

Computer Science Specializations

Effective Fall semester 2007 and later

In order to give Computer Science majors the opportunity to concentrate, optional specializations have been added to the computer science major at Rowan University. A specialization is composed of four or more specified courses in computer science and other related disciplines that provide a solid foundation in some fundamental area of computer science.

The areas of specialization are software engineering, networking and operating systems, information technology, programming languages and compilers, artificial intelligence, graphics and visualization, and numerical and scientific computation.

The following lists specify the courses making up each specialization. To obtain one of these specializations, a student must take four or more courses from the specialization's list.

❖ *Software Engineering*

- Programming Languages, CS 04.315
- Design and Analysis of Algorithms, CS 07.340
- Software Engineering I, CS 07.321
- Software Engineering II, CS 07.322
- Object Oriented Design, CS 04.380

❖ *Networking and Operating Systems*

- Operating Systems, CS 04.390
- Data Communications and Networking, CS 06.410
- System Programming and Operating System Internals, CS 04.392
- Advanced Computer Architecture, CS 06.412
- Wireless Networks, Protocols and Application, CS 06.415
- Concurrent Programming, CS 04.391
- Distributed Systems, CS 04.394
- TCP/IP and Internet Protocols and Technologies, CS 06.416

❖ *Information Technology*

- Web Programming, CS 04.305
- Software Engineering I, CS 07.321
- Operating Systems, CS 04.390
- Data Communications and Networking, CS 06.410
- Database Systems: Theory and Programming, CS 04.430

❖ *Programming Languages and Compilers*

- Programming Languages, CS 04.315
- Object Oriented Design, CS 04.380
- Foundations of Computer Science, CS 07.210
- Compiler Design, CS 04.401
- Software Engineering I, CS 07.321

❖ *Artificial Intelligence*

- Probability and Statistical Inference for Computing Systems STAT 02.290
- Foundations of Computer Science, CS 07.210
- Introduction to Symbolic Logic, PHIL 09.130
- Artificial Intelligence, CS 07.450
- Programming Languages, CS 04.315
- Robotics: Software and Mobility, CS 07.310; or Computer Vision, CS 07.460

- ❖ *Numerical and Scientific Computation*
 - Design and Analysis of Algorithms, CS 07.340
 - Linear Algebra, MATH 01.210
 - Ordinary Differential Equations, MATH 01.231
 - Numerical Analysis, MATH 01.332
 - Calculus III, MATH 01.230
- ❖ *Graphics and Visualization*
 - Linear Algebra, MATH 01.210
 - Data Structures and Algorithms, CS 04.222
 - Intro to Computer Graphics, CS 07.360
 - Introduction to Information Visualization, CS 07.370
 - Introduction to Computer Animation, CS 07.380

An Independent Study CS 01.400 course in the area of a specialization will count as a course in that specialization if approved by the student's advisor. The following limitations apply:

- ✚ An Independent Study course used by a student to satisfy the requirements of a particular specialization must be 3.0 semester hours or less.
- ✚ At most one Independent Study course may be used by a student to satisfy the requirements of any particular specialization.
- ✚ A particular Independent Study course may be used at most once by a student to satisfy the requirements of a specialization.
- ✚ A student may satisfy the requirements of at most two specializations with Independent Study courses.