COMPUTER SCIENCE MINOR (WEINBERG COLLEGE)

The program offers a minor in computer science for students who wish to develop a strong competence in computer science while majoring in another area.

Course	Title
Prerequisites	
MATH 220-1 & MATH 220-2	Single-Variable Differential Calculus and Single-Variable Integral Calculus
or MATH 218-1 & MATH 218-2 & MATH 218-3	Single-Variable Calculus with Precalculus and Single-Variable Calculus with Precalculus and Single-Variable Calculus with Precalculus
MATH 230-1	Multivariable Differential Calculus
or MATH 228-1	Multivariable Differential Calculus for Engineering
MATH 240-0	Linear Algebra
Minor Requirements (9 units)	
6 core courses	
COMP_SCI 111-0	Fundamentals of Computer Programming [1]
COMP_SCI 150-0	Fundamentals of Computer Programming 1.5
COMP_SCI 211-0	Fundamentals of Computer Programming II
COMP_SCI 212-0	Mathematical Foundations of Comp Science
COMP_SCI 213-0	Introduction to Computer Systems
COMP_SCI 214-0	Data Structures & Algorithms
3 breadth courses in 3 separate breadth areas (see below)	

[1] Students without programming experience may want to first take COMP_SCI 110-0 Introduction to Computer Programming, ideally in the Python programming language.

Breadth Courses

Majors must take one course from each area. Minors must take one course from each of any three areas.

Theory

Course	Title
COMP_SCI 335-0	Introduction to the Theory of Computation
COMP_SCI 336-0	Design & Analysis of Algorithms

Systems

Course	Title
COMP_SCI 322-0	Compiler Construction
COMP_SCI 339-0	Introduction to Database Systems
COMP_SCI 340-0	Introduction to Networking
COMP_SCI 343-0	Operating Systems
COMP_SCI 345-0	Distributed Systems
COMP_SCI 350-0	Introduction to Computer Security
COMP_SCI 354-0	Computer System Security
COMP_SCI 440-0	Advanced Networking
COMP_SCI 441-0	Resource Virtualization
COMP_SCI 443-0	Advanced Operating Systems
COMP_SCI 446-0	Kernel and Other Low-level Software Development
COMP_SCI 450-0	Internet Security
COMP_ENG 303-0	Advanced Digital Design
COMP_ENG 346-0	Microprocessor System Design
COMP_ENG 358-0	Introduction to Parallel Computing
COMP_ENG 361-0	Computer Architecture I

Artificial Intelligence

Course	Title
COMP_SCI 325-0	Artificial Intelligence Programming
COMP_SCI 337-0	Natural Language Processing
COMP_SCI 344-0	Design of Computer Problem Solvers
COMP_SCI 348-0	Introduction to Artificial Intelligence
COMP_SCI 349-0	Machine Learning
COMP_SCI 371-0	Knowledge Representation and Reasoning
COMP_SCI 372-0	Designing and Constructing Models with Multi-Agent Languages

Interfaces

Course	Title
COMP_SCI 313-0	Tangible Interaction Design and Learning
COMP_SCI 315-0	Design, Technology, and Research
COMP_SCI 329-0	HCI Studio
COMP_SCI 330-0	Human Computer Interaction
COMP_SCI 331-0	Introduction to Computational Photography
COMP_SCI 333-0	Interactive Information Visualization
COMP_SCI 351-1	Introduction to Computer Graphics
COMP_SCI 352-0	Machine Perception of Music & Audio
COMP_SCI 370-0	Computer Game Design
COMP_SCI 372-0	Designing and Constructing Models with Multi-Agent Languages
COMP_SCI 376-0	Computer Game Design and Development
COMP_SCI 377-0	Game Design Studio
ELEC_ENG 332-0	Introduction to Computer Vision

Software Development and Programming Languages

Course	Title
COMP_SCI 310-0	Scalable Software Architectures
COMP_SCI 321-0	Programming Languages
COMP_SCI 338-0	Practicum in Intelligent Information Systems
COMP_SCI 377-0	Game Design Studio
COMP_SCI 392-0	Rapid Prototyping for Software Innovation
COMP_SCI 393-0	Software Construction
COMP_SCI 394-0	Agile Software Development
COMP_SCI 473-1	NUvention: Web - Part 1
COMP_SCI 473-2	NUvention: Web - Part 2

Students should begin the minor before the end of the first quarter of their junior year.