M.Ed. – Curriculum & Instruction
Emphasis in Elementary Mathematics and Science Education

The major in Curriculum and Instruction is designed to prepare master teachers and graduates with instructional leadership skills. It has three major objectives:

– to provide knowledge, skills, attitudes, and applicable research skills in curriculum and pedagogy;
– to develop master teachers to serve as teacher educators, mentors, clinical teaching faculty, and peer coaches;
– to provide experience in educational research related to effective educational practice in field-settings.

The major in Curriculum and Instruction is designed to serve the many educators who desire a program with an emphasis on instructional leadership and effective teaching. This major is responsive to the needs of the South Texas educational community and to state and national priorities for restructuring and delivering teacher education programs. A comprehensive examination is required. Students choosing the thesis option will take EDCI 7300 and 7301 in lieu of six hours of electives. For course descriptions and other information related to graduate studies visit our website at *http://utb.edu/vpaa/graduate* .

Admission Requirements

Evidence of academic achievement and potential for advanced study and research is required for graduate admission. Specific criteria for Unconditional Admission for Master's degree seeking students in Curriculum and Instruction are:

- Undergraduate GPA of 3.0
- GRE Verbal score of 450
- GRE Quantitative score of 450
- GRE Analytical score of 4.0

Applicants with an undergraduate GPA of at least 2.5 and/or GRE scores lower than those specified are also encouraged to apply.

Notification of decisions on graduate admission is made by the office of Graduate Studies based on the admission criteria and recommendation of the academic department. Information related to application procedures and deadlines is available at the Office of Graduate Studies.

Careers

- K-12 teacher
- ISD Curriculum Specialist
- ISD Staff Development
- Consulting and Training
- Regional Educational Service Center Staff
- Texas Education Association Staff

36-Hour Thesis/Non-thesis Program

Required Courses: 36 hours

The options are designed for elementary teachers who desire to improve their teaching and understanding of mathematics and science. The program blends the mathematics educations and the science education courses into the mathematics/science education emphasis for elementary teachers.

Curriculum and Instruction Core (9 hrs)

EDCI	6300	Introduction to Research**
EDCI	6334	Curriculum Development
EDCI	6304	Learning and Cognition

Emphasis (18 hrs)

Math Education Core

EDCI	6341	Teaching Algebraic Concepts
EDCI	6343	Teaching Geometric Concepts
EDCI	6349	Current Issues & Research in Mathematics Education

Science Education Core

EDCI	6342	Topics in Science Education
EDCI	6344	Current Issues and Research in Science Education
EDCI	6346	Environmental Education Methods

Non-Thesis Option Electives (9 hrs)

EDCI	6367	Statistical Methods**
EDCI	6302	Field Research Methodology
EDCI	6348	Science Education Project

Thesis Option (9 hrs)

EDCI	6367	Statistical Methods**
EDCI	7300	Thesis
EDCI	7301	Thesis

**Students should take these courses as early as possible in the sequence.

Advisor

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Course Descriptions

EDCI 6300 Introduction to Research
Introduction to research techniques; identification of problems, research designs and data gathering procedures. The planning and design of research proposals and projects are emphasized. The course must be completed or in progress before the student applies for the oral interview. Lec 3, Cr 3

EDCI 6334 Curriculum Development - Problems and Processes
This course examines approaches in developing, implementing, and evaluating elementary and secondary school curricula. Principles and practices in the use and production of curriculum frameworks, guides, textbooks and other curriculum materials will be included. ***Lec 3, Cr 3***

EDCI 6304 Learning and Cognition
This critical course focuses on topics, theories, and models of cognitive research and their implications for instructional practice and curriculum restructuring and design. This is a field-based course. Lec 3, Cr 3

EDCI 6341 Teaching and Learning Algebraic Concepts
This course covers learning theories related to school algebra, as well as strategies for teaching algebraic concepts. Topics include best practices based on research, and development of materials that support the learning of foundational algebraic concepts. Students will utilize technology and other "tools'. ***Prerequisite: May be taken by post-baccalaureate or graduate student in education. Lec 3, Cr 3***

EDCI 6343 Teaching and Learning Geometric Concepts
This course covers learning theories related to learning geometry, as well as strategies for teaching geometric concepts. Topics include best practices based on research, and the development of materials that support the learning of geometric concepts through the use of technology and other "tools". ***Prerequisite: May be taken by post-baccalaureate or graduate students in education. Lec 3, Cr 3***

EDCI 6349 Current Issues and Research in Mathematics Education
Current Issues will include studies of prominent issues and problems related to mathematics education and curriculum development. Topics include multicultural mathematics education, gender and ethnicity issues regarding mathematics, analysis of learning in the mathematics classroom, using the Internet to enrich the teaching of Math and review of recent research in mathematics education. Lec 3, Cr 3

EDCI 6342 Topics in Science Education
Special topics in science education related to science pedagogy, inquiry models of science instruction, integration of content areas, coordinated-thematic science teaching, authentic assessment methods in science education, fostering science process skills and critical thinking skills, and laboratory methods. May require fieldwork. May be repeated for credit when the topics vary. Lec 3, Cr 3

EDCI 6344 Current Issues and Research in Science Education
This course will include selected studies of current issues and problems related to science instruction and curriculum development. Topics include multicultural science education, inclusive science education, gender and ethnic issues regarding science, the analysis of learning in the science classroom, using Internet and Tenet to teach science, and a review of recent research in science education and science education reform efforts. Lec 3, Cr 3

EDCI 6346 Environmental Education Methods
This course is an interdisciplinary course for integrating environmental education throughout the K-12 curriculum. It includes content and strategies for developing and implementing environmental education lessons and programs. Methods for teaching K-12 students about the environment using effective educational methodology are emphasized. Lec 3, Cr 3

EDCI 6367 Statistical Methods
Content of this course includes central tendency; variance; norma, T, chi square, and F distributions; bivariate correlation and regression analysis, T test between means, goodness of fit and test of independence chi square; one-way and factorial ANOVA. Emphasis is on hypothesis testing; Type I and II errors; and understanding statistical significance. Lec. 3, Cr 3

EDCI 6302 Field-Research Methodology
This course is an introduction to field-based research methodologies with an emphasis on the teacher as a researcher and on reflective teaching and teaching as decision-making. This is a field-based course. Lec 3, Cr 3

EDCI 6348 Science Education Foundation
Supervised project in science education that will include design of an original project and the writing of a formal report in an acceptable publication format. This course is usually taken during the last semester of study and is taken only by Non-Thesis students. Lec 3, Cr 3

EDCI 7300 Thesis
Pass/Fail Grade. Prerequisite: Approval of graduate advisor Lec 3, Cr 3.

EDCI 7301 Thesis
Pass/Fail Grade. Prerequisite: Approval of graduate advisor Lec 3, Cr 3.