

Descriptions — Statistics and Probability of Courses

965. Stationary and Second Order Processes
Winter of odd-numbered years. 3(3-0)
 STT 883.

Stationary, second order, and Gaussian processes. Sample path properties. Linear and nonlinear prediction and estimation. Applications.

966. Markov Processes
Spring of odd-numbered years. 3(3-0)
 STT 883.

Transition functions, semigroups, generators. Sample path properties. Strong Markov property. Characterization and convergence of Markov processes. Ergodicity.

990. Problems in Statistics and Probability
Fall, Winter, Spring, Summer. 1 to 4 credits. May reenroll for a maximum of 10 credits. STT 873 or STT 883.

Seminar or individual study on an advanced topic in statistics.

995. Topics in Statistics and Probability
Fall, Winter, Spring, Summer. 1 to 4 credits. May reenroll for a maximum of 36 credits.

Nonparametric statistics, multivariate statistical analysis, statistical time series analysis, Bayesian statistics, reliability theory, stochastic approximation, design of experiments, sets of decision problems, stochastic processes, sequential analysis, other topics.

999. Doctoral Dissertation Research
Fall, Winter, Spring, Summer. Variable credit. Approval of department.

STUDIO ART

See Art.

SURGERY

SUR

College of Human Medicine

608. Basic Surgery Clerkship
Fall, Winter, Spring, Summer. 6 to 15 credits. May reenroll for a maximum of 30 credits. FMP 602.

An introduction to the surgical patient, stressing surgical diagnosis, pre-operative evaluation and post-operative care. Objectives are designed to help the student attain acceptable levels of surgical competence for physicians.

609. Otolaryngology Clerkship
Fall, Winter, Spring, Summer. 1 to 17 credits. May reenroll for a maximum of 34 credits. SUR 608.

Common otolaryngologic disorders, emergencies, including diagnosis and treatment, and judgments concerning proper management by primary physicians.

610. Plastic Clerkship
Fall, Winter, Spring, Summer. 1 to 17 credits. May reenroll for a maximum of 34 credits. SUR 608.

Principles of wound healing and tissue repair. Indications and applications of plastic procedures.

611. Urology Clerkship
Fall, Winter, Spring, Summer. 1 to 17 credits. May reenroll for a maximum of 34 credits. SUR 608.

Demonstration of clinical manifestations of genito-urinary disease, investigative methods and techniques of diagnosis and management, familiarity with urologic emergencies and performance of basic urologic skills.

613. Orthopedic Clerkship
Fall, Winter, Spring, Summer. 1 to 17 credits. May reenroll for a maximum of 34 credits. SUR 608.

Diagnostic and management information and skills, including emergencies, in common orthopedic problems.

614. Neurosurgery Clerkship
Fall, Winter, Spring, Summer. 1 to 17 credits. May reenroll for a maximum of 34 credits. SUR 608.

A hospital-based experience to provide the student with familiarity with the field and understanding of the contribution of neurosurgery in medicine generally.

615. Ophthalmology Clerkship
Fall, Winter, Spring, Summer. 1 to 17 credits. May reenroll for a maximum of 34 credits. SUR 608.

Development of skills and knowledge in ophthalmology, neuro-ophthalmology, visual function, and management of problems such as glaucoma, the red eye, and trauma.

616. Thoracic Surgery Clerkship
Fall, Winter, Spring, Summer. 1 to 17 credits. May reenroll for a maximum of 34 credits. SUR 608.

Problem-solving in thoracic medicine and surgery, also stressing pulmonary physiology, use of diagnostic tools and tests, and indications for surgical procedures.

618. Anesthesiology Clerkship
Fall, Winter, Spring, Summer. 4 to 16 credits. May reenroll for a maximum of 16 credits. SUR 608.

Introduces common anesthetic agents and provides opportunity for performing anesthetic procedures under faculty supervision.

619. General Surgery Elective Clerkship
Fall, Winter, Spring, Summer. 4 to 16 credits. May reenroll for a maximum of 16 credits. SUR 608.

Experiences in clinical general surgery.

620. Advanced Surgery Clerkship
Fall, Winter, Spring, Summer. 6 to 8 credits. May reenroll for a maximum of 16 credits. SUR 608; MED 608.

Focus on advanced clinical and surgical skills. Students have more responsibility for patient care and direct learning to specific topics in general or subspecialty surgery. Clerkship options vary by community.

621. Nutritional Care of Surgical Patients
Fall, Winter, Spring, Summer. 4 to 12 credits. SUR 608, MED 608, approval of instructor.

Clinical experience on the Nutrition Team in dealing with surgical and medical patients requiring therapeutic nutrition as a result of metabolic derangement and nutritional deficiencies. Major emphasis on nutritional assessment and formulation of plans of management through intravenous support.

801. Shock and Metabolism
Fall. 6(4-4) Master's student in surgery or approval of department.

Results of prolonged reduction in tissue perfusion on tissue metabolism, structure and function at the systemic, cellular and subcellular levels and pharmacologic interventions useful in volume resuscitation.

802. Clinical Surgical Anatomy
Spring. 6(4-4) Master's student in surgery or approval of department. Interdepartmental with the Department of Anatomy.

Review of surgical anatomy; the opportunity to obtain detailed anatomical information through lecture and dissection sessions; and the Clinical interpretation of anatomy and surgical approaches.

803. Enteral and Parenteral Nutrition
Winter. 4(2-4) Master's student in surgery, approval of department.

The identification of individuals requiring nutritional support, nutritional requirements in diseases, delivery of total parenteral and enteral nutrition and special problems in nutrition (i.e., anorexia nervosa and obesity).

890. Seminars in Research
Fall, Winter, Spring, Summer. 1 credit. May reenroll for a maximum of 3 credits. Master's student in surgery, approval of department.

Preparation and presentation of research data, philosophy and methods of research, thesis and other research reports, literature review, illustration of research data, practical assignments.

899. Master's Thesis Research
Fall, Winter, Spring, Summer. 1 to 15 credits. SUR 801, SUR 802, SUR 803, approval of department.

SYSTEMS SCIENCE

See Electrical Engineering.

TEACHER EDUCATION T E

College of Education

101. Exploring Teaching
Fall, Winter, Spring. 3(2-3)

Examination of the manifest and hidden curriculum in classrooms; the multiple purposes of schooling; individual reasons for choosing teaching; participant/observation in a local classroom required.

200. Individual and the School
Fall, Winter, Spring, Summer. 5(5-0) Not open to students with credit in T E 200A, T E 200B, T E 200C or T E 200D.

Major psychological factors in the school learning-teaching situation; concepts in human development related to problems in the school situation; teacher's role in motivation, conceptual learning, problem solving, and the development of emotional behavior, attitudes and values, learning of skills, retention and transfer; and measurement of student abilities and achievement.

200A. Educational Psychology for Teacher Decision Making

Fall, Winter. 3(2-2) Open only to students in *Multiple Perspectives* emphasis or approval of department.

Principles and theories of learning and development and the ways these ideas may be used to make teaching decisions.

200B. Educational Psychology of Individual Differences in Classrooms

Winter. 3(3-0) Open only to students in *Heterogeneous Classrooms* emphasis or approval of department.

Educational psychology foundations of the range of diverse capabilities and characteristics found among school children and the implication of these differences for instruction.

200C. Learning of School Subjects

Fall. 3(2-2) Open only to students in *Academic Learning* emphasis or approval of department.

Theories of knowledge and learning that explain and justify the teaching of school subjects in elementary and secondary schools.

200D. Personal and Social Dimensions of Teaching

Fall. 3(3-0) Open only to students in *Learning Community* emphasis or approval of department.

Theory and practice of the personal and social dimensions of teaching, including communication skills, interpersonal and group dynamics, and personal educational philosophy.

201B. Instructional Implications of Individual Differences

Spring. 2(2-0) Open only to students in *Heterogeneous Classrooms* emphasis or approval of department.

Ways that instructional characteristics and teacher behavior interact with students' entering characteristics to influence student learning and behavior in the classroom.

201D. Student Learning and Development

Fall. 3(3-0) Approval of department.

Relevant theory and research relating to human learning and development in school-age children. Emphasis on affective teacher/student factors contributing to classroom learning community.

205C. Curriculum for Academic Learning

Winter. 3(2-2) Open only to students in *Academic Learning* emphasis or approval of department.

Effects of curriculum on understanding of academic subjects. Political and cultural influences on curriculum. Teachers' use of curriculum.

219A. Classroom Organization and Management of Diverse Pupils

Winter. 2(1-2) Open only to students in *Multiple Perspectives* emphasis or approval of department.

Knowledge and skills related to effective decision making for classroom management and organization including behavioral disruptions. Development of teacher leadership behaviors for developing classroom environments conducive to learning.

250B. Social Organization of Diversity in School and Society

Winter. 3(3-0) Open only to students in *Heterogeneous Classrooms* emphasis or approval of department.

Social and cultural organization of learning and teaching; institutional context; reducing inequities and increasing learning in classrooms diverse in social class, race, ethnicity, and gender of students; observation of classrooms.

260A. Teacher Decision Making Laboratory I

Fall, Winter, Spring. 1(0-2) May reenroll for a maximum of 3 credits. Open only to students in *Multiple Perspectives* emphasis or approval of department.

Developmental and systematically guided practice in reflective analysis-synthesis of the teaching-learning process. Integrates theory, principles and skills from previous courses into applied field experiences.

270A. Professional Practice: Field Experience

Fall, Winter. 1 to 3 credits. May reenroll for a maximum of 6 credits. Open only to students in *Multiple Perspectives* emphasis or approval of department.

A field based experience in elementary, middle or high schools taken concurrently with related professional education courses. Focused observations, interviews, practice teaching skills specified by the professional education courses and aide tasks.

270B. Field Practice: Teaching in Heterogeneous Classrooms

Fall, Winter, Spring. 1(0-2) May reenroll for a maximum of 3 credits. Open only to students in *Heterogeneous Classrooms* emphasis or approval of department.

Field course integrating knowledge and practice of classroom management, planning for instruction, interpreting research into practice, oral and written communication skills for the teacher in the heterogeneous classroom.

305. Curriculum Methods and Materials—Elementary Education

Fall, Winter, Spring. 3(1-7) T E 101; T E 200 or T E 200A or T E 200B or T E 200C or T E 200D; T E 310 and T E 315 or concurrently. Not open to students with credit in T E 305A or T E 205C.

Bases, scope, and sequence of curriculum in reading, language arts, and social studies; adaptation of principles to methods and materials of teaching in the elementary and middle school.

305A. Generic Methods of Teaching

Winter, Spring. 2(1-2) Open only to students in *Multiple Perspectives* emphasis or approval of department.

Teaching strategies and instructional models for all subject matter and K-12 grade level designations. Teacher decision-making as it affects curriculum development and instructional planning is stressed.

306C. Interdisciplinary Elementary Curriculum

Fall. 3(2-2) Open only to students in *Academic Learning* emphasis or approval of department.

Consideration of open-ended social, scientific, or institutional problems that draw on the concepts and skills of the major curricular areas for their solution. Field experience is required.

307A. Integrated Elementary Methods I: Science, Social Studies, Language Arts, Mathematics

Spring. 2(1-2) Open only to students in *Multiple Perspectives* emphasis or approval of department.

Methods of teaching elementary, middle and junior high school science in an integrated context with social studies, language arts, and mathematics through the use of unified themes. Participation in microteaching, whole class teaching and/or field trip may be required.

308A. Integrated Elementary Methods II: Social Studies, Science, Language Arts, Mathematics

Fall. 2(1-2) Open only to students in *Multiple Perspectives* emphasis or approval of department.

Specific methods of teaching elementary, middle and junior high school social studies in an integrated context with science, language arts, and mathematics through the use of unified themes.

310. Methods of Teaching Reading in the Elementary School

Fall, Winter, Spring, Summer. 3(3-0) T E 200 or T E 200A or T E 200B or T E 200C or T E 200D. Not open to students with credit in T E 310A, T E 310B, T E 310C or T E 310D.

Methods and materials of instruction of reading at elementary level. Analysis of learning and teaching problems, and study of concrete materials and classroom attack. Consideration of practical bearings of research and progressive theory on current practice.

310A. Teaching Reading in the Primary Grades

Fall. 3(3-0) Open only to students in *Multiple Perspectives* emphasis or approval of department.

Focuses on the principles of reading instruction, or the language of primary grade children, what to teach in primary grade reading, and the instructional decisions which must be made when teaching reading at this level.

310B. Teaching Reading and Listening

Fall. 3(3-0) Open only to students in *Heterogeneous Classrooms* emphasis or approval of department.

Interdependence of reading and listening examined. Implications of heterogeneous classrooms for instruction in listening and reading skills. Methodologies of reading and listening instruction surveyed for strengths and weaknesses.

310C. Methods of Teaching Reading and Writing

Spring. 3(3-0) Open only to students in *Academic Learning* emphasis or approval of department.

Methods of teaching reading and writing in elementary school.

310D. Methods of Developmental Reading

Fall. 3(3-0) Open only to students in *Learning Community* emphasis or approval of department.

The recognition, algorithm, and application levels of developmental reading are emphasized with secondary emphasis on listening, oral expression, children's literature, writing, higher-level reading, and content area reading.

**Descriptions — Teacher Education
of
Courses**

311A. Teaching Reading in the Upper Elementary Grades
Winter. 3(3-0) Open only to students in Multiple Perspectives emphasis or approval of department.
Focuses on reading comprehension, on language of upper grade children, what to teach in upper grade reading, and the instructional decisions which must be made when teaching reading at this level.

311B. Teaching Reading and the Expressive Skills of Speaking and Writing
Winter. 3(3-0) Open only to students in Heterogeneous Classrooms emphasis or approval of department.
Methods of teaching reading, speaking, and writing skills to groups of children with wide heterogeneity of social and cultural backgrounds and intellectual capacities, including those with impairments.

311C. Practicum in Reading/Language Arts
Fall. 3(1-4) Open only to students in Academic Learning emphasis or approval of department.
Application of principles of classroom instruction and management in teaching reading and language arts.

311D. Methods of Critical Reading and Writing
Winter. 3(3-0) Open only to students in Learning Community emphasis or approval of department.
The recognition, algorithm, and application levels of writing and higher-level reading are emphasized with secondary emphasis on children's literature, listening, oral expression, developmental reading and content area reading.

312. Practicum in Developmental and Corrective Reading
Fall, Winter, Spring. 3(1-4) T E 310. Not open to students with credit in T E 312A or T E 312D.
Application of instructional principles introduced in T E 310 in an off-campus setting.

312A. Reading and Writing for the Exceptional Child
Spring. 3(3-0) Open only to students in Multiple Perspectives emphasis or approval of department.
Focus on disabled and gifted readers. Techniques for managing, organizing, and presenting reading instruction in combination with other aspects of the language arts.

312D. Integrating Reading and Language within Subject Matter
Spring. 3(3-0) Open only to students in Learning Community emphasis or approval of department.
Integration of reading and language throughout all subject matter at the application, open-ended, and situation levels.

313. Critical Reading and Children's Literature
Fall, Winter, Spring, Summer. 3(3-0) T E 200 or T E 200A or T E 200B or T E 200C or T E 200D. Not open to students with credit in T E 313B or T E 313D.
Development of strategies for helping children to develop critical reading skills through literary experience.

313B. Teaching Critical Reading of Children's Literature
Spring. 3(3-0) Open only to students in Heterogeneous Classrooms emphasis or approval of department.
Methods of teaching print and media literature and critical reading to children, preschool to fourteen years, with emphasis on children with diverse needs and interests.

313D. Teaching Oral Language and Children's Literature
Fall. 3(3-0) Open only to students in Learning Community emphasis or approval of department.
Literature for children, their responses to it and instructional techniques for developing listening and oral expression abilities and using literature in the elementary and junior high schools.

315. Teaching of Mathematics in Elementary Grades
Fall, Winter, Spring, Summer. 3(3-0) T E 200 or T E 200A or T E 200B or T E 200C or T E 200D. MTH 201. Not open to students with credit in T E 315A, T E 315B, T E 315C or T E 315D.
Presents methods and materials for teaching mathematics in the elementary school. Methods and techniques of presenting mathematics content meaningfully to elementary pupils will be illustrated.

315A. Methods of Teaching Elementary School Mathematics
Winter. 2(1-2) MTH 201, open only to students in Multiple Perspectives emphasis or approval of department.
Content and methodology of teaching mathematics in elementary-middle (junior high) schools with emphasis on mathematical competence, use of manipulatives, developing strategies and teacher decision making.

315B. Mathematics for Elementary Grades
Fall. 3(3-0) MTH 201. Open only to students in Heterogeneous Classrooms emphasis or approval of department.
Methods of teaching mathematics in elementary grades. Emphasis will be on the diverse interests, needs, abilities, attitudes and anxieties of children learning elementary school mathematics.

315C. Mathematics for Elementary Grades
Winter. 3(3-0) MTH 201. Open only to students in Academic Learning emphasis or approval of department.
Methods of teaching mathematics in grades K-8. Emphasis will be on the content, teaching strategies, and assessment techniques necessary for teaching mathematics in elementary classrooms.

315D. Teaching School Mathematics
Spring. 3(2-2) MTH 201. Open only to students in Learning Community emphasis or approval of department.
Methods and techniques of teaching school mathematics based on a problem solving orientation and the concept of a community context for the learning environment.

316. Teaching of Social Studies in Elementary Grades
Fall, Winter, Spring, Summer. 3(3-0) T E 200 or T E 200A or T E 200B or T E 200C or T E 200D; three terms of social science. Not open to students with credit in T E 316B, T E 316C or T E 316D.
To help students develop understanding of philosophy and aims of social studies movement in elementary schools, and ability to further such aims through familiarity with a variety of materials, knowledge of social studies subject matter, and competence in using a variety of methods.

316B. Social Studies Within a Diverse Classroom
Winter. 3(3-0) Open only to students in Heterogeneous Classrooms emphasis or approval of department.
Teaching of social studies in the diverse classroom. Content and methodology will address gender, mental ability, ethnicity, culture, religion, race, social class, and physical characteristics. Teaching in field setting.

316C. Teaching Social Studies in Elementary Grades
Fall. 3(3-0) Open only to students in Academic Learning emphasis or approval of department.
Methods and materials for teaching social studies in grades K-8. Stresses use of social science content and methodology in dealing with socially significant issues and problems.

316D. Social Studies in a Learning Community
Winter. 3(3-0) Approval of department.
Social studies methods and materials with an emphasis on creating and maintaining a learning community and using citizenship as a social studies curriculum organizer.

317. Teaching of Language Arts in Elementary Grades
Fall, Winter, Spring, Summer. 3(3-0) T E 200 or T E 200A or T E 200B or T E 200C or T E 200D. Not open to students with credit in T E 317C.
Course to acquaint prospective elementary teachers with content material and methods in language arts for grades below the seventh.

317C. Foundations for Reading and Writing: Methods for Teaching Oral Language
Winter. 3(3-0) Open only to students in Academic Learning emphasis or approval of department.
Methods of teaching listening and speaking in the elementary school. Emphasis on the development of oral skills and their relationship to learning to read and write.

318. Teaching Science in the Elementary and Middle School
Fall, Winter, Spring, Summer. 3(2-2) T E 200 or T E 200A or T E 200B or T E 200C or T E 200D; three terms of natural science. Not open to students with credit in T E 318B, T E 318C or T E 318D.
Extends the science education background of prospective elementary and middle school teachers. Emphasis is placed upon methods and materials for teaching science at the elementary and middle school levels.

318B. Teaching of Science in the Elementary Grades

Fall. 3(3-0) Open only to students in Heterogeneous Classrooms emphasis or approval of department.

Teaching of science, using strategies designed for promoting equity with diverse student groups. Students will be introduced to issues in science, learning, and curriculum.

318C. Teaching Science in Elementary Grades

Spring. 3(2-2) Open only to students in Academic Learning emphasis or approval of department.

Relate science subject matter and the nature of science to elementary and middle school science teaching. Emphasis is placed on methods and materials appropriate for the various grade levels.

318D. Science Methods for Learning Community

Fall. 3(3-0) Open only to students in Learning Community emphasis or approval of department.

Methods of teaching science in learning community classrooms. Activities include microteaching or selected whole class teaching, modeling of science teaching strategies, discussions and out-of-class assignments. Integration and development of classroom groups are emphasized.

320. School Music Instrumental Methods

Fall. 3(2-2) Instrumental music major; MUS 250.

Instrumental instruction program at elementary level.

321. School Music Vocal Methods

Fall. 4(3-2) Approval of the Department of Music; MUS 250.

Basic instructional program in primary and intermediate grades.

322. Methods of Teaching—Secondary Common Elements

Fall, Winter, Spring. 2(2-0) T E 200; taken prior to or concurrently with a subject area methods course. Not open to students with credit in T E 205C or T E 305A.

Instructional issues common to all subject areas. Selection of instructional techniques based on teacher values and belief systems, learner needs and characteristics, and sound education principles and policies.

323. Methods of Teaching—Secondary Subject Areas: Agriculture

Fall, Spring. 3 credits. T E 200 or T E 200A or T E 200C; T E 322 or T E 205C or T E 305A or concurrently.

Specifics of classroom instruction in agriculture. Selection of instructional techniques based on recognized course objectives, needs and characteristics of learners, and sound educational principles and policies.

324. Methods of Teaching—Secondary Subject Areas: Art

Spring. 3 credits. T E 200 or T E 200A; T E 322 or T E 305A or concurrently; STA 303, STA 320.

Specifics of classroom instruction in art. Selection of instructional techniques based on recognized course objectives, needs and characteristics of learners, and sound educational principles and policies.

326. Methods of Teaching—Secondary Subject Areas: English

Fall, Spring. 3 credits. T E 200 or T E 200A or T E 200C; T E 322 or T E 205C or T E 305A or concurrently. Not open to students with credit in T E 326C.

Specifics of classroom instruction in English. Selection of instructional techniques based on recognized course objectives, needs and characteristics of learners, and sound educational principles and policies.

328. Methods of Teaching—Secondary Subject Areas: Romance Languages

Fall. 3 credits. T E 200 or T E 200A or T E 200C; T E 322 or T E 205C or T E 305A or concurrently.

Specifics of classroom instruction in romance languages. Selection of instructional techniques based on recognized course objectives, needs and characteristics of learners, and sound educational principles and policies.

329. Methods of Teaching—Secondary Subject Areas: Health

Spring. 3 credits. T E 200 or T E 200A or T E 200C; T E 322 or T E 205C or T E 305A or concurrently; or approval of department.

Specifics of classroom instruction in health. Selection of instructional techniques based on recognized course objectives, needs and characteristics of learners, and sound educational principles and policies.

330. Methods of Teaching—Secondary Subject Areas: Physical Education

Fall, Spring. 3 credits. T E 200 or T E 200A or T E 200C; T E 322 or T E 205C or T E 305A or concurrently; or approval of department.

Specifics of classroom instruction in physical education. Selection of instructional techniques based on recognized course objectives, needs and characteristics of learners, and sound educational principles and policies.

331. Methods of Teaching—Secondary Subject Areas: Home Economics

Fall. 3 credits. T E 200 or T E 200A or T E 200C; T E 322 or T E 205C or T E 305A or concurrently.

Specifics of classroom instruction in home economics. Selection of instructional techniques based on recognized course objectives, needs and characteristics of learners, and sound educational principles and policies.

334. Methods of Teaching—Secondary Subject Areas: Mathematics

Spring. 3 credits. T E 200 or T E 200A or T E 200C; T E 322 or T E 205C or T E 305A or concurrently. Not open to students with credit in T E 334C.

Specifics of classroom instruction in mathematics. Selection of instructional techniques based on recognized course objectives, needs and characteristics of learners, and sound educational principles and policies.

335. Methods of Teaching—Secondary Subject Areas: Music—Instrumental

Winter. 3 credits. T E 200 or T E 200A or T E 200C; T E 322 or T E 205C or T E 305A or concurrently; MUS 250.

Specifics of classroom instruction in music-instrumental. Selection of instructional techniques based on recognized course objectives, needs and characteristics of learners, and sound educational principles and policies.

336. Methods of Teaching—Secondary Subject Areas: Music—Voice.

Winter. 3 credits. T E 200 or T E 200A or T E 200C; T E 322 or T E 205C or T E 305A or concurrently; MUS 250.

Specifics of classroom instruction in music-voice. Selection of instructional techniques based on recognized course objectives, needs and characteristics of learners, and sound educational principles and policies.

337. Methods of Teaching—Secondary Subject Areas: Science

Fall, Spring. 3(2-2) T E 200 or T E 200A or T E 200C; T E 322 or T E 205C or T E 305A or concurrently. Not open to students with credit in T E 337C.

Classroom instruction in science. Selection of instructional techniques based on recognized course objectives, needs and characteristics of learners, and educational principles and policies.

338. Methods of Teaching—Secondary Subject Areas: Social Science and History

Fall, Spring. 3 credits. T E 200 or T E 200A or T E 200C; T E 322 or T E 205C or T E 305A or concurrently. Not open to students with credit in T E 338C.

Specifics of classroom instruction in social sciences and history. Selection of instructional techniques based on recognized course objectives, needs and characteristics of learners, and educational principles and policies.

339. Methods of Teaching—Secondary Subject Areas: Communication

Winter. 3 credits. T E 200 or T E 200A or T E 200C; T E 322 or T E 205C or T E 305A or concurrently.

Specifics of classroom instruction in communication. Selection of instructional techniques based on recognized course objectives, needs and characteristics of learners, and sound educational principles and policies.

340. Methods of Teaching—Secondary Subject Areas: German and Russian

Fall of odd-numbered years. 3 credits. T E 200 or T E 200A or T E 200C; T E 322 or T E 205C or T E 305A or concurrently.

Specifics of classroom instruction in German and Russian. Selection of instructional techniques based on recognized course objectives, needs and characteristics of learners, and sound educational principles and policies.

347A. Introduction to Driver and Traffic Education

Fall, Spring. 4(3-2) Valid driver's license.

Introduction to and an analysis of the driving task. Theory and practical application will be provided.

350D. School and Community

Winter. 3(3-0) Open only to students in Learning Community emphasis or approval of department.

Social foundations of education and schooling with emphasis on study of cultural transmission and group behavior in diverse cultural settings. The role and functions of schools as part of community structure.

**Descriptions — Teacher Education
of
Courses**

- 355B. Evaluating Learning Environments**
Spring. 2(2-0) Open only to students in Heterogeneous Classrooms emphasis or approval of department.
 Evaluation of school responses to learning among diverse student populations. Dimensions of diversity addressed include culture, ethnicity, race, social class, religion, gender, mental ability, and handicapping conditions. Various learning environments considered.
- 360A. Teacher Decision Making Laboratory II**
Fall, Winter, Spring. 1(0-2) May reenroll for a maximum of 3 credits. Open only to students enrolled in Multiple Perspectives emphasis or approval of department.
 Continuation of developmental and systematically guided practice in reflective analysis-synthesis of the teaching-learning process as a major component in teacher decision making.
- 370A. Professional Practice: Directed Teaching**
Fall, Winter, Spring. 1 to 3 credits. May reenroll for a maximum of 6 credits. Open only to students enrolled in Multiple Perspectives emphasis or approval of department.
 A midlevel field-based experience in schools taken concurrently with related professional education courses. Students will have opportunities for extended planning, teaching and evaluation under supervision of school and university faculty.
- 370B. Directed Teaching**
Fall, Winter, Spring. 1 or 2 credits. May reenroll for a maximum of 3 credits. Open only to students in Heterogeneous Classrooms emphasis or approval of department.
 Provide students with the opportunity to reflect and analyze preceding course content relative to practical application in a field setting.
- 370D. Directed Teaching in Learning Community**
Fall, Winter, Spring. 1 to 4 credits. May reenroll for a maximum of 10 credits. Open only to students in Learning Community emphasis or approval of department.
 Field experience and discussion opportunities to plan, instruct and critique in school settings, practice skills through microteaching, communication, and curricular integration. Students document own professional development and prepare for teaching internships.
- 401. Sociology of Education**
Winter. 4(4-0) SOC 241. Interdepartmental with and administered by the Department of Sociology.
 School as a social institution, school-community relations, social control of education, and structure of school society.
- 406C. Interdisciplinary Learning**
Winter, Spring. 3(1-6) Open only to students in Academic Learning emphasis or approval of department.
 Field course in which students teach an interdisciplinary course in a public school classroom and investigate the nature and value of interdisciplinary learning in school and society.
- 409. Supervising High School Publications**
Spring, Summer. 3(3-0) Juniors, non-majors. Interdepartmental with and administered by the School of Journalism.
 Staff organization, finance, law, function, and editorial policies of school newspaper and year-books.
- 412. Reading in the Content Areas of the Secondary Level**
Fall, Winter, Spring. 5 credits. Approval of instructor.
 The process of reading and learning from text. Applications in subject areas including identification of reading-reasoning processes in content area subjects, assessment, and instructional procedures. Field trips may be required.
- 431. Teacher Preparation in Motorcycle Safety**
Spring. 4(3-2) T E 347A, teaching certificate or College of Education major, motorcycle endorsement.
 Development of teacher competencies in developing, organizing, and teaching motorcycle safety education courses for novice drivers. Examination of existing curricula, teaching aids, and resources. Practice teaching of novice drivers.
- 432A. Laboratory Programs in Driver and Traffic Education**
Spring, Summer. 5(3-4) T E 347A.
 Examination of the aims, objectives and role of laboratory programs in driver and traffic education. Directed laboratory experiences with new drivers will be provided.
- 432C. Organization and Administration of Driver and Traffic Education**
Fall, Summer of even-numbered years. 3(3-0) T E 347A.
 Organizational and administrative aspects of driver and traffic education as they relate to the total school and other specialized programs. Historical and philosophical aspects, evaluation, related professional organizations, and occupational opportunities.
- 432E. Personality Factors in Driver and Traffic Education**
Winter, Summer of odd-numbered years. 3(3-0) T E 347A, PSY 225.
 Study of behavior with emphasis on attitudes, motivation, and adjustment and their relationship to unsafe driving. Investigation of principles, and methods appropriate in identifying, understanding, and modifying unsatisfactory behavior.
- 432G. Fundamentals of Traffic Law**
Spring. 3(3-0) Interdepartmental with the School of Criminal Justice.
 Nature, function and application of traffic law as it applies to the safe and efficient movement of people and goods in a broadly conceived traffic accident prevention program.
- 438A. Classroom Management in Business and Distributive Education**
Spring. 4(3-2) T E 200 or T E 200A or T E 200B or T E 200C, T E 322 or approval of department.
 Principles and practices of using materials and media; using community resources; providing directed occupational experiences; how-to-individualize instruction; evaluating student achievement.
- 438C. Microcomputer Applications in Business and Distributive Education**
Spring. 3(2-2) CEP 434, ACC 202, advanced typewriting, and/or approval of department.
 Methods of teaching information processing and its concepts, career paths, equipment; instructional systems and procedures; and evaluation.
- 442. Principles and Practices in Home Economics**
Spring. 3(3-0) T E 470.
 Analysis of the student teaching experience. Professional expectations, role of the teacher, and scope of home economics programs.
- 444. Museum as an Educational Tool**
Spring. 4(4-0) Juniors.
 The museum as an educational tool. Classroom preparation for the museum experience. Museum strategies including dioramas, collections, models, exhibits and reconstructions. Application of museum strategies to other educational settings.
- 446A. Teaching Science with Microcomputers**
Winter, Summer. 3(3-0) CEP 434. Interdepartmental with the Department of Counseling, Educational Psychology and Special Education.
 Survey and critique of software available for science instruction; students adapt generic and create original microcomputer routines and/or teaching strategies for use in science teaching.
- 446B. Teaching Social Studies with Microcomputers**
Winter, Summer. 3(3-0) CEP 434. Interdepartmental with the Department of Counseling, Educational Psychology and Special Education.
 Survey and critique of software available for social studies instruction; students adapt generic and create original microcomputer routines for use in social studies teaching.
- 450. School and Society**
Fall, Winter, Spring, Summer. 5(5-0) T E 200 or T E 200A or T E 200B or T E 200C or T E 200D. Not open to students with credit in T E 250B, T E 350D, T E 450A, T E 450B or T E 450C.
 Study of the structure, function and purposes of educational institutions. Course provides options for students in meeting professional needs recognized in directed teaching and desired before entering full professional practice.
- 450A. Structures, Functions and Purposes of Schools**
Fall. 3(2-2) Open only to students in Multiple Perspectives emphasis or approval of department.
 Examines the role, functions and structure of schooling as these impact teachers as decision makers, as continually developing professionals, and as members of the total school/community environment. Field trips may be required.
- 450B. Equity, Stereotypes, and Teaching**
Winter. 3(3-0) Open only to students in Heterogeneous Classrooms emphasis or approval of department.
 Conceptual and empirical analyses of equity issues affecting learning, including ways teachers can promote equity among students differing in social class, race, ethnicity, gender, and handicapping conditions.
- 450C. School and Society**
Winter, Spring. 3(3-0) Open only to students in Academic Learning emphasis or approval of department.
 Socioeconomic, cultural and philosophical foundations of education studied as issues that impact the teaching and the learning environment of the school.

463. Economics of Education

Winter. 3(3-0) EC 201 or EC 210 or approval of department. Interdepartmental with and administered by the Department of Economics.

Relationship between education and the economy. Production of education, and the analysis of education as an investment. Supply and demand for teacher services. Financing education.

470. Student Teaching

Fall, Winter, Spring. 15(5-25) May reenroll for a maximum of 30 credits in T E 470, T E 470A, T E 470B, T E 470C, T E 470D to qualify for a different area of certification. 2.00 cumulative grade-point average; T E 322 for Secondary Education majors; ASC 477 for Audiology and Speech Sciences majors; approval of department. Applications must be made to the Student Teaching Office as follows: Fall — during the previous October; Winter — during the previous February; Spring — during the previous April.

Participation in activities of school and community. Teaching and related activities, observation, and seminar on the problems of teaching. Usually requires students to live in typical Michigan cities for an entire term.

470A. Student Teaching

Fall, Winter, Spring. 2 to 15 credits. May reenroll for a maximum of 30 credits in T E 470, T E 470A, T E 470B, T E 470C, T E 470D to qualify for a different area of certification. Open only to students in Multiple Perspectives emphasis or approval of department.

A culminating field experience. Assignment to specific schools for part- or full-time teaching responsibilities to demonstrate emphasis area goals and objectives. Students may have to reside outside of Lansing.

470B. Student Teaching

Fall, Winter, Spring. 12(4-24) May reenroll for a maximum of 30 credits in T E 470, T E 470A, T E 470B, T E 470C, T E 470D to qualify for a different area of certification. Open only to students in Heterogeneous Classrooms emphasis or approval of department.

Integration of theory and practice related to equitable teaching and learning within the context of heterogeneous classrooms. May require students to live away from campus for entire term.

470C. Student Teaching

Fall, Winter, 15(6-27) May reenroll for a maximum of 30 credits in T E 470, T E 470A, T E 470B, T E 470C, T E 470D to qualify for a different area of certification. Open only to students in Academic Learning emphasis or approval of department.

Integrated field experience. Observations and guided classroom teaching under supervision of an experienced teacher and university field supervisors. Students may have to live outside of Lansing.

470D. Student Teaching

Winter. 12(3-27) May reenroll for a maximum of 30 credits in T E 470, T E 470A, T E 470B, T E 470C, T E 470D to qualify for a different area of certification. Open only to students enrolled in Learning Community emphasis or approval of department.

Students teach in public or private school classrooms to develop and demonstrate proficiency in skills of teaching. Teaching is augmented by small group discussion with peers, classroom teachers, and faculty. Students may have to live outside of Lansing.

472. Student Teaching

Fall, Winter, Spring. 10(3-20) T E 471. Application must be made to the Student Teaching Office as follows: Fall—during the previous October; Winter—during the previous February; Spring—during the previous May.

Participation in activities of school and community. Teaching and related activities, observation, and seminar on the problems of teaching. Usually requires students to live in typical Michigan cities for an entire term. A competency based course.

473. Elementary Student Teaching: Special Education

Fall, Winter, Spring. 12 to 15 credits. T E 470.

Special education student teaching in elementary school settings; full-time practicum experience includes planning, implementing, and evaluating instruction; participation in Individualized Educational Planning Committees and multi-disciplinary planning exercises.

474. Secondary Student Teaching: Special Education

Fall, Winter, Spring. 12 to 15 credits. T E 470.

Special education student teaching in secondary school settings; full-time practicum experience includes planning, implementing, and evaluating instruction; participation in Individualized Educational Planning Committees and multi-disciplinary planning exercises.

480D. Proseminar in Learning Community

(T E 482D.) Spring. 2(2-0) Open only to students in Learning Community emphasis or approval of department.

Building on the practicum, students select issues or problems of teaching for further study. Research is synthesized and experience reconsidered in addressing these issues in lectures, discussion, and group projects.

482. Seminars in Teacher Education

Fall, Winter, Spring, Summer. 1 to 6 credits. May reenroll for a maximum of 8 credits. Approval of department.

Seminars in the various fields of emphasis in teacher education.

483. Readings and Independent Study in Teacher Education

Fall, Winter, Spring, Summer. 1 to 8 credits. May reenroll for a maximum of 8 credits. Juniors; approval of department.

Study on an individual basis in the various fields of emphasis in teacher education.

484. Field Experience in Teacher Education

Fall, Winter, Spring, Summer. 1 to 8 credits. May reenroll for a maximum of 12 credits. Approval of department.

Supervised undergraduate practicums.

800. Crucial Issues in Education

Fall, Winter, Spring, Summer. 3(3-0) Approval of department.

Problem analysis of timely issues in education analyzing their legal, historical, sociological, and philosophical dimensions. Attention centered on problems of continuing concern. Particular attention devoted to the role of the teaching profession in issues involving public policy.

801A. Seminars in Social and Philosophical Foundations of Education: Philosophy of Education

Fall, Winter, Spring, Summer. 3(3-0) Approval of department.

Identification of underlying philosophical problems in education. Use of philosophical methodologies in resolving these problems. Development of a consistent personal philosophy of education.

801B. Seminars in Social and Philosophical Foundations of Education: Modern Philosophies of Education

Spring. 3(3-0) T E 801A.

Critical analysis and evaluation of leading modern philosophies of education and their implications for practice, such as: existentialism, idealism, perennialism, realism, reconstructionism.

801C. Seminars in Social and Philosophical Foundations of Education: Social Criticism and Education

Fall. 3(3-0) T E 801A, approval of department.

Educational implications of critical analyses of contemporary society. Particular attention given to discrepancies between ideology and practice. Building school programs designed to cope with cultural inadequacies.

802A. Education in the U.S.A.

Fall. 3(2-4) Passed English Language Center examination or approval of department.

Designed to provide first term foreign students in graduate programs with theoretical and experiential background in American education.

803A. Comparative and International Education

Spring. 3(3-0) Approval of department.

Objectives, content, methodology, research problems of comparative and international education analyzed. Social and cultural forces affecting educational planning and institution building studied. Agencies involved in international education identified.

803B. Comparative Foundations of Education: Education in Industrialized Societies

Fall. 3(3-0) Approval of department. Interdepartmental with the Department of Sociology.

Comparative study of the policies, practices and social context of educational systems in major industrialized countries, such as Canada, England, France, Germany, Japan, Soviet Union, Sweden.

804A. Historical and Comparative Foundations of Education: History of American Education

Winter. 3(3-0) Approval of department.

Development of educational thought and practice in the United States. Importance of cultural influences. A critical examination of progress toward educational goals. Implications of historical background for present problems.

**Descriptions — Teacher Education
of
Courses**

806. Organization of Classrooms for Diverse Learners: Problems, Policies and Effective Strategies
Winter. 3(3-0) Graduate students or approval of instructor.

Instructional and organizational factors that contribute to equity in classrooms with diverse learners. Equal educational opportunity policies and their implementation.

809. Case Studies in Program Evaluation
Winter. 3(3-0) CEP 808. Interdepartmental with and administered by the Department of Counseling, Educational Psychology and Special Education.

Analysis of previously conducted program evaluations in terms of decisions evaluators must make about evaluation models, purposes, design, conduct, and reporting.
Approved through Fall 1989.

810A. Principles of Curriculum Improvement
Fall, Winter, Spring, Summer. 3(3-0) Experience in teaching; approval of department.

Principles of curriculum improvement will be developed through the critical analysis of practices found in public schools.

810C. Curriculum Construction
Fall, Winter, Spring, Summer. 3(3-0) T E 810A.

Approaches to curriculum construction; organization and function of personnel; initiating and evaluating curriculum change; curriculum research.

811A. Classroom Management and Organization
Fall, Summer. 3(3-0) Teaching experience or approval of department.

The research base and conceptual framework for the preventive aspects of classroom management; planning of rules, procedures and classroom activities; skills and strategies for developing student self-control of behavior.

811B. Analysis of Classroom Discipline Problems
Spring. 3(3-0) Teaching experience or approval of department; T E 811A or T E 811C.

Research base and conceptual framework for solving discipline problems in classrooms, based on analysis of teacher preferred leadership style, type of student discipline problem, and effects of teacher responses.

811C. Developing Effective Classroom Groups
Winter, Summer. 3(3-0) Classroom teaching experience or approval of department.
Research findings and implications for developing classroom groups.

812A. Elementary School Curriculum
Fall, Winter, Summer. 3(3-0) Regular admission to graduate program and approval of department.

Curriculum definition as related to purposes of the elementary school; foundations and rationale for curriculum study, revision, and improvement; procedures and organizational aspects of curriculum planning; key components of new educational curricular designs.

812C. Seminar in Middle School Curriculum
Spring, Summer. 3(3-0)

Contrasting patterns of programs for early adolescents; age range and characteristics of middle school pupils; problems and potential of the middle school.

812E. The Secondary School: Role, Function and Structure
Fall, Winter, Summer. 3(3-0) Teaching experience in secondary school classrooms.

Examines the role, function and structure of various secondary schools. Emphasizes the relationships that do and should exist with other segments of the educational enterprise as well as with external agencies, organizations and institutions.

813A. Experiential Learning in Curriculum Development
Winter, Summer. 3(3-0) Graduate standing, approval of instructor.

Philosophical, psychological, learning and instructional theory related to an experiential model in curriculum development.

813B. Application of Community Resources for Learning
Fall, Summer. 3(3-0) T E 813A or approval of instructor.

Methods of obtaining, organizing and using community resources in instructional settings. Development of community-based instructional units.

814A. Elementary Education Trends and Current Research
Fall, Spring, Summer. 3(3-0) Completion of 27 credits of graduate course work on a regular program and approval of department.

Advanced graduate students (those nearing completion of the M.A. program or on the doctoral program) are given an opportunity to explore current research activities.

814C. The American Secondary School Student
Fall, Spring, Summer. 3(3-0) Teaching experience in secondary school classrooms.

Focuses upon the issues and problems confronting the secondary school student as an adolescent and/or young adult. Attention is given to the relevance of school curriculums and staff competencies to meeting these needs of secondary students. Emphasis will be placed upon developing guidelines for needed change.

816A. Creativity in Education
Fall. 3(3-0) Teaching experience.

Definitions, manifestations, processes and theories of creativity, experiences with modes of creative expression and problem solving techniques. Development and application to the education profession. Field trips may be required.

816C. Futuristics and Education
Spring, Summer. 3(3-0) Teaching experience.

Current educational programs in futuristics. Development of concepts, materials and programs related to education in and for the future. Proposed methodology for the future.

816E. Instructional Simulation
Fall, Summer. 3(2-2) Teaching experience. Interdepartmental with the Department of Educational Administration.

Design and use of simulations and instructional games in the curriculum for development of social skills, values and affects.

816G. Stress in Elementary School Children
Winter. 3(3-0)

Stressful events and conditions in children's lives. Review, analysis and practice of available identification procedures and intervention strategies which can be applied by regular classroom teachers in the school setting.

816L. Teaching for Cross-Cultural Perspective
Summer. 6(4-4) Approval of department.

A workshop offered in appropriate locations, usually overseas, to study and experience the problems, issues and instructional opportunities confronting the teacher or consulting specialist in "culture learning."

816M. Curriculum and Styles of Education
Winter, Summer. 3(3-0) Teaching experience, graduate student or approval of instructor.

Relates selected research on and models of educational styles to curriculum and instruction. Techniques for accommodating various learners, styles through planned changes in curriculum and instruction.

818A. Introduction to Education of Gifted Students
Fall, Summer. 3(3-0) Graduate students.

History and theory of educating gifted students. Current developments in the field, promising programs and practices.

818C. Classroom Strategies for Teaching Gifted Students
Spring. 3(3-0) T E 818A.

Teaching strategies used with gifted students, K-12. Curricular designs and materials for academic areas. Students pursue individual in-depth studies.

819A. Proseminar in Reading Instruction
Fall, Spring, Summer. 3(3-0) Graduate students.

Reading instruction, its history and its current status.

819B. Language, Literacy and Reading Instruction
Winter, Summer. 3(3-0) T E 819A or approval of instructor.

Relationships between language processes and development of literacy in schools. Written literacy-reading and writing and its relationship to oral language is emphasized.

819C. Psychological Foundations of Reading Instruction
Fall, Spring. 3(3-0) T E 819A or approval of instructor. Interdepartmental with the Department of Counseling, Educational Psychology and Special Education.

Instruction in reading as informed by current research in cognitive psychology, with an emphasis on the relationship between cognitive processing and reading comprehension instruction.

820A. Problems in Elementary Reading Instruction
Fall, Winter, Spring, Summer. 3(3-0) Graduate student in education; undergraduate methods course in reading; approval of department.

For experienced teachers. Includes consideration of the basic aspects of ability to read, desirable reading attitudes, habits, and skills. Practices and materials used in reading programs are examined and appraised. Outstanding investigations dealing with problems in this area are studied and evaluated.

820C. Methods in Reading at the Secondary Level
Fall, Winter, Spring, Summer. 3(3-0)
Graduate students; teaching experience; approval of department.

An analysis of the reading problems of high school and college students. Material and procedures for identifying the reading attainments and needs of the individual. Basic principles and techniques for improving reading skills.

820D. Reading and Learning in Content Area Subjects
Fall, Winter, Spring, Summer. 3(3-0)
Graduate student or approval of instructor.

Developing reading comprehension abilities in content area subjects. Based on theories of interactive language development, the course presents methodology designed to help teachers develop literacy on levels 4-12.

820K. Research on Issues in Reading Instruction
Fall, Winter, Spring, Summer. 3(3-0)
CEP 820G.

Reading and factors which influence the acquisition of reading skills; implementation and evaluation of reading instructional programs.

822A. Advanced Methods of Teaching Language Arts
Fall, Winter, Spring, Summer. 3(3-0)
Graduate students.

Survey of principles and instructional methods for teaching listening, speaking and writing attitudes and skills at the elementary and middle school levels; examination of current references and resources through self-selected area of special study.

822B. Special Topics in Language Arts
Winter, Summer. 3(3-0) May reenroll for a maximum of 15 credits if different topics are taken. T E 822A.

Five topic areas in language learning in pre-K to grade 12 classrooms: television listening and viewing, oral language competencies, beginning literacy through singing, poetry, and mechanics and writing.

822C. Children's Writing in the Elementary and Middle School
Winter, Summer. 3(3-0) T E 822A.

Methods for stimulating children's expression in a variety of modes of writing research on growth in skills of organization, vocabulary, sentence and paragraph development, and mechanical skills.

822E. Trends and Issues in Language Arts
Fall, Summer of odd-numbered years. 3(3-0) T E 822A.

To investigate and criticize trends, issues and research in language arts programming and instruction.

824A. Methods and Materials in Children's Literature
Fall, Winter, Spring, Summer. 3(3-0)
Undergraduate course in children's literature, graduate students.

Critical evaluation and utilization of literature for children.

824B. Methods and Materials in Adolescent Literature
Winter, Summer. 3(3-0) One undergraduate course in children's or adolescent literature or approval of department.

The critical evaluation and utilization of literature for pupils from middle school through senior high school (ages 12-18 years).

824C. Trends and Issues in Children's Literature
Winter and Summer of odd-numbered years. 3(3-0) T E 824A.

Provides graduate students an opportunity to discuss and evaluate current research related to children's literature as well as juvenile books and to conduct an in-depth study in the field of children's literature.

824E. The Teaching of Critical Reading
Winter and Summer of even-numbered years. 3(3-0) T E 824A.

Provides graduate students an opportunity to study current research in critical reading, to identify and evaluate appropriate instructional materials, and to conduct an in-depth study in the field of critical reading.

824F. Literature for Young Children
Spring of even-numbered years. 3(3-0)
Approval of instructor.

Evaluation and utilization of literature from infancy through age six. Research about the effects of literacy experiences on young children.

824G. Illustrations in Children's Books
Spring of even-numbered years; Summer every three years. 3(3-0) T E 824A.

Significant aspects of graphic arts pertaining to book illustrations especially those in books for children.

824J. Children's Classics and Award Books
Fall of odd-numbered years. 3(3-0)
T E 824A or approval of instructor.

Evaluation and utilization of classics and award winning books for children (ages 4-16). Examination of research pertaining to children's responses to these literary selections.

826A. Specialized Methods and Materials for Teaching Elementary Science
Fall, Spring, Summer. 3(3-0) Experience in teaching; approval of department.

Develops additional competency in science education for the experienced teacher at elementary and middle school levels. Specialized methods for individual and group instruction are emphasized and evaluated.

826C. Seminar in Elementary Science Education I
Winter, Summer. 3(3-0) T E 826A or T E 318 or approval of department; experience in teaching.

Philosophical and psychological concepts relevant to the objectives and implementation of science education and a review of research in teaching science at the elementary level.

826E. Individual Problems in Elementary and Middle School Science Education
Fall, Winter, Spring, Summer. 1 to 3 credits. May reenroll for a maximum of 6 credits. T E 826A or T E 826C; experience in teaching.

Identification of one or more problems in elementary or middle school science to be studied independently. Problem analysis would typically include readings, action research and original composition.

826G. Environmental Education in the School
Spring, Summer. 3(3-0)

Environmental issues and their implications for educational practices and policies. The role of the school in developing environmental consciousness.

828A. Teaching Elementary School Mathematics
Fall, Summer. 3(3-0) Experience in teaching and approval of department.

Advanced methods and materials used in teaching mathematics concepts in the elementary school.

828C. Teaching Elementary School Arithmetic
Winter, Summer of even-numbered years. 3(3-0) Experience in teaching and approval of department.

Advanced methods and materials used in teaching concepts of the whole, integer, rational and real number systems including systems of numeration.

828E. Elementary Education: School Mathematics Instruction
Summer. 3(3-0) Experience in teaching and enrolled in mathematics education.

Review of the literature—theoretical and research—on instruction in school mathematics including planning, group instruction, individual instruction, evaluation and instructional materials.

829. Introduction to Research on Curriculum and Teaching
Winter, Summer. 3(3-0) Graduate student or approval of instructor.

Contemporary research on curriculum and teaching. Various perspectives on research, their underlying assumptions, and relationship of research and practice.

830A. Teaching Elementary School Social Studies
Fall, Winter, Summer. 3(3-0) Experience in teaching and approval of department.

Methods and materials used in teaching social studies in kindergarten through the eighth grade.

830B. Social Studies for Gifted Students
Fall, Spring. 3(3-0) Undergraduate social studies methods course. Approval of instructor.

Designing social studies curricula for gifted students, grades K-12. Theory and research, curriculum development processes, state mandates, and exemplary lessons and programs will be stressed.

830C. Social Studies Curriculum K-12
Winter, Summer. 3(3-0) Teaching experience.

Social studies curriculum planning, development and improvement. Emphasis on holistic K-12 view but each student will be encouraged to concentrate on a selected area or topic.

830G. Law Focused Education: Methods and Materials for the Social Studies
Winter, Summer. 3(3-0) Undergraduate course in Social Studies methods or approval of instructor.

Techniques for infusing and teaching law related concepts within school social studies programs. Emphasis placed upon the identification and development of materials for use in the classroom.

830K. Seminar on Global Education
Fall, Spring, Summer. 3(3-0) Approval of instructor.

Issues bearing upon the increasing global interdependence of people and nations; instructional materials and strategies designed to develop global perspectives in American elementary and secondary schools.

**Descriptions — Teacher Education
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Courses**

834G. Instruction in Business Marketing Subjects
Summer. 3(3-0) Experience in teaching.

Improving instructional processes through research findings, readings, and experiences. Objectives, scope and sequence, diagnosis of learning difficulties; selected learning activities; evaluating achievement; selecting materials, media, and equipment.

838A. Principles and Practices in Education for Business
Summer of even-numbered years.
3(3-0)

Needs and goals in education for training for business, marketing, general business, and economic education; program structure, professional and youth organizations; related legislation and historical background.

838C. Contemporary Issues in Education for Business
Summer of odd-numbered years.
3(3-0) Twenty-four graduate credits or approval of department.

Analysis and discussion of selected issues relating to: education for business—structure, legislation, curriculum, training by government and business; curriculum and instruction. Emphasis upon problem-solving and extensive writing.

838E. Research in Education for Business
Winter, Summer. 2 to 8 credits. Prior course in research or approval of department.

Emphasis on review of research and developmental projects and application to business education program; study of design particularly to student's personal research interests.

840A. Program Development in Business and Marketing Education: Curriculum

Fall. Summer of even-numbered years.
3(3-0) Twelve graduate credits in Business or Vocational Education or approval of department.

Criteria for planning and organizing vocational business; office, and marketing education programs; curriculum patterns; content, and scope and sequence; program evaluation. Special attention to legislation and curriculum research.

840C. Program Development in Business and Marketing Education: Strategies and Structure
Winter. Summer of odd-numbered years. 3(3-0) Approval of department.

The initiation of new classroom systems. The scope and sequence of systems; their design, curriculum and instructional content, and instructional objectives. Emphasis on follow up and evaluation design.

840E. Program Development in Business and Marketing Education: Contemporary Problems

Fall, Spring. 2 credits. May reenroll for a maximum of 6 credits. Advanced graduate standing or approval of department.

Focus as needed on current issues and problems; curriculum development projects; contemporary research. Emphasis on individual investigations and writing.

840G. Improving Instruction in Business Subjects
Summer of even-numbered years.
3(3-0) Experience in teaching, CEP 434 or CEP 834, or approval of department.

Improving instructional processes through research findings, readings, and experience; Objectives, scope and sequence, diagnosis of learning difficulties, selecting learning activities, evaluating achievement, selecting materials, media and equipment.

840M. Instruction in Business and Marketing Education: Information Processing
Fall, Winter, Spring, Summer. 3(2-2)
Experience in teaching.

Improving the instructional processes in informing and instructing in information processing and its concepts, career paths, equipment, systems and procedures.

842A. Principles and Programs of Vocational Education and Practical Arts
Fall. Summer of even-numbered years.
3(3-0)

Principles of vocational and technical education, comprehensive school program characteristics, program planning. Special emphasis is given to programs in agriculture, distributive, health, home economics, industrial, and office education. For vocational and practical arts teachers and local coordinators and directors of programs.

842E. Current Issues and Developments in Occupational Education
Winter. Summer of odd-numbered years. 3(3-0)

Issues and problems in occupational education. Special emphasis on the emerging role of governmental and private agencies in human resource development. Designed for majors in fields other than vocational education.

844C. Occupational Analysis and Course Construction in Vocational Education
Winter. Summer of odd-numbered years. 3(3-0) Approval of department.

Techniques of analyzing an occupation to determine the processes; instructional units and curricular arrangements.

844E. Instructional Materials in Vocational and Practical Arts Education
Fall. Summer of even-numbered years.
3(3-0) Approval of department.

For teachers of agriculture, business, home economics, industrial arts and vocational-industrial education. Selection, preparation and use of distinctive materials that characterize shop and laboratory instruction.

844G. Developing Occupational Curricula in Two-Year Colleges
Fall. Summer of even-numbered years.
3(3-0) T E 842A, EAD 870E or approval of department.

Occupational curriculum development and course construction. Developmental projects involving community college faculty, students and employers. For prospective teachers and administrative personnel in two-year colleges.

846A. Administration of Vocational Education Programs.
Spring. Summer of odd-numbered years. 3(3-0) Twelve graduate credits in Education or approval of department.

Application of principles of administration to the administration of vocational and technical education programs in public and private institutions and federal, state and local educational agencies. Emphasizes competencies required in planning, managing, and evaluating vocational programs.

846C. Coordination in Occupational Training Programs
Spring. Summer of odd-numbered years. 3(3-0) Approval of department.

Analysis of objectives and scope of distributive, office, trade and industrial cooperative education programs, apprenticeship, and general education work experience. Emphasizes organization and administration, instructional procedures, coordination techniques, club activities, and evaluation of cooperative occupational education.

848A. Evaluation of Programs of Vocational and Practical Arts Education
Spring. Summer of odd-numbered years. 3(3-0) Approval of department.

Evaluation principles and practices in the specialized areas of agricultural, business, and industrial education.

848C. Current Research and Development in Vocational Education
Spring. 3(3-0) CEP 803 or approval of instructor.

Current research and development concepts and practices.

869. Perspectives in Curriculum and Teaching
Fall, Winter, Spring, Summer. 3(3-0)
Students in curriculum and teaching or approval of instructor.

Teacher knowledge, beliefs, and practices bearing on educational problems. Research, observation and introspection are used to stimulate teachers' professional growth about contextual features, goals, and participants in education.

870. Classroom Analysis
Fall, Winter, Spring. 3(3-0) Admission to M.A. in Classroom Teaching Program (MACT).

Development of procedures and skills essential for analyzing and improving teaching performance. Students will establish programs of self-modification where needed. Offered only in an off-campus setting.

871. Instructional Development
Fall, Winter, Spring, Summer. 2 to 4 credits. May reenroll for a maximum of 12 credits. T E 870.

Designed to improve a teacher's effectiveness in classroom instruction through individualized projects. Offered only in an off-campus setting.

872. Classroom Synthesis
Fall, Winter, Spring, Summer. 3(3-0)
T E 871; 36 credits applicable toward the MACT program.

Designed to refine one's personal educational philosophy, and establish long and short-term goals for improvement of teaching effectiveness. Offered only in an off-campus setting.

- 875. Seminar on Classroom Instruction in Reading Comprehension**
Winter. 3(3-0) Approval of department.
Research on classroom teaching and on reading comprehension, with implications for classroom instruction in reading comprehension.
- 881. Workshops in Curriculum and Teaching**
Fall, Winter, Spring, Summer. 1 to 6 credits. May reenroll for a maximum of 6 credits. Approval of department.
Laboratory approach which provides opportunity for educators to examine common areas of interest in curriculum, teaching, and teacher education.
- 882. Seminars in Curriculum and Teaching (MTC)**
Fall, Winter, Spring, Summer. 1 to 9 credits. May reenroll for a maximum of 15 credits if different topics are taken. Approval of department.
Seminars in the various fields of emphasis in curriculum, teaching, and teacher education.
- 883. Readings and Independent Study in Curriculum and Teaching**
Fall, Winter, Spring, Summer. 1 to 6 credits. May reenroll for a maximum of 15 credits. Approval of department.
Individual or group study in the various areas of curriculum, teaching, and teacher education.
- 884. Laboratory and Field Experiences in Curriculum and Teaching**
Fall, Winter, Spring, Summer. 1 to 9 credits. May reenroll for a maximum of 15 credits. Approval of department.
Supervised graduate practicums, observations, internships, and externships in the various areas of curriculum, teaching, and teacher education.
- 899. Master's Thesis Research**
Fall, Winter, Spring, Summer. 2 to 12 credits. May reenroll for a maximum of 12 credits. Approval of department.
- 901. Educational Sociology: Seminar**
Winter. 3(3-0) Approval of department. Interdepartmental with and administered by the Department of Sociology.
Theories and research on interrelationships between sociocultural conditions in society and the organization and operation of educational systems.
- 910A. Seminar: Curriculum Competencies and Careers**
Fall. 3(3-0) Doctoral students in curriculum or approval of department.
Identification of generic competencies related to curriculum development. Analysis and development of student competencies. Exploration of careers in the curriculum field.
- 910C. Seminar: Curriculum Issues**
Spring. 3(3-0) Doctoral students in curriculum or approval of department.
In-depth exploration of the nature, history and significance of several perennial issues such as curriculum balance and curriculum control. Overview of selected current and probable future issues.
- 910E. Curriculum Research Seminar**
Spring. 3(3-0) T E 810C; CEP 803.
Identification of researchable variables in the curriculum of an educational institution or program. Design of descriptive, evaluative and experimental studies within ongoing complex social systems.
- 910G. Seminar: Curriculum Innovation**
Summer. 3(3-0) Doctoral students in curriculum or approval of department.
Theories of and models for curriculum innovation and change. Use of models to effect change. Analysis and evaluation of past and present curriculum innovations. Characteristics and roles of change agents.
- 910K. Comparative Curriculum Studies**
Winter. 3(3-0) Advanced graduate students in Education.
Comparative study of global issues related to curriculum practices and designs.
- 910M. Seminar in Curriculum Theory**
Winter, Summer. 3(3-0) T E 810A, T E 810C.
Examination of the historical, philosophical and epistemological foundations of the study of curriculum, especially comparing major positions about educational purpose and appropriate structure of learning experiences.
- 911. Conceptual Foundations of Teacher Education**
Winter, Spring. 3(3-0) T E 975, T E 976, T E 977 or approval of instructor.
Philosophy of teacher education: concepts central to the curriculum of teacher preparation (e.g., disciplinary knowledge, professional ethics, learning from experience).
- 913. Seminar in Research on Teaching**
Winter. 3(3-0) Approval of instructor. Interdepartmental with and administered by the Department of Counseling, Educational Psychology and Special Education.
Critical survey of five approaches to research on teaching. Students develop a framework for organizing the literature, methods, and issues in the field.
- 915. Readings and Research in Teacher Education and Professional Development**
Spring. 3(3-0) Approval of department.
Literature on research on practice in teacher education field experiences. Issues, problems and skills needed by educational leaders in pre-service and inservice teacher education.
- 916. Staff Development and the Realities of Teaching**
Fall. 3(3-0) Doctoral Proseminar Sequence in Teacher Education or approval of instructor. Interdepartmental with the Department of Educational Administration.
Elements in decisions about staff development. Context for inservice teacher learning. Comparison of knowledge sources in teacher development.
- 917. Cognitive Theories of Knowledge Acquisition**
Winter of even-numbered years. 3(3-0) CEP 411 or CEP 811 or approval of instructor. Interdepartmental with and administered by the Department of Counseling, Educational Psychology and Special Education.
Cognitive research and theories about the growth of knowledge in academic disciplines and the acquisition of disciplinary knowledge by elementary and secondary school students.
- 918. Teacher Assessment and Development**
Fall. 3(3-0) Completion of 27 credits at graduate level.
Concepts of teacher assessment, techniques and instruments for analysis of teaching, current assessment practices, and strategies for teacher development based on needs.
- 919. Psychology and Pedagogy of Reading**
Spring. 3(3-0) CEP 811, T E 820A, CEP 915, or approval of instructor. Interdepartmental with and administered by the Department of Counseling, Educational Psychology and Special Education.
Psychological foundations of reading process, and instruction in reading. Cognitive processes and implications for models of reading are emphasized.
- 920A. Research Methods for Studying Teaching Effects I**
Fall. 3(3-0) Admission to doctoral program in education-related field.
Methods, theoretical perspectives and recent research about teaching effects on student outcomes.
- 920B. Research Methods for Studying Teaching Effects II**
Winter. 3(3-0) T E 920A.
Data collection and data analysis methods for research on teaching effects.
- 920C. Research Methods for Studying Teaching Effects III**
Spring. 3(3-0) T E 920B.
Development of research proposal for research on teaching effects; development, piloting, and revision of data collection methods.
- 921. Fieldwork Research in Educational Settings I**
Fall. 4(4-0) Approval of instructor.
Substantive and methodological issues in planning and conducting fieldwork research in educational settings. Knowledge and skills necessary to evaluate quality of fieldwork research. Critical review of examples of research reports.
- 922. Fieldwork Research in Educational Settings II**
Winter. 4(3-3) T E 921, approval of instructor.
Supervised fieldwork research in educational settings. Techniques of data collection and analysis. Research question formation, entry, evidence, and ethics.
- 923. Fieldwork Research in Educational Settings III**
Spring. 4(4-0) T E 922, approval of instructor.
Supervised analysis and reporting of fieldwork research data. Literature review, model construction, analysis of field notes and other data. Preparing narrative reports addressed to scientific audiences and to audiences of practitioners.
- 928. Conceptual Foundations of Educational Research**
Fall. 3(3-0) Approval of instructor. Interdepartmental with the Department of Counseling, Educational Psychology and Special Education.
Epistemology and ideology in educational research. Analysis of concepts of method, causation, objectivity and subjectivity in historical perspective.

Descriptions — Teacher Education

of

Courses

- 930. Educational Selection: Characteristics and Consequences of Student Assessment**
Winter of odd-numbered years. 3(3-0)
Doctoral student or approval of instructor.
Influence of assessment and selection of students on the shaping of student learning, educational trajectory, and access to social position.
- 931. Teaching: An American Argument**
Spring of odd-numbered years. 3(3-0)
Graduate student or approval of instructor.
Historical analysis of competing conceptions of teaching in American social thought, literature, and social science, 1850 to present; implications for understanding, criticism, and reform of teaching.
- 932. Enduring Dilemmas of Educational Policy**
Spring of even-numbered years. 3(3-0)
T E 975, T E 976, T E 977 or approval of instructor.
Enduring dilemmas that confront educational policymakers; how underlying tensions (e.g., between capitalism and democracy) shape policy on issues such as tracking, desegregation, vocationalism, and achievement.
- 933. Policymaking and Education**
Spring of odd-numbered years. 3(3-0)
T E 975, T E 976, T E 977 or approval of instructor.
Impact of social, political, historical, economic, and judicial forces on educational policymaking. Dilemmas of policy formulation and implementation related to desegregation, school finance, compulsory education, and testing.
- 937. Education and Economic Development**
Fall. 3(3-0) Approval of instructor.
Relationship between education and economic development, including economic growth, income distribution, and employment.
- 938. Sociolinguistics, Classrooms, and Educational Inequalities**
Spring. 3(3-0) Approval of instructor.
Sociolinguistic and micro-ethnographic analyses of face-to-face interaction in educational settings, focusing on classrooms as sites for both reinforcing and overcoming educational and socio-economic inequalities.
- 939. Policy and Legal Issues in Testing**
Spring of even-numbered years. 3(3-0)
CEP 401. Interdepartmental with the Department of Counseling, Educational Psychology and Special Education.
Public policy and legal issues concerning the use of standardized testing to make critical decisions about individuals in American public education.
- 975. Seminar: The Purposes and Effects of Schooling**
Fall; every third Summer beginning 1987. 3(3-0) Admission to doctoral program in teacher education or approval of instructor.
Analysis of national and international perspectives on schooling which shape educational aspirations. Implications of different purposes of schooling for curricula, teaching force composition, pedagogical strategies, organizational arrangements, and student outcomes.
- 976. Seminar: Improving the Quality of Teaching**
Winter; every third Summer beginning 1988. 3(3-0) Admission to doctoral program in teacher education or approval of instructor.
Consideration of various disciplines, historical and current accounts, and comparative research to improve the quality of teaching through changes in working conditions, formal teacher education, and school curricula.
- 977. Seminar: Consequences of Educational Reform**
Spring; every third Summer beginning 1989. 3(3-0) Admission to doctoral program in teacher education or approval of instructor.
Multiple and conflicting sources, processes, and consequences of reform in educational policies and practices. Legislative and legal, curricular, institutional, professional, societal, and cross-cultural considerations.
- 982. Seminars in Curriculum, Teaching, and Educational Policy (MTC)**
Fall, Winter, Spring, Summer. 1 to 9 credits. May reenroll for a maximum of 15 credits. Approval of department.
Seminars in teacher education doctoral emphasis areas: curriculum and instruction; disciplinary knowledge in K-12 education; research on teacher knowledge, practice, change; teacher preparation and staff development; teaching, policy, social analysis.
- 983. Readings and Independent Study in Curriculum, Teaching, and Educational Policy**
Fall, Winter, Spring, Summer. 1 to 6 credits. May reenroll for a maximum of 15 credits. Approval of department.
Individual or group study in the various doctoral emphasis areas of curriculum, teaching, and educational policy.
- 984. Laboratory and Field Experience in Curriculum, Teaching, and Educational Policy**
Fall, Winter, Spring, Summer. 1 to 9 credits. May reenroll for a maximum of 15 credits. Approval of department.
Supervised graduate practicums, observations, internships, externships in the various doctoral emphasis areas of curriculum, teaching, and educational policy.
- 999. Doctoral Dissertation Research**
Fall, Winter, Spring, Summer. Variable credit. Approval of department.
- 220. History and Economics of Telecommunication**
Fall, Winter, Spring, Summer. 4(3-2)
Sophomores, EC 201, successful completion of MTH 108.
Institutional and cultural development and underlying economic principles of the telecommunication field, including broadcast programs.
- 230. Basic Telecommunication Technology**
Fall, Winter, Spring, Summer. 4(4-0)
Sophomores, TC 210, TC 220, CPS 115.
An analysis of technical factors involved in electronic communication: transmission, sound physics and aural technology, light physics, visual behavior and image technology, computer and automation controls, technical telecommunication policy formulation.
- 280. History of the Motion Picture**
Fall, Spring. 4(2-4) Sophomores.
Development of the motion picture from its beginning to the present, emphasizing social background and cultural values. Screening of significant films from various periods and countries.
- 300. The Effects of Mass Communication**
Fall, Winter, Spring, Summer. 4(4-0)
Interdepartmental with the Department of Communication.
Major social effects of mass media on audience behavior. Political communication. Media effects on children. Message strategies producing attitude change. Interrelationship between mass media and interpersonal communication. Decision making in mass media.
- 301. Basic Audio Production**
Fall, Winter, Spring, Summer. 4(2-4)
TC 230, majors or approval of department.
Basic orientation to audio and radio studios, with laboratory experiences in production, writing and performance.
- 302. Basic Video Production**
Fall, Winter, Spring. 4(2-4) TC 230, majors or approval of department.
Basic orientation to video and television studios, with lab experiences in production, writing and performance.
- 310. Basic Telecommunication Policy**
Fall, Winter. 4(4-0) TC 210, TC 220, TC 230.
Essential U.S. public communication policy is treated through rigorous methodological analysis of case and statutory law, public documents and related primary materials.
- 325. Telecommunication Program and Production Management**
Winter. 4(4-0) TC 302 or concurrently.
Sources of program material, economics of program market, program regulation, ascertainment of audience needs and interests, formative and summative research, programming strategy, showmanship, management of production facilities and personnel.
- 335. Audience Survey and Analysis**
Winter, Spring. 4(4-0) Juniors.
Designing research for the study of telecommunication audiences. Survey research, sampling, questionnaire construction, research administration. Analyses and interpretation of research results. Audience measurement services and feedback systems.

TELECOMMUNICATION TC

College of Communication Arts and Sciences

- 210. Telecommunication Process and Effects**
Fall, Winter, Spring, Summer. 4(4-0)
Sophomores or approval of department.
Human communication processes and behavior as modified by telecommunication. Functions, audiences, and implications of electronic media on society.