COMPUTER SCIENCE SECOND MAJOR FOR ISP STUDENTS

Students must also complete the Undergraduate Registration Requirement (https://catalogs.northwestern.edu/undergraduate/requirements-policies/undergraduate-registration-requirement/) and the degree requirements of their home school.

The Integrated Science Program is a highly selective program in Weinberg College. Weinberg College students, but not McCormick students, majoring in Integrated Science may complete an abbreviated, adjunct major in computer science through a curriculum tailored specifically to their needs:

### Core courses

- **COMP_SCI 111-0** Fundamentals of Computer Programming
- **COMP_SCI 150-0** Fundamentals of Computer Programming I.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

### Breadth courses (same as for stand-alone major: 5 courses, one from each area, see below)

#### Project courses (2 units; projects must be approved by both ISP and CS advisers)

- **COMP_SCI 399-0** Projects
- or **INTG_SCI 398-0** Undergraduate Research

### Breadth Courses

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

#### Theory

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

#### Systems

- **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

- **COMP_SCI 325-1** 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 & Constructing Models with Multi-Agent Language

### Interfaces

- **COMP_SCI 313-0** Tangible Interaction Design and Learning
- **COMP_SCI 315-0** Design, Technology, and Research
- **COMP_SCI 330-0** Human Computer Interaction
- **COMP_SCI 331-0** Introduction to Computational Photography
- **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 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

- **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 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