BS with a Major in Mathematics and Computer Science

Program Codes:
20FT5897BS

The Bachelor of Science with a Major in Mathematics and Computer Science is designed for students who seek careers in computer science and/or computer related fields requiring a strong mathematical background. The program is flexible and provides the students with a well-rounded education. Students pursuing the major in Mathematics and Computer Science must complete either the Concentration in Algorithms and Theory or the Concentration in Computational Mathematics.

Degree Requirements

To earn a Bachelor of Science in Liberal Arts and Sciences degree from UIC, students must complete university, college, and department degree requirements. The Department of Mathematics, Statistics, and Computer Science degree requirements are outlined below. Students should consult the College of Liberal Arts and Sciences section for additional degree requirements and college academic policies.

Code	Title	Hours
Summary of Requirements		
Major Requirements		38-39
General Education and Electives to reach Minimum Total Hours		81-82
Total Hours		**120**

General Education

See General Education and Writing-in-the-Discipline in the College of Liberal Arts and Sciences section of the catalog for information on meeting these requirements.

Major Requirements

Code	Title	Hours
Required Courses		
MATH 180	Calculus I [a,b]	4
MATH 181	Calculus II [a]	4
MATH 210	Calculus III [a]	3
MATH 215	Introduction to Advanced Mathematics	3
MCS 160	Introduction to Computer Science [a]	4
MCS 275	Programming Tools and File Management	4
MATH 300	Writing for Mathematics [c]	1
Select one of the following:		3
MATH 310	Applied Linear Algebra	
MATH 320	Linear Algebra I	
Select one of the following:		3-4
MCS 320	Introduction to Symbolic Computation [d]	
MCS 360	Introduction to Data Structures [e]	
In addition, students must complete one of the following concentrations:		9
Concentration in Algorithms and Theory		
MCS 401	Computer Algorithms I	
Select two of the following:		
MCS 421	Combinatorics	
MCS 423	Graph Theory	
MCS 425	Codes and Cryptography	
MCS 441	Theory of Computation I	
MCS 481	Computational Geometry	
Concentration in Computational Mathematics		
MCS 471	Numerical Analysis	
Select two of the following:		
MCS 472	Introduction to Industrial Math and Computation	
MCS 481	Computational Geometry	
MATH 419	Models in Applied Mathematics	
MATH 480	Applied Differential Equations	
MATH 481	Applied Partial Differential Equations	
STAT 451	Computational Statistics	
STAT 471	Linear and Non-Linear Programming	
Total Hours		**38-39**

a *This course is approved for the Analyzing the Natural World General Education category.*
b *MATH 180 also fulfills the LAS Quantitative Reasoning requirement.*
c *MATH 300 fulfills the LAS Writing-in-the-Discipline requirement.*
d *MCS 320 is recommended for students who plan to pursue the Concentration in Computational Mathematics.*
e *MCS 360 is recommended for students who plan to pursue the Concentration in Algorithms and Theory.*

Recommended Plan of Study

Students who do not place into MATH 180 should expect to take summer session courses and possibly take longer than four years to graduate. Students who have taken AP exams in calculus or computer science need to see a departmental advisor for correct placement.

Course	Title	Hours
First Year		
Fall Semester		
MATH 180	Calculus I	4
Foreign Language		4
ENGL 160	Academic Writing I: Writing in Academic and Public Contexts	3
General Education Core course		3-4
	Hours	**14-15**
Spring Semester		
MATH 181	Calculus II	4
MCS 160	Introduction to Computer Science	4
Foreign Language		4
ENGL 161	Academic Writing II: Writing for Inquiry and Research	3
	Hours	**15**
Second Year		
Fall Semester		
MATH 210	Calculus III	3
MATH 215	Introduction to Advanced Mathematics	3
Foreign Language		4
General Education Requirement course		3-5

Elective		3
	Hours	**16-18**
Spring Semester		
MATH 310 or MATH 320	Applied Linear Algebra or Linear Algebra I	3
MCS 275	Programming Tools and File Management	4
General Education Requirement course		3-5
Foreign Language		4
	Hours	**14-16**
Third Year		
Fall Semester		
MCS 320 or MCS 360	Introduction to Symbolic Computation or Introduction to Data Structures	3-4
MATH 300	Writing for Mathematics	1
General Education Requirement course		3-4
General Education Requirement course		3
Electives		6
	Hours	**16-18**
Spring Semester		
Electives		6
MCS 401 or MCS 471	Computer Algorithms I or Numerical Analysis	3
General Education Requirement course		3
General Education Requirement course		3
	Hours	**15**
Fourth Year		
Fall Semester		
MATH, MCS, or STAT selective in concentration		3
Electives		12
	Hours	**15**
Spring Semester		
MATH, MCS, or STAT selective in concentration		3
Electives		12
	Hours	**15**
	Total Hours	**120**

Elective Course Suggestions for MCS Majors

A minor is strongly recommended in: physics, chemistry, biology, economics, or from the College of Engineering, except computer science.