

# 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
<b>Prerequisites</b>	
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 or MATH 228-1	Multivariable Differential Calculus Multivariable Differential Calculus for Engineering
MATH 240-0	Linear Algebra
<b>Minor Requirements (9 units)</b>	
<i>6 core courses</i>	
COMP_SCI 111-0	Fundamentals of Computer Programming
COMP_SCI 150-0	Fundamentals of Computer Programming 1.5
COMP_SCI 211-0	Fundamentals of Computer Programming II
COMP_SCI 212-0	Math Foundations of CS Part 1: Discrete Math for CS
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)*

## 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 346-0	Microcontroller System Design
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	Microcontroller 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: Classical Approaches
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

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