



# Mathematics

Mathematics Building  
William E. Kirwan Hall  
(301) 405-5047

<http://www-math.umd.edu/undergraduate.html>  
College of Computer, Mathematical, & Natural Sciences

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## Key Features of a Math Major

- Gain a solid foundation in modern mathematics, with the ability to solve problems, apply math to other areas, and create rigorous mathematical arguments
- Prepare for a variety of post-graduate careers, whether in government, business, secondary education, or graduate school

## Career Options and Salaries with a Math Major

Mathematicians use mathematical theory, computational techniques, algorithms, and the latest computer technology to solve economic, scientific, engineering, and business problems. The work of mathematicians falls into two broad classes: theoretical (pure) mathematics and applied mathematics. These classes, however, are not sharply defined and often overlap.

*Theoretical mathematicians* advance mathematical knowledge by developing new principles and recognizing previously unknown relationships between existing principles of mathematics. These workers seek to increase basic knowledge without necessarily considering its practical use. Many theoretical mathematicians are employed as university faculty, dividing their time between teaching and conducting research.

*Applied mathematicians* use theories and techniques, such as mathematical modeling and computational methods, to formulate and solve practical problems in business, government, engineering, and the physical, life, and social sciences. Applied mathematicians start with a practical problem, envision its separate elements, and then reduce the elements to mathematical variables. They often use computers to analyze relationships among the variables, and they solve complex problems by developing models with alternative solutions. Some mathematicians, called cryptanalysts, analyze and decipher encryption systems—codes—designed to transmit military, political, financial, or law-enforcement-related information.

In 2015, the median annual wages for mathematicians was \$111,110. In 2015, the median annual wages for Mathematical Statisticians was \$80,110.

*Career and salary information taken from Occupational Outlook Handbook, 2014-15 Ed.*  
[\(http://stats.bls.gov/ooh/\)](http://stats.bls.gov/ooh/).

## Advising

The Math Department's Advising Office is happy to speak with you about any questions you may have regarding the Math major, course content, career options, etc.

- Ms. Ida Chan, Coordinator of Undergraduate Advising
- Undergraduate Advising Office, Room 1115, Mathematics Building
- (301) 405-7582; [ugadvisor@math.umd.edu](mailto:ugadvisor@math.umd.edu)
- Walk-In Advising: hours vary by semester. Call the Advising Office for specific days and times or visit <http://www-math.umd.edu/advising-information.html>.

General questions regarding the CMNS majors may be sent to [cmqsque@deans.umd.edu](mailto:cmqsque@deans.umd.edu). Please include your name, UID, and major in the email. You can also use walk-in advising hours at the CMNS Office of Student Services. For walk-in hours, visit: <http://cmns.umd.edu/undergraduate/advising-academic-planning/walk-advising>.

## Declaring a Math Major

***Math is not a Limited Enrollment Program (LEP). If you have decided to major in this field, you can declare immediately!***

In order to declare the Math major, you must meet with the program advisor, Ms. Ida Chan (see above). You will complete and sign a change of major form at this meeting:

[http://cmns.umd.edu/sites/default/files/uploads/docs/ug/declaration\\_of\\_major.pdf](http://cmns.umd.edu/sites/default/files/uploads/docs/ug/declaration_of_major.pdf). You should then submit the declaration of major paperwork to the College of Computer, Mathematical, and Natural Sciences in 1300 Symons Hall. You will be notified via email within one to two weeks of the change in your major.

## Gen Ed

### Four-Year Plan

#### First Year:

MATH140 (AR)	4
ENGL101 (AW)	3
Elective	3
History/Social Sciences (HS)*	3
<u>Elective</u>	<u>3</u>
	16 credits

MATH141	4
Natural Sciences Lab* (NL)	3
Elective	3
Humanities (HU)*	3
<u>Elective</u>	<u>2</u>
	16 credits

#### Second Year:

MATH240	4
MATH241	4
CMSC106 OR 131	4
<u>History/Social Sciences (HS)*</u>	<u>3</u>
	15 credits

MATH310	3
Natural Sciences*/non lab(NS)	3
MATH246	3
Humanities (HU)*	3
<u>Elective</u>	<u>3</u>
	15 credits

**MATH4xx = appropriate MAT/AMSC/STAT course as advised by department**

#### Third Year:

MATH4xx	3
MATH4xx	3
MATH supporting seq 1	3
ENGL39X (PW)	3
<u>Elective</u>	<u>3</u>
	15 credits

MATH4xx	3
MATH4xx	3
Schol. in Practice* (SP) non-major	3
Elective	3
<u>MATH supporting seq 2</u>	<u>3</u>
	15 credits

#### Fourth Year:

MATH4xx	3
MATH4xx	3
Elective	3
Schol. In Practice* (SP)	3
<u>MATH supporting seq 3</u>	<u>3</u>
	15 credits

MATH4xx	3
MATH4xx	3
Elective	3
CMNS390** (OC)	3
<u>Elective</u>	<u>1</u>
	13 credits

\*All students must complete two Distributive Studies courses that are approved I-Series courses. Students must also complete Understanding Plural Society and Cultural Competence courses that may also fulfill a Distributive Studies category.

\*\*Students must complete CMNS390 if they have not already completed a course that meets the Oral Communications requirement.

# CORE

## Four-Year Plan

### First Year:

#### FALL

Math 140	4
CMSC 106 or 131	4
HL	3
<u>ENGL 101</u>	<u>3</u>
	14 credits

#### SPRING

MATH 141	4
HL/HA/HO	3
HA	3
<u>Lab Science</u>	<u>4</u>
	14 credits

### Second Year:

MATH 240	4
MATH 241	4
Supporting Sequence 1	3
<u>SH</u>	<u>3</u>
	14 credits

MATH 246	3
MATH 310	3
Supporting Sequence 2	3
Non-lab science	3
<u>Elective</u>	<u>3</u>
	15 credits

### Third Year:

MATH 410	3
MATH/STAT 4xx (UL Elective)	3
Professional Writing	3
Supporting Sequence 3	3
<u>Elective</u>	<u>3</u>
	15 credits

MATH 411	3
MATH 4xx (UL Elective)	3
SB	3
SB	3
<u>Elective</u>	<u>3</u>
	15 credits

### Fourth Year:

AMSC 460/466	3
MATH/STAT 4xx (UL Elective)	3
Advanced Studies	3
Diversity	3
<u>Elective</u>	<u>3</u>
	15 credits

MATH 4xx (UL Elective)	3
MATH 4xx (UL Elective)	3
Advanced Studies	3
Elective	3
<u>Elective</u>	<u>3</u>
	15 credits

**TOTAL = 120 credits**

## Q & A

### ***What is Credit-by-Exam?***

In order to help smooth the transition for incoming freshmen and transfer students, the Math Department offers Credit-by-Exam in some courses to eligible students so that they may capture some of the previous credits that are deemed not transferrable, in particular to satisfy course prerequisites and major requirements. Please note that students must apply to take the CBE and approval is not guaranteed. There is a \$30 fee to take the exam, and no refunds will be made if you miss the exam. In addition, once your exam is graded, you will need to sign for it within 4 weeks. If you do not sign for your exams within the 4-week period, a "W" will be posted on your transcript. For additional information on CBEs, click [here](#).

### ***I've heard that there is a website with old Math exams available. Is this true?***

Yes, there is a test-bank containing old department (MATH/STAT/AMSC) tests that is available to you for study purposes. They are located online at <https://www-math.umd.edu/testbank.html>.

### ***Can I minor in MATH?***

Yes, the Department of Mathematics offers several minors; Mathematics, Statistics and Actuarial Mathematics. For more information visit <https://www-math.umd.edu/index.php/undergraduate/opportunities.html?id=167>.