COLLEGE OF LIBERAL ARTS AND SCIENCES (CLAS) ACADEMIC ADVISING CENTER 2026-2027

COMBINED BS MATHEMATICS – THEORETICAL EMPHASIS/ MS ENGINEERING

Year One			
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 MTH 205 Linear Algebra II Prerequisites: MTH 204 or MTH 302	4 3
[5]MTH 204 Linear Algebra I Prerequisites: MTH 122 and MTH 123 or MTH 124 or proficiency through math placement	3	[1]WRT 130 or WRT 150 Strategies in Writing Gen Ed	3/4 3
[2, 7]Elective EGR 112 App Prog for Engineers	2	[2]Elective EGR 111 Intro to Engineering Graphics	1
Gen Ed or [2]WRT 120 (self-placement)	3	[2]Elective EGR 113 Intro to CAD/CAM	1
Gen Ed	3		
Total	*15*	*Total*	*15-16**
Year Two			
[3,6]MTH 210 SWS Communicating in Mathematics Prerequisite: Gen Ed Foundations - Writing and MTH 201	4	MTH 304 Analysis of Differential Equations ([4]MTH Elective) Prerequisite: MTH 202 and 204	3
MTH 203 Calculus III Prerequisite: MTH 202	4	[2]Elective ECE 214 Circuit Analysis I Linked lab: ECE 215	3 1
Gen Ed: PHY 230 Calc based Physics I Prerequisites: MTH 201. Corequisite: MTH 202	5	Prerequisites: MTH 202, PHY 230 [2]Elective PHY 231 Calc based Physics II	 5
Gen Ed	3	Prerequisites: MTH 202 and PHY 230 MTH 296 Introduction to Mathematical Research Prerequisites: MTH 210 and permission of the instructor	 3
Total	*16*	*Total*	*15*
Year Three			
MTH 350 Modern Algebra I Prerequisites: MTH 210 and either MTH 204 or 302	3	STA 312 Probability and Statistics Prerequisites: MTH 201 **OR** Gen Ed, and take STA 412 Mathematical Statistics I in Fall of year 4	3/4
[2]Elective ECE 226 Microcontroller Programming and Applications Linked lab: ECE 227 Prerequisites: Permission of instructor	 3 1	Gen Ed	3
[7]CIS 159 Object Oriented Programming for Engineers [2]Elective ECE 314 Electronic Circuits **OR**	 1	ECE 224 Introduction to Digital System Design **OR** MME 312 Dynamics	3
MME 250 Materials Science with Linked lab: MME 251 Materials Laboratory	4	Gen Ed Gen Ed	3 3
Gen Ed	3		
Total	*15*	*Total*	*15 or 16*
Year Four			
MTH 408 Real Analysis I Prerequisites: MTH 210 and one of the following (MTH 315, MTH 331, MTH 350, MTH 406, MTH 431, MTH 441, or permission of instructor).	3	Gen Ed MTH 495: The Nature of Modern Mathematics (Capstone) Prerequisites: MTH 210, MTH 204, MTH 350, and at least one other 300-400 level mathematics courses	3 3
Gen Ed **OR** STA 412 Mathematical Statistics I, and take Gen Ed in winter of year 3 Prerequisites: MTH 202 and (STA 215 or STA 312)	3 4	OR MTH 496 Senior thesis (Capstone) Prerequisites: 27 credits in major, major GPA of 3.0 or better, and permission of instructor	
	4		
[2]Elective ECE 315 Circuits II **AND** [2]Elective ECE 326 Embedded Systems Design	3	[4]MTH Elective (400-level) **AND** Gen Ed **AND**	3 3
OR [4]MTH Elective (400-level) **AND**	4	Gen Ed **OR**	3
[2]Elective MME 209 Mechanics and Machines **AND**		Gen Ed **AND** [2]Elective MME 309 Machine Design I **APPLY TO MSE PROGRAM**	3 4
Total	*13 or 14*	*Total*	*13 or 15*

MSE Program

Year 4: Spring/Summer	Cr	Year 5: Fall	Cr	Year 5: Winter	Cr
CE 323 Signals and Systems Analysis **OR** MME 362 Thermofluids	3 4	MSE 600 Advanced Eng Analysis MSE 604 Imp. and Meas. MSE 5xx/6xx Emphasis Area course Counts as a 300-level MTH elective (see Table)	3 3 3 or 4	MSE 602 Professionalism MSE 5xx/6xx Emphasis Area Course MSE 5xx/6xx Emphasis Area Course	3 3 or 4 3 or 4
Total	3 or 4		9 or 10		9 or 11

Year 5: Spring/Summer	Cr	Year 6: Fall	Cr
MSE 685 Graduate Practicum (optional)	3	MSE 6xx Emphasis Area course	3
MSE 693 Master's Project **OR** MSE 695 Master's Thesis	3	MSE 6xx Emphasis Area course MSE 693 Master's Project **OR** MSE 695 Master's Thesis	3 3
Total	6		9

* The block tuition rate is 12-15 credits. You will pay additional tuition for any credits over 15.
[1]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 in 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.
[2] Elective refers to any course to help you earn the required 120 credits to graduate.
[3] Students must complete a total of two courses with an SWS attribute.
[4] Students in this combined degree program must complete a total of 12 courses in Math. These electives are listed on the back.
[5] For prior engineering majors, MTH 302 can replace MTH 204 and MTH 304 with one additional course needed upon approval from advisor.
[6] For CIS/MTH double majors or prior CIS majors, 225 and 325 together count for 210 & 315 upon approval from advisor.
[7] Math majors can use EGR 112 and CIS 159 in place of the Computer Science requirement (CIS 161 or CIS 162)

Undergraduate BA/BS 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 either STA 312 or STA 412. 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". Click on the "Change Major 1/Program" box
3. Click on the down arrow in the box next to "New Major 1/Program"
4. From here scroll down and find "Mathematics - Applied." There are two options BA or BS. Click on the option you prefer.
5. 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 Overlap for Combined BS Math/MSE students
Physical Sciences with Lab: PHY 230

Math Elective Courses

Choose math electives from the following list for a total of 12 courses in mathematics. At least one chosen from this list must be a 400-level MTH class. Students who take the recommended sequence MTH 204+MTH 304 will need to take one 400-level MTH elective from this list. Students who take MTH 302 instead of (MTH 204+MTH 304) will need to take two electives from this list, at least one of which is a 400-level MTH class.

(MTH 300 Vector Analysis) OR (MTH 401 Math for the Physical Sciences)	MTH 409 Real Analysis II
MTH 304 Analysis of Differential Equations	MTH 431 Non-Euclidean Geometry
MTH 305 Mathematical Modeling	MTH 441 Topology
MTH 315 Discrete Mathematics	MTH 450 Modern Algebra II
MTH 360 Operations Research	MTH 465 Automata and Theory of Computation
MTH 402 Complex Variables	MTH 495 Nature of Modern Math (if MTH 496 is taken as capstone)
MTH 405 Numerical Analysis	MTH 496 Senior Thesis (if MTH 495 is taken as capstone)
MTH 406 Linear Algebra III	MTH 498 Project-Based Applied Mathematics
	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 302[5], 312, 322, 323, 324, 325[6], 329, 331, and 490

Combined Graduate Master of Science in Engineering (BME, ECE, ME, or MDE emphasis) program:
- Combined degrees allow students to complete two degrees (BA/BS Mathematics + MS Engineering) in less time and with fewer credits than it would take for the two degrees separately.
- Math undergraduate students can prepare for the MSE in any of the emphases with EGR, ECE, and MME prefix courses as presented in this program plan. Most of these engineering courses will count as undergraduate electives towards the BA/BS degree.
- In Fall of Year 4, students must decide on their emphasis area and take additional courses specific to that emphasis. The ECE/BME-EE emphasis requires ECE 224, ECE 314, ECE 315, ECE 323, and ECE 326. The ME/MDE/BME-ME emphasis requires MME 209, MME 250, MME 309, MME 362, and MME 312.
- Students will apply to the Combined BSE Mathematics/MSE program in Winter of Year 4.
- MSE requires 33 approved credits hours with GPA of 3.0 or better. For additional information, please contact the Engineering Graduate program (gradengineer@gvsu.edu).

Engineering Emphasis Area Courses: Dual Elective

Choose one from the following list to count as an elective for both the BA/BS Math and MSE degrees.

All emphases
- MSE 535 – Mathematical Modeling of Physiologic systems (3 credits)
- STA 615 – Design of Experiments for Engineers (3 credits)

Electrical and Computer Engineering
- MSE 523 – Digital Signal Processing (4 credits)
- MSE 518 – RF Applications (4 credits)
- MSE 671 – Advanced Control Systems (3 credits)
- MSE 645 – Electromagnetics (3 credits)

Materials Design Engineering
- MSE 640 – Production Operation Models (3 credits)

Biomedical Engineering
- MSE 635 – Biomedical Signal Modeling (3 credits)
- MSE 532 – Biomedical Imaging and Image Processing (3 credits)
- MSE 547 – Mechanics of Human Motion (3 credits)

Mechanical Engineering
- MSE 523 – Digital Signal Processing (4 credits)
- MSE 518 – RF Applications (4 credits)
- MSE 671 – Advanced Control Systems (3 credits)
- MSE 645 – Electromagnetics (3 credits)