

# MATHEMATICS-GENERAL (STARTING IN MTH 110)

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.

<b>Year One</b>				
<sup>1</sup> MTH 110 Algebra Prerequisite: MTH 097 or proficiency through math placement Gen Ed or <sup>7</sup> WRT 098 (self-placement) Gen Ed Gen Ed <sup>5</sup> Elective	4 3/4 3 3 1	<sup>1</sup> MTH 122 College Algebra Prerequisite: MTH 110 or proficiency through math placement <sup>1</sup> MTH 123 Trigonometry Prerequisite: MTH 122 (may be taken concurrently) or proficiency through math placement <sup>7</sup> WRT 150 Strategies in Writing Gen Ed <sup>5</sup> Elective	3 3 4 3 3	
	<i>Total</i>	14/15	<i>Total</i>	16*
<b>Year Two</b>				
<sup>1</sup> MTH 201 Calculus I Prerequisites: MTH 122 and MTH 123 or proficiency through math placement <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 Gen Ed Gen Ed <sup>5</sup> Elective	4 3 4 3 3 3 2-3	MTH 202 Calculus II Prerequisite: MTH 201 <sup>2</sup> MTH 210 SWS Communicating in Mathematics Prerequisites: WRT 150 and MTH 201 Gen Ed Gen Ed	4 4 3 3	
	<i>Total</i>	15-16*	<i>Total</i>	14
<b>Year Three</b>				
MTH 203 Calculus III Prerequisite: MTH 202 MTH 227 Linear Algebra Prerequisite: MTH 202 <sup>3/4/6</sup> MTH Elective or Cognate or Pair <sup>5</sup> Elective <sup>5</sup> Elective	4 3 3 3 3 3	<sup>3</sup> STA 312 Probability and Statistics Prerequisites: MTH 201 MTH 350 Modern Algebra I (formerly MTH 310) Prerequisites: MTH 210 and MTH 225 or MTH 227 <sup>3/4/6</sup> MTH Elective or Cognate or Pair Gen Ed <sup>5</sup> Elective	3 3 3 3 3 3	
	<i>Total</i>	16	<i>Total</i>	15
<b>Year Four</b>				
MTH 408 Advanced Calculus I Prerequisites: MTH 203 and MTH 210 <sup>3/4/6</sup> MTH Elective or Cognate or Pair Issue Gen Ed <sup>5</sup> Elective	3 3 3 3 3	<sup>8</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 <sup>3/4/6</sup> MTH Elective or Cognate or Pair Issue <sup>5</sup> Elective <sup>5</sup> Elective	3 3 3 3 3	
	<i>Total</i>	15	<i>Total</i>	15

\* 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 or pair. The options are listed on the back of this guide.<sup>7</sup> 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.<sup>8</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.

Your academic advisor in the CLAS Academic Advising Center is Nick Woodward ([woodwani@gvsu.edu](mailto:woodwani@gvsu.edu))Online at: <http://www.gvsu.edu/clasadvising>

## Degree Requirements

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

General Education Categories fulfilled by the Mathematics Major:		
Mathematical Sciences: MTH 201		
Mathematics Cognate Courses		
<b>Required</b>		<b>Pick ONE of the following</b>
CIS 160 Programming with Visual Basic <b>Or</b> CIS 162 Computer Science I <b>Or</b> CIS/EGR 261 Structured Prog in C <b>And</b> STA 312 Probability and Statistics	BIO 355 Human Genetics BIO 375 Genetics CHM 351 Introduction to Physical Chemistry CMB 351 Bioinformatics CMB 452 Computational Biology CIS 161 Computational Science ECO 342 Strategic games ECO 400 Econometrics and Forecasting	ECO 412 Applied Mathematical Economics 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
<b>Choose ONE of the following two course sequences/pairs</b> Some courses may overlap with required courses		
Modern Algebra — MTH 350 Modern Algebra I (3) (formerly MTH 310) — MTH 410 Modern Algebra II (3)		Analysis and Topology — MTH 441 Topology (3) — MTH 408 Advanced Calculus I (3)
Advanced Calculus — MTH 408 Advanced Calculus I (3) — MTH 409 Advanced Calculus II (3)		Analysis with Application in Science — MTH 300 Vector Analysis (3) — MTH 401 Mathematics for the Physical Sciences (4)
Geometry — MTH 331 Euclidean Geometry (3) (formerly MTH 341) — MTH 431 Non-Euclidean Geometry (3)		Connections to the Physical Sciences — MTH 304 Analysis of Differential Equations (3) — MTH 401 Mathematics for the Physical Sciences (4)
Linear Algebra and Applications — MTH 327 Linear Algebra II (3) — MTH 360 Operations Research (3)		Applied Mathematics — MTH 405 Numerical Analysis (3) — MTH 304 Analysis of Differential Equations (3)
Complex Analysis and Applications — MTH 402 Complex Variables (3) — MTH 304 Analysis of Differential Equations (3)		
Additional Courses		
Choose from the following list for a total of 11 courses in mathematics – electives must be at the 300 level or higher		
MTH 300 Vector Analysis	MTH 402 Complex Variables	
MTH 304 Analysis of Differential Equations	MTH 405 Numerical Analysis	
MTH 327 Linear Algebra II	MTH 409 Advanced Calculus II	
MTH 331 Euclidean Geometry (formerly MTH 341)	MTH 410 Modern Algebra II	
MTH 315 Discrete Mathematics (formerly MTH 345)	MTH 431 Non-Euclidean Geometry	
MTH 360 Operations Research	MTH 441 Topology	
MTH 380 Special Topics	MTH 465 Automata and Theory of Computation	
MTH 386 Study Abroad in Mathematics Education	MTH 480 Special Topics	
MTH 387 Study Abroad in Mathematics	MTH 490 Internship	
MTH 399 Independent Readings	MTH 495 Nature of Modern Math (if MTH 496 is taken as capstone)	
MTH 401 Mathematics for the Physical Sciences	MTH 496 Senior Thesis (if MTH 495 is taken as capstone)	

Courses not applicable as Math electives are: MTH 302, 312, 322, 323, 324, 325, and 329