

MATHEMATICS, AREA OF CONCENTRATION IN ARTS & SCIENCES (AS)

Award: Associate of Science Degree

No. of credits required: 60

For more information: Contact Associate Professor Supawan King, sking@harford.edu; Admissions, 443-412-2109; or stem@harford.edu.

Program Description

This program provides a solid foundation for those who wish to transfer to a Bachelor's degree program in pure mathematics, applied mathematics, actuarial sciences and risk management, statistics, or mathematics secondary education. Mathematicians use mathematical theory, computational techniques, algorithms, numerical analyses, and the latest technology to solve economic, scientific, engineering, physics, and business problems. Students in this program will attain proficiency in using mathematical techniques and computational ability, explaining the processes used in solving problems, modeling applications settings with mathematics, and communicating and interpreting numerical results.

Program Goals

Upon successful completion of the Mathematics AS degree, the student will be able to:

1. Solve mathematical problems analytically, geometrically, and numerically.
2. Apply mathematical models and techniques to real-world problems in multiple disciplines.
3. Employ appropriate technology and programming techniques to solve mathematical problems.
4. Communicate mathematical ideas and arguments effectively.

Transfer Information

Students who plan to transfer to a four-year college or university should check the requirements of that institution. If they are significantly different from the courses listed, the student should consult with an academic advisor.

Employment Information

The program in mathematics prepares a student for transfer into a Bachelor's degree program in pure or applied mathematics. A minimum of a Master's degree in mathematics is required for most prospective mathematicians. The most successful job seekers will be able to apply mathematical theory to real-world problems and will possess good communication, problem-solving, critical thinking, teamwork, and computer skills. Mathematicians may conduct research in fundamental mathematics and use the application of mathematical techniques to solve problems in other fields, such as science, actuarial science and risk management. Mathematicians with a strong background in computer science, finance, electrical or mechanical engineering, or operations research should have good career opportunities.

Diversity Requirement

To satisfy the diversity requirement: Associate degree students must complete one 3-credit diversity course (D). It is recommended that

students select one of the 3-credit (GB), (GH), (GI) course electives from those that also appear on the approved list of diversity course graduation requirements.

Degree Requirements

Recommended Course Sequence

First Semester		Credits
ENG 101	English Composition (GE)	3
MATH 203	Calculus I (GM)	4
Arts/Humanities Elective (GH) (https://catalog.harford.edu/general-education/#arts-humanities)		3
Behavioral/Social Science Elective (GB) (https://catalog.harford.edu/general-education/#behavioral-social-science)		3
Physical Education Elective		1
Credits		14
Second Semester		
MATH 204	Calculus II (GM)	4
PHYS 201	General Physics I: Mechanics (GL)	4
General Electives ¹		6
Behavioral/Social Science Elective (GB) (https://catalog.harford.edu/general-education/#behavioral-social-science)		3
Credits		17
Third Semester		
CSI 131	Computer Science I	4
MATH 206	Calculus III	4
PHYS 204	General Physics: Vibrations, Waves, Heat, Electricity and Magnetism (GL)	4
MATH 217	Linear Algebra	4
Credits		16
Fourth Semester		
MATH 208	Elementary Differential Equations	3
General Electives ²		7
Arts/Humanities Elective (GH) (https://catalog.harford.edu/general-education/#arts-humanities)		3
Credits		13
Total Credits		60

¹ It is recommended that the student take CIS 115 Fundamentals of Programming or CSI 130 Introduction to Concepts in Computer Science.

² It is recommended that the student take MATH 210 Discrete Structures.

General Education Degree Requirements

Note: The following codes identify courses which satisfy the General Education Degree Requirements:

Behavioral/Social Science (GB)
 English Composition (GE)
 Arts/Humanities (GH)
 Interdisciplinary and Emerging Issues (GI)
 Biological/Physical Laboratory Science (GL)
 Mathematics (GM)

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Biological/Physical Science (GS)