I. Pathways General Education (45 credits): All courses used for the Pathways General Education must be on the approved Pathways list.

<table>
<thead>
<tr>
<th>Pathway</th>
<th>Credits</th>
<th>Pathway 4 labs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pathway 1a &amp; 1f: Discourse</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Pathway 2: Critical Thinking in the Humanities</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Pathway 3: Reasoning in the Social Sciences</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Pathway 4: Reasoning in the Natural Sciences</td>
<td>8</td>
<td>Pathways approved with labs</td>
</tr>
<tr>
<td>Pathway 5a &amp; 5f: Quantitative and Computational Thinking</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Pathway 6a &amp; 6d: Critique and Practice in Design and the Arts</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Pathway 7: Critical Analysis of Identity and Equity in the US</td>
<td>3</td>
<td>allowed to double-count if applicable</td>
</tr>
</tbody>
</table>

Foreign Language Requirement: Students who did not successfully complete at least two years of a single foreign, classical, or sign language during high school must successfully complete six semester hours of a single foreign, classical, or sign language at the college level. Courses taken to meet this requirement do not count toward the hours required for graduation. Please consult the Undergraduate Catalog for details.

II. Mathematics Courses Required For All Options (26 credits)

<table>
<thead>
<tr>
<th>A. Calculus</th>
<th></th>
<th>B. Algebra, ODE's</th>
<th></th>
<th>C. Proofs, Advanced Calculus</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PATH 1:</td>
<td></td>
<td>MATH 2114 Introduction to Linear Algebra</td>
<td>3 ( )</td>
<td>MATH 3034 Intro. to Proofs</td>
<td>3 ( )</td>
</tr>
<tr>
<td>MATH 1205 Calculus</td>
<td>3 ( )</td>
<td>MATH 2214 Intro. to Differential Equations</td>
<td>3 ( )</td>
<td>MATH 3224 Advanced Calculus*</td>
<td>3 ( )</td>
</tr>
<tr>
<td>MATH 1206 Calculus</td>
<td>3 ( )</td>
<td>MATH 2224 Linear Algebra I</td>
<td>3 ( )</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 1224 Vector Geometry</td>
<td>2 ( )</td>
<td>MATH 2224 Multivariable Calculus</td>
<td>3 ( )</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 2224 Multivariable Calculus</td>
<td>3 ( )</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

B. The following substitution is allowed: MATH 4225 for MATH 3224.

1 Pathway 4 labs do not have to be Pathways approved, but must be the labs associated with the chosen Pathway 4 lecture sequence.
2 The MATH 1225-1226 sequence is expected to satisfy Pathway 5f-Foundational. It has not yet been determined whether MATH 2214 will satisfy Pathway 5a-Advanced/Applied for students in the Math Ed option.
III. Required Mathematics Courses for the Mathematics Education Option (24 credits)

A. Proofs
- MATH 4044 History of Math (4F) 3 (  )
- MATH 4334 College Geometry 3 (  )

B. Algebra
- MATH 3124 Modern Algebra 3 (  )

C. Mathematics for Educators
- MATH 2644 Math Tutoring (2F) (arrange position) 1 (  )
- MATH 4664 Senior MAED Seminar (4F) 2 (  )
- MATH 4624 Secondary Sch Math with Tech (4F) 3 (  )
- MATH 4625 Math for Secondary Teachers I (4F) 3 (  )
- MATH 4626 Math for Secondary Teachers II (4S) 3 (  )

D. Mathematics Electives
- MATH 4625 Math for Secondary Teachers I (4F) 3 (  )

The three hours of math electives may be chose from any three-credit course at the 3000 or 4000 level, OR undergraduate research hours (Math 4994) arranged with a member of the math faculty.

Letters in parentheses indicate the course is only offered in the Fall or Spring semester.
Corresponding numbers indicate the year in which the course should be taken.
The grades in the mathematics courses in II and III above determine the in-major GPA.

IV. Computer Programming (3 credits): One of the following:
- MATH 3054 Programming for Mathematical Problem Solving, 3 (  )
- CS 1044 Introduction to Programming in C, 3 (  )
- CS 1054 Introduction to Programming in Java, 3 (  )
- CS 1114 Introduction to Software Design 3 (  )

V. Statistics (3 credits)
- STAT 4705 Probability and Statistics 3 (  )
The following substitutions are allowed: Stat 4105, Stat 4714

VI. Education (12-13 credits)
- EDEP 5154 Psych. Foundations for Teachers 3 (  )
- EDCI 5784 Assessment in the Mathematics Classroom 3 (  )
- EDCI 5554 Education of Exceptional Learners 3 (  )

One of the following:
- MATH 3624 Early Teaching Experience (3S) * (4) (  )
- EDCI 3004 Pre-Education Seminar (3S) * (3) (  )

Students need Senior status to enroll in 5000-level EDCI courses.
Please consult the course catalog for additional prerequisite requirements.

* This is the early field experience. Juniors need to apply for this course in early September in order to get a middle/high school placement for the following spring. See the Mathematics Education Program handbook for details.

Praxis I & II must be passed before a Bachelor of Science degree in Mathematics is granted.

VII. Free Electives (sufficient to achieve the 120 credit graduation requirement):

( ) ( ) ( )
( ) ( ) ( )
( ) ( ) ( )
( ) ( ) ( )
( ) ( ) ( )
( ) ( ) ( )

VIII. Outcomes Assessment: Each student is required to participate in the department's Outcomes Assessment procedures as determined by each year's Undergraduate Program Committee and approved by the Head.
IX. Satisfactory Progress Toward the B.S. in Mathematics: Upon having attempted 36 semester credits, the student must have completed 12 credits of the University Curriculum for Liberal Education. Upon having attempted 72 credits (including transfer, advanced placement, advanced standing, credit by examination and course withdrawal), the student must have completed 24 credits of the University Curriculum for Liberal Education. In addition, satisfactory progress toward the B.S. in mathematics requires that:

1. Within the previous two semesters, the student must pass at least one mathematics course that is used in the in-major GPA calculation.
2. Upon having attempted 45 semester credits, students must have an in-major GPA of 2.2 or above.
3. **Path 1:** Upon having attempted 72 semester credits (including transfer, advanced placement, advanced standing, credit by examination, course withdrawal), students must have completed the following courses with grades of C- or better: Math 1205, 1206, 1224, 2224, 1114 or 2114, 2214, and 3034 and not have taken any of these courses more than twice, including attempts ending in course withdrawal.
   **Path 2:** Upon having attempted 72 semester credits (including transfer, advanced placement, advanced standing, credit by examination, course withdrawal), students must have completed the following courses with grades of C- or better: Math 1225, 1226, 2114, 2204, 2214, and 3034 and not have taken any of these courses more than twice, including attempts ending in course withdrawal.

X. Minimum hours required for graduation: 120 semester credits.

XI. Minimum GPA required for graduation: Students are required to have a 2.0 GPA and a 2.0 in-major GPA for graduation. All Mathematics courses listed in sections II & III count toward the in-major GPA for this option.

NOTE: Please consult the course catalog for prerequisite requirements.