Surgery\text-emph{-}SUR

611 Urology Clerkship
Fall, Spring, Summer. 6 credits. A student may earn a maximum of 18 credits in all enrollments for this course. P:NM: (SUR 608) R: Open only to graduate-professional students in College of Human Medicine. Demonstration of clinical manifestations of genitourinary disease, investigative methods and techniques of diagnosis and management. Urologic emergencies and performance of basic urologic skills.

613 Orthopedic Surgery Clerkship
Fall, Spring, Summer. 6 credits. A student may earn a maximum of 18 credits in all enrollments for this course. P:NM: (SUR 604) R: Open only to graduate-professional students in College of Human Medicine. Diagnosis and management skills in common orthopedic problems. Orthopedic emergencies.

614 Neurosurgery Clerkship
Fall, Spring, Summer. 6 credits. A student may earn a maximum of 18 credits in all enrollments for this course. P:NM: SUR 608 R: Open only to graduate-professional students in College of Human Medicine. Problems related to common emergent and elective neurosurgery involving the brain, spine, and peripheral nerves. Neurological examinations, diagnostic methods.

615 Ophthalmology Clerkship
Fall, Spring, Summer. 6 credits. A student may earn a maximum of 18 credits in all enrollments for this course. P:NM: (SUR 608) R: Open only to graduate-professional students in College of Human Medicine. Medical and surgical treatment of eye diseases. Clinical experiences include private office practice, surgical observations, pre-and post-operative care.

616 Thoracic Surgery Clerkship
Fall, Spring, Summer. 6 credits. A student may earn a maximum of 18 credits in all enrollments for this course. P:NM: (SUR 608) R: Open only to graduate-professional students in College of Human Medicine. Problem solving in thoracic medicine and surgery. Pulmonary physiology. Diagnostic tools and tests, and indications for surgical procedures.

618 Anesthesia Clerkship
Fall, Spring, Summer. 6 credits. A student may earn a maximum of 18 credits in all enrollments for this course. P:NM: (SUR 608) R: Open only to graduate-professional students in College of Human Medicine. Common anesthetic agents. Performing anesthetic procedures under faculty supervision.

619 Sub-specialty Surgery Clerkship
Fall, Spring, Summer. 6 credits. A student may earn a maximum of 18 credits in all enrollments for this course. P:NM: (SUR 608) R: Open only to graduate-professional students in College of Human Medicine. Surgical domains not covered otherwise or in which students desire further exposure.

620 Senior Surgery Clerkship
Fall, Spring, Summer. 6 to 12 credits. A student may earn a maximum of 12 credits in all enrollments for this course. P:NM: (SUR 608 And MED 608) R: Open only to graduate-professional students in College of Human Medicine. Advanced experience in critical care, trauma, and nutrition. Students must successfully complete several technical bedside procedures with more responsibility for patient care than in SUR 608.

621 Surgical Nutritional Care Clerkship
Fall, Spring, Summer. 6 credits. A student may earn a maximum of 18 credits in all enrollments for this course. P:NM: (SUR 608) R: Open only to graduate-professional students in College of Human Medicine. Clinical experience with nutrition team dealing with surgical and medical patients requiring therapeutic nutrition as a result of metabolic derangement and nutritional deficiencies.

633 Extended Clinical Experience
Fall, Spring, Summer. 6(6-0) P: (SUR 608) Based in community hospitals and ambulatory sites, this is a 4 week clinical experience emphasizing interviewing skills, history, physical exam, problem solving and therapy.

637 Core Competencies III
Spring, Summer. 2 credits. A student may earn a maximum of 6 credits in all enrollments for this course. Interdepartmental with Human Medicine; Family Practice; Medicine; Obstetrics, Gynecology and Reproductive Biology; Pediatrics and Human Development. Administered by Human Medicine. P:NM: (FMP 602) R: Open only to graduate-professional students in College of Human Medicine. A weekly seminar addressing core knowledge and skills from an interdisciplinary perspective.

801 Shock and Metabolism
Fall, 4(4-0) R: Open only to M.S. students in Surgery. Results of prolonged reduction in tissue perfusion on tissue metabolism, structure, and function at the systemic, cellular and subcellular levels. Pharmacological interventions useful in volume resuscitation.

802 Clinical Surgical Anatomy

803 Enteral and Parenteral Nutrition
Fall, 3(3-0) R: Open only to M.S. students in Surgery. Identification of individuals requiring nutritional support. Nutritional requirements in diseases. Delivery of total parenteral and enteral nutrition. Special problems.

804 Research Design and Quantitative Techniques for Surgical Residents
Spring, 3(3-0) R: Open only to students in graduate's degree program in Surgery. Recognition and differentiation between experimental designs. Identification of strengths and weaknesses of a manuscript. Recognition and definition of statistical terms and common inferential techniques used in surgical research. Use of computer software in research.

890 Seminars in Research
Fall, Spring, Summer. 1 credit. A student may earn a maximum of 5 credits in all enrollments for this course. R: Open only to M.S. students in Surgery. Philosophy and methods of research. Preparation and presentation of research data in research reports. Practical applications.

899 Master's Thesis Research
Fall, Spring, Summer. 3 to 4 credits. A student may earn a maximum of 10 credits in all enrollments for this course. P:NM: (SUR 801 and SUR 802 and SUR 803 and SUR 804) R: Open only to M.S. students in Surgery. Approval of department. Master's thesis research.

TEACHER EDUCATION

Department of Teacher Education
College of Education

150 Reflections on Learning
Fall, Spring, Summer. 3(3-0) Interdepartmental with Counseling, Educational Psychology and Special Education. Students' experiences as learners in comparison to psychological, sociological, and anthropological theories and assumptions about learning and teaching in and out of school.

240 Diverse Learners in Multicultural Perspective
Fall, Spring, Summer. 3(2-2) Interdepartmental with Counseling, Educational Psychology and Special Education. Administered by Department of Counseling, Educational Psychology, and Special Education. Not open to students with credit in TE 250. Communicative, linguistic, physical, sensory, behavioral, affective, and cognitive differences in learning in multicultural classrooms. Factors that mediate access to knowledge.

250 Human Diversity, Power, and Opportunity in Social Institutions
Fall, Spring, Summer. 3(3-0) Comparative study of schools and other social institutions. Social construction and maintenance of diversity and inequality. Political, social and economic consequences for individuals and groups.

301 Learners and Learning in Context (W)
Spring, 4(3-4) P: Completion of Tier I writing requirement. P:NM: (TE 150) And (TE 250 Or CEP 240) R: Not open to freshmen or sophomores. Open only to students admitted to the teacher certification program. Role of social context and sociocultural background in learning. Natural and socially constructed differences among learners. Relationship among subject-specific knowledge, teaching and learning that subject, and the institutional and communal context. Multiple literacies.
348 Reading and Responding to Children’s Literature
Fall, Spring, Summer. (3-3-0)
Literary understanding and genres in reading and teaching children's literature. Critical and theoretical perspectives in evaluating children's literature. Children's responses to literature. Literary, social, and pedagogical issues in the study of children's literature.

401 Teaching of Subject Matter to Diverse Learners (W)
Fall. 5(3-8) P:M: (MTH 201) and completion of Tier I writing requirement. P:NM: (TE 301) RB. (MTH 202) R: Not open to freshmen or sophomores. Open only to students admitted to the teacher certification program.
Examining teaching as enabling diverse learners to inquire into and construct subject-specific meanings. Adapting subject matter to learner diversity. Exploring multiple ways diverse learners make sense of the curriculum.

402 Crafting Teaching Practice (W)
Spring. 6(4-8) P:M: Completion of Tier I writing requirement. P:NM: (TE 401) R: Not open to freshmen or sophomores. Open only to students admitted to the teacher certification program.
Gathering data on learners to inform content and instructional decisions. Deciding what should be taught for specific disciplines. Teachers’ multiple roles and their professional, intellectual, sociopolitical, and communal responsibilities.

495 Student Teaching in Music
Fall, Spring. 9 credits. Interdepartmental with Music. Administered by School of Music. R: Open only to seniors in the Bachelor of Music Education major.
Supervised music teaching experience in schools. On-campus seminar required.

501 Internship in Teaching Diverse Learners I
Fall. 6(2-24) P:NM: (TE 402) R: Open only to students seeking teacher certification.
Directed and evaluated internship in heterogeneous classrooms. Teaching worthwhile content to students with varied learning needs. Theoretical and field-based explorations of common teaching dilemmas.

502 Internship in Teaching Diverse Learners II
Spring. 6(2-24) P:NM: (TE 501) R: Open only to students admitted to the Teacher Certification Internship-Year Studies Program. Not open to students with credit in CEP 502A or CEP 502B or CEP 502C or CEP 502D.
Continuing internship in heterogeneous classrooms at selected schools. Increased emphasis on independent teaching. Maintaining classroom communities that ensure equitable access to important knowledge and skills. Assessing academic and social outcomes.

801 Professional Roles and Teaching Practice I
Fall. 3(2-3) P:NM: (TE 402) R: Open only to students admitted to the Teacher Certification Internship-Year Studies Program. Not open to students with credit in CEP 801A.
Teachers’ professional and ethical responsibilities. Connections of schools to other social agencies. Relations of teachers to colleagues, families, other social service providers, and community leaders. Roles in school governance.

802 Reflection and Inquiry in Teaching Practice II
Fall. 3(2-3) P:NM: (TE 402) R: Open only to students admitted to the Teacher Certification Internship-Year Studies Program. Not open to students with credit in CEP 802A or CEP 802C or CEP 802D.
Qualitative and quantitative research methods on teaching and learning. Criteria for judging the validity and applicability of research-based knowledge. Framing educational problems worthy of inquiry. Designing and assessing studies of teaching practice.

803 Professional Roles and Teaching Practice II
Spring. 3(2-3) P:NM: (TE 801) R: Open only to students admitted to the Teacher Certification Internship-Year Studies Program. Not open to students with credit in CEP 803A or CEP 803C or CEP 803D.
School-agency alliances for fostering student learning. Strategies for working with families and community groups to improve responsiveness of the school curriculum to student needs. Child advocacy in the school and community.

804 Reflection and Inquiry in Teaching Practice II
Spring. 3(2-3) P:NM: (TE 802) R: Open only to students admitted to the Teacher Certification Internship-Year Studies Program. Not open to students with credit in CEP 804A or CEP 804C or CEP 804D.
Collecting, analyzing, and interpreting data on teaching, learning, and educational policy. Dilemmas surrounding research on practice. Appraising and reporting results of inquiry.

805 Learning Mathematics
Fall. (3-3) Intermediate with Counseling, Educational Psychology and Special Education. Administered by Department of Counseling, Educational Psychology, and Special Education.
Learning and development of mathematical thinking and knowledge in educational settings from perspectives of psychology, anthropology, mathematics, and other disciplines. Implications for teaching.

807 Professional Development and Inquiry
Fall, Summer. 3(3-0) R: Open only to masters students in Curriculum and Teaching.
Teacher-centered inquiry through autobiography and documentation of self as learner. Relationship of personal research to classroom-based research. Application to practice.

808 Inquiry into Classroom Teaching and Learning
Fall. 3(3-0) R: Open only to masters students in Curriculum and Teaching.
Alternative forms of classroom inquiry to improve teaching and learning of subject matter. Social context of teaching and learning, pedagogy, and teaching effects. Social and academic outcomes for diverse learners.

810 History of American Education
Spring of even years. 3(3-0)
Social and intellectual history of educational ideals and institutions. Legacies of reform initiatives. Evolution of the education profession.

811 Philosophical Inquiry and Contemporary Issues in Education
Fall. Spring. 3(3-3)
Philosophies of education. Analytic tools used for evaluating current educational goals, practices, issues, and reforms.

812 Sociological Inquiry into Education
Spring of even years. 3(3-0)
Relationships of educational organizations and practices to social structures and institutions.

815 Comparative Analysis of Educational Practice
Fall of even years. 3(3-0)

816 Education in Transition
Fall of odd years. 3(3-0)
Comparative analysis of change in educational concepts, policies, and practice.

818 Curriculum In Its Social Context
Fall. Spring. 3(3-0)
Philosophical, social, and historical foundations of curriculum. Issues and practices across subjects, grades, and school settings. Moral consequences of curriculum decisions for teachers and students.
Teacher Education—TE

820 Power and Pluralism in School Practice
Spring of odd years. 3(3-0)
Connections between schools and diversity, inequality, and power in society. Genesis and consequences of school policies for diverse learners.

821 Race and Educational Policy in the United States
Spring of even years. 3(3-0)
Educational policy in relation to race in the United States. Efforts to promote equity through racially sensitive curricular and instructional practices.

822 Issues of Culture in Classroom and Curriculum
Fall of odd years. 3(3-0)
Socio-cultural contexts and functions of schooling. Cultural diversity in education. Schools and classrooms as cultural systems. Students' cultural backgrounds in relation to curriculum. Developing effective multicultural curricula for all students.

823 Learning Communities and Equity
Spring. 3(3-0)
Cooperative grouping and heterogeneous learning teams. Impact of learning communities on equity and on school curricula.

825 Diverse Learners and Learning Subject Matter
Summer. 3(3-0)
Multiple perspectives on teaching subject matter to diverse learners. Texts, curricula, and pedagogical approaches. Subject-specific issues related to classroom diversity.

826 Evaluation of Educational Programs and Policies
Spring. 3(3-0) Interdepartmental with Counseling, Educational Psychology and Special Education. Administered by Department of Counseling, Educational Psychology, and Special Education. P:NM: CEP 822
Qualitative and quantitative methods to assess the effectiveness of public policies and resulting educational programs. Theory and practice of program evaluation.

830 Designing Interdisciplinary Curricula
Spring of even years. 3(3-0)
Historical and conceptual analyses of ways to design, organize, and integrate curricula across subject areas. Evaluation and application of criteria for planning and teaching interdisciplinary curricula.

831 Teaching School Subject Matter with Technology
Fall. Spring. 3(3-0)
Uses of technologies in teaching subject matter to diverse learners. Critical perspectives on technologies in schools.

840 Proseminar I: Historical Bases of Literacy Instruction
Fall. 3(3-0) R: Open only to graduate students in Literacy Instruction. Relationships between language processes and schooling.

841 Proseminar II: Psychological Bases of Literacy Instruction
Spring. 3(3-0) P:NM: (TE 840) R: Open only to graduate students in Literacy Instruction. Psychological foundations of literacy instruction, including theories and models of reading and writing. Psychological processes, social and contextual factors, and text features relevant to literacy instruction.

842 Advanced Methods of Elementary School Reading
Fall. Summer. 3(3-0)
Methods and materials for teaching developmental and content area reading in grades K-8.

843 Reading, Writing, and Reasoning in Secondary School Subjects
Spring. 3(3-0)
Knowledge and methodology for teaching language, literacy, and thinking in selected secondary school subjects.

844 Classroom Literacy Assessment
Summer. 3(3-0)
Knowledge and methodology about ongoing and summative types of classroom assessment in oral language, reading, and writing at the elementary and secondary levels.

845 Language Diversity and Literacy Instruction
Fall. 3(3-0) P:NM: One introductory linguistics course.
Acquisition of literacy in schools by language minority students and other learners with diverse backgrounds.

846 Methods for Teaching Language Arts
Fall. 3(3-0)
Methods and materials for teaching listening, speaking, reading, and writing with emphasis on language development across the curriculum.

847 Methods for Writing Instruction
Spring of even years. 3(3-0) P:NM: (TE 847) Rationale and methods for writing instruction from pre-writing through drafting and editing.

848 Methods and Materials for Teaching Children's and Adolescent Literature
Fall of odd years. Summer of even years. 3(3-0)
Evaluation and utilization of various genres and elements of literature with focus on literature for students in grades K-12.

849 Critical Reading for Children and Adolescents
Fall of even years. 3(3-0) P:M: (TE 849)
Teaching and learning of critical and aesthetic responses to literature for K-12 students.

851 Literacy for the Young Child in Home and School
Spring of odd years. 3(3-0) P:NM: (TE 849)
Literacy development in children from early infancy through age six, with emphasis on evaluation and utilization of writings for young children.

852 Culture, Literacy, and Autobiography
Fall of odd years. 3(3-0)
Cultural foundations of literacy through autobiography. Individual and cultural identities, ethnicity, literacy, and education in literature and autobiographical sources.

855 Teaching School Mathematics
Fall. 3(3-0) P:NM: Two undergraduate mathematics courses.
Methods, materials, activities, and content important to teaching mathematics. Emphasis on conceptual understanding of mathematical ideas. Implications for lesson development, teaching diverse learners, and evaluating student learning.

856 Alternatives in School Mathematics Curriculum

857 Teaching and Learning Mathematical Problem Solving
Spring. 3(3-0) P:NM: Two undergraduate mathematics courses.
Alternative approaches to solving mathematical problems and incorporating problem solving into K-12 teaching. Selection, appraisal, and uses of problems in the classroom. Materials and assessment strategies.

860 Practice and Inquiry in Science Education
Spring. 3(3-0)
Teaching science subjects. Emphasis on learner diversity, learning community, conceptual understanding, subject matter content, and learners' prior knowledge.

865 Teaching and Learning K-12 Social Studies
Fall. 3(3-0)
Purposes for teaching and learning social studies. Developing citizenship, social science reasoning, and content knowledge with diverse learners.

866 K-12 Social Studies Curriculum
Spring of odd years. 3(3-0)
Issues and practices in social studies from historical, philosophical, and epistemological perspectives. Student diversity and the social studies curriculum. Reforms and needed research in social studies education.

867 Perspectives in Social Studies: Global Education
Summer. 3(3-0)
Issues affecting the global community. Educational strategies for developing a global perspective on human relationships and the environment.

868 Perspectives in Social Studies: Law-Related Education
Summer. 3(3-0)
Intellectual, social, and personal premises for law-related education. Strategies for curricular infusion.

870 Curriculum Design, Development, and Deliberation in Schools
Spring. 3(3-0)
Simulation in group curriculum deliberation. Critique of curriculum discourse, process, and product. Teachers' roles in site-based curriculum and staff development.

872 Teachers as Teacher Educators
Spring. 3(3-0)
Experienced teachers' contributions to the professional development of novice teachers. Implications for school change.

882 Seminars in Curriculum and Teaching (MTC)
Fall, Spring. Summer. 1 to 4 credits. A student may earn a maximum of 9 credits in all enrollments for this course.
Intensive study of selected topics in curriculum and teaching.
<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
<th>Description</th>
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<tbody>
<tr>
<td>897</td>
<td>Psychological Study of Teaching</td>
<td>3(3-0)</td>
<td>Fall of odd years. Interdepartmental with Counseling, Educational Psychology and Special Education. Administered by Department of Counseling, Educational Psychology, and Special Education. R: Open only to Ph.D. students in Education. Research literature on psychological aspects of teachers and teaching. Topics include teacher's decision-making, learning from experience and developmental changes.</td>
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<tr>
<td>901</td>
<td>Psychological Study of Teaching</td>
<td>3(3-0)</td>
<td>Fall of odd years. Interdepartmental with Counseling, Educational Psychology and Special Education. Administered by Department of Counseling, Educational Psychology, and Special Education. R: Open only to Ph.D. students in Education. Research literature on psychological aspects of teachers and teaching. Topics include teacher's decision-making, learning from experience and developmental changes.</td>
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<td>903</td>
<td>Research Ethics</td>
<td>1(1-0)</td>
<td>Interdepartmental with Kinesiology, Counseling, Educational Psychology and Special Education, Educational Administration, Zoology, Sociology, Surgery. Administered by Department of Kinesiology. R: Open only to graduate students in the Department of Counseling, Educational Psychology, and Special Education or Department of Educational Administration or Department of Kinesiology or Department of Teacher Education. Identifying and resolving ethical problems in research, including issues related to collegial interactions; authorship, publication, and reviewing practices; data management; ownership of data and intellectual property; conflicts of interest; protection of human and animal subjects; and lab safety and compliance.</td>
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<tr>
<td>907</td>
<td>Philosophy of Education: Ideas and Methods</td>
<td>3(3-0)</td>
<td>Fall of odd years. Interdepartmental with Counseling, Educational Psychology, and Special Education. Administered by Department of Counseling, Educational Psychology, and Special Education. R: Open only to Ph.D. students in College of Education. Psychological theory and research on the learning of mathematics. Development of mathematical thinking and knowledge in school and other settings.</td>
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<td>909</td>
<td>Language, Literacy and Learning</td>
<td>3(3-0)</td>
<td>Spring of even years. Interdepartmental with Counseling, Educational Psychology, and Special Education. Administered by Department of Counseling, Educational Psychology, and Special Education. R: Open only to Ph.D. students in Education. Role of language in mediating cognition, affect, and action in educational contexts. Relationship between oral and written discourse and sociocultural contexts.</td>
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<tr>
<td>915</td>
<td>Disciplinary Knowledge and School Subjects</td>
<td>3(3-0)</td>
<td>Spring of even years. Interdepartmental with Counseling, Educational Psychology, and Special Education. Administered by Department of Counseling, Educational Psychology, and Special Education. R: Open only to Ph.D. students in Education. Cross-disciplinary comparisons of the nature of knowledge, its creation, refutation, and use. Correspondence between disciplinary knowledge and knowledge as represented in schools.</td>
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<td>916</td>
<td>Policy Analysis in Education</td>
<td>3(3-0)</td>
<td>Fall of odd years. Interdepartmental with Counseling, Educational Psychology, and Special Education. Administered by Department of Counseling, Educational Psychology, and Special Education. R: Open only to Ph.D. students in Education. Cross-disciplinary comparisons of the nature of knowledge, its creation, refutation, and use. Correspondence between disciplinary knowledge and knowledge as represented in schools.</td>
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<td>917</td>
<td>Comparative Perspectives on Teaching, Curriculum, and Teacher Education</td>
<td>3(3-0)</td>
<td>Spring of odd years. Interdepartmental with Counseling, Educational Psychology, and Special Education. Administered by Department of Counseling, Educational Psychology, and Special Education. R: Open only to Ph.D. students in Education. Cross-disciplinary comparisons of the nature of knowledge, its creation, refutation, and use. Correspondence between disciplinary knowledge and knowledge as represented in schools.</td>
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<td>918</td>
<td>Learning to Teach</td>
<td>3(3-0)</td>
<td>Fall of odd years. Interdepartmental with Counseling, Educational Psychology, and Special Education. Administered by Department of Counseling, Educational Psychology, and Special Education. R: Open only to Ph.D. students in Education. Cross-disciplinary comparisons of the nature of knowledge, its creation, refutation, and use. Correspondence between disciplinary knowledge and knowledge as represented in schools.</td>
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<td>919</td>
<td>Social Analysis of Educational Policy</td>
<td>3(3-0)</td>
<td>Fall of odd years. Interdepartmental with Counseling, Educational Psychology, and Special Education. Administered by Department of Counseling, Educational Psychology, and Special Education. R: Open only to Ph.D. students in Education. Cross-disciplinary comparisons of the nature of knowledge, its creation, refutation, and use. Correspondence between disciplinary knowledge and knowledge as represented in schools.</td>
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<td>920</td>
<td>Educational Inquiry</td>
<td>3(3-0)</td>
<td>Fall of odd years. Interdepartmental with Counseling, Educational Psychology, and Special Education. Administered by Department of Counseling, Educational Psychology, and Special Education. R: Open only to Ph.D. students in Education. Cross-disciplinary comparisons of the nature of knowledge, its creation, refutation, and use. Correspondence between disciplinary knowledge and knowledge as represented in schools.</td>
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</table>
Teacher Education–TE

933 Quantitative Methods in Educational Research (MTC)  
Fall, Spring. 4(4-0) Interdepartmental with Counseling, Educational Psychology and Special Education. Administered by Department of Counseling, Educational Psychology, and Special Education. P:NM: (CEP 822 or KIN 871 or CEP 930) One introductory research design or statistics course. R: Only open to graduate students in the College of Education or College of Agriculture and Natural Resources or College of Human Ecology. Techniques of data analysis and statistical inference used in educational and psychological research. Multiple regression, analysis of variance, and basic principles of experimental design in educational applications.

940 Curriculum Deliberation and Development  
Fall of odd years. 3(3-0)  
Research in curriculum deliberation and development. Discourse, group dynamics, processes, and outcomes for teaching and learning.

941 Marginalized Subjects in Curriculum and Teaching  
Spring of odd years. 3(3-0)  
School subjects, ways of knowing, and people marginalized by omission or inequitable policies and practices in schools. Critical and feminist pedagogy.

942 Economic Analysis in Educational Policy Making  
Spring of even years. 3(3-0) Interdepartmental with Educational Administration. Administered by Department of Educational Administration. Economic effects of education. Economic analysis of policy issues in education. Alternative theoretical perspectives. Applications to the United States and other countries.

943 Seminar in Professional Development  
Spring. 3(3-0) P:M: (TE 971 and TE 940 and TE 984) R: Open only to Ed.S. students in the Department of Teacher Education. Approval of department. Synthesis and application of knowledge acquired through consideration of research and field-based inquiry from teacher practice and change initiatives.

946 Current Issues in Literacy Research and Instruction  
Spring of odd years. 3(3-0)  
Current research trends in the psychological, social, and political dimensions of literacy and literacy instruction.

950 Mathematical Ways of Knowing  
Fall of even years. 3(3-0) P:NM: Two undergraduate mathematics courses. Philosophical, cultural, political, societal, psychological, and historical perspectives on knowing in mathematics as a discipline.

955 Contemporary Issues in Science Curriculum and Teaching  
Fall. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. Epistemological, social, psychological, and historical foundations of science education in relation to contemporary issues and problems of science curriculum, teaching, and policy.

960 Language, Literacy, and Educational Policy  
Fall of odd years. 3(3-0)  

965 The Craft of Policy Analysis in Education  
Spring of odd years. 3(3-0)  
Framing problems, devising alternative solutions, and predicting impacts.

970 Curriculum and Pedagogy in Teacher Education  
Spring of even years. 3(3-0)  
Teacher learning opportunities at the preservice, induction, and inservice levels. Intended and enacted curriculum, sources of pedagogy, and their impact on teachers' knowledge, skills, and attitudes.

971 Teacher Learning in School Settings  
Fall of odd years. 3(3-0)  
Research about school-based learning by prospective, beginning, and experienced teachers. Observation, conversation, writing, and classroom research as tools for improving teaching.

975 Policy Perspectives on Teaching and Teacher Education  
Fall of odd years. 3(3-0)  
Policy issues such as teacher accountability, teacher knowledge, and political influence.

982 Seminar in Curriculum, Teaching, and Educational Policy (MTC)  
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 10 credits in all enrollments for this course. Intensive study in an area of curriculum, teaching, and learning; educational policy and social analysis; or teacher education and teacher learning.

990 Independent Study  
Fall, Spring. 3(3-0)  
A student may earn a maximum of 10 credits in all enrollments for this course. R: Open only to doctoral students. Supervised individual study in an area of curriculum, teaching, and educational policy.

991 Special Topics in Curriculum, Teaching, and Educational Policy  
Fall, Spring. Summer. 1 to 6 credits. A student may earn a maximum of 9 credits in all enrollments for this course.

991A Special Topics in Science Education  
Spring of odd years. 1 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course.

994 Laboratory and Field Experience in Curriculum, Teaching, and Educational Policy  
Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Open only to doctoral students. Approval of department. Supervised practica, observations, and internships in an area of curriculum, teaching and learning; educational policy and social analysis; or teacher education and teacher learning.

995 Research Practicum in Curriculum, Teaching, and Educational Policy  
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 3 credits in all enrollments for this course. R: Open only to doctoral students in the College of Education. Approval of department. Supervised research practicum. Design, execution, analysis, presentation, critique, and revision of research projects.

999 Doctoral Dissertation  
Fall, Spring, Summer. 1 to 24 credits. A student may earn a maximum of 54 credits in all enrollments for this course. R: Open only to doctoral students in the Department of Teacher Education.  
Doctoral dissertation research.

TELECOMMUNICATION TC

Department of Telecommunication  
College of Communication  
Arts and Sciences

100 The Information Society  
Fall, Spring, Summer. 3(3-0)  
Technological and social trends in the information society. Social policy involving information technologies and information services. Examples from the telephone, computer, television, cable, radio and satellite systems.

201 Introduction to Telecommunication Technology  
Fall, Spring, Summer. 4(4-0) P:M: (EC 201 or concurrently) R: Not open to freshmen. Institutional, economic and content development of telecommunication including broadcasting, cable, new video technologies, and telephone and data transmission.

240 Telecommunication Media Arts  
Fall, Spring, 4(2-4) R: Open only to students in the Department of Telecommunication. Not open to freshmen. Characteristics of image and sound media and their role in shaping the meaning of media messages. Application of aesthetic principles in the design of mediated communication.

275 Effects of Mass Communication  
Fall, Spring, Summer. 3(3-0) Interdepartmental with Communication. RB: (TC 100) R: Not open to freshmen. Major social effects of mass media on audience behavior. Political communication. Media effects on children. Message strategies producing attitude change. Interrelationships between mass media and interpersonal communication.

310 Basic Telecommunication Policy  
Fall, Spring, Summer. 4(4-0) P:M: (TC 100 and TC 200) Policy and plans in telecommunication systems and services in the United States and other nations.