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.

Year One				

[1]MTH 110 Algebra
    Prerequisite: MTH 097 or proficiency through math placement
	4	MTH 124 Precalculus: Functions and Models
		    Prerequisite: MTH 110 or proficiency through math placement
		    SEE NOTE BELOW REGARDING OPTIONS FOR THIS COURSE
			5	

Gen Ed or [7]WRT 098 (self-placement)	3/4	[7]WRT 150 Strategies in Writing	4	
Gen Ed	3	Gen Ed	3	
Gen Ed	3	[5]Elective	3	
[5]Elective	1			
Total	14/15	*Total*	15	
Year Two				

[1]MTH 201 Calculus I
    Prerequisites: MTH 122 and MTH 123, or MTH 124, or proficiency
    through math placement
	4	MTH 202 Calculus II
		    Prerequisite: MTH 201
			4	

Gen Ed	3	[2]MTH 210 SWS Communicating in Mathematics Prerequisites: WRT 150 and MTH 201	4	
Gen Ed	3	[3]CIS 161 Computational Science	3	
Gen Ed	3	OR CIS 160 Programming with Visual Basic	3	
[5]Elective	2-3	*OR* CIS 162 Computer Science I	4	
		Gen Ed		
Total	15-16*	*Total*	14-15	
Year Three				

MTH 203 Calculus III
    Prerequisite: MTH 202
	4	[3]STA 312 Probability and Statistics
		    Prerequisites: MTH 201
			3	

MTH 227 Linear Algebra
    Prerequisite: MTH 202
	3	MTH 350 Modern Algebra I (formerly MTH 310)
		    Prerequisites: MTH 210 and MTH 225 or MTH 227
			3	

[3/4/6]MTH Elective or Cognate or Pair	3	[3/4/6]MTH Elective or Cognate or Pair	3	
[5]Elective	3	Gen Ed	3	
[5]Elective	3	[5]Elective	3	
Total	16	*Total*	15	
Year Four				

MTH 408 Advanced Calculus I
    Prerequisites: MTH 203 and MTH 210
	3	[8]MTH 495: The Nature of Modern Mathematics
		    Prerequisites: MTH 210, MTH 227, MTH 350, and at least one other
		    300-400 level mathematics courses
			3	

[3/4/6]MTH Elective or Cognate or Pair	3	[3/4/6]MTH Elective or Cognate or Pair	3	
Issue	3	Issue	3	
Gen Ed	3	[5]Elective	3	
[5]Elective	3	[5]Elective	3	
Total	15	*Total*	15	

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

MTH 124 is designed for calculus-bound students as a replacement for MTH 122 & 123. While students can still fulfill the MTH 201 prerequisite by taking MTH 122 & 123, MTH 124 is strongly recommended for students who plan to major in mathematics.

[1] **Students must fulfill MTH 110, MTH 122, and MTH 123, or MTH 124 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 or pair. The options are listed on the back of this guide.

[7] Students who self-place into WRT 098 should take this courser 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.

[8] 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)
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 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.

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		
Required	**Pick ONE of the following**	
CIS 161 Computational Science **Or** CIS 160 Programming with Visual Basic **Or** CIS 162 Computer Science I **And** 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

Choose ONE of the following two course sequences/pairs	
Some courses may overlap with required courses	
Modern Algebra ⎯ MTH 350 Modern Algebra I (3) (formerly MTH 310) ⎯ MTH 450 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 405 Numerical Analysis
MTH 304 Analysis of Differential Equations	MTH 409 Advanced Calculus II
MTH 315 Discrete Mathematics (formerly MTH 345)	MTH 431 Non-Euclidean Geometry
MTH 327 Linear Algebra II	MTH 441 Topology
MTH 331 Euclidean Geometry (formerly MTH 341)	MTH 450 Modern Algebra II
MTH 360 Operations Research	MTH 465 Automata and Theory of Computation
MTH 401 Mathematics for the Physical Sciences	MTH 495 Nature of Modern Math (if MTH 496 is taken as capstone)
MTH 402 Complex Variables	MTH 496 Senior Thesis (if MTH 495 is taken as capstone)
With unit head permission: MTH 380, 386, 387, 399, 480, and 490	

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