

BS Mathematics - Data Science (Fall 2022 & Later)

Minimum 120 credits required for Bachelor's degree	
Foundational Core (30-32 Credits)	Grade

FYWS 125 ¹	First Year Seminar	
CTL-125	Critical Thinking	
MA _____	Foundational Math course	XXXXXX
Choose 1 course from each area *		
² Natural/Physical Science		
Literature		
History	HI-100 or HI-102	
Arts/Design/Comm.		
Philosophy		
Theology/Relig		
Social/Behavioral Science		

Human Journey Seminars: Great Books in CIT (6 Credits)

CIT 201	CIT Seminar I	
CIT 202	CIT Seminar II	

Liberal Arts Explorations (9 Credits Total)

Student must complete one course in each area.

Student must complete one course in each area:		
Humanistic Inquiry (3 credits)		
Social and Global Awareness (3 credits)		
Scientific Literacy (3 credits)		

* See list of courses.

¹(Requires Grade C or higher)²Science/Natural Science courses includes

approved Math and Computer Science courses. Students are required to take at least one course in Biology, Chemistry, or Physics in the Foundational or Liberal Arts Exploration Core. CS and MA courses may be used as a Science/Natural Science in either the Foundational Core or as a requirement in the LAE Core but not in both categories.

Note: MA 006 and ESL courses **will not** count towards the 120 credit graduation requirement.

Approved Study Abroad courses may be used to satisfy requirements for the foundational core or a Liberal Arts Exploration

A maximum of 8 Applied Music credits may be applied towards graduation

Required Curriculum for Degree in Major

		Grade
MA 151	Calculus I	
MA 152	Calculus II	
MA 201	Introduction to LaTeX	
MA 253	Calculus III	
MA 261	Linear Algebra	
MA 301	Mathematical Structures and Proofs	
MA 331	Probability	
MA 332	Mathematical Statistics	
MA 398	Senior Seminar in Mathematics	
MA ____	One of MA 362 or 371	
MA ____	One of MA 254, 337, 341	

Required Supporting Courses

CS 111	Introduction to Structured Programming	
CS 112	Data Structures	
CS 311	Data Base Design	
Any Two of the Following		
FN 402	Financial Analytics	
CS 481	Introduction to Artificial Intelligenece	
CS 482	Applied Machine Learning	

General Electives (number of credits vary)	
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[illegible]

Checksheet Key

T	Course transferred and Requirement satisfied
W	Requirement waived
TW	Course transferred and Requirement waived

SACRED HEART UNIVERSITY
College of Arts and Sciences

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The Bachelor of Science program in Mathematics, Data Science Concentration, at Sacred Heart University is designed to prepare students for a career in data science and business analytics. Students will learn how to construct mathematical arguments and proofs and will study core areas of mathematics such as Real Analysis or Abstract Algebra. Students will focus on the applied areas of mathematics and will apply these areas to data science. Students will learn the program Python and will study important areas of computing such as data structures, artificial intelligence, machine learning, and financial analytics.

SUGGESTED FOUR YEAR SEQUENCE OF STUDY:

YEAR 1	SEMESTER 1	YEAR 1	SEMESTER 2
FYWS 125 or	First Year Seminar	FYWS 125 or	First Year Seminar or
CTL-125	Critical Thinking	CTL-125	Critical Thinking
MA 151	Calculus I	MA 152	Calculus II
	Foundational Core		Foundational Core
	Foundational Core		Foundational Core
	Foundational Core		Foundational Core
YEAR 2	SEMESTER 3	YEAR 2	SEMESTER 4
MA 253	Calculus III	MA 261	Linear Algebra
MA 201	Introduction to LaTeX	MA 301	Mathematical Structures and Proofs
CS 111	Introduction to Structured Programming	CS 112	Data Structures
CIT 201	Catholic Intellectual Tradition Seminar I	CIT 202	Catholic Intellectual Tradition Seminar II
	Foundational Core		Liberal Arts Exploration
	Liberal Arts Exploration		
YEAR 3	SEMESTER 5	YEAR 3	SEMESTER 6
MA 331	Probability	MA 332	Mathematical Statistics
MA 371	Real Analysis	<--- OR ---> MA 362	Abstract Algebra
MA 254, 337, or 341	Applied Math Elective	<--- OR ---> MA 254, 337, or 341	Applied Math Elective
CS 311	Data Base Design		Free Elective
	Liberal Arts Exploration		Free Elective
YEAR 4	SEMESTER 7	YEAR 4	SEMESTER 8
MA 398	Senior Seminar in Mathematics	CS 482 or FN 402	Applied Machine Learning or Financial Analytics
CS 481	Introduction to Artificial Intelligence		Free Elective
	Free Elective		Free Elective
	Free Elective		Free Elective
	Free Elective		Free Elective

Note: Foundational Core should be completed by the end of sophomore year.