in the public schools. All class members will participate as contributors or lecturers on the topics the class chooses to pursue during the quarter.

MUS 608. Graduate Seminar in Elementary School Music. (3). 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. (3). 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 Teaching. (3). This course has as its primary emphasis the investigation of psychology of music

teaching in the public schools. Three aspects of psychology dominate the course: the nature of aptitude, the nature of achievement, and the role of tests and measurements as they affect public school teachers. Other psychological aspects of music will be included when requested by class members.

MUS 611. Comprehensive Musicianship in High School Choral Performing Groups. (3). 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. (3). 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. (3). 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. (3). 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. (2). An orientation to graduate study in music education and a seminar in current teaching problems encountered by the students.

MUS 616. Problems of Instrumental Coordination. (3). 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. The Psychology of Conducting. (3). A study of artistic and humanistic values in music. Exploring psychological and philosophical approaches to making music in rehearsals and performance. Understanding and dealing with musicians as people will be a primary goal of this course.

MUS 618. Aesthetics and the Arts for Music Teachers. (3). An integrated study of artistic and humanistic values in the arts, experiencing the arts, and exploring ways the arts may be taught in the public school to develop aesthetic awareness.

MUS 621. Jazz Sextet. (1). Prerequisite, audition. The Jazz Sextet is limited in enrollment to 1 trumpet, 1 tenor saxophone, 1 trombone, piano, bass and drums. The Jazz Sextet will perform on campus. Open to any UNC student.

MUS 622. Individual Studies in Music. (1-4). 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 623. Individual Studies in Effective Teaching. (3). 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.

MUS 624. Vocal Jazz Ensemble. (1). Prerequisite, audition. The ensemble is limited to enrollment to 20 voices: 4 sopranos, 4 altos, 4 tenors, 4 baritones, 4 basses, plus rhythm section and horns. Singing standard jazz literature, scat singing and dealing with contemporary jazz notation will be the focus of this ensemble. The ensemble will perform on and off campus. Open to any UNC student.

MUS 626. Antiphonal Brass Choir. (1). An ensemble of brass instrumentalists, working to improve their musicianship by continually stressing the fundamentals of good performance practice. A great deal of Renaissance antiphonal brass literature is employed.

MUS 630. String Ensemble. (1).

MUS 631. Brass Ensemble. (1).

MUS 632. Woodwind Ensemble. (1).

MUS 633. Percussion Ensemble. (1).

MUS 634. Piano Ensemble. (1).

MUS 635. Classical and/or Jazz Guitar Ensemble. (1). Prerequisite, audition. This ensemble is designed to provide guitarists with an opportunity to perform in an ensemble in which melodic playing is stressed. In addition, the ensemble will deal with reading and notation problems, and the interpretation of all styles of music. Course open to any UNC student.

MUS 636. Dixieland Jazz Band. (1). Prerequisite, audition. This band is limited in enrollment to 1 clarinet, 1 trumpet, 1 trombone, 1 tenor sax, piano, bass, tuba and drums. This organization will perform both Chicago and New Orleans style dixieland music. Open to any UNC student.

MUS 637. Jazz Octet. (1). Prerequisite, audition. The Jazz Octet is limited in enrollment to 1 trumpet, 1 trombone, 1 tenor sax, piano, guitar, bass, drums, and percussionist. The Jazz Octet will perform on campus. Open to any UNC student.

MUS 638. Old Times Jazz Band. (1). Prerequisite, audition. This band is limited in enrollment to 3 saxophones, 3 trumpets, 1 trombone, piano, bass, guitar and drums. An additional vocalist may be added. This organization will perform music written in the 1920's to present. Open to any UNC student.

MUS 639. Jazz Nonette. (1). Prerequisite, audition. The Jazz Nonette is limited in enrollment to 1 trumpet, 1 alto sax, 1 trombone, 1 tenor sax, 1 bari sax, piano, guitar/vibes, bass, drums and percussionist. The Jazz Nonette will perform on campus. Open to any UNC student.

MUS 640. Jazz Septet. (1). Prerequisite, audition. The Jazz Septet is limited to

enrollment to 1 alto sax, 1 tenor sax, piano, bass, drums and percussionist. An additional guitar may be added. The Jazz Septet will perform on campus. Open to any UNC student.

MUS 641. Jazz Bebop Quintet. (1). Prerequisite, audition. This quintet is limited in enrollment to 2 solo instruments, piano, bass, and drums. An additional guitar and/or percussion may be added. The quintet will perform on and off campus. Open to any UNC student.

MUS 642. Jazz Quintet. (1). Prerequisite, audition. The Jazz Quintet is limited to enrollment to two solo instruments, piano, bass and drums. An additional guitar and/or percussionist may be added. The Jazz Quintet will perform on campus. Open to any UNC student.

MUS 643. Seminar: Medieval Music. (3). A study of musical style in its historical, theoretical and practical aspects during the Middle Ages.

MUS 644. Seminar: Renaissance Music. (3). A study of musical style in its historical, theoretical and practical aspects during the Renaissance.

MUS 645. Seminar: The Baroque Period. (3). 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 646. Seminar: The Classic Period. (3). 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 647. Seminar: The Romantic Period. (3). This 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 648. Seminar: New Music. (3). 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 649. Seminar: Beethoven. (2). The life and works of Beethoven. Readings will be assigned as a basis for study and discussion of Beethoven's life and times. Special topics will be developed by individual students. A general review of the composer's complete works will be complemented by score and record study and analysis of representative compositions.

MUS 650. Seminar: Choral Music. (3). 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 652. Historical Analysis of Music Structure. (3). Prerequisites, MUS 243, 244, 245. 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. (3). 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. (3). A study of ensemble notation procedures from 1200 to 1600.

MUS 655. History of Music Theory. (3). A study of the theory of music, musical composition, pedagogy and performance from the earliest times to the present.

MUS 656. Choral Literature. (3). An historical study of the stylistic trends, musical characteristics, and performance practice of choral music.

MUS 657. Symphonic Literature. (3). 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 658. Instrumental Techniques and Materials (Trumpet and Horn). (2). Prerequisite, MUS 364. The purpose of this advanced course is to study, in depth, teaching and performing techniques peculiar to horn and trumpet; to gain additional proficiency in playing; to study teaching materials suitable for both individual and group instruction, and to review, in depth, standard solo and general ensemble literature for these instruments.

MUS 659. Instrumental Techniques and Materials (Low Brass). (3). Prerequisite, MUS 365. The purpose of this advanced course is to study, in depth, teaching and performing techniques peculiar to tenor and bass trombone, euphonium and tuba; to gain additional proficiency in playing; to study teaching materials suitable for both individual and group instruction; and to review, in depth, standard solo and general ensemble literature for these instruments.

MUS 660. Instrumental Techniques and Materials (Strings). (3). 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 the student.

MUS 661. Instrumental Techniques and Materials (Percussion). (3). 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). (5). 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 664. Problems in the Teaching of Voice. (3). 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 668. Festival Orchestra. (1-6). Prerequisite, audition. The Festival Orchestra is selected from among the finest collegiate players in the country. The group is the nucleus of the summer music festival presenting five concerts and accompanying the opera.

MUS 669. Individual Performance in Voice for those with Non-Voice Emphasis. (2). Instruction will concentrate on the fundamental principles 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. (2-4).

MUS 671. Individual Performance in Piano. (2-4).

MUS 672. Individual Performance in Organ. (2-4).

MUS 673. Individual Performance in Strings. (2-4).

MUS 674. Individual Performance in Woodwinds. (2-4).

MUS 675. Individual Performance in Brass. (2-4).

MUS 676. Individual Performance in Percussion. (2-4).

MUS 677. Individual Instruction in Composition. (2-4).

MUS 678. Individual Performance in Harp. (2-4).

MUS 679. Individual Performance in Guitar. (2-4).

MUS 680. Mixed Concert Choir. (1). Membership is limited to approximately 60 singers and open to all students on an audition basis. 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 and is in demand throughout the region for concert appearances. Quarterly concerts are given on campus in addition to one yearly tour.

MUS 681. University Chorus. (1). 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. (1). Prerequisite, membership in the Concert Choir or by special permission. A select group of approximately 35 voices open by audition only. Repertoire is extremely varied, ranging from motets of the Renaissance to Contemporary songs to the Bach b-minor Mass.

MUS 683. Women's Concert Choir. (1). 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. (1). 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 audiences.

MUS 685. Opera Workshop. (1-3). Workshop offering practical experiences in the 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. (1). 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 687. Symphonic Band. (1). This ensemble pursues the highest levels of musicianship and performance. Presenting five concerts each summer, the total group energy is directed towards artistic interpretations of the finest compositions for winds and percussion.

MUS 688. Opera Orchestra. (1). This group rehearses as a pit orchestra for performances of opera and musical comedy.

MUS 689. Laboratory Orchestra. (1). A laboratory course to provide practice orchestral experience on stringed instruments. Orchestral materials and the use of them for continued development of string students will be discussed and demonstrated.

MUS 690. Wind Ensemble. (1). Prerequisite, audition. An assemblage of the most outstanding wind and percussion performers on campus. The total group energy is directed towards artistic interpretations of the finest compositions. Experiences range from small ensemble performances of a Mozart Serenade to the use of the full ensemble for a performance of the Symphony for Band by Hindemith.

MUS 691. Concert Band. (1). Prerequisite, Audition. Although a large number of music majors participate in the group, membership also consists of talented students from other areas. This ensemble pursues the highest levels of musicianship. Concerts of

outstanding literature are performed each quarter on campus. The band has numerous opportunities to experience the finest in aesthetic achievement.

MUS 692. Marching Band. (1). 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 wind and percussion students on campus in the instrumental music education program who plan to teach in the secondary schools and wish certification.

MUS 693. University Band. (1). This group offers the non-music major an opportunity to enjoy creating music with limited performance demands. The goal is maximum enjoyment with a minimum time commitment. Auditions are not required for members of this group and instruments are available. Members achieve musical results with challenging literature while taking a brief break from the routine of their major disciplines.

MUS 694. Jazz Ensemble. (1). 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. (1). A select performing ensemble of 21 brass and percussion students. Concentration is upon familiarization of literature for the brass instrumental media, as well as upon development of musical sensitivity, phrasing, style and intonation. This organization presents many concerts during the year, and takes an annual tour.

MUS 696. University Symphony Orchestra. (1). 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. (1). 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. (8-12). 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. (3). 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. (8). 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. (2). 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 9). 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 799. Doctoral Dissertation. (18). Required of all doctoral candidates.

Oceanography

OCN 500. Survey of Oceanography. (5). 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, geologic 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. (4). (3 lecture, 2 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 circulations, currents and ocean-atmosphere relationships.

OCN 599. Special Topics in Oceanography. (1-4). Prerequisite, consent of instructor. An opportunity for students to explore areas of oceanography which are beyond the scope of existing departmental offerings. Specific topic to be treated will be determined by the interests of the students and instructor.

OCN 622. Individual Studies. (Maximum 4). 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. (1-5). This workshop is designed to provide a variety of experiences and understanding in the broad areas of Outdoor/Environmental education. The topic will depend on the expert(s)

conducting the workshop but will be primarily outdoor activity oriented. Each workshop will have a subtitle and no subtitle may be repeated for credit.

OED 550. Internship in Outdoor Education. (1-18). OED 650 or equivalent. (Students seeking certification must also have had student teaching and all Professional Teacher Education requirements.) 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 multidisciplinary approach is allowed.

OED 601. Practicum. (1-4). Open only by invitation to graduate students. Supervised professional activity in the students major field with a minimum equivalent of two hours per day during a ten week quarter. One copy of a well-written paper must be filed with the instructor before credit is given.

OED 650. Philosophy and Principles of Outdoor Education. (3). 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. (3-4). 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 of facilities will be emphasized.

OED 652. Research Seminar in Outdoor Education. (3). 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.

OED 701. Specialist Degree Practicum. (8). Research practicum required of all candidates for the Specialist in Education Degree.

Psychology, Counseling and Guidance

PCG 507. Counseling Theories. (3). Study of place of counseling in guidance program; critical analysis of theoretical approaches used in conducting counseling interviews. Practice in applying various approaches.

PCG 508. Workshop. (1-5). This course is used for the offering of a variety of workshops on special topics. Each workshop will have a subtitle; no subtitle may be repeated for credit.

PCG 520. General Psychology and the Principles of Behavior. (3). Prerequisite, at least one prior psychology course. Focus on basic understanding of human behavior. Principles and application in perception and cognition, maturation, motivation, learning, emotions, and personal and social adjustment.

PCG 524. Physiological Aspects of Biofeedback. (3). Physiological events which underly EEG, EMB, temperature, and other biofeedback modes. General concepts of feedback as body-regulating systems.

PCG 525. Clinical Applications of Biofeedback. (3). Concepts of biofeedback; applications to clinical practice. Theoretical bases; biofeedback modalities, therapeutic relationship, treatment programs, followup procedures, placebo effects.

PCG 526. Principles of Biofeedback Control. (3). Theoretical framework, practical experience in use of biofeedback equipment to establish and maintain physiological control. Knowledge of biofeedback training on equipment, and assisting and monitoring others training on equipment.

PCG 530. Human Growth and Development. (4). Overview of human growth and development, from conception through senescence, with a focus on cognitive, affective, social, and psychomotor development throughout the life span.

PCG 540. Psychology of Perception and Learning. (4). Basic theoretical and research evidence concerning perception and learning. Relationship between human learning and perceptual-cognitive processes; application of psychological principles to educative process.

PCG 541. Principles of Learning. (4). Basic learning principles and concepts are examined for the purpose of developing a working control of the learning process by the student.

PCG 542. Experimental Analysis of Behavior. (3). Prerequisite, 15 hours in psychology, majors only. Theoretical basis for individual organism research and the principles of learning underlying such an approach. Laboratory activities to develop competence in conditioning techniques.

PCG 543. Theories of Motivation. (3). Prerequisite, PCG 540 or PCG 541.

Physiological drives, learned needs, reinforcement, sensory cues, behavior cycles, and social motives; emphasis on implications of study of human behavior.

PCG 551. Theories of Personality. (3). For students not majoring in PCG. Psychological factors underlying personality development and adjustment. Focus on theories which explain personality structure.

PCG 558. Abnormal Psychology. (3). Prerequisites, PCG 651 or 655 or PSY 255. Study of abnormal behavior: causes, symptoms, characteristics, classifications, prevention and treatment.

- PCG 565. Psychology of Prejudice. (3).** Causes of prejudice and learning of prejudicial behavior. Experiences to increase understanding of people and processes for diminishing prejudice.
- PCG 570. Tests and Measurements for Educators. (4).** Introduction to measurement for teachers and other education-related professionals. Explores the purposes and limitations of educational evaluation; use and interpretation of standardized tests; educational objectives; construction of test instruments appropriate to assessing such objectives.
- PCG 600. Research Methodology. (3).** Prerequisite, RSM 504. Orientation to graduate study and nature methods of research. Required of all first-year students.
- PCG 601. Practicum. (1-4).** Open by invitation to resident graduate students. Supervised professional activity in the student's major field; approximately 25 clock hours of work per credit. Two copies of a well-written paper must be filed before credit is given, one with the instructor and one with the department chairperson.
- PCG 602. Foundations of Guidance. (3).** Introductory course for counselors, administrators, and other education personnel. Study of individual and societal needs for guidance and development of a guidance point of view. Purposes and scope of guidance services, concepts, principles and personnel. Focus on secondary and postsecondary school guidance.
- PCG 603. Guidance in the Elementary School. (3).** Principles of guidance and applications in elementary schools. Functioning of counselors, administrators, teachers, and parents in meeting children's needs.
- PCG 604. Occupational Information and Analysis in Vocational Guidance (Secondary-Adult). (3-5).** Analysis of vocational development theories, society and changing values, career development; classification of world of work; labor force and employment trends; principles of educational-vocational planning; use, review, evaluation of occupational information. Techniques for educational-vocational decision-making. Students enrolling for five credits also receive training in use of the General Aptitude Test Battery.
- PCG 605. Occupational Information for Guidance in Elementary Schools. (3).** Nature, scope, and rationale for use of occupational information in elementary school. Theories of occupational choice; methods and techniques of collecting, evaluating occupational information for guidance of children K-6.
- PCG 606. Theories and Practices in Group Guidance. (3).** Prerequisites, PSY 202 or PCG 602 or PCG 603. Information and methods used by guidance personnel working with groups of students in educational planning, career decisions, and interpersonal relations.
- PCG 607. Principles and Practices of Counseling Theories. (5).** For PCG majors. Place of counseling in guidance program; analysis of theoretical approaches used in conducting counseling interviews. Practice in application of various approaches.
- PCG 608. Organization and Administration of Guidance Services. (3).** Guidance services in public schools: types or organization, records, in-service training of personnel, program evaluation, budgeting, and community resources.
- PCG 609. Guidance Workshop. (1-9).** 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. (1-15).** Designed in response to specific needs of counselors and other professional personnel wishing to upgrade proficiencies.
- PCG 611. Supervised Practice in Guidance Services. (3).** Prerequisite, PCG 612 and permission of instructor. PCG majors engage in guidance activities under supervision of one or more staff members.
- PCG 612. Introductory Supervised Practice in Counseling. (5).** Prerequisite, PCG 707 or PCG 507 and permission of instructor. Supervised experience in counseling and interview analysis. Process analysis involves use of typescripts, audio and video tapes, feedback from clients and supervisors, and weekly seminars. Minimum of 18 clock hours required each week.
- PCG 613. Supervised Practice in Counseling With Children. (3).** Prerequisite, PCG 612, permission of instructor. Supervised experiences in counseling with schoolage children, concentrating in elementary schools. Review of audio and videotapes and supervisor feedback are used to improve counseling effectiveness.
- PCG 614. Supervised Practice in Counseling with Youth and/or Adults. (3).** Prerequisite, PCG 612, permission of instructor. Supervised experiences in counseling junior and senior high students and adults. Review of audio and videotapes and supervisor feedback are used to improve counseling effectiveness.
- PCG 615. Career Development Theories. (3).** Analysis of present and emerging theories of career development. Relationship of factors influencing career decisions and general human growth and development; design of models of career development.
- PCG 616. Career Guidance, Counseling and Placement. (4).** Methods and techniques in career guidance, counseling and placement; experience in use of techniques; relationship of theoretical constructs to counselor behavior and delivery of guidance, counseling and placement services.
- PCG 617. Play Therapy. (4).** Prerequisites, PCG 612 and permission of instructor. For PCG majors. Theoretical basis for play therapy; practice in play therapy under staff supervision.
- PCG 618. Behavior Modification. (4).** Prerequisites, PCG 641 and permission of instructor. For PCG majors. Major approaches to behavior modification are examined; practice in applications under staff supervision.
- PCG 619. Systems Approaches to Career Guidance. (3).** Seminar to focus on development of career guidance services for school and community. Defining systems approaches to career guidance; identifying major sub-components of a career guidance system; designing specific delivery systems.
- PCG 620. Foundations of Existential Psychology. (3).** For PCG majors. Fundamental assumptions of existential thought as they translate into psychological theory. Implications regarding nature of man, motivation, values and purpose relevant to American culture.
- PCG 622. Individual Studies. (1-4).** Prerequisite, permission of instructor. 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 department chairperson. Does not satisfy the 500 requirement unless the student is in full-time residence at UNC during the quarter the course is taken.
- PCG 623. Understanding and Counseling Minorities. (3).** Understanding of various minorities and counseling skills and strategies appropriate for use with minorities.
- PCG 624. Human Neuropsychology. (4).** Integration of neurophysiology with psychological correlates. Emphasis 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 consequent behavioral manifestations.
- PCG 625. Career Guidance for Students With Special Needs. (3).** For teachers conducting programs for students with special needs; also counselors, vocational educators, and special education personnel. Career guidance materials, counseling techniques, problems in career exploration for special needs students.
- PCG 628. Behavioral Counseling. (3).** Prerequisites, PCG 507 or 607, PCG 641. PCG 618 recommended. Applications of behavioral techniques in a therapeutic setting. Emphasis on direct intervention; practice under staff supervision.
- PCG 631. Psychology of Early Childhood. (3).** Prerequisite, PCG 530 or equivalent. Characteristics, behaviors, growth and development of young children (pre-school age).
- PCG 632. Child Psychology. (3).** Prerequisite, PCG 530 or equivalent. Growth, adjustment and capacities of children from conception through elementary school years. Emphasis on theories of development; applications in guiding development of normal children.
- PCG 633. Psychology of Adolescence. (3).** Prerequisite, PCG 530 or equivalent. Changes from the period of childhood into adulthood. Physical, mental, social, and emotional development; implications for guiding adolescent toward realization of potentialities.
- PCG 634. Psychology of College Students and Other Adults. (3).** Prerequisite, PCG

530 or equivalent. Psychological phenomena of life span from post-adolescence through final stages of adulthood. Review of research on maturation and related problems.

PCG 635. Psychology of Individual Differences. (3). Nature, extent of differences among individuals and differences between groups based on sex, age, class, race, nationality; factors related to these differences; applications to educational, vocational, social, and personnel work.

PCG 640. Psychological Foundations of Education. (4). 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. (4). For students in Psychology, Counseling and Guidance who wish to examine learning from its theoretical development. Major learning theorists from past to present are examined.

PCG 647. Psychological Aspects of Learning Disabilities. (3). Prerequisite, PCG 540 or equivalent. Theoretical considerations and evaluative strategies for remediation of central processing dysfunctions will be studied. Emphasis on perceptive, integrative, and expressive processes. Psychological implications of individual and classroom instructional practice and consultation skills with school personnel.

PCG 649. Master's Project in General Psychology. (3-6). For Master's students in General Psychology as an approved alternative to the written comprehensive examination. Students enroll with major adviser to develop research proposal, conduct project, report results. May be repeated once for total of six credits. S/U grades.

PCG 650. Psychology of the Healthy Personality. (3). Humanistic and existentially oriented psychological research and commentary regarding positive mental health and development of healthy personality. Concepts such as: self-actualization, self-realization, self-fulfillment, the fully-functioning self, personal adequacy, becoming, and human potential for freedom and growth.

PCG 651. Theories of Personality. (3). Psychological factors underlying personality development and adjustment; theories explaining personality structure.

PCG 654. Seminar in College Teaching. (3). Issues and practices in college teaching. Course planning, instructional models and techniques, instructional problems, ethical concerns, assessment and evaluation, student/teacher interactions.

PCG 655. Community Mental Health. (3). Psychological principles, theories, and practices are examined and applied to individual, school, family, and community mental health problems.

PCG 660. System Analysis and Consultation Theory. (3). Recommended prerequisites, PCG 655 or PCG 664, or SOC 610. Overview of systems and strategies for

systems change; consultation theory and social action strategies, including mental health consultation, behavioral consultation, and organization development.

PCG 661. Orientation to Psychology and the Self. (3). Provides orientation to graduate study and presents basic philosophical positions in psychology. Provides interaction between new students and PCG faculty to facilitate evaluations as to feasibility of student pursuing graduate work at this institution. To be taken during first quarter of PCG Master's program.

PCG 662. Group Dynamics and Facilitation. (3). Prerequisites, PCG 612 or concurrent registration in PCG 612, and PCG counseling major. Information, facilitation, and preparation in various types of communication and counseling groups. Didactic presentations, demonstrations, group participation, student facilitation.

PCG 664. Social Psychology. (4). Survey of major areas of social psychology; social observation techniques. Nature of and factors involved in human social behavior: cooperation, prosocial behavior, aggression, conformity, obedience to authority, attitude change, interpersonal attraction and impression management. Social psychological phenomena will be observed in laboratory sessions.

PCG 665. Marriage and Family Therapy. (3). Prerequisites, PCG 612 and 662, permission of instructor. Explores the intricacies of dealing with family constellations. Includes history of marriage and family counseling, conjoint family therapy, family in focus, behavioral approaches, stages of family development, sex therapy, and divorce adjustment.

PCG 670. Psychological Testing and Measurements. (4). Prerequisites, RSM 504, PCG majors only or permission of instructor. Basic testing principles such as reliability, validity, norming developed to enable student to critically evaluate educational and psychological tests. Exposes student to social and ethical issues in testing, a variety of specific psychological and educational tests, and test interpretation.

PCG 671. Aptitude and Achievement Analysis. (5). Prerequisites, PSY 271 or PCG 670. Standardized psychological instruments are analyzed in terms of the Technical Recommendations for Psychological Tests and Techniques.

Students take a series of tests, and gain experience in the administration and interpretation of group tests.

PCG 672. Aptitude and Achievement Analysis, K-6. (5). Prerequisites, PSY 271 or PCG 670. Standardized psychological instruments developed for children, grades K-6, are analyzed in terms of the Technical Recommendations for Psychological Tests and Techniques. Experience in administering and interpreting standardized instruments used at the elementary level.

PCG 673. Individual Tests of Intelligence. (3). Prerequisite, PCG 670 or permission of instructor. Survey course for non-majors and for PCG majors who will not take the clinical assessment sequence. History, theoretical

background, and description of Stanford-Binet Intelligence Scale, Wechsler Pre-School and Primary Scale, Wechsler Intelligence Scale for Children, and the Wechsler Adult Intelligence Scale. Not open to unclassified students.

PCG 675. Intelligence Assessment. (4). Prerequisites, PCG 670 and permission of instructor. History and theoretical background of measurement of intelligence. Extensive supervised practice in administration and interpretation of the Stanford-Binet Intelligence Scale and the three Wechsler scales; integration of test data with other assessment techniques.

PCG 676. Personality Assessment. (4). Prerequisites, PCG 675 and permission of instructor. Nonprojective and projective techniques of assessing personality; conceptual bases, administration, and interpretation. Supervised practice in integration of personality test results with other types of data to form a comprehensive diagnostic and descriptive profile of the individual.

PCG 677. Educational-Academic Assessment. (4). Prerequisites, PCG 675, 676, and permission of instructor. Theoretical bases for individually administered psychoeducational tests; supervised practice in selection, administration, and interpretation of such tests. Alternative strategies of assessment, including observation and review of student cumulative records. Integration of intelligence, personality, and psychoeducational factors in total assessment of the individual.

PCG 679. Diagnostic/School Psychology Practicum. (4-8). Prerequisites, PCG 675, 676, 677, 763, permission of instructor. To be taken as a two-quarter sequence, as a combined professional seminar and supervised field experience. The first quarter will integrate learnings from the assessment sequence, continue topics from the introductory seminar (PCG 763). The second quarter will involve field experience involving typical functions of the school psychologist: assessment and intervention, case staffings, and consultation with parents, school personnel, and community agencies.

PCG 680. Special Populations Practicum. (2-4). Prerequisites, PCG 679 and permission of instructor. For school psychology students wishing to explore in depth a special population not dealt with in PCG 679. This might include any group with handicapping conditions which interfere with learning. May include research; specific involvement arranged with instructor.

PCG 681. Systems Intervention Practicum. (4). Prerequisite, PCG 660. Supervised field experience with professional seminar.

Applications of strategies from PCG 660 in settings such as schools, mental health centers, or criminal justice agencies. Consultation as primary intervention strategy.

PCG 692. Internship. (1-16). Permission of instructor. Field experience for qualified graduate students in areas of speciality.

PCG 699. Thesis. (1-15). Required of Master of Arts candidates in Arts and

Sciences programs of Botany, Chemistry, Physics, Zoology. Optional for all other Master of Arts programs on recommendation of the major adviser.

PCG 701. Specialist Degree Practicum. (8). 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 on Counseling Theories. (3). Prerequisites, PCG 607 and permission of instructor. Seminar to provide doctoral students in PCG an in-depth study of counseling theories.

PCG 712. Analysis of the Individual. (3). Prerequisites, permission of instructor. Exploration, analysis, synthesis of philosophical and theoretical approaches to interpretation and understanding of man. Nomothetic and ideographic techniques studied, critiqued in relation to professional practice.

PCG 713. Internship in Supervision of Guidance Services. (1-12). Prerequisites, PCG 612, 611, and 613 or 614. Experiences in working with staff involved in the administration and supervision of guidance services at all levels of education.

PCG 714. Internship in Supervision of Counseling. (1-12). Prerequisites, PCG 612, 611, and 613 or 614. For doctoral candidates preparing for college teaching. Experience with a faculty member in supervising counseling practice.

PCG 715. Seminar in Counselor Supervision and Theory. (3). Prerequisites, PCG 707, 692, and permission of instructor. Seminar to study problems involved in training of individuals to engage in the therapeutic process. To be taken concurrently with PCG 714.

PCG 721. Development and Philosophy of Ideas in Psychology. (5). Prerequisite, permission of instructor. Study of origin, evolution, and philosophical implications of issues and ideas in psychology.

PCG 722. Trends in Psychology, Counseling, and Guidance. (3). Current trends and research in human growth and development, learning, mental hygiene, guidance and counseling. Methods of identifying trends and recognition of implications.

PCG 723. Seminar: Issues in Psychology, Counseling and Guidance. (3). Identifying, stating, analyzing, discussing, evaluating, and do-polarizing current issues in professional psychology. Review of pertinent research; implications for professional action.

PCG 730. Seminar in Growth and Development. (3). Prerequisites, PCG 632 and permission of instructor. In-depth study of child growth and development. Students will develop an area of inquiry from current issues and research; will engage in multidisciplinary inquiry; report to seminar will include applications to educational settings.

PCG 741. Seminar in Learning Theories. (3). Prerequisites, PCG 641 and permission of instructor. Majors only. Theoretical and research evidence concerning field of learning. Application of principles of learning to educative process.

PCG 742. Seminar in Perceptual Psychology. (3). Prerequisites, PSY 341 or PCG 540, permission of instructor. Theory and research in perceptual psychology. Includes relationship of human perception to such topics as: self-concept, motivation, goals and values, growth and development, emotions and feelings, and the teaching-learning process of related "helping" professions.

PCG 743. Seminar in Motivation. (3). Prerequisites, PCG 543 and permission of instructor. For doctoral students in PCG. In-depth study of selected topics in motivation.

PCG 751. Seminar in Personality Theories. (3). Prerequisites, PCG 651 and permission of instructor. In-depth study of psychological factors underlying personality development and adjustment; theories explaining personality structure.

PCG 755. Supervised Practicum in College Teaching. (1-9). Prerequisite, permission of instructor. Experiences in observation and supervised practice in college teaching for doctoral students planning to teach at the college/university level.

PCG 756. Internship in Supervising College Teaching. (3). Prerequisite, permission of instructor. For doctoral candidates preparing for college teaching. Experience working with regular staff members engaged in supervision of college and university teaching.

PCG 758. Advanced Psychopathology. (3). Prerequisites, PSY 458 or PCG 558 and permission of instructor. Designed for school psychology students; a continuation in depth of topics in abnormal psychology.

PCG 761. Orientation to the Graduate Program and Self. (1). Required during the first quarter of Ed.S. or Ed.D. program. Variety of interactions between new students and PCG faculty. Self-exploration, orientation to graduate program and to philosophical persuasions of faculty, and evaluation of appropriateness of student's choice of program.

PCG 762. Group Dynamics and Human Relations. (3). Prerequisite, PCG 606 or 662. Understanding of principles of group dynamics as applied to group situations, including the classroom.

PCG 763. Introductory Seminar in School Psychology. (3). Required in first Fall Quarter of Ed.S. or Ed.D. program in School Psychology. Seminar on professional issues and problems of concern to the school psychologist. Topics may include:

certification requirements, confidentiality, relations with other professions, referrals, ethical issues, role models, and report writing. Includes observations in schools.

PCG 775. Internship in Supervision of Psychological Testing. (4-12). Prerequisite, permission of instructor. Advanced students participate, under faculty supervision, in instruction and supervision of courses in testing. Demonstration, supervision, instruction, scoring, reporting, interpreting results.

PCG 780. Introduction to Psychological Research. (4). Prerequisite, RSM 505. Introduction to research and advanced study.

PCG 781. Evaluation of Psychological Services. (3). Prerequisite, PCG 780, or equivalent. Theory and practice of psychological program evaluation. Non-statistical approach to assessment of different types of psychological intervention. Use of evaluation data to promote systems change. Techniques for evaluating effectiveness of consultation, therapy, guidance, placement, and other programs designed to enhance psychological environment.

PCG 782. Introduction to Rorschach Administration and Scoring. (3). Prerequisites, PCG 558, 675, 676, and 651, permission of instructor. Conceptual basis for comparing projective with traditional psychometric procedures; beginning skills in administration and scoring of the Rorschach Test.

PCG 783. Personality Testing: Objective Techniques. (3). Prerequisite, PCG 676 and permission of instructor. PCG majors only. Objective personality assessment: MMPI, CPI, 16PF. Problems of interpretation and validation.

PCG 787. Seminar in School Psychology. (3). For advanced School Psychology majors. Professional issues, problems of concern to school psychologist.

PCG 789. Internship in School Psychology. (8). Prerequisite, permission of instructor. Field experience in school psychology under qualified supervisors in selected settings. To be taken near end of program. Eight credits will be granted for each quarter of full-time internship. May be repeated to total of 24 credits.

PCG 792. Internship. (1-16). Field experiences for qualified specialist and doctoral students in area of speciality.

PCG 795. Professional Development Seminar. (2). Prerequisite, advanced standing in PCG. Three-quarter seminar for total of six credits. Students develop, complete individualized professional development plan. Available only to PCG doctoral students; meets general written comprehensive exam requirements.

Evaluation carried out by three-member faculty committee and peers in seminar. Consult major adviser for further information.

PCG 799. Doctoral Dissertation. (6-18). Required of all doctoral candidates, for a total of 18 credits.

Philosophy

PHIL 501. The Philosopher and His Tools. (4). An intensive introduction to Philosophy designed for a) high school teachers of humanities or social sciences 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 501. Physics for the Elementary Teacher. (3). A course designed specifically

for the elementary teacher to provide a background in conceptual physical sciences. Main topics will be a study of energy, light, and electricity.

PHYS 510. Principles of Physics I. (3). A survey of essential concepts in physics with selected applications drawn from mechanics, electricity and magnetism, thermodynamics, and wave motion. Emphasis on descriptive treatment of popularized phenomena with a limited mathematical approach.

PHYS 511. Principles of Physics II. (3). A survey of essential concepts in physics with selected applications drawn from optics, atomic, molecular, and nuclear physics, relativity, and cosmology. Emphasis on descriptive treatment of popularized phenomena with a limited mathematical approach.

PHYS 512. Energy. (3). Prerequisite, PHYS 510, 511, or equivalent. A survey course intended to prepare the junior high teacher to effectively teach the multiple aspects of energy. Topics include: review of physical laws governing energy, fossil fuel resources, nuclear energy, alternative energy systems, solar, geothermal, environmental effects of large scale energy systems, energy conservation methodology.

PHYS 520. Seminar in Teaching Physical Science. (3). A course for in-service teachers of physical science at the junior high or middle school level which is designed to improve the teacher's effectiveness in the classroom and laboratory. A study curricula, of laboratory equipment and experiments, and of typical teaching problems will be included.

PHYS 561. Introduction to Research in Physics. (2). (Maximum 6). 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. (3). (2 lecture, 3 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. (2). 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. (4). 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. (4). (3 lecture, 3 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. (3). 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. (3). 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. (4). 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. (4). Prerequisites, PHYS 267, 365, and MATH 234. This course is an introduction to quantum mechanics and the quantum theory, the Bohr postulates, the correspondence principle, de Broglie waves, the Schroedinger wave equation, and the uncertainty principles.

PHYS 601. Practicum. (Maximum 4). 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 4). 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 before credit is given, one with the instructor and one with the chairman of the department.

PHYS 661. Graduate Research in Physics. (2). (Maximum 6). 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 subproblem in physics culminating in an oral and written report.

PHYS 669. Wave Mechanics II. (3). 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. (3). 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. (12). (6 lecture, 18 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. (3). (2 lecture, 3 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. (3). (2 lecture, 3 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. (3). (2 lecture, 3 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 15). Required of Master of Arts candidates in Physics who elect the thesis option in the degree.

Political Science

PSCI 500. Constitutional Law. (5). 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. (3). 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. (3). The focus of this seminar is upon the causes of war and the possible strategies of conflict resolution. Students will be expected to read widely in the literature of the field, deliver oral reports, and prepare seminar papers.

PSCI 550. Research and Inquiry in Political Science. (3). 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 4). 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

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.

Research and Statistical Methodology

RSM 504. Descriptive Statistics. (3). Study of problems in organizing, summarizing, and interpreting statistical information in solution of problems in behavioral sciences. Topics: Central tendency, variation, transformed scores, normal distribution model, bivariate correlation and regression. Laboratory experiences will be provided. Taught every quarter.

RSM 505. Statistical Inference. (3). Prerequisite, RSM 504 or equivalent. 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 506. Inferential Statistics. (3). Prerequisite, RSM 504, its equivalent, or permission of instructor. Designed for RSM majors to study the theory and nature of statistical inference. Topics: Sampling distributions; the central limit theorem; binomial, normal, t, F, chi-square probability distributions; estimation; hypothesis testing.

RSM 508. Workshop. (1-4). Workshop and short courses addressing applied statistics, research methods, and information processing. Topics vary depending on faculty interests. Each workshop has a subtitle and no subtitle may be repeated for credit.

RSM 542. Computer Programming. (3). Batch and conversational programming with Fortran and Basic. Introduction to operating systems. Proprietary data management and statistical software.

RSM 543. Computers and Information Processing. (3). Introductory computer concepts: Hardware, software, data codes, programming languages, data structures, systems and programming aids, operating systems, data communications, and data center organization.

RSM 600. Introduction to Graduate Study and Research. (3). 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. (3). Prerequisite, RSM 505 or 506. Use of anova in experimental design. One-way classification. Two-way classifications: Factorial, random block. Unweighted means. Fixed, random, and mixed models. Two-factor designs with repeated measurements. Post-test comparisons: Scheffe, Dunn, Newman-Keuls procedures. Simple analysis of covariance.

RSM 604. Advanced Experimental Design. (3). Continuation of RSM 603. Higher order factorial design. Three-factor design with repeated measurements. Trend analysis and response surface analyses. Transformations. Pre- and post-multiple comparison considerations. Power of F-tests.

RSM 605. Multivariate Analysis. (3). Prerequisite, RSM 603. Introduction to multivariate analysis of variance (MANOVA). Topics covered include fundamentals of matrix algebra, multivariate one- and two-sample tests on means, multivariate analysis of variance and covariance, mixed and random effects models, and profile analysis. The course is intended for students with an interest in experimental design from a multivariate point of view.

RSM 613. Introduction to Linear Models. (3). Prerequisite, RSM 505 or 506. Multiple regression analysis and tests of hypothesis about regression parameters. Expectancy and estimation. Model building; binary and ordered independent variables; higher order models; interaction as a higher order model. Forward selection and backward elimination variable selection procedure.

RSM 622. Individual Studies. (1-4). 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.

RSM 623. Nonparametric Statistics. (3). Prerequisite, RSM 505 or 506. 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. (3). Prerequisite, RSM 505 or 506. Spearman's g-factor, eigenvectors, eigenvalues, principal axis analysis, varimax solution. The theory of oblique and orthogonal solutions and the communality problem will be considered.

RSM 635. Sampling. (3). Prerequisite, RSM 505 or 506. Fundamental principles and methods associated with survey sampling. Topics include simple random sampling, stratified random sampling, ratio estimation, cluster sampling, systematic sampling, two-stage cluster sampling, techniques of questionnaire design, the problems of nonresponse, and sources of nonsampling errors.

RSM 641. Seminar: Special Topics. (1-4). 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 670. Evaluation: Theory and Procedures. (3). Nature and types of evaluation, planning, proposal writing, development and selection of data-gathering devices, questionnaire construction, survey

procedures, sampling techniques, experimental designs, coding demographic data, biographical inventories, data analysis, reporting results, PERT.

RSM 672. Seminar in Evaluation. (3). Prerequisite, RSM 670. Students meet with experts in evaluation and related areas invited to discuss topics such as: Current issues, trends, systems analysis, cost benefit analysis, large-scale assessments of achievement, needs assessments, federal programs, management.

RSM 674. Evaluation and Measurement I. (3). Prerequisite, RSM 504 prior or concurrent. Principles of measurement and test construction. Topics include: Interpretation of scores, norms, reliability and validity estimation, item discrimination and difficulty.

RSM 675. Evaluation and Measurement II. (3). Prerequisites, RSM 674, PCG 570 or 670. Theory and methods of scaling with emphasis on attitude scales. Topics include: Psychophysical laws, pair comparisons, Thurstone scales, Likert scales, Guttman scales, rating scales, sociometry, semantic differential, critical incident technique, homogeneous keying, Q-sort. Students devise, administer, and test a variety of measures.

RSM 676. Evaluation and Measurement III. (3). Prerequisites, RSM 675, 603 prior or concurrent. Intensive study of the mathematical bases of reliability and validity estimation and other measurement concepts. Focus is on classical measurement theory and implications of theory for developing and selecting measuring devices. Additional topics include: Individual prediction, classification and selection; scale transformations; grade equivalence; subscale and item grouping procedures; corrections for guessing.

RSM 689. Internship in Research and Statistical Methodology. (1-15). Prerequisite, permission of instructor. The internship is a supervised program of observation and participation in a one-quarter full-time assignment in a research or evaluation setting. The internship requires a minimum of 25 hours of student field experience for each credit hour given.

RSM 699. Thesis. (8). Optional for Master of Science program on recommendation of the major adviser.

RSM 700. Introduction to Doctoral Research. (3). An introduction to advanced research concepts and methods. Required of all specialist and doctoral candidates except for those departments which have substitutes for this course.

RSM 713. Planning and Methodology of Research. (3). Prerequisite, RSM 505 or 506. 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. Can be substituted for RSM 700. Open to non-majors.

RSM 742. Seminar I. (3). Prerequisites, RSM 542, 604, 605. Required of Ph.D.

candidates in Research and Statistical Methodology. Advanced topics in Statistics, Mathematics, Research Design and Information Processing.

RSM 743. Seminar II. (3). Prerequisite, RSM 742. Required of Ph.D. candidates in Research and Statistical Methodology. Advanced topics in Statistics, Mathematics, Research Design and Information Processing.

RSM 744. Seminar III. (3). Prerequisite, RSM 743. Required of Ph.D. candidates in Research and Statistical Methodology. Advanced topics in Statistics, Mathematics, Research Design and Information Processing.

RSM 755. Supervised Practicum in College Teaching. (1-9). 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. (18). Required of all doctoral candidates.

Science Education

SCED 568. Instructional Materials in the Teaching of Science. (3). (2 lecture, 3 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 572. General Science Field Studies. (1-6). This course provides teachers with the opportunity to 1) conduct field experiments in a variety of geographical settings; 2) collect biological specimens, rocks, minerals, fossils, etc., for classroom use; 3) take photographs to enhance their teaching. Nightly seminars will be conducted. A written report is required. A camping-travel fee will be assessed.

SCED 601. Practicum. (1-4). (Maximum 8). 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. (1-4). (Maximum 8). 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. (3). 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. (3). 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. (3). This course is designed to develop an acquaintance with research in science education. The type 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. (3). 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. (4). 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. (3). 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. (3). 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. (1). (Maximum 12). 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. (3). 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. (4). 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. (4). 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. (4). 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. (4). 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 school 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. (4). 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. (4). 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. (3). 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. (12). 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. (15). Optional for Master of Arts programs on recommendation of the major adviser.

SCED 701. Specialist Degree Practicum. (Maximum 8). Project or supervised professional activity, required of all candidates for the Specialist in Education degree.

SCED 755. Supervised Practicum in College Teaching. (Maximum 9). 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 experience.

SCED 756. Internship in Supervising College Teaching. (3). 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.

SCED 777. Evaluation and Testing of Science. (3). 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 18).

Science

SCI 505. Physical Science Concepts. (4). 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. (3). 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. (3). 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. (3). 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 550. The Ascent of Man. (3). Prerequisite, consent of instructor. A history and philosophy of science course based upon the films and text of the same title by Bronowski. The course will critically examine and supplement the topics and philosophy of science introduced by Bronowski.

SCI 592. Computer Simulations in Science. (3). (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. (3). (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. (3). (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. (3). 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. (3). 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. (3). 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. (3). 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. (3). This course will deal with the atomic model of matter. Study includes radio-activity, 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. (4). 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. (4). 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.

School of Educational Change and Development

SECD 502. Professional Development Experiences. (1-15). 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.

SCED 602. Professional Development Experiences. (1-15). 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.

SCED 603. Project in Lieu of Thesis. (8-15). Optional for Master of Arts and Master of Science students in the School of Educational Change and Development.

SCED 699. Master's Thesis. (8-15). Optional for Master of Arts and Master of Science students in the School of Educational Change and Development.

SCED 701. Specialist Practicum. (8). Project or supervised professional activity,

culminating in a written report, required of all candidates for Specialist in Education degree.

SCED 702. Professional Development Experiences. (1-15). 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.

SCED 703. Project in Lieu of a Dissertation. (18). 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 PUBLICATION 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. A student may elect to do two nine-hour projects. A student must earn 18 hours of credit.

SCED 799. Dissertation. (18). Required of all doctoral candidates who do not write a project in lieu of a dissertation.

Sociology

All of the following Sociology courses have as a prerequisite SOC 100 or equivalent.

SOC 515. Seminar in Socialization. (3). A sociological approach to the field of socialization theory and research, particularly 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. (3). 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 550. Philosophical Issues in Sociology. (4). Prerequisite, SOC 351. An exploration of a variety of philosophical problems, issues and contentions forming a backdrop to theoretical and empirical sociology.

SOC 551. Sociology of Knowledge. (3). Prerequisite, SOC 350. 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. (3). Analysis and evaluation of the major historical and contemporary theories of criminal behavior.

SOC 563. Ethnomethodology. (4). 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 systems.

SOC 574. Demographic Analysis. (4).

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. (3-9). 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. (3). 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. (3). 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. (4). 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 4). 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. (3). 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. (3). Prerequisite, SOC 352. The development of Sociological Theory from Comte to the present is analyzed with special emphasis on various European and American "schools." The principal aim is to acquaint the student systematically, with the concepts of sociological theory in order to orient him to

various frames of reference for viewing human interaction.

SOC 660. Seminar in Advanced Social Research. (4). 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. (3). Prerequisite, SOC 461 or equivalent. The course will deal with select topics in social statistics. The topics discussed will vary according to individual needs and goals.

SOC 680. Sociology Internship. (2). 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.

SOC 699. Thesis. (Maximum 15). Required of Master of Arts candidates in sociology on recommendation of the major adviser.

Social Studies Education

SSED 602. Concepts in the Social Sciences. (PTE or certification at the undergraduate level). (5). 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). (5). 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). (3). 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

Spanish

SPAN 500. Problems in Oral Spanish. (3). 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 508. Workshop. (Maximum 15). For language teachers or those planning to be

teachers, this workshop will focus on specific, practical techniques for teaching Spanish with special emphasis on performance objectives and individualization of instruction. Intensive preparation in a number of successful aural-oral and cognitive techniques will be provided.

SPAN 622. Individual Study in Spanish. (Maximum 4). 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.

Theatre Arts

THEA 505, 506, 507, 508. Graduate Individual Performance in Theatre. (2 each). Open to all graduate students who desire to participate in production activities of The Little Theatre of the Rockies. To receive a B grade, students must participate a minimum of 60 hours.

THEA 585. Theatre Production in the High School. (3). (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. (3). 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. Graduate Practicum in Theatre. (1-4). (Maximum 12). Prerequisite: Qualified graduate major; permission of instructor; student adviser; department chairperson. Supervised and specialized field-work in theatre, involving theory and methodology in practice; two to eight hours per week. Critical evaluation by instructor. Copies of a written evaluation of the work performed must be filed with the instructor and department.

THEA 610. Seminar in Technical Theatre. (3). (Maximum 9). Prerequisite, *THEA 310, 411, 320 and 321*, 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. Graduate Independent Research in Theatre. (1-4). (Maximum 12). Prerequisite: Graduate major; permission of instructor, student adviser, and department chairperson. Supervised individual research in theatre, involving the standards and methodologies of research procedures; two to eight hours of research/writing per week. Critical evaluation by instructor. Copies of a standard research paper must be filed with the instructor and department.

THEA 630. Seminar in Theatre History. (3). (Maximum 9). Prerequisite, *THEA 330, 331, 332*, 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 I, II, III. (8 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 680. Advanced Children's Theatre Production. (4). 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. (3). (Maximum 9). 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

VTE 500. Health Occupations Program Development. (3). Student develops and/or revises health occupations programs at secondary or post-secondary institutions. Modules: 1) Program Assessment Process; 2) Program design including Core/Cluster; 3) Articulation Considerations.

VTE 506. Health Occupations Program Coordination. (3). Prerequisite, *VTE 400*. Studies operations of single and multiple programs. Modules: 1) Interdepartmental Coordination; 2) Interinstitutional Coordination; 3) Intrainstitutional Coordination.

VTE 507. Accreditation and Regulatory Practices in Health Occupations. (3). For administrative and supervisory personnel. Emphasis: accreditation, registration, licensure, and certification practices as they affect students and allied health occupations programs in secondary, post-secondary and community college institutions.

VTE 508. Workshop in Vocational Teacher Education. (Maximum 9). Study of common instructional or administrative programs. Subtitled, subtitles cannot be repeated. Graduate students working on degree, see adviser on degree requirements.

VTE 509. Seminars in Vocational Teacher Education. (Maximum 6). Group participation, focus on specific topics.

Graduate students working on degree, see adviser regarding special seminars.

VTE 610. Foundations of Vocational Education. (3). Meets State requirements for a credential in lieu of *VTE 310*. 1) Milestones, 2) Organization and Administration, 3) Current Legislative Mandates, 4) Career Development Education for Lifelong Learning, 5) Trends/Concerns/Issues, 6) Career Opportunities for Graduate Students, and 7) Unique Contributions.

VTE 612. Programs and Processes in Vocational Education. (3). Exposure to VE programs and methods of instruction through field trips and classroom activities. In-class seminars: 1) Scope and Depth of VE Training, 2) Staffing Patterns, 3) Facilities and Equipment, 4) Utilization of Community Resources, and 5) Methods and Techniques of Instruction.

VTE 616. Performance-Based Curricula. (3). 1) Specification of Intended Program Outcomes, 2) Identification of Instructional Media and Materials for Individualizing Instruction, 3) Occupational Analyses, 4) Concepts of Performance-Based Curricula.

VTE 622. Individual Studies in Vocational Teacher Education. (Maximum 6). A minimum of 25 clock hours per quarter hour on topic not covered under regular program. Two copies of a well-written paper are filed.

VTE 623. Curriculum Planning and Evaluation. (3). Offered as a block, sequentially with *VTE 624*. Planning considers important inputs for decision making. Evaluation considers models, processes, and instruments.

VTE 624. Curriculum Design and Development. (3). Follows *VTE 623*. May be offered as a block. Structure and organization of curriculum. Utilization of existing materials/media, production of new materials and the diffusion function.

VTE 625. Program Proposals and Budgets. (3). 1) Sources of Funds, 2) Current Funding Priorities, 3) Current Proposal Vocabulary, 4) Critique of Proposals, 5) Management of Projects including Development of Time Lines, Utilization of PERT and CPR. Final project: Answering a Request for Proposal (RFP).

VTE 626. Program Leadership. (3). Leadership styles, concerns, conflicts, purpose/function, needs and skills for program management at the department/division level.

VTE 627. Components of a VE System. (3). 1) Concepts of Systems Approach to Department/Division or Program Organization, 2) Components of a Recommended System, and 3) Component Standards.

VTE 630. Community and Adult Vocational Education. (3). Provides overview of a comprehensive community-based system of education. 1) Current Adult Education Practices, 2) Community Education, 3) Adult Education Practices, 4) Current Trends in Lifelong Learning, and 5) Methods and Materials in Adult Education.

VTE 631. Manpower Organization and Policies Seminar. (3). Separate Federal

legislative mandated activities: 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.

VTE 642. Career Development Education System. (3). A developmental system for paid employment roles beginning with the elementary school through adult education. Course limited to paid employment roles (more than vocational education) and not the entire Career Education thrust.

VTE 690. Field Experiences. (1-12). Prerequisite, minimum nine quarter hours graduate work in VTE, at UNC. Exception: Colorado Study Tour Business/Industry. Transfer to a degree program must be made prior to enrollment. Permission: VTE Graduate Coordinator.

VTE 691. Practicum. (3 or 6). Designed for either off-campus or on-campus graduate students who wish to become involved in a practical research project. A "prospectus" must be submitted to the Coordinator of GVTE prior to enrollment.

VTE 696. Vocational Internship Program. (1-12). Prerequisite a minimum 12 graduate VTE hours at UNC. Internship may be included as an integral part of a graduate program by written authorization from the student's adviser to the Coordinator of GVTE. Experiences are supervised by recognized vocational leaders at the local, state, regional or national level.

Zoology

ZOO 505. Special Topics in Zoology. (4, maximum 12). (2 lecture, 4 laboratory). Advanced studies in the areas of taxonomy, Physiology, ecology, vertebrate or invertebrate zoology.

ZOO 511. Advanced Invertebrate Zoology. (5). (3 lecture, 4 laboratory). A comparative study of the classification, anatomy, physiology and natural history of the invertebrates, exclusive of insects and most parasitic forms.

ZOO 512. Helminthology. (4). (3 lecture, 3 laboratory). Prerequisite, ZOO 412. An advanced study of the parasitic worms. Concept of phylogeny, morphology, life cycles, classification and history are emphasized.

ZOO 518. Medical Entomology. (4). (3 lecture, 2 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. (4). (3 lecture, 3 laboratory). Prerequisite, ZOO 427. 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. (5). (3

lecture, 6 laboratory). Prerequisites, BIO 101, 103. An intensive study of normal tissues and organs of vertebrates, with emphasis on mammals.

ZOO 540. Zoogeography. (3). The principles and theories of animal distribution with emphasis placed on higher vertebrate taxons. The basic emphasis will be on world and continental distribution, but local and unique patterns of distribution will also be discussed especially as they affect North American taxa.

ZOO 550. Medical Pharmacology. (4). (3 lecture, 3 laboratory). Prerequisites, BIO 103 or ZOO 105, ZOO 121 or ZOO 428, ZOO 250, CHEM 130. A detailed study of the principles underlying absorption, distribution, metabolism and excretion of drugs. Special emphasis will be given to the interaction between drugs and living organisms. Credit not allowed for both ZOO 350 and ZOO 550.

ZOO 551. Mammalian Physiology I. (5). (3 lecture, 6 laboratory). Prerequisites, ZOO 121 or 428 or equivalent, CHEM 281 or 483 are 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. (5). (4 lecture, 3 laboratory). Prerequisites, ZOO 121 or 428, 551, CHEM 281 or 483 recommended. This course includes a detailed consideration of the digestive, muscular and excretory systems. Major emphasis is placed on the integrative functions of these systems in the maintenance of homeostasis.

ZOO 554. Gastrointestinal Physiology. (4). Prerequisites, ZOO 121 or 428, 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 555. The Human Body in Health and Disease. (4). Prerequisite, basic biology and chemistry. A course designed to introduce the principles of the biological and the physical sciences that contribute to an understanding of normal body processes and of abnormal states and conditions. The sciences of anatomy, physiology, and pathology are emphasized because they are basic to the understanding of the human body in health and disease.

ZOO 622. Individual Studies. (4 maximum). 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 residency at UNC during the quarter the course is taken.

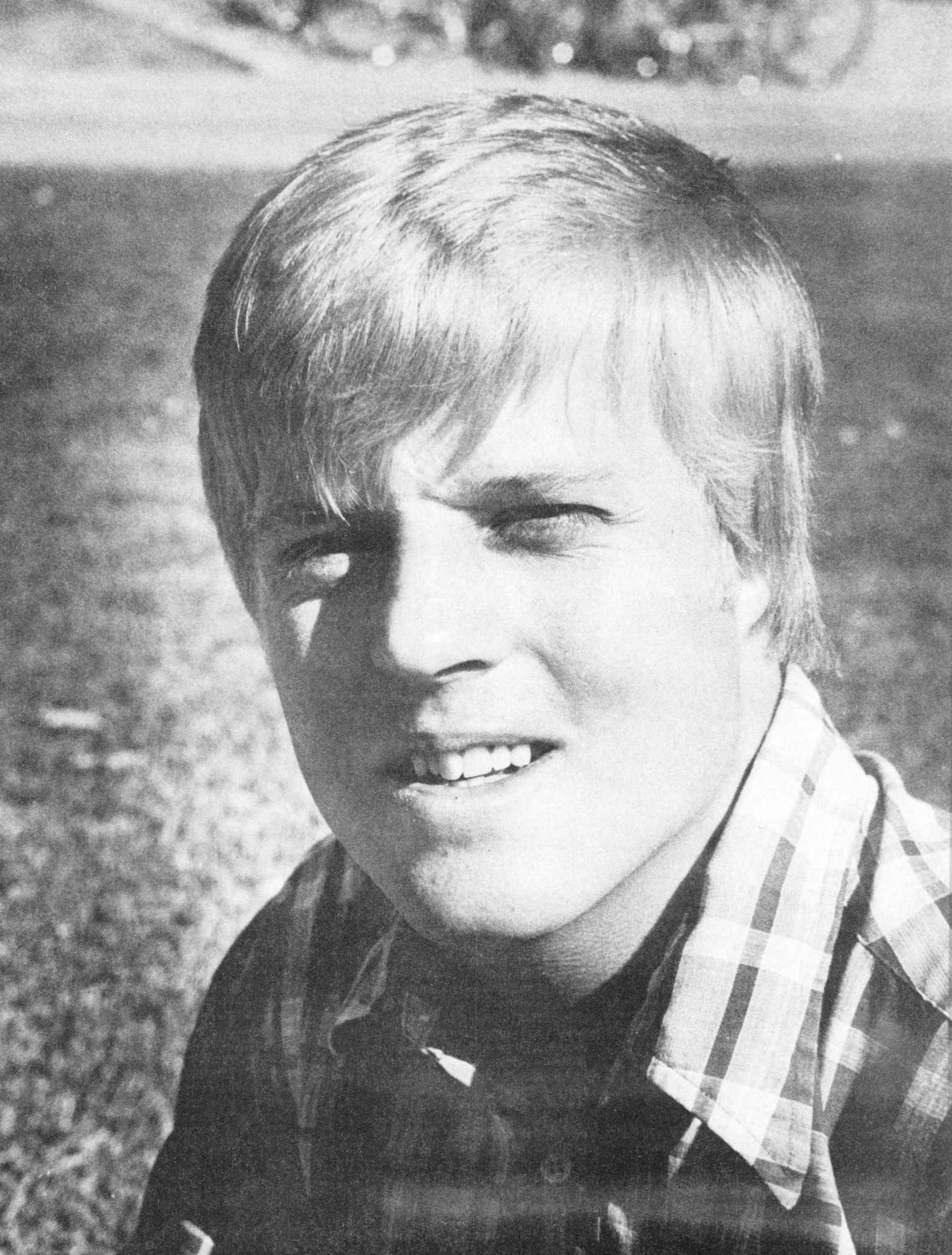
ZOO 627. Comparative Mammalian Anatomy. (5). (4 lecture, 3 laboratory). Prerequisites, ZOO 427 and 428. A detailed study of selected aspects of vertebrate anatomy, stressing the functions and adaptive significance of the organ systems.

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. (3). 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. (3). 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.

ZOO 699. Thesis. (15 maximum). Optional for Master of Arts candidates in Zoology.





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Faculty 1978 - 79

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 Edwin D. Baker, Professor of Music; Chairperson, Department of Brass and Percussion — B.M., M.M., Indiana University.
 Jerry N. Barham, Professor of Physical Education — B.S., University of Arkansas at Monticello; M.S., Ed.D., Louisiana State University.

Robert F. Barnes, Associate Professor of Vocational Education; Director, Vocational Teacher Education — B.S., Kansas State University; M.S., Ph.D., University of Wisconsin.
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