

MATHEMATICS, BS

At Roosevelt, the bachelor's degree in mathematics prepare graduates for a variety of professions as well as for continuing study at the graduate level. Students will gain analytical, quantitative, and problem-solving skills. Students will also learn to apply the ideas of mathematics to other fields of knowledge and to communicate mathematics effectively.

Mathematics is a beautiful and interesting subject that involves statistics, numbers, functions, shapes, and structures. These concepts are logically interconnected and develop into a fascinating theory.

They are also used to solve real world problems from a wide variety of areas, including science, computer science, social science, finance, and business. The study of mathematics provides training in disciplined thought and analysis.

Students who wish to teach mathematics at the high school level should minor in secondary education and as well as take the mathematics courses included in the Concentration in Secondary Education. The Secondary Education Minor (<http://catalog.roosevelt.edu/undergraduate/education/secondary-teacher-minor>) page provides more detail.

Prerequisites

All students who plan to major or minor in Mathematics must see a Math advisor before registering. Some students may need prerequisite courses. Advanced placement in Mathematics is possible for well-prepared students. All prerequisite courses must be completed with grades of C- or higher.

Requirements

All credit must be approved by the Mathematics faculty to be applied toward the major. At least four of the courses beyond MATH 233 CALCULUS III must be completed at Roosevelt University.

Once a student begins taking math classes at Roosevelt, any additional courses taken outside of the university must get pre-approval in writing from the department chair in order to apply them to the math major.

Requirements for a major in Mathematics leading to the BS degree consists of the core and elective courses listed below. This is 42 credit hours, although it may vary slightly for transfer students (who took, for example, a 4 credit-hour calculus 1 course).

In addition, a minor or a supporting sequence of at least 15 credit hours in a science is required. Approved areas for the BS degree are:

- Biology (<http://catalog.roosevelt.edu/undergraduate/arts-sciences/biology-minor>)
- Chemistry (<http://catalog.roosevelt.edu/undergraduate/arts-sciences/chemistry-minor>)
- Computer Science (<http://catalog.roosevelt.edu/undergraduate/arts-sciences/computer-science-minor>) (courses must be above CST 115 DIGITAL MEDIACRAFT, A&S)
- Physical Science (courses must be at or above PHSC 103 GLOBAL CLIMATE CHANGE)
- Physics
- Psychology (<http://catalog.roosevelt.edu/undergraduate/arts-sciences/psychology-minor>)

A total of at least 60 credit hours in actuarial science, mathematics, computer science, the natural sciences, or psychology is required. (Note

that the completion of the standard general education requirements, the major requirements, and the science minor or supporting sequence will typically result in at least 60 semester hours.)

Core

CST 150	COMPUTER SCIENCE I	4
MATH 231	CALCULUS I	5
MATH 232	CALCULUS II	5
MATH 233	CALCULUS III	3
MATH 245 & MATH 290	DISCRETE STRUCTURES and INTRODUCTION TO PROOF	4
MATH 246	LINEAR ALGEBRA	3
MATH 320	INTRODUCTION TO ABSTRACT ALGEBRA	3
MATH 352	ANALYSIS	3
MATH 390	INDUSTRIAL RESEARCH PROBLEMS (Capstone Course)	3

Electives for the Math B.S.

Three electives above MATH 233 including at least two at the 300 level	9
Concentration or Minor in approved area	15
General Education, University Writing Requirement, and Electives¹	
Courses to total 120	63
Total Credit Hours	120

1. Students who wish to teach at the middle school or high school level should choose electives using the concentration in Secondary Education. Students who wish to have a statistics concentration should choose electives from the list in that section.

Additional concentration in Secondary Education

Students pursuing a concentration in Secondary Education will take courses that prepare them for the Illinois Mathematics Content Test. They also need to register for the minor in secondary education (<http://catalog.roosevelt.edu/undergraduate/education/secondary-teacher-minor>). Students should speak with both the mathematics and education departments for course advising.

Standards

Courses taken as pass/fail will be given a pass only for work at or above the C- level. The average grade for all courses taken in mathematics must be C- or higher. In order to satisfy state teacher requirements, all courses presented for the major and the minor(s) must be completed with grades of C or higher with an overall GPA of 2.7 in the major. Repeated courses in the major or minor require specific approval.

Requirements for the concentration

Students choosing this concentration must complete the 30 credit hours of core requirements listed above along with a minor or concentration in a science. Four additional courses are required as follows:

Courses required for the SEED concentration

MATH 316	HISTORY OF MATHEMATICS	3
MATH 317	GEOMETRY	3
Select one of the following Probability and Statistics courses:		3
MATH 217	ELEMENTARY STATISTICS	

MATH 238	APPLIED PROBABILITY AND STATISTICS	
MATH 347	PROBABILITY THEORY	
MATH 339	BASEBALL STATISTICS	
Total Credit Hours		9

Additional concentration in Statistics

Requirements for the Concentration

Students choosing this concentration must complete the 30 credit hours of core requirements listed above along with a minor or concentration in a science. Four additional courses are required as follows:

Courses required for the Statistics concentration

MATH 347	PROBABILITY THEORY	3
MATH 348	MATHEMATICAL STATISTICS	3
MATH 349	REGRESSION & TIME SERIES	3

Electives

Select one of the following: 3

MATH 280	MATHEMATICAL MODELING	
MATH 307	DIFFERENTIAL EQUATION/MODELING	
MATH 309	DATA MINING	
MATH 323	COOPERATION AND COMPETITION – GAME THEORY AND APPLICATIONS	
MATH 328	LINEAR PROGRAMMING & OPTIMIZATION	
MATH 339	BASEBALL STATISTICS	
MATH 369	MODELS FOR LIFE CONTINGENCIES	

Alternate courses may be approved by advisor

MATH 389	SPECIAL TOPICS (Requires Chair approval)	
----------	--	--

Total Credit Hours 12

General Education Requirements

Code	Title	Credit Hours
Academic Communities of Practice		
ACP 101	FIRST YEAR SEMINAR ¹	3
ACP 110	PRIMARY TEXTS	3
ACP 250	FOUNDATIONS FOR CHANGE	3
English Composition ²		
ENG 101	COMPOSITION I: CRITICAL READING & WRITING	3
ENG 102	COMPOSITION II: INTRODUCTION TO ACADEMIC RESEARCH	3
Humanities		
Select 9 credits from the following subject areas: African-American Studies, Art History, English (excluding ENG 101 and ENG 102), History, Languages, Music, Philosophy, Theatre, Speech and Women's and Gender Studies		9
Mathematics		
MATH 110	QUANTITATIVE LITERACY (or above) ³	3
Non-Western requirement		
Non-Western course (can be used for Humanities or Social Sciences general education requirements)		3
RU mission-related course ²		
LIBS 201	WRITING SOCIAL JUSTICE	3

Science

One biological science and one physical science required (at least one must be a four-hour lab (not applicable for science majors)) 7-8

Social Sciences

Select 9 credits from the following subject areas: African-American Studies, Anthropology, Economics, History, Journalism, Philosophy, Political Science, Psychology, Sociology and Women's and Gender Studies 9

Total Credit Hours 49-50

- ¹ Required for students who enter RU with fewer than 12 credit hours
- ² Minimum grade of C- required
- ³ Math, Computer Science & Technology, and Science majors have different requirements—see advisor

These quantitative requirements also apply to degrees in the College of Arts and Sciences:

- Students may apply no more than 60 credit hours of 100-level courses toward the degree.
- Students must apply no fewer than 60 credit hours of 200- and 300-level courses toward the degree.
- Students must have at least 18 credit hours (of the 60 credit hours above) at the 300 level.
- Students may transfer in no more than 66 credit hours from community colleges.
- Students must take their final 30 hours at Roosevelt University. Note that some majors have additional requirements for RU hours.
- Students must have a grade point average of 2.0 or higher to graduate. Note that some majors have additional GPA requirements.
- Students must have a minimum of 90 hours in Arts and Sciences.
- Students may apply no more than 51 hours in the major (BA) or 57 hours in the major (BS)

Your degree map is a general guide suggesting courses to complete each term on the academic pathway to your degree. It is based on the most current scheduling information from your academic program. Your program's degree map is reviewed annually and updated as schedules change (although you retain the same course requirements as long as you are continuously enrolled in your degree program).

Always work closely with your academic advisor to understand curriculum requirements and scheduling, as each student's academic plan can look slightly different.

Year 1

Fall	Credit Hours Spring	Credit Hours
ACP 101	3 ACP 110	3
ENG 101	3 ENG 102	3
MATH 121	3 CST 150	4
BIOL 111 or Biological Science	4 MATH 122	3
Humanities #1	3 Physical Science	3

16

16

Year 2

Fall	Credit Hours Spring	Credit Hours
LIBS 201 or ACP 250	3 ACP 250 or LIBS 201	3
MATH 231	5 MATH 232	5
Social Science #1	3 MATH 246	3
Humanities #2	3 Social Science #2	3
	14	14

Year 3

Fall	Credit Hours Spring	Credit Hours
MATH 233	3 MATH 352	3
MATH 245	3 MATH 390	3
MATH 290	1 Humanities #3	3
Social Science #3	3 Science Minor or Sequence ⁶	3
Non-Western Studies Course ⁴	3 General Elective ¹	3
Science Minor or Sequence ⁶	3	
	16	15

Year 4

Fall	Credit Hours Spring	Credit Hours
MATH 320	3 MATH 3XX ³	3
MATH 2XX or MATH 3XX ^{2,3}	3 MATH 3XX ³	3
Science Minor or Sequence ⁶	3 Science Minor or Sequence ⁶	3
Science Minor or Sequence ⁶	3 General Elective ¹	3
General Elective ¹	3 General Elective ¹	3
	15	15

Total Credit Hours 121

- ¹ Or course towards an optional Minor.
² Any course at the 200 level within the discipline.
³ Any course at the 300 level within the discipline.
⁴ This requirement can be fulfilled by other requirements.
⁵ One Natural Science course must have a lab.
⁶ See advisor for coursework