

MATHEMATICS AREA OF CONCENTRATION WITHIN STEM A.S. (TRANSFER)

Program website ([https://www.frederick.edu/programs/science,-technology,-engineering,-and-math-\(stem\)/mathematics.aspx](https://www.frederick.edu/programs/science,-technology,-engineering,-and-math-(stem)/mathematics.aspx))

Program Description

Provides a diversity of courses for students pursuing a course of study in mathematics. Students planning to transfer to a four-year institution should check requirements. If there are significant differences, the student should consult an advisor for guidance.

Program Learning Outcomes

- Produce effective, organized, clear, and correct mathematical explanations.
- Interpret and analyze verbal, graphical, numerical, and symbolic representations of mathematics.
- Solve problems effectively and efficiently using mathematical tools that appropriately model the situation.
- Demonstrate technology use appropriate to mathematical problem solving.
- Generate alternative representations of numerical data and analytical concepts.

Program Requirements

- Students must complete their credit **English and Mathematics** within the first 24 credits.
- One course must meet the cultural competence graduation requirement (<https://frederick-public.courseleaf.com/general-education-core/#cultural>).
- **CORE: The General Education CORE** is that foundation of the higher education curriculum providing a coherent intellectual experience for all students. Students should check with an advisor or the transfer institution (ARTSYS) before selecting General Education CORE requirements. <http://artsys.usmd.edu/>
- In some General Education categories (Mathematics, Biological & Physical Sciences), a 4-credit course selected from the GenEd course list will satisfy the requirement in place of a 3-credit course. Students should check with an advisor before selecting these courses.
- For the Physical Education, Health, or Nutrition requirement, a 3-credit PHED, HLTH, or NUTR course may satisfy the requirement in place of a 1-credit course. Students should check with an advisor before selecting this course.
- Students must earn a grade of "C" or better in ENGL 101 English Composition.
- Students must complete a minimum of nine credits at the 200-level.

Code	Title	Credits
English		
ENGL 101	English Composition	3
Mathematics		
MATH 185	Calculus I	4
Social & Behavioral Sciences		

Social & Behavioral Sciences Elective (Gen Ed course list) (https://frederick-public.courseleaf.com/general-education-core/#social-behavioral) - select two courses from different disciplines		6
Arts & Humanities		
Arts Elective (Gen Ed course list) (https://frederick-public.courseleaf.com/general-education-core/#arts)		3
Humanities Elective (Gen Ed course list) (https://frederick-public.courseleaf.com/general-education-core/#humanities)		3
Communication Elective (Gen Ed course list) (https://frederick-public.courseleaf.com/general-education-core/#communication)		3
Biological & Physical Sciences		
Biological & Physical Sciences Elective (Gen Ed course list) (https://frederick-public.courseleaf.com/general-education-core/#biological-physical)		3
Biological & Physical Sciences Elective (Gen Ed course list) (https://frederick-public.courseleaf.com/general-education-core/#biological-physical) (Lab course) ¹		4
General Education Required Elective		
MATH 195	Calculus II	4
Physical Education, Health, or Nutrition Requirement		
Select one PHED, HLTH, or NUTR course		1
Concentration Courses		
MATH 220	Introduction to MATLAB	1
CMSC 130	Programming Fundamentals	4
MATH 265	Linear Algebra (Fall)	4
MATH 275	Differential Equations (Spring)	3
MATH 285	Calculus III	4
Select one in consultation with an advisor:		
MATH 170	Introduction to Discrete Mathematics (Spring)	3
or CMSC 230	Data Structures and Algorithms	
Electives		
Select electives in consultation with an advisor:		7
PHYS 253	General Physics III (required at the University of Maryland-College Park)	
CMIS 202	Computer Science II (may be recommended depending on transfer school)	
Total Credits		60

1

PHYS 151 General Physics I and PHYS 252 General Physics II required at the University of Maryland-College Park; recommended for students transferring to other institutions

Transfer Note

For more information on careers and transfer, contact the Career and Academic Planning Services office at 301.846.2471 or visit Transfer Services (<https://www.frederick.edu/student-resources/counseling-advising/transfer-services.aspx>).

Guided Pathway to Success (GPS)

Suggested schedules map your path to degree completion.

Students should meet with an advisor each semester to carefully select and sequence courses based on their specific academic goals and interests. Visit Jefferson Hall or call 301.846.2471 for advising.

Recommended First Semester		Credits
ENGL 101	English Composition ¹	3
MATH 185	Calculus I (Milestone) ^{1,2}	4
Humanities Elective (Gen Ed course list) (https://frederick-public.courseleaf.com/general-education-core/#humanities)		3
Physical Education, Health, or Nutrition Requirement		1
CMSC 130	Programming Fundamentals	4
Credits		15

Recommended Second Semester

MATH 195	Calculus II (Milestone)	4
Biological & Physical Sciences Elective (Gen Ed course list) (https://frederick-public.courseleaf.com/general-education-core/#biological-physical) w/lab - Recommended course(s) below:		4
PHYS 151	General Physics I	
Social & Behavioral Sciences Elective (Gen Ed course list) (https://frederick-public.courseleaf.com/general-education-core/#social-behavioral)		3
MATH 220	Introduction to MATLAB	1
Select one of the following:		3-4
MATH 170	Introduction to Discrete Mathematics (Spring)	
CMSC 230	Data Structures and Algorithms	
Credits		15-16

Recommended Third Semester

MATH 285	Calculus III (Milestone)	4
Communication Elective (Gen Ed course list) (https://frederick-public.courseleaf.com/general-education-core/#communication)		3
MATH 265	Linear Algebra (Fall)	4
Biological & Physical Sciences Elective (Gen Ed course list) (https://frederick-public.courseleaf.com/general-education-core/#biological-physical) - Recommended course(s) below:		3-4
PHYS 252	General Physics II	
Select an elective in consultation with an advisor: ³		2-3
Credits		16-18

Recommended Fourth Semester

MATH 275	Differential Equations (Spring)	3
Select an elective in consultation with an advisor ³		3-4
Social & Behavioral Sciences Elective (Gen Ed course list) (https://frederick-public.courseleaf.com/general-education-core/#social-behavioral) (in a different discipline from first)		3
Arts Elective (Gen Ed course list) (https://frederick-public.courseleaf.com/general-education-core/#arts)		3
Select an elective in consultation with an advisor (unless two 4 credit electives are taken above, and the 7 credit electives requirement is satisfied) ³		2-3
Credits		14-16
Total Credits		60-65

1

Take this course within the first 24 credits.

2

Students who have not taken MATH 165 Precalculus should take it as an elective in the first semester before starting the Calculus sequence.

3

Choose electives in consultation with an advisor. PHYS 253 General Physics III is required at the University of Maryland - College Park. Depending on transfer school, CMIS 202 Computer Science II may be recommended.

Part-time Students

Part-time students should complete courses in the order listed on the pathway. Please contact program manager for questions about part-time status.

Students who take fewer than 15 credits each semester or who require developmental English or Math coursework will need additional semesters to complete their degrees. Summer term and January session classes may help students to make faster progress.

Pathway Legend

Milestone - courses with the Milestone notation should be taken within the recommend credit range to stay on track for program completion.

Fall, Spring, Summer - courses with a Fall, Spring, or Summer notation indicate the course is offered in the specified semester only.