## MATHEMATICS - GENERAL (STARTING IN MTH 201)

**Bachelor of Arts or Bachelor of Science Degree**

*This is a general curriculum guide and is not applicable to every student. It is important to meet with your advisor.*

<table>
<thead>
<tr>
<th>Year One</th>
<th></th>
<th>Year Two</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>^1MTH 201 Calculus I</td>
<td>4</td>
<td>MTH 202 Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>Prerequisites: MTH 122 and MTH 123 or proficiency through math placement</td>
<td></td>
<td>Prerequisite: MTH 201</td>
<td></td>
</tr>
<tr>
<td>Gen Ed</td>
<td>4</td>
<td>^2MTH 210 SWS Communicating in Mathematics</td>
<td>4</td>
</tr>
<tr>
<td>3WRT 150 Strategies in Writing</td>
<td>4</td>
<td>Gen Ed</td>
<td>3</td>
</tr>
<tr>
<td>Gen Ed</td>
<td>3</td>
<td>Gen Ed</td>
<td>3</td>
</tr>
<tr>
<td>^5Elective</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong> 14-15</td>
<td><strong>Total</strong> 15</td>
<td></td>
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</tbody>
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<table>
<thead>
<tr>
<th>Year Three</th>
<th></th>
<th>Year Four</th>
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</tr>
</thead>
<tbody>
<tr>
<td>MTH 203 Calculus III</td>
<td>4</td>
<td>^6MTH Pair</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: MTH 202</td>
<td></td>
<td>Issue</td>
<td>3</td>
</tr>
<tr>
<td>MTH 227 Linear Algebra</td>
<td>3</td>
<td>Gen Ed</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: MTH 202</td>
<td></td>
<td>Gen Ed</td>
<td>3</td>
</tr>
<tr>
<td>^3CIS 160 Programming with Visual Basic</td>
<td>3</td>
<td>^5Elective</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong> 15</td>
<td><strong>Total</strong> 15</td>
<td></td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year Four</th>
<th></th>
<th>Year Four</th>
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</thead>
<tbody>
<tr>
<td>MTH 310 Modern Algebra</td>
<td>3</td>
<td>^8MTH 495: The Nature of Modern Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisites: MTH 210 and MTH 225 or MTH 227</td>
<td></td>
<td>Prerequisites: MTH 210, MTH 227, MTH 310, and at least one other 300-400 level mathematics courses</td>
<td></td>
</tr>
<tr>
<td>^3STA 312 Probability and Statistics</td>
<td>3</td>
<td>^5Elective</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisites: MTH 201</td>
<td></td>
<td>^5Elective</td>
<td>3</td>
</tr>
<tr>
<td>Gen Ed</td>
<td>3</td>
<td>^5Elective</td>
<td>3</td>
</tr>
<tr>
<td>^5Elective</td>
<td>3</td>
<td>^5Elective</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong> 15</td>
<td><strong>Total</strong> 15</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* The block tuition rate is 12-15 credits. You will pay additional tuition for any credits over 15.

1. Students must fulfill MTH 110, MTH 122, and MTH 123 or waive the requirement through math placement. These courses do not count towards the completion of the Mathematics major.

2. Students must complete a total of two courses with an SWS attribute.

3. Mathematics students must complete three Math Cognate Courses. These courses are listed on the back of this guide.

4. Mathematics students must complete a total of 11 courses in Math. These electives are listed on the back of this guide.

5. Elective refers to any course to help you earn the required 120 credits to graduate.

6. Mathematics students must complete a two course Math sequence. The sequence options are listed on the back of this guide.

7. Students who self-place into WRT 098 should take this course in the fall semester and then take WRT 150 in the winter semester of the first year. Students who self-place into WRT 150 should take this course in the winter semester of the first year. A grade of C or higher is required to fulfill the WRT 150 requirement.

It is imperative to meet with your faculty advisor and an advisor in the CLAS Academic Advising Center regularly.

The CLAS Academic Advising Center is located in C-1-140 MAE, 616-331-8585.

Your academic advisor in the CLAS Academic Advising Center is Betty Schaner (<a href="mailto:schanerb@gvsu.edu">schanerb@gvsu.edu</a>)

# Mathematics

## Degree Requirements

Mathematics students can pursue a Bachelor of Arts or Bachelor of Science degree. Students who wish to obtain a BA must fulfill 3rd semester proficiency in a foreign language (201 level). The BS requirements are incorporated into the major requirements and include MTH 201, MTH 202, and STA 312.

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### Declaring the Mathematics Major:

1. Log into myBanner from the GVSU homepage
2. Once logged in, select “Student,” “Student Records,” and then “Change Major”
3. Click on the “Change Major 1/Program” box
4. Click on the down arrow in the box next to “New Major 1/Program”
5. From here scroll down and find “Mathematics.” There are two options BA or BS. Click on the option you prefer.
6. Click “Submit” and then click “Change to New Program”

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### General Education Overlap

**General Education Categories fulfilled by the Mathematics Major:**

- Mathematical Sciences: MTH 201

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### Mathematics Cognate Courses

<table>
<thead>
<tr>
<th>Required</th>
<th>Pick ONE of the following</th>
</tr>
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<tbody>
<tr>
<td>And STA 312 Probability and Statistics</td>
<td></td>
</tr>
</tbody>
</table>

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### Choose ONE of the following two course sequences

Some courses may overlap with required courses.

#### Modern Algebra

- MTH 310 Modern Algebra (3)
- MTH 410 Modern Algebra II (3)

#### Advanced Calculus

- MTH 408 Advanced Calculus I (3)
- MTH 409 Advanced Calculus II (3)

#### Geometry

- MTH 341 Euclidean Geometry (3)
- MTH 431 Non-Euclidean Geometry (3)

#### Linear Algebra and Applications

- MTH 327 Linear Algebra II (3)
- MTH 360 Operations Research (3)

#### Complex Analysis and Applications

- MTH 402 Complex Variables (3)
- MTH 404 Analysis of Differential Equations (3)

#### Analysis and Topology

- MTH 441 Topology (3)
- MTH 408 Advanced Calculus I (3)

#### Analysis with Application in Science

- MTH 300 Applied Analysis I (3)
- MTH 401 Mathematics for the Physical Sciences (4)

#### Connections to the Physical Sciences

- MTH 304 Analysis of Differential Equations (3)
- MTH 401 Mathematics for the Physical Sciences (4)

#### Applied Mathematics

- MTH 405 Numerical Analysis (3)
- MTH 404 Analysis of Differential Equations (3)

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### Additional Courses

Choose from the following list for a total of 11 courses in mathematics.

- MTH 300 Applied Analysis I
- MTH 304 Analysis of Differential Equations
- MTH 327 Linear Algebra II
- MTH 341 Euclidean Geometry
- MTH 345 Discrete Mathematics
- MTH 360 Operations Research
- MTH 401 Mathematics for the Physical Sciences
- MTH 402 Complex Variables
- MTH 405 Numerical Analysis
- MTH 409 Advanced Calculus II
- MTH 410 Modern Algebra II
- MTH 431 Non-Euclidean Geometry

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Edited 11/13/2015