

MATHEMATICS, B.S.

Credits: 122
CIP Code: 270101

Program Description

The Bachelor of Science Degree in Mathematics is a rigorous mathematics program designed to prepare students for successful graduate study in mathematics and mathematically related areas, or for a successful career in private industry, government, and education domains.

Admissions Requirements

Applicants to the Bachelor of Science Degree in Mathematics must meet the General Admissions Requirements as published in this Catalog.

Special Requirement for Mathematics Majors

Undergraduate Mathematics Majors are required to take a departmental exit exam in the second semester of their senior year. Data from this exam is used for program review and advising.

Student Learning Outcomes

Upon completion of the BS Mathematics program, students should be able to:

1. Recognize that mathematics is an art and a powerful language of the sciences with limitless applications.
2. Effectively communicate mathematical research results in both written and oral forms to scientific and general audiences.
3. Demonstrate a high level of competency in mathematical proofs and mathematical modeling of complex phenomena.
4. Demonstrate a high level of proficiency in computing skills using standard mathematical software and other advanced technologies to model and communicate quantitative concepts.

Degree Requirements

In addition to the General Degree Requirements published in this Catalog, students pursuing the Bachelor of Science Degree in Mathematics must earn a minimum final grade of "C" in all required and elective mathematics courses (total 60 credit hours), in the General Education areas in the categories of A, B, C, D and E (total 36 credit hours) and Elective courses (Free electives: 6 credit hours Minor elective courses: 18 credit hours). Students are encouraged to pursue a minor, but not required. A total of 122 credit hours are required to graduate with a BS degree in Mathematics including University required Seminars. Students must satisfy the following required credits listed under different categories:

Code	Title	Hours
Required Mathematics Courses		
CMAT 111	Calculus I	4
CMAT 112	Calculus II	4
CMAT 211	Calculus III	4
CMAT 212	Differential Equations	3
CMAT 214	Linear Algebra	3
CMAT 311	Mathematical Logic	3

CMAT 321	Mathematical Prob & Stat I	3
CMAT 322	Mathematical Prob & Stat II	3
CMAT 325	Modern Algebra	3
CMAT 421	Advanced Calculus I	3
CMAT 422	Advanced Calculus II	3
CMAT 423	Intro to Complex Variables I	3
CMAT 427	Intro to Topology I	3
CMAT 475	Seminar I	3
CMAT 476	Seminar II	3

Math Electives

Select 12 credits of the following:		12
CMAT 443	Intro to Operations Research	
CMAT 440	Numerical Analysis	
CMAT 471 & CMAT 106	Discrete Mathematical Structure and Pre-Calculus II	
CMAT XXX	Elective (200 level or higher)	
CMAT XXX	Elective (300 or 400 level)	

Total Hours 60

General Education Courses

Code	Title	Hours
Area A: Humanities/Fine Arts		
Select two of the following:		6
CHIS 201	United States, Africa & World	
CHIS 202	United States, Africa & World	
CHIS 211	History of the United States	
CHIS 212	History of the United States	
CART 150	Art Appreciation	
CHUM 230		
CMUS 119	World Music	
CMUS 120	Music Appreciation	
CSTA 252	Theater Appreciation	
CPHIL 105		
CPHI 221	Introduction to Philosophy	
CPHI 241	Philosophy of Religion	
CREL 101	The Biblical Heritage	
CREL 103	Afr Amer Religious Experiences	
CREL 104	Afr Amer Religious Experience	
CREL 250	Comparative Religion	
Area B: Social/Behavioral Sciences		
Select two of the following:		6
CPSC 106	Politics and Global Issues	3
CPSC 219	American Govern & Politics	
CPSY 211	General Psychology	
CPSY 218	Human Growth & Development	
CSCJ 215	Intro. to Sociology	
CSCJ 216	Intro. to Anthropology	
CSCJ 218	Contemporary Social Problems	
Area C: Natural Science/Mathematics/Statistics		
Select two of the following:		8
CBIO 111	General Biology I & Lab	
CBIO 112	General Biology II & Lab	

CCHE 111	Gen Chem 1 & Recitation	
CCHE 112	Gen Chem II Lec & Recitation	
CPHY 121	Physics I: Mechanics	
CPHY 122	Physics II: Elec & Magnetism	
CPHY 123	Physics III: Optics/Modern Phys	

Area D: Communication

Select nine credits of the following:		9
CENG 105	College Composition I	
CENG 106	College Composition II	
CART 101	Art Foundation I	3
CENG 201	Intro to World Literature I	
CENG 202	Intro to World Literature II	
CFLX 101	Elementary Foreign Language I	
CFLX 102	Elementary Foreign Language II	
CFLX 201	Intermediate I	
CFLX 202	Intermediate II	

Area E: Financial/Technological

CCIS 105 & 105L	Programming Principles I and Programming Principles I Lab	4
Select one of the following:		3
CCIS 101	Introduction to Computers	
CCIS 253	Intro. to Comp. Sim/Analysis	
CCIS 105	Programming Principles I	
CCIS 121	Introduction to Computer Sys	
CECO 107	Introduction to Economics	
CECO 250	Principles of Economics	3
CECO 251	Principles of Macroeconomics	
CPHI 262	Sci, Tech, & Human Values	
CEDC 262	Educational Technology	

Total Hours **45**

Other University Requirements

Code	Title	Hours
CGED 100	First Year Seminar	1
CGED 101	1st-Year Seminar	1
Total Hours		2

Free Electives: 6 Credits

Any number of courses in Area A, Area B, Area C, Area D, or Mathematics courses which the student has not taken as a required Mathematics elective or general course can be a free elective. Courses that are not listed in areas of A, B, C, D or E may also qualify as free elective courses, but for such courses, the student is required to get approval from his/her departmental advisor.

Minor or Elective Courses: 18 Credits

Minor courses or Elective courses should be chosen in consultation with the advisor.

Special Considerations

The Department of Mathematical Sciences encourages undergraduate students majoring in Mathematics

to choose a minor field in other "STEM" or Business areas by streamlining their choices in the General

Education and Free Elective courses so that they satisfy the requirements of the program (usually 18 credit Hours) the student may choose to minor in. In particular, the Department of Mathematics encourages students to choose their minors in Physics, Chemistry, Biology or Computer Science by streamlining their choices of General Education Courses in the areas of C and E. The Minor is encouraged but not required.

Sequence for Mathematics, B.S.

Electives should be chosen in consultation with the advisor depending on the choice of minor.

Course	Title	Hours
First Year		
First Semester		
CENG 105	College Composition I (Area D)	3
CGED 100	First Year Seminar	1
Area A: Humanities/Fine Art (see list)		3
CMAT 106	Pre-Calculus II	3
Area B: Social/Behavioral Sciences (see list)		3
Area E: Financial/technological (see list)		3
Hours		16
Second Semester		
CENG 106	College Composition II (Area D)	3
CGED 101	1st-Year Seminar	1
Area A: Humanities/Fine Arts		3
CMAT 111	Calculus I	4
Free Elective		3
CXXX	Minor/ Free Elective	3
Hours		17
Second Year		
First Semester		
CMAT 112	Calculus II	4
CMAT 214	Linear Algebra	3
Area C: Natural Science		4
CMAT XXX	Math Elective (200 or Higher)	3
CXXX	Minor/ Free elective	3
Hours		17
Second Semester		
CMAT 212	Differential Equations	3
CMAT 211	Calculus III	4
CCIS 105 & 105L	Programming Principles I and Programming Principles I Lab (Area E)	4
CMAT 311	Mathematical Logic	3
CXXX	Minor/ Free Elective	3
Hours		17
Third Year		
First Semester		
Area D: Communication		3
CXXX	Minor/ Free Elective	3
CMAT 321	Mathematical Prob & Stat I	3
CMAT 325	Modern Algebra	3

CMAT 421	Advanced Calculus I	3
Hours		15
Second Semester		
CMAT 322	Mathematical Prob & Stat II	3
CMAT 422	Advanced Calculus II	3
Area C: Natural Science		4
Area B: Social/ Behavioral Sciences (see list)		3
CXXX Minor/ Free Elective		3
Hours		16
Fourth Year		
First Semester		
CXXX	Minor/ Free Elective	3
CMAT 423	Intro to Complex Variables I	3
CMAT 427	Intro to Toplogy I	3
CMAT 475	Seminar I	3
Hours		12
Second Semester		
CXXX Minor/ Free Elective		3
CMAT XXX	Math elective (300 or 400 level)	3
Select one of the following:		3
CMAT 443	Intro to Operations Research	
CMAT 440	Numerical Analysis	
CMAT 471	Discrete Mathematical Structure	
CMAT 476	Seminar II	3
Hours		12
Total Hours		122