

Master of Education Leading to Massachusetts INITIAL LICENSURE



Mathematics (1-6, 5-8, or 8-12)

For licensure: 38 credits, 4 terms full-time • Non-licensure: 33 credits, 3 terms full-time

• Program approved by the Mass. Dept. of Elementary & Secondary Education

The **MATHEMATICS EDUCATION** program prepares students to effectively teach mathematics at the elementary (1-6), middle (5-8), and high school levels (8-12). Students learn the concepts, language, and procedures of mathematics; and develop competence in mathematics and interest in applying it to the world around them. The program builds on the College's successful student-centered curriculum that links theory and practice in a collaborative learning environment.

Learning Outcomes — Teacher candidates will understand and apply mathematical problem solving processes and construct rigorous mathematical arguments. They will understand how mathematics is best learned and taught, supporting positive attitudes towards the subject. They will make connections among ideas in mathematics and other fields. They will use varied representations of mathematical ideas to communicate mathematical thinking and deepen students' understanding. They will embrace technology as an essential tool for mathematics. They will become proficient in computation, understand relationships among quantities, use measurement concepts and tools, spatial visualizations and geometric modeling. They will understand data analysis, statistics, and probability. For middle and high school levels, they will also understand concepts, techniques and applications of the calculus and discrete mathematics.

Careers — The program is ideally suited for: a) adults who want to work with and help children learn the language of mathematics; b) current teachers who wish to add mathematics as a new subject area; c) those wishing to become National Board Certified mathematics teachers, mathematics coaches, mathematics specialists, and mathematics coordinators/directors; d) non-mathematics majors who wish to earn a highly qualified title to their academic experience to enhance and broaden their teaching careers; and e) career changers who wish to pursue a more meaningful career in working with children. Teachers of mathematics at all school levels remain in high demand nationally; and individuals coming from careers in business, engineering, finance and the military are often very successful in relating the importance of the mathematics they teach, to the real world they have worked in for many years.

Admissions requirements: Bachelor's degree and other general requirements. Applicants for levels 5-8 and 8-12 must take a Cambridge College math placement test. Based on test results and program chair's recommendation, selected lower level math courses may be required before initial licensure courses.

Matriculation: All new students must register for the non-licensure option until they pass the MA Communication & Literacy Test (MTEL).

Non-licensure option: All program components are required except the Practicum, Practicum Seminar and teacher tests. Non-licensure students must complete all pre-practicum hours embedded in the courses.

Satisfactory academic progress — All students must maintain a minimum GPA of 3.0 or be placed on academic probation.

Program and course schedule subject to change.

Professional Seminar & Project9 credits

EME691N-693N Professional Seminar in Mathematics -

Initial Level (3 terms @ 2 credits) start in first term

EME800 Independent Learning Project (3 credits) take with Seminar III

Courses 24 credits

Take courses for your licensure level 1-6 5-8 . . 8-12

MAT603	Arithmetic to Algebra: Developing Math Patterns & Ideas	• •
MAT605	Technol in Math Learning & Teaching	• •
MAT607	College Algebra	• •
MAT609	Euclidean Geometry	• •
MAT611	Calculus I	• •
MAT613	Discrete Math	• •
MAT615	History of Math	• •
MAT618	Math Essentials	• •
MAT621	Data Analysis	• •
MAT623	Teaching Numerical & Geometric Structures	• •
MAT625	Number Theory	• •
MAT627	Abstract Algebra	• •
MAT629	Non-Euclidean Geometry	• •
MAT631	Calculus II	• •
MAT633	Probability & Statistics	• •
MAT635	Applied Math	• •

Practicum Prerequisites

- Pass all MTEL teacher tests required for this license: Communication & Literacy, and Elementary Mathematics, Middle School Mathematics, or Mathematics (8-12).
- SEI600 Sheltered English Instruction (3 additional credits) or MA DESE-endorsed course or SEI MTEL.
- Pre-Practicum — 90 hours in diverse settings (0 credit).
- Pass all required courses including Independent Learning Project.

Practicum (licensure students only)5 credits

Practicum in Mathematics—300 hours (3 credits). Fall, Spring

Guided and evaluated by a licensed/certified math teacher in the classroom and Cambridge College mathematics supervisor.

Practicum locations are subject to MA DESE regulations and must be approved by the program chair. Students are responsible for discussing options for practicum with the program chair.

MAT790A Practicum 1-6

MAT790B Practicum 5-8

MAT790C Practicum 8-12

MAT791 Practicum Seminar in Mathematics

Teaching (2 credits). Fall, Spring

Exit Performance Portfolio required for credit.

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Continued

Mathematics (1-6, 5-8, or 8-12)

COURSE OFFERINGS PLAN / PREREQUISITES

Professional Seminar, Independent Learning Project	every term
MAT609	Euclidean Geometry Fall
MAT625	Number Theory (req. MAT611) Fall
MAT611	Calculus I (reqs. MAT607 & 609) Fall, Spring
MAT615	History of Math (reqs. MAT607, 609, 611) Fall, Spring
MAT631	Calculus II (req. MAT611) Spring
MAT613	Discrete Math (reqs. MAT607 & 609) Spring
MAT621	Data Analysis Spring
MAT635	Applied Math (reqs. MAT611 & 631) Spring
MAT623	Teaching Numerical & Geometric Structures Spring, Summer

MAT603	Arithmetic to Algebra	Summer
MAT605	Technol. in Math (reqs. MAT607, 609, 611, 613)	Summer
MAT607	College Algebra	Summer
MAT618	Math Essentials	Summer
MAT627	Abstract Algebra (req. MAT607)	Summer
MAT629	Non-Euclidean Geometry (req. MAT609)	Summer
MAT633	Probability & Statistics (req. MAT613)	Summer
MAT790-791	Practicum and Practicum Seminar	Fall, Spring

Prerequisites as listed or program chair's approval.

Course schedule for Cambridge only.

Graduate certificate



Mathematics Specialist

12 credits, 2 terms

This program is best suited for current classroom teachers who wish to add mathematics as a new subject area to their professional skills; and to new teacher candidates entering the teaching profession who are non-mathematics majors, and who wish to earn a highly qualified title to their academic experience and broaden their teaching careers as a mathematics specialist or mathematics coach.

Choose math specialist option in elementary/middle school or high school math, and take courses as outlined below.

3-credit courses for your Math Specialist choice		Elem/Middle School	High School
MAT603	Arithmetic to Algebra: Developing Math Patterns & Ideas	•	
MAT623	Teaching Numerical & Geometric Structures	•	
MAT615	History of Math	•	•
MAT708	Diagnosis & Remediation of Learning Problems in Math	•	•
MAT611	Calculus I	•	•
MAT609	Euclidean Geometry	•	•

