COLLEGE OF LIBERAL ARTS AND SCIENCES (CLAS) ACADEMIC ADVISING CENTER 2023-2024

MATHEMATICS-APPLIED EMPHASIS (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 GE Math Prerequisite: MTH 110; or proficiency through math placement **SEE NOTE BELOW REGARDING OPTIONS FOR THIS COURSE**	5
Gen Ed GE Art or [2]WRT 120 (self-placement)	3	WRT 130 or WRT 150 GE Writing	3/4
Gen Ed GE Social/Behavioral	3	Gen Ed GE Philosophy and Literature	3
Gen Ed GE Physical/Life Science without Lab	3	[3]Elective	3
[3]Elective	1		
Total	*14*	*Total*	*15-16**
Spring/Summer			
[1]MTH 201 Calculus I Prerequisites: MTH 122 and MTH 123; or MTH 124; or proficiency through math placement			
Total	*4*		
Year Two			
MTH 202 Calculus II Prerequisite: MTH 201	4	MTH 205 Linear Algebra II Prerequisites: MTH 204 or MTH 302	3
[5]MTH 204 Linear Algebra I Prerequisites: MTH 122 and MTH 123; or MTH 124; or proficiency through math placement	3	[4]MTH 210 SWS Communicating in Mathematics Prerequisites: Gen Ed Foundations – Writing and MTH 201	4
Gen Ed GE Physical/Life Science with Lab	4	CIS 161 Computational Science (recommended) Prerequisites: MTH 201	3/4
Gen Ed GE Social/Behavioral	3	***OR*** CIS 162 Computer Science I Prerequisites: MTH 110	
[3]Elective	1	Gen Ed GE US Diversity	3
		[3]Elective	1
		[3]Elective	1
Total	*15*	*Total*	*15-16**
Year Three			
MTH 203 Calculus III Prerequisite: MTH 202	4	MTH 305 Mathematical Modeling Prerequisites: MTH 302 or MTH 304 (MTH 304 may be taken concurrently); and CIS 161 or CIS 162	3
[5]MTH 304 Analysis of Differential Equations Prerequisites: MTH 202 and MTH 204	3	MTH 360 Operations Research Prerequisites: MTH 204 or 302	3
STA 216 Intermediate Applied Statistics Prerequisites: STA 215 or STA 312	3/4	Gen Ed GE Global Perspectives	3
OR STA 312 Probability and Statistics Prerequisites: MTH 201		Gen Ed GE Social/Behavioral	3
OR STA 412 Computer Science I Prerequisites: MTH 202 and (STA 215 or STA 312)		[3]Elective	3
Gen Ed GE Historical Analysis	3		
[3]Elective	1		
[3]Elective	1		
Total	*15-16**	*Total*	*15*
Year Four			
MTH 405 Numerical Analysis Prerequisites: CIS 161 or 162, and either MTH 202 and MTH 204 or MTH 302	3	MTH 490 Mathematics Internship Seminar (Capstone) Prerequisites: Approval of department and junior standing	2/3
[6]MTH Elective	3	***OR*** MTH 498 Project-Based Applied Mathematics (Capstone) Prerequisites: MTH 205, 210, 305, and permission of instructor. Restricted to math majors.	
Issue	3		
[3]Elective	3	[6]MTH Elective	3
[3]Elective	3	Issue	3
		[3]Elective	3
		[3]Elective	3
Total	*15*	*Total*	*14-15*

* 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.

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

[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 who self-place into WRT 120 should take this course in the fall semester and then take WRT 130 in the winter semester of their first year. Students who self-place into WRT 150 can take it either semester during their first year. Students will not need to take WRT 150 if they have earned credit for the course through AP/Dual Enrollment. A grade of C or better is required in WRT 130 or 150 in order to satisfy the WRT requirement at GVSU.

[3] Elective refers to any course to help you earn the required 120 credits to graduate.

[4] Students must complete a total of two courses with an SWS attribute.

[5] For prior engineering majors, MTH 302 can replace MTH 204 and MTH 304 with one additional course needed upon approval from advisor.

[6] Mathematics students must complete a total of 13 courses in Math. These electives are listed on the below.

[7] For CIS/MTH double majors or prior CIS majors, 225 and 325 together count for 210 & 315 upon approval from advisor.

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.

To earn a degree from GVSU, all students must complete the following: 120 total credits, all major/minor requirements, all general education requirements, at least 58 credits from a 4-year institution, and the last 30 credits of the degree completed through GVSU.

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 - Applied." 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

Additional Courses Choose from the following list for a total of 13 courses in mathematics: at least one must be 400-level MTH class, and at most one from this list can have a non-MTH prefix.	
(MTH 300 Vector Analysis) **OR** (MTH 401 Math for the Physical Sciences)	MTH 441 Topology
MTH 315 Discrete Mathematics	MTH 450 Modern Algebra II
MTH 402 Complex Variables	MTH 465 Automata and Theory of Computation
MTH 406 Linear Algebra III	MTH 496 Senior Thesis
MTH 408 Real Analysis I	MTH 498 (if MTH 490 is taken as capstone)
	STA 412 Mathematical Statistics I (Can only count in one place)
With unit head permission: MTH 380, 399, 480 and 499	

Courses not applicable as Math electives are: MTH 312, 322, 323, 324, 325[7], 329, 331, 386, 409, 431, and 495.

MTH Cognate Courses Required
CIS 161 Computational Science
OR
CIS 162 Computer Science I
And
STA 216 Intermediate Applied Statistics
OR
STA 312 Probability and Statistics
OR
STA 412 Mathematical Statistics I (Can only count in one place)