MATHEMATICS, BS

The program of study for the BS in Mathematics is designed to prepare the graduate for a career in a field that employs professionals with mathematical and/or computer science competence. At the same time, it provides for the student to add courses that will prepare him/her to pursue a graduate degree in either mathematics or computer science.

Program Learning Outcomes

Graduates of this program will be able to:

a. Apply critical thinking skills to solve problems that can be modeled mathematically.
b. Critically interpret numerical and graphical data.
c. Read and construct mathematical arguments and proofs.
d. Use computer technology appropriately to solve problems and to promote understanding.
e. Communicate a depth and breadth of mathematical knowledge, both orally and in writing.
f. Apply mathematical knowledge to a career related to mathematical sciences or in post baccalaureate studies.

Program Requirements

Code	Title	Credit Hours
Core IMPACTS		**42**
All core curriculum recommendations are shown under the Core IMPACTS section of the Undergraduate Graduation Requirements. (https://nextcatalog.clayton.edu/graduation-requirements/undergraduate-graduation-requirements/core-curriculum/#nonsciencemajorstext)		
Field of Study - Mathematics		**18**
CSCI 1301	Computer Science I [1]	0 or 3
or CSCI 1371	Computing for Engineers	
MATH 1501	Calculus I	1 or 4
MATH 2140	Introductory Linear Algebra	3
MATH 2502	Calculus II [2]	1 or 4
MATH 2503	Calculus III	4
Elective		
Select a minimum number of hours for a total of 18 hours in Field of Study		3
CHEM 1211 & 1211L	Principles of Chemistry I and Principles of Chemistry Laboratory I	
CHEM 1212 & 1212L	Principles of Chemistry II and Principles of Chemistry Laboratory II	
CSCI 1302	Computer Science II	
MATH 1401	Elementary Statistics (0 hours if taken in Core IMPACTS)	
MATH 2020	Introductory Discrete Math	
PHYS 2211 & 2211L	Principles of Physics I and Principles of Physics Lab I	
PHYS 2212 & 2212L	Principles of Physics II and Principles of Physics Lab II	
Upper Division Major Requirements		**13**
MATH 3005	A Transition to Higher Math	3
MATH 3006	Communication in Mathematics	1
MATH 3110	Survey of Algebra	3
MATH 3303	Differential Equations	3
MATH 3520	Introduction to Analysis	3
Capstone Experience Requirements		
MATH 4986	Internship in Mathematics	2
OR		
MATH 4987 & MATH 4988	Directed Undergrad Research I and Directed Undergrad Research II	2
MATH 4989	Senior Capstone Project	0
Upper Division Math Electives		**12**
Choose at least three courses from the following:		
MATH 3220	Applied Statistics	
MATH 4130	Applied Algebra	
MATH 4231	Modern Geometry	
MATH 4250	Elementary Number Theory	
MATH 4261	Introduction to Probability	
MATH 4262	Mathematical Statistics	3
MATH 4271	Financial Mathematics	3
MATH 4303	Partial Differential Equations	
MATH 4320	Numerical Methods	
MATH 4350	Graph Theory	
MATH 4360	Combinatorics	
Choose one additional course from the list above or from the following:		
MATH 4800	Selected Topics in Mathematics	
MATH 4801	Selected Topics in Mathematics	
MATH 4802	Selected Topics in Mathematics	
MATH 4803	Selected Topics in Mathematics	
MATH 4804	Selected Topics in Mathematics	
Electives		**32**
Choose 32 hours of electives, including at least 12 hours of 3000-level courses or above to complete the graduation requirement for upper division credits. [3]		
Students may choose to complete a Concentration in Financial Technology by completing the following courses as general electives:		
FTA 4001	Foundations of Fintech	
FTA 4002	Financial Technologies	
FTA 4005	Introduction to Financial Data Analytics	
Total Credit Hours		**120**

[1] CSCI 1371 cannot be used in the Field of Study if CSCI 1301 is used in Core IMPACTS.

[2] One hour of carry-over if MATH 2502 Calculus II was taken in Core IMPACTS, otherwise must take 4 hours to satisfy this requirement

[3] Courses that will not be counted toward the degree are:

- MATH 1101 Intro to Mathematical Modeling
- MATH 1111 College Algebra
- MATH 2010 Number Concepts & Relations
- MATH 3020 Concepts of Algebra

- MATH 3030 Concepts of Geometry
- MATH 3040 Algebra & Alg. Think Elem Tchr
- MATH 3050 Geometry & Measurement
- MATH 4010 Mathematical Problem Solving
- MATH 4020 Concepts of Discrete Math.

Suggested Course Sequence

Please Note: This is a suggested course sequence and assumes a starting freshman with no prior college credit who intends to complete their degree in four years. Students should consult with their academic advisor and review the course prerequisites and minimum grade requirements as seen in the Academic Catalog.

Course	Title	Credit Hours
First Year		
First Semester		
MATH 1111	College Algebra [1]	3
ENGL 1101	English Composition I	3
CRIT 1101	Critical Thinking	3
POLS 1101	American Government	3
HIST 1111 or HIST 1112 or HIST 2750 or POLS 2401	Survey-PreModern World History or Survey of Modern World History or Critical Trends and Issues or Intro to Global Issues	3
	Credit Hours	**15**
Second Semester		
MATH 1112	College Trigonometry	3
Art, Philosophy, or Language Course	Core Area C2	3
ENGL 1102	English Composition II	3
Behavioral Sciences		3
MATH 1401	Elementary Statistics	3
	Credit Hours	**15**
Second Year		
First Semester		
Literature, Philosophy, or Language Course	Core Area C1	3
MATH 1501	Calculus I	4
MATH 2020	Introductory Discrete Math	3
HIST 2111 or HIST 2112	Survey of US History to 1877 or US HIST Since Reconstruction	3
CSCI 1301 or CSCI 1371	Computer Science I or Computing for Engineers	3
	Credit Hours	**16**
Second Semester		
MATH 2502	Calculus II	4
MATH 3005	A Transition to Higher Math	3
MATH 3006	Communication in Mathematics	1
Science with Lab	Core Area D1	4
General Elective		3
	Credit Hours	**15**
Third Year		
First Semester		
MATH 2503	Calculus III	4
MATH 2140	Introductory Linear Algebra	3
MATH 4250	Elementary Number Theory	3
COMM 1001	Principles of Public Speaking	Core Area B2 1
Science with Lab	Core Area D1	4
	Credit Hours	**15**
Second Semester		
MATH 3220	Applied Statistics	3
MATH 3303	Differential Equations	3
MATH 4350 or MATH 4360	Graph Theory or Combinatorics	3
MATH 4987	Directed Undergrad Research I [2]	1
General Elective		3
General Elective		3
	Credit Hours	**16**
Fourth Year		
First Semester		
MATH 3520	Introduction to Analysis	3
MATH 4303 or MATH 4320	Partial Differential Equations or Numerical Methods	3
MATH 4988	Directed Undergrad Research II [2]	1
General Elective		3
General Elective		3
General Elective		3
	Credit Hours	**16**
Second Semester		
MATH 3110	Survey of Algebra	3
MATH 4231	Modern Geometry	3
MATH 4350 or MATH 4360	Graph Theory or Combinatorics	3
MATH 4989	Senior Capstone Project	0
General Elective		3
General Elective		3
	Credit Hours	**15**
	Total Credit Hours	**123**

* Four math electives are required, while the other two are optional and will count towards general electives. The math elective courses may be replaced with other upper division math courses, subject to availability and departmental approval.

1 MATH 1111 will not count towards graduation for math majors.

2 MATH 4986 Internship in Mathematics may be used in lieu of MATH 4987 Directed Undergrad Research I / MATH 4988 Directed Undergrad Research II