

**COMPUTER SCIENCE (CS)
MAJOR REQUIREMENTS & SUGGESTED COURSE SEQUENCE**

SUGGESTED COURSE SEQUENCE

FIRST YEAR - DECLARE MAJOR

Fall Semester			
Course #	Course name	Cr	YR
CS 150	Introduction to Programming	4	
CS 160	Discrete Logic	4	
ENGL 101	Writing and Rhetoric	3	
MATH 151	Calculus I for Science	4	
SSP 101	Student Success Program	1	
Credit Total 16			

Spring Semester			
Course #	Course name	Cr	YR
CS 250	CS II – Python/C++	4	
MATH 152	Calculus II for Science	4	
COLL 110	College Seminar	3	
XXX	College Core Requirement	3	
Credit Total 14			

SECOND YEAR - DECLARE MAJOR (if needed)

Fall Semester			
Course #	Course name	Cr	YR
CS 205	CyberOps	4	
CS 217	Introduction to Data Analytics	3	
PHYS 151	Physics I for Science	4	
XXX	College Core Requirement	3	
Credit Total 13			

Spring Semester			
Course #	Course name	Cr	YR
CS 227	Principles of AI and ML	3	
CS 280	Data Structures	3	
XXX	College Core Requirement	3	
PHYS 152	Physics II for Science	4	
MATH 275	Linear Algebra	4	
Credit Total 17			

THIRD YEAR

Fall Semester			
Course #	Course name	Cr	YR
CS 350	Computer Org. And Structure	4	
CS ###	CS Elective	3/4	
ARTS 104	Graphic Design I	3	
XXX	College Core Requirement	3	
Credit Total 12-13			

Spring Semester			
Course #	Course name	Cr	YR
CS 290	CS Ethics	3	
CS ###	CS Elective	3	
XXX	College Core Requirement	3	
XXX	College Core Requirement	3	
Credit Total 12			

FOURTH YEAR

Fall Semester			
Course #	Course name	Cr	YR
CS ###	CS Elective	4	
XXX	College Core Requirement	3	
XXX	College Core Requirement	3	
XXX	Open Elective	0-5	
Credit Total 10-15			

Spring Semester			
Course #	Course name	Cr	YR
CS 400	Algorithms and Automata	3	
XXX	College Core Requirement	3	
XXX	College Core Requirement	3	
IDST 499	College Capstone	1	
XXX	Open Elective	3-6	
Credit Total 13-18			

GRADUATION REQUIREMENTS	TOTAL CREDITS
Computer Science Major	51
Open Electives	20
Holy Cross College Core Curriculum	49
MINIMUM CREDITS REQUIRED FOR GRADUATION	120
Interim Computer Science Program Advisor: Dr. Arangno, Vincent Hall 178, 574-239-8381, darangno@hcc-nd.edu	

MAJOR REQUIREMENTS**COMPUTER SCIENCE (CS)**

The following worksheet lists courses needed to fulfill requirements to graduate with a **Computer Science** major.

Prerequisite courses must be met with a grade C or higher. In addition, students must complete the Holy Cross College Core Curriculum Requirements for graduation.

Course	Credits	Semesters Offered
Computer Science Major Courses		
CS 150 Introduction to Programming Prerequisite: MATH 111 (or higher) with a C- or higher, ALEKS score of 46-64%, ACT score of 20-22, or SAT score of 570 or higher	4	Fall/Spring
CS 160 Discrete Logic Prerequisite: MATH 111 (or higher) with a C- or higher, ALEKS score of 46-64%, ACT score of 20-22, or SAT score of 570 or higher	4	Fall/Spring
CS 250 Computer Science II (Python/C++) Prerequisite: CS 150 with a C or higher	4	Fall/Spring
CS 205 CyberOps Prerequisite: CS107 or CS150 or Cisco Networking Academy introductory courses on Packet Tracer and Linux	4	Fall
CS 217 Introduction to Data Analytics Prerequisite: Successful proficiency in (CS 107, CS150, CS160, or by passing a standardized exam), and MATH111 (or higher) with a C- or higher	3	Fall
CS 227 Principles of Artificial Intelligence and Machine Learning Prerequisite: CS217 with a C or higher and MATH 210 (or equivalent) with a C or higher	3	Spring
CS 280 Data Structures Prerequisite: Successful completion of MATH 151 (or higher) with a C or higher; CS 250 with a C or higher	3	Spring
CS 290 CS Ethics or PHIL202 Ethics or PHIL255 Business Ethics Prerequisite: <i>Sophomore or higher classification, or instructor approval;</i>	3	Fall/Spring
CS 350 Computer Organizations and Structure Prerequisite: CS 2xx	4	Fall
ARTS 104 Graphic Design I (or ARTS 101 2D Arts Fundamentals)	3	Fall/Spring
MATH 151 Calculus I for Science	4	Fall/Spring
MATH 275 Linear Algebra (or MATH 252 Differential Equations and Linear Algebra) Prerequisite: MATH 152	4	Fall/Spring
PHYS 151 Physics I for Science	4	Fall/Spring
PHYS 152 Physics II for Science	4	Fall/Spring

Computer Science Elective Courses Choose elective courses from the list below that totals 12 credit hours. Can choose from specific tracks below. No more than 6 credit hours of CS1xx level courses may be counted for electives.		
CS 1xx Workshops	1	
CS 107 Introduction to Computer Applications	3	Fall
CS 175 Great Ideas in Computer Science	3	Spring
CS Special Topics	1-6	See syllabi
MATH 210 Statistics (or BIOL 215, or BUSI 210, or PSYC 265)	3	Fall/Spring
MATH 310 Probability Theory	4	
MATH 350 Graph Theory	4	
CS 400 Algorithms and Automata Prerequisite: CS 280 & MATH 152	3	Spring
AI Track – 10 credit hours		
CS 317 Machine Learning Prerequisite: CS 227 & MATH 275	4	Spring
CS 327 Computer Vision Prerequisite: CS 227	3	Fall/Spring
CS 407 Quantum Computing Prerequisite: CS 327	3	Fall
Cloud Technologies Track – 6 credit hours		
CS 370 SysOps Prerequisites: CS 3XX	3	Fall
CS 380 DevOps Prerequisites: CS 3XX	3	Spring
Cybersecurity Track – 9 credit hours		
CS 305 CS Forensics Prerequisites: CS 205	3	Fall
CS 310 Operating Systems and Networks Prerequisites: CS 2XX	3	Spring
MATH 220 Cryptography	3	Spring
Web Development Track – 12 credit hours		
ARTS 101 2D Art Fundamentals (ARTS 104 if ARTS 101 already taken for major)	3	Fall/Spring
ARTS 202 Graphic Design II	3	Fall/Spring
ARTS 205 Web Design	3	Spring
CS 360 FullStack WebOps Prerequisites: ARTS 205 & CS 150	3	Spring