EDUCATION MATHEMATICS - CA (EDMTH)

EDMTH 301: Mathematics in Elementary Education I
3 Credits

Survey of content, pedagogy, and psychology of mathematics instruction relating to numbers, operations, and algebraic thinking for pre-school through eighth grade. EDMTH 301 Mathematics in Elementary Education I (3) The course will provide candidates the opportunity to explore and develop research-based practices needed to teach elementary mathematics in alignment with national and state content standards. This course will focus on the big ideas and learning trajectories associated with the mathematical content strands of numbers and operations and algebraic reasoning and functions across grades PK - 8. Course content will also focus on curriculum materials and considerations, planning effective lessons, pedagogical practices, and assessment of student understanding. The course will also emphasize the use of manipulatives and technology to represent the essential understandings needed to help students make sense of mathematical operations and make mathematical connections. Throughout the course, teacher candidates will engage in mathematical tasks and mathematical discussions, and observe videos of elementary mathematics classes to explore the focus, coherence, and rigor needed across PK-8 grade levels relative to the content strands of geometry, measurement, data analysis, and probability. They will also learn about various formative and summative assessments strategies to identify students’ understanding. The course will also emphasize instructional approaches designed to help students develop the mathematical behaviors associated with the Common Core Mathematical Practices across grade levels.

Prerequisite: EDMTH301

EDMTH 441: Geometry and Measurement Across the K-12 Curriculum
3 Credits

The course presents participants with investigations of reports, research, and recent trends related to teaching geometry and measurement. EDMTH 441 Geometry and Measurement Across the K-12 Curriculum (3) This course addresses the areas of Geometry and Measurement as defined by the National Council of Teachers of Mathematics (NCTM) and the Pennsylvania academic standards. Designed for graduate students who teach mathematics in K-12 grades or are leaders in mathematics education, the course focuses on discussions and teaching practices related to the fundamental concepts of geometric and measurement. Also, participants will become familiar with current research, reports and recent trends related to the teaching of a geometry or measurement topic.

Prerequisite: permission of program

EDMTH 302: Mathematics in Elementary Education II
3 Credits

Survey of content, pedagogy, and psychology of mathematics instruction relating to geometry, measurement, statistics, and data for pre-school through eighth grade. EDMTH 302 Mathematics in Elementary Education II (3) The course will provide candidates the opportunity to explore and develop research-based practices needed to teach elementary mathematics in alignment with national and state content standards. This course will focus on the big ideas and learning trajectories associated with the mathematical content strands of geometry, measurement, data analysis, and probability across grades PK - 8. Course content will also focus on curriculum materials and considerations, planning effective lessons, pedagogical practices, and assessment of student understanding. The course will also emphasize the use of manipulatives and technology to represent the essential understandings needed to help students make sense of mathematical operations and make mathematical connections. Throughout the course, teacher candidates will engage in mathematical tasks and mathematical discussions, and observe videos of elementary mathematics classes to explore the focus, coherence, and rigor needed across PK-8 grade levels relative to the content strands of geometry, measurement, data analysis, and probability. They will also learn about various formative and summative assessments strategies to identify students’ understanding. The course will also emphasize instructional approaches designed to help students develop the mathematical behaviors associated with the Common Core Mathematical Practices across grade levels.
Attention will be given to practices utilizing manipulatives, writing, problem solving, technology, and simulations.

**Prerequisite:** permission of program

EDMTH 444: Numbers and Operations Across the Curriculum

3 Credits

The course focuses on investigating reports, research, and recent trends related to teaching number and operation concepts K-12. A student who has passed MATH 200 may not take EDMTH 444 for credit.

EDMTH 455: Current Issues in Mathematics Education

3 Credits

An examination and analysis of contemporary trends and concerns in the teaching of mathematics.

**Prerequisite:** EDMTH302 or EDUC 417