BACHELOR OF ARTS IN MATHEMATICS

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The power of mathematics lies in its focus on precise and logical reasoning to draw conclusions and make discoveries in many domains, both abstract and concrete.

The idea of mathematics as a process of carrying out procedures and following rules to produce a single right answer is a misconception. At the college level, the discipline is fully realized as a way of thinking, which can be applied in almost any context, wherever the basis for what is true or false can be understood while minimizing fuzziness or ambiguity.

The starting point in mathematics is not a large body of facts, but is instead a small number of ideas that are made precise and thoroughly understood. Mathematical knowledge is built from these in a way that gives us access to the steps that form the logical basis for why something makes sense.

Times have changed. We live in a world where decisions need to be justified with data and conclusions need to be quantified. To be effective, we must critically evaluate judgments based on data and quantifiable observations, and present arguments in a logical fashion. Presenting conclusions alone is not enough; they must be explained in a way that convinces others, supported by sound logical reasoning. This kind of argument is the focus of mathematics.

Ultimately, mathematics builds our ability to create new knowledge, justify new conclusions and make new discoveries in any realm where logical thought yields power—which is to say, just about everywhere.

Consequently, the study of mathematics will better enable you to succeed in other disciplines, from chemistry to political science to sociology, at a more advanced level. This is also why mathematics majors find careers doing advanced work in consulting, government, analytics, engineering, education and other important fields.

The BA in Mathematics requires a minimum of 120 credits for degree completion.

Note: A C- or better is required for all departmental prerequisites, unless otherwise stated. Students are required to maintain a GPA of 2.00 or better for all courses used to fulfill the mathematics major.

Please see footnotes for additional information.

Code	Title	Credits
University Curriculum (http://catalog.qu.edu/academics/university-curriculum/)		**46**
Modern Language Requirement [1]		**3-6**
Core Courses		**27**
MA 141 & MA 150	Calculus of a Single Variable and Integral Calculus With Applications	
or MA 151	Calculus I	
MA 153 & MA 154	Calculus II: Part A and Calculus II: Part B	
or MA 152	Calculus II	
MA 251	Calculus III	
MA 229	Linear Algebra	
MA 301	Foundations of Advanced Mathematics	
MA 321	Abstract Algebra	
MA 341	Advanced Calculus	
MA 490	Mathematics Senior Seminar	
Nine Credits of MA Electives [2]		**9**
Open Electives		**32**
Total Credits		**117-120**

[1] **All** CAS students must complete one modern language through the 102 level. Students who have taken a language in high school should take the modern language placement test for that language. Placement scores at the 201 level or higher demonstrate language competency and will place out of the language requirement..

[2] MA electives must be taken at the 285 number or higher. MA 299 and MA 399 do not count as MA electives.

While students must consult with their major adviser in planning a course of study, the department provides the following recommendations.

- Students interested in **teaching** must take a course in statistics, usually MA 285 or MA 371.
- Students interested in **statistics** should take MA 285, MA 371 and MA 372.
- Students interested in **actuarial studies** should take MA 371, MA 372 and MA 378. We also recommend CSC 110 and a Minor in Finance (http://catalog.qu.edu/business/finance/finance-minor/) or Business (http://catalog.qu.edu/business/business-minor/).

Shown below is one of many possible paths through the curriculum. Each student's individual academic plan is crafted in consultation with their academic adviser.

Code	Title	Credits
First Year		
Milestones: Earn 30 credits, meet with your adviser at least once a semester and have a GPA of 2.00 or higher.		
Fall Semester		
MA 151	Calculus I (UC Math)	4
EN 101	Introduction to Academic Reading and Writing (UC First Year Writing)	3
FYS 101	First-Year Seminar (UC Foundations Inquiry)	3
University Curriculum course		3
University Curriculum course		3
Spring Semester		
MA 153	Calculus II: Part A	2
MA 154	Calculus II: Part B	2
MA 229	Linear Algebra	3
EN 102	Academic Writing and Research (UC First Year Writing)	3
University Curriculum course		3
University Curriculum course		3
Second Year		

Milestones: Earn 60 credits and a GPA of 2.00 or higher. Meet with your adviser at least once per semester to discuss academic, experiential learning, career and co-curricular opportunities.

Fall Semester		
MA 251	Calculus III	4
MA 301	Foundations of Advanced Mathematics	3
Language at the 101 level		3
University Curriculum course		3
University Curriculum course		3
Spring Semester		
MA 341	Advanced Calculus	3
Math Elective		3
Language at the 102 level (Satisfies CAS Language Requirement)		3
University Curriculum course		3
University Curriculum course		3
Third Year		

Milestones: Earn 90 credits and a GPA of 2.00 or higher. Meet with your adviser at least once per semester. Participate in study abroad, complete internship or research opportunities.

Fall Semester		
Mathematics Elective		3
University Curriculum course		4
Open Elective		4
Open Elective		3
Open Elective		3
Spring Semester		
Mathematics Elective		3
Open Elective		3
Open Elective		3
Open Elective		3
Open Elective		3
Fourth Year		

Milestones: Earn 120 credits and a GPA of 2.00 or higher. Complete possible minor or double major and prepare for graduation.

Fall Semester		
Mathematics Elective		3
Open Elective		3
Open Elective		3
Open Elective		3
Open Elective		1
Spring Semester		
MA 490	Mathematics Senior Seminar	3
Open Elective		3
Open Elective		3
Open Elective		3
Total Credits		**120**

Students graduating with a major in mathematics will demonstrate the following competencies:

1. **Application:** Apply the fundamental concepts of calculus and linear algebra to solve both abstract and applied problems.
2. **Communication:** Communicate mathematics effectively, both orally and in writing.
3. **Collaboration:** Collaborate effectively to understand and solve mathematical problems.
4. **Abstraction:** Recognize and describe abstractions that unify mathematical structures and problems.
5. **Appreciation:** Articulate an understanding of the nature and value of mathematics and the unique epistemology of the subject.
6. **Technology:** Apply appropriate technology in exploring mathematical concepts and solving mathematical problems.
7. **Independence:** Independently investigate and acquire mathematical knowledge and formulate strategies to solve mathematical problems.
8. **Analysis:** Read and judge the validity of mathematical proofs and write proofs that are clear and valid.

Admission Requirements: College of Arts & Sciences

The requirements for admission into the undergraduate College of Arts & Sciences programs are the same as those for admission to Quinnipiac University.

Admission to the university is competitive, and applicants are expected to present a strong college prep program in high school. Prospective first-year students are strongly encouraged to file an application as early in the senior year as possible, and arrange to have first quarter grades sent from their high school counselor as soon as they are available.

For detailed admission requirements, including required documents, please visit the Admissions (http://catalog.qu.edu/general-information/admissions/) page of this catalog.