

MATHEMATICS, BA: GENERAL MATHEMATICS

At the core of modern theoretical science, mathematics has historically provided an expressive language and a theoretical framework for advances in the physical sciences. It has since become central in the life and social sciences and in computer science. Mathematics at Penn embraces traditional core areas of mathematics as well as developing areas (Penn is one of the world's leading centers in the application of logic to theoretical computer science). The goals of the major program are to assist students in acquiring both an understanding of mathematics and the ability to use it. The mathematics major provides a solid foundation for graduate study in mathematics and a background for study in economics, the biological sciences, the physical sciences, and engineering, as well as many non-traditional areas.

The minimum total course units (<https://www.college.upenn.edu/credits-needed-major/>) for graduation in this major is 33. Double majors may entail more course units.

Majors and prospective majors: Please email majoradvisor@math.upenn.edu. You will be assigned to one of the Math Major Advisors who will discuss your current and future plans with you. It is important that you see this advisor at least once per semester thereafter.

Below is a planning tool that is meant to help you but does not replace the web and advisor visit requirements.

For more information: <https://www.math.upenn.edu/undergraduate/math-majors-and-minors/mathematics-major/> (<https://www.math.upenn.edu/undergraduate/math-majors-and-minors/mathematics-major/>)

For information about the General Education requirements, please visit the College of Arts & Sciences Curriculum (<https://www.college.upenn.edu/curriculum/>) page.

Code	Title	Course Units
College General Education Requirements and Free Electives		
Foundational Approaches + Sectors ¹ + Free Electives		20
Major Requirements		
<i>Calculus Requirement</i>		
Select one of the following Options:		2-3
Option 1:		
MATH 1400	Calculus, Part I	
MATH 1410/1510	Calculus, Part II	
MATH 2400	Calculus, Part III	
Option 2:		
MATH 1610	Honors Calculus	
MATH 2600	Honors Calculus, Part II	
<i>Complex Analysis Requirement</i>		
MATH 4100	Complex Analysis	1
<i>Advanced Linear Algebra Requirement</i>		
MATH 3140	Advanced Linear Algebra	1
<i>Differential Equations Requirement</i>		

MATH 2410	Calculus, Part IV	1
or MATH 4250	Partial Differential Equations	
<i>Seminar Requirement</i>		
MATH 2020	Proving Things: Analysis	1
or MATH 2030	Proving things: Algebra	
<i>Algebra Requirement</i>		
MATH 3700	Algebra	2
& MATH 3710	and Algebra	
or MATH 5020	Abstract Algebra	
& MATH 5030	and Abstract Algebra	
<i>Analysis Requirement</i>		
MATH 3600	Advanced Calculus	2
& MATH 3610	and Advanced Calculus	
or MATH 5080	Advanced Analysis	
& MATH 5090	and Advanced Analysis	
<i>Mathematics Electives</i> ²		
Select 5 course units in Math		1-5
Select 2 course units in Cognate		2
Total Course Units		33

¹ You may count no more than one course toward both a Major and a Sector requirement. For Exceptions, check the Policy Statement (<http://www.college.upenn.edu/sectors-policy/>).

² Number of elective course units will vary based on the manner in which other requirements are fulfilled. Please consult your math major adviser when choosing math electives and cognates.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2025 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.