BS Mathematics- Data Science (Fall 2024 & Later)

Minimum 120 credits required for Bachelor's degree

Foundational Core (27-29 Credits)		**Grade**
FYWS-125[1]	First Year Seminar	
MA ____	Foundational Core Math cou	xxxx
Choose 1 course from each area *		
[2]Natural/Physical Science		
Literature		
History	HI-100, HI-102 or HI-110	
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 (LAE) (12 Credits Total)

Student must complete 4 courses from at least 2 different subjects and one course in each area. (see list on Registrar's Website - checksheets)		
Humanistic Inquiry (3 credits)		
Social and Global Awareness (3 credits)		
Scientific Literacy (3 credits)		
LAE in any area (3 credits)		

* See list of courses.

[1](Requires Grade C or higher)

[2]Science/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	
MA __	One of MA 254, 337, 341 (applied elective)	
	Two of the following: At least one of which is MA 362 or 371	
MA __	Pure electives:	
MA __	MA 314, 318, 320, 325, 362, 371, 372	
	* Mathematics electives must be at the 250-level or above. Students may not earn credit for both MA 279 and MA 280	

Required Supporting courses		**Grade**
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 Artifical Intelligence	
CS 482	Applied Machine Learning	

General Electives (number of credits vary)		**Grade**

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

BS Mathematics- Data Science (Fall 2024 & Later)

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 Algbera. 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, artifical intelligence, machine learning, and financial analytics.

SUGGESTED FOUR YEAR SEQUENCE OF STUDY:

YEAR 1	SEMESTER I	YEAR 1	SEMESTER 2
FYWS 125	First Year Writing Seminar	MA152	Calculus II
MA151	Calculus I		Foundational Core
	Foundational Core		Foundational Core
	Foundational Core		Foundational Core
	Foundational Core		Liberal Arts Explorations

YEAR 2	SEMESTER 3	YEAR 2	SEMESTER 4
MA 253	Calculus III	MA 261	Linear Algebra
MA 201	Introduction to LaTeX	MA __	Mathematics Elective (pure)
MA 301	Mathematical Structures and Proofs	CIT 202	Catholic Intellectual Tradition Seminar II
CIT 201	Catholic Intellectual Tradition Seminar I	CS112	Data Structures
CS 111	Introduction to Structured Programming		Liberal Arts Explorations
	Foundational Core		

YEAR 3	SEMESTER 5		YEAR 3	SEMESTER 6
MA 371	Real Analysis	**<--OR-->**	MA 362	Abstract Algebra
MA 331	Probability		MA 332	Mathematical Statistics
CS 311	Data Base Design			Liberal Arts Explorations
	Liberal Arts Explorations			Free Elective
	Free Elective			Free Elective

YEAR 4	SEMESTER 7	YEAR 4	SEMESTER 8
MA 398	Senior Seminar in Mathematics	FN 402 or	Financial Analytics or
MA __	Mathematics Elective (applied)	CS 482	Aplied Machine Learning
FN 402 or CS 481	Financial Analytics or Introduction to Artifical 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 Junior year.