

MASTER OF SCIENCE IN TEACHING, LEARNING, AND LEADERSHIP

Option: Mathematics/Science Education

REQUIRED OF ALL STUDENTS FOR ADMISSION:

Undergraduate degree in education or related field; vita/resume; typewritten goals statement (about 500 words) consistent with mission of graduate degree program and program option; ***the equivalent of an undergraduate major or minor in mathematics or science OR a satisfactory score on the quantitative portion of the Graduate Record Exam.*** Faculty in each program option will review admissions materials once a month, make admissions recommendations, and assign a temporary advisor to admitted students in that program option. The review process may take 4-6 weeks fall and spring semesters or longer during summer session.

A minimum of **36 hours** beyond the Bachelor's degree is required.

COMMON CORE

6 hours

- CIED 5053 Curriculum Issues®
- CIED 5813 Educational Advocacy and Leadership®

RESEARCH REQUIREMENT

6 hours

- SCFD 5913 Introduction to Qualitative Research **OR**
- CIED 5073 Pedagogical Research **OR**
- REMS 5953 Statistical Methods in Education **OR**
- STAT 5013 Statistics for Experimenters I

PROGRAM CORE

6 hours

- CIED 5623 Multicultural and Diversity Issues in Curriculum ® **OR**
- SPED 5993 Culturally Responsive Teaching in Special Education **AND**
- CIED 5293 Teaching and Learning Mathematics with Technology **OR**
- CIED 5223 Teaching Science in Schools ®

AREAS OF EMPHASIS

12 hours

Mathematics Education

Choose 6 hours from the following:

- CIED 5050 Integrating Mathematics and Science Applications
- CIED 5253 Intermediate Mathematics Education®
- CIED 5263 Assessment and Evaluation in Mathematics and Science Education
- CIED 5270 Practicum in School Math
- CIED 5273 Kindergarten-Primary Mathematics Education
- CIED 5283 Problem-Centered Learning in Mathematics®
- CIED 5293 Teaching and Learning Mathematics with Technology®
- CIED 5613 Effective Teaching of Mathematics®
- CIED 5750 Seminar in Mathematics Education

Choose 6 hours from courses with a MATH prefix that carry graduate credit:
(not an exhaustive list)

- MATH 4013 Calculus of Several Variables
- MATH 4033 History of Mathematics
- MATH 4403 Geometry
- MATH 4553 Linear and Nonlinear Programming
- MATH 4583 Introduction to Mathematical Modeling
- MATH 4463 Combinatorial Mathematics
- MATH 4713 Number Theory
- MATH 4813 Groups and Representations
- MATH 6990 Topics in Collegiate Mathematics Education

Science Education

Choose 6 hours from the following:

- CIED 5050 Integrating Mathematics and Science Applications
- CIED 5223 Teaching Science in Schools®
- CIED 5243 Environmental Education in the Curriculum
- CIED 5263 Assessment and Evaluation in Mathematics and Science Education®
- CIED 5280 Workshop in Science Education
- CIED 5283 Problem Centered Learning in Mathematics®

Choose 6 hours of courses with science prefixes (BIO, CHEM, etc) that carry graduate credit:
(not an exhaustive list)

- BIO 5100 Current Topics in Biology for Teachers
- BIO 5117 Gross and Developmental Anatomy
- BIO 5134 Neuroanatomy
- BIO 6113 Human Embryology
- BIO 6175 Cellular and Molecular Biology
- BIO 6223 Medical Genetics
- BIO 6263 Techniques in Molecular Biology
- CHEM 5220 Modern Topics for Teachers
- CHEM 5223 Chemistry of High Polymers
- CHEM 5260 Inorganic Chemistry
- CHEM 5283 Solid-State Chemistry
- CHEM 5323 Reactions of Organic Compounds
- CHEM 5443 Mechanism and Structure of Organic Chemistry
- PHYS 5220 Modern Topics for Teachers
- PHYS 5263 Particle Physics
- PHYS 5313 Electromagnetic Theory

Integrated Math and Science

Choose 6 hours from the following:

- CIED 5050 Integrating Mathematics and Science Applications
- CIED 5243 Environmental Education in the Curriculum
- CIED 5253 Intermediate Mathematics Education®
- CIED 5263 Assessment and Evaluation in Mathematics and Science Education
- CIED 5270 Practicum in School Math
- CIED 5280 Workshop in Science Education
- CIED 5283 Problem Centered Learning in Mathematics®
- CIED 5613 Effective Teaching of Mathematics®
- CIED 5750 Seminar in Mathematics Education

Choose 3 hours of courses with science prefixes and 3 hours of mathematics courses that carry graduate credit.

ELECTIVES or THESIS (Select thesis OR creative component and 6 hours of courses) **6 hours**

® Indicates courses with at least one-third research content. Students in this program must complete at least three courses with an ®.

Faculty contact: Juliana Utley, 405-744-8111.