

# MATHEMATICS-BA or BS-GENERAL (STARTING MTH 110)

THIS IS A **GENERAL** CURRICULUM GUIDE AND IS NOT APPLICABLE TO EVERY STUDENT. IT IS IMPORTANT TO MEET WITH YOUR ADVISOR.

Year One			
<sup>1</sup> MTH 110 Algebra Prerequisite: MTH 097 or proficiency through math placement	4	<sup>1</sup> MTH 122 College Algebra Prerequisite: MTH 110 or proficiency through math placement	3
WRT 150 Strategies in Writing	4	<sup>1</sup> MTH 123 Trigonometry Prerequisite: MTH 122 (may be taken concurrently) or proficiency through math placement	3
Gen Ed	3	Gen Ed	3
Gen Ed	3	Gen Ed	3
		<sup>5</sup> Elective	3
<i>Total</i>	<i>14</i>	<i>Total</i>	<i>16*</i>
Year Two			
<sup>1</sup> MTH 201 Calculus I Prerequisites: MTH 122 and MTH 123 or proficiency through math placement	4	MTH 202 Calculus II Prerequisite: MTH 201	4
<sup>3</sup> CIS 160 Programming with Visual Basic <b>OR</b> CIS 162 Computer Science I <b>OR</b> CIS/EGR 261 Structured Programming in C	3	<sup>2</sup> MTH 210 SWS Communicating in Mathematics Prerequisites: WRT 150 and MTH 201	4
Gen Ed	4	Gen Ed	3
Gen Ed	3	Gen Ed	3
<sup>5</sup> Elective	3		
	2-3		
<i>Total</i>	<i>15-16*</i>	<i>Total</i>	<i>14</i>
Year Three			
MTH 203 Calculus III Prerequisite: MTH 202	4	MTH 310 Modern Algebra Prerequisites: MTH 210 and MTH 225 or MTH 227	3
MTH 227 Linear Algebra Prerequisite: MTH 202	3	<sup>4</sup> MTH Elective or Cognate	3
<sup>4</sup> MTH Elective	3	Gen Ed	3
<sup>5</sup> Elective	3	<sup>5</sup> Elective	3
<sup>5</sup> Elective	3	<sup>5</sup> Elective	3
<i>Total</i>	<i>16</i>	<i>Total</i>	<i>15</i>
Year Four			
MTH 408 Advanced Calculus I Prerequisites: MTH 203 and MTH 210	3	<sup>7</sup> MTH 495: The Nature of Modern Mathematics Prerequisites: MTH 210, MTH 227, MTH 310, and at least one other 300-400 level mathematics courses	3
<sup>3</sup> STA 312 Probability and Statistics Prerequisites: MTH 201	3	<sup>6</sup> MTH Sequence	3
<sup>3</sup> MTH Cognate Course	3	Issue/Theme	3
Issue/Theme	3	<sup>5</sup> Elective	3
Gen Ed	3	<sup>5</sup> Elective	3
<i>Total</i>	<i>15</i>	<i>Total</i>	<i>15</i>

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

<sup>1</sup> 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.

<sup>2</sup> Students must complete a total of two courses with an SWS attribute

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

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

<sup>5</sup> Elective refers to any course to help you earn the required 120 credits to graduate.

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

<sup>7</sup> Students may also complete MTH 496 – Senior Thesis – as the capstone requirement. Consult with your mathematics faculty advisor to discuss these options.

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 MAK, 616-331-8585.

Online at: <http://www.gvsu.edu/clasadvising>

Mathematics students can pursue a Bachelor of Arts or Bachelor of Science degree. Students who wish to obtain a BA must fulfill 3<sup>rd</sup> 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.

### 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"

### General Education Overlap

<b>General Education Categories fulfilled by the Mathematics Major:</b>
Mathematical Sciences: MTH 201

Mathematics Cognate Courses		
Required	Pick ONE of the following	
CIS 160 Programming with Visual Basic <b>Or</b> CIS 162 Computer Science I <b>Or</b> EGR 261 Structured Programming in C  <b>And</b> STA 312 Probability and Statistics	BIO 355 Human Genetics BIO 375 Genetics CHM 351 Introduction to Physical Chemistry EGR/CIS 261 Structured Programming in C ECO 342 Strategic games ECO 480 Econometrics and Forecasting EGR 304 Innovation GEO 440 Geohydrology	GEO 470 Geophysics HSC 201 The Scientific Revolution PHI 203 Intermediate Logic PHY 230 Principles of Physics I PSY 300 Research Methods in Psychology STA 314 Statistical Quality Methods STA 412 Mathematical Statistics I

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 227 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 MTH 441 Topology MTH 465 Automata and Theory of Computation

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)	Applied Analysis — MTH 300 Applied Analysis I (3) — MTH 400 Applied Analysis II (3)
Advanced Calculus — MTH 408 Advanced Calculus I (3) — MTH 409 Advanced Calculus II (3)	Analysis with Application in Science — MTH 300 Applied Analysis I (3) — MTH 401 Mathematics for the Physical Sciences (4)
Geometry — MTH 341 Euclidean Geometry (3) — MTH 431 Non-Euclidean Geometry (3)	Discrete Mathematics and Application — MTH 345 Discrete Mathematics (3) — MTH 360 Operations Research (3)