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, 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 work with and help children learn the language of mathematics; 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.

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**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.**
COURSE OFFERINGS PLAN / PREREQUISITES

Professional Seminar, Independent Learning Project......every term
MAT609   Euclidean Geometry .......................... Fall
MAT625   Number Theory (preq. MAT611) ............ Fall
MAT611   Calculus I (preqs. MAT607 & 609) .......... Fall, Spring
MAT615   History of Math (preqs. MAT607, 609, 611) . Fall, Spring
MAT631   Calculus II (preq. MAT611) ... Fall, Spring
MAT613   Discrete Math (preqs. MAT607 & 609) ...... Spring
MAT621   Data Analysis ................................ Spring
MAT635   Applied Math (preqs. MAT611 & 631) .... Spring
MAT623   Teaching Numerical & Geometric Structures . Spring, Summer
MAT603   Arithmetic to Algebra: Developing Math Patterns & Ideas  .
MAT623   Teaching Numerical & Geometric Structures ..........................................
MAT615   History of Math ..................................
MAT607   College Algebra ............................... Summer
MAT618   Math Essentials ............................... Summer
MAT627   Abstract Algebra (preq. MAT607) ......... Summer
MAT629   Non-Euclidean Geometry (preq. MAT609) . Summer
MAT633   Probability & Statistics (preq. 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

<table>
<thead>
<tr>
<th>Elementary/Middle School</th>
<th>High School</th>
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<tbody>
<tr>
<td>MAT603 Arithmetic to Algebra: Developing Math Patterns &amp; Ideas</td>
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<tr>
<td>MAT623 Teaching Numerical &amp; Geometric Structures</td>
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<tr>
<td>MAT615 History of Math</td>
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<tr>
<td>MAT708 Diagnosis &amp; Remediation of Learning Problems in Math</td>
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<tr>
<td>MAT611 Calculus I</td>
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<td>MAT609 Euclidean Geometry</td>
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MAT605 Technol. in Math (preqs. MAT607, 609, 611, 613)  | Summer
MAT607 College Algebra  | Summer
MAT618 Math Essentials  | Summer
MAT627 Abstract Algebra (preq. MAT607)  | Summer
MAT629 Non-Euclidean Geometry (preq. MAT609) | Summer
MAT633 Probability & Statistics (preq. MAT613)  | Summer
MAT790-791 Practicum and Practicum Seminar  | Fall, Spring