### Master of Science in Mathematics for Educators

(This elevation was approved by the CSULB Academic Senate on April 27, 2023, approved by the President on May 4, 2023, and the CSU Chancellor's Office on June 8, 2023.)

Master of Science in Mathematics for Educators is designed for individuals seeking to deepen and broaden mathematical knowledge that supports work as a mathematics instructor at all levels. The mathematics content is complemented by coursework that explores mathematics education research and theory. The program includes a blend of courses from pure and applied mathematics, statistics, mathematics education, and may also include coursework from the College of Education.

# Prerequisites

- 1. A bachelor's degree in mathematics or mathematics education, or a bachelor's degree with at least 24 upper division units in mathematics from an accredited college or university.
- 2. The following course work, or equivalent, with grades of C or better:
- MATH 247 Introduction to Linear Algebra (3 units)
- MATH 310 History of Early Mathematics (3 units)
- MATH 341 Number Theory (3 units)
- MATH 355 College Geometry (3 units)
- <u>MATH 361A Introduction to Mathematical Analysis I</u> (3 units) or
- MATH 364A Ordinary Differential Equations I (3 units)
- MATH 380 Probability and Statistics (3 units)

## Advancement to Candidacy

In addition to University requirements stated elsewhere in this catalog, the student must have completed prerequisites above; must file for Advancement to Candidacy after completion of at least 6 units (and recommend filing before completing 9 units) on Program of Study, with an overall 3.0 grade-point average. Program of Study must be approved by MS in Mathematics for Educators Graduate Advisor and Director of Graduate Studies in the College of Natural Sciences and Mathematics or designee.

## Requirements

Complete a minimum of 30 units of graduate level or approved upper

### division coursework which includes the following:

#### A minimum of 9 graduate or approved upper-division units of mathematics:

This coursework must include at least one 500-level mathematics course. If not previously taken, this coursework must also include:

• MATH 444 - Introduction to Abstract Algebra (3 units)

or

• MATH 445 - Abstract Algebra for Secondary Mathematics Teachers (3 units)

#### A minimum of 15 graduate units of mathematics education:

This coursework must include the following two courses:

- MTED 511 Mathematics Teaching and Learning (3 units)
- MTED 512 Curriculum and Assessment in Mathematics (3 units)

This coursework must also include at least 9 units from the following 6 courses:

- MTED 540 Algebra in the School Curriculum (3 units)
- MTED 550 Geometry and Measurement in the School Curriculum (3 units)
- MTED 560 Analysis in the Secondary Curriculum (3 units)
- MTED 570 Mathematical Modeling in the School Curriculum (3 units)
- MTED 580 Probability and Statistics in the School Curriculum (3 units)
- MTED 590 Special Topics in Mathematics Education (1-3 units)

#### A minimum of 6 units of approved upper division or graduate electives:

This coursework should be chosen from mathematics, mathematics education, statistics, or approved College of Education courses, in consultation with the Mathematics Education Graduate Advisor.

### Complete one of the following two culminating activity options:

#### Option A.

Pass two comprehensive written examinations in mathematics education.

One exam will represent the following two courses:

- MTED 511 Mathematics Teaching and Learning (3 units)
- MTED 512 Curriculum and Assessment in Mathematics (3 units)

One exam will represent one of the following courses (selected by student):

- MTED 540 Algebra in the School Curriculum (3 units)
- MTED 550 Geometry and Measurement in the School Curriculum (3 units)

- MTED 560 Analysis in the Secondary Curriculum (3 units)
- MTED 570 Mathematical Modeling in the School Curriculum (3 units)
- MTED 580 Probability and Statistics in the School Curriculum (3 units)

#### Option B.

Subject to the approval of the Mathematics Education Committee of the Department of Mathematics and Statistics, write a thesis in mathematics education and defend it orally. This option requires enrollment in at least 3 units and no more than 6 units of MTED 698.

• MTED 698 - Thesis in Mathematics Education (1-6 units)

# **Mathematics Education Thesis**

Students choosing the thesis option must consult with the Mathematics Education Graduate Advisor to select a thesis advisor. A proposal is then written in consultation with the mathematics education faculty advisor who will guide the student in choosing the thesis topic and supervise the writing process. After a thesis topic is chosen, it must be approved by the Mathematics Education Committee. Committee membership should follow University policy for thesis committees.

EFFECTIVE: Fall 2024 Academic Plan Code: MATHMS06PB Career: Graduate CIP: 27.0199 CSU Code: 17013 Concentration Code: 01 College: 65, College of Natural Sciences and Mathematics Department: Mathematics and Statistics Delivery: Face-to-Face STEM-Eligible