Yeshiva University
Career Center

GUIDE TO MAJORS AT YESHIVA COLLEGE: COMPUTER SCIENCE

Choosing a major can be stressful, but it is important to understand that you can pursue almost any career regardless of which major you choose. While there are some exceptions, most entry-level positions simply require general transferable skills—those that can be learned in one setting and applied in another. Relevant experience through internships and activities is generally more important to employers than a major. It is best to choose an area that you find interesting and where you have the ability to do well.

What is the Computer Science Major?

Students in Computer Science learn the theoretical and practical aspects of computers, including programming languages, advanced technology, digital logic, analysis of algorithms, and numerical methods. At its heart though, the Computer Science major at Yeshiva College is geared to teach students undergraduate computer science & software engineering so that top tech companies and graduate programs will want our students. This is why the major requires a mastery of computer science foundations, including parts of applied Math. The essential courses include: Data Structures, Discrete Structures, Algorithms, Theory of Computation, Computer Organization & Assembly Language, Operating Systems, Programming Languages, and Advanced JAVA Programming, in addition to Mathematics courses including Calculus and Linear Algebra.

These classes are not about "programming." They are the core of practical computer science and are the building blocks for making students Computer Scientists, possessing both software engineering and computer science knowledge so that they can solve heretofore unsolved or sub-optimally solved problems in interesting and/or new ways. Students will acquire a firm grasp of the effect of computerization in industry, sciences, commerce, and other human endeavors; obtain transportable skills in analyzing problems and designing and implementing computer-based solutions; be able to select the correct hardware architecture for most effective implementation of the software they design; be able to utilize the mathematical foundations of Computer Science in analyzing every step in developing a computer-based system for solving scientific and non-scientific problems; and utilize all of the above to be able to assist with commercial project development and research.

The curriculum at YU is designed under guidelines established by the Association for Computing Machinery (ACM). For further details, visit:

https://www.yu.edu/yeshiva-college/ug/computer-science

What can I do with a Major in Computer Science?

Computer Science majors have a great deal of opportunity in many fields including web programming and development, industrial software design, and cybersecurity. Computer science is also needed in computational biology, bioinformatics, all of engineering, computer simulation in all the disciplines, risk simulation in economics, cognition & perception research in psychology, numerical methods and computer algebra in physics, proofs by computer in mathematics, and instrumentation programs for all sciences.

By choosing appropriate electives, one can tailor a curriculum for a career in systems, software, artificial intelligence, graphics, MIS, and business data processing as well as prepare for graduate study. Some career options available to Computer Science majors include:

- Animator
- Application Programmer
- Artificial Intelligence Specialist
- Auditor
- Chief Technology Officer
- Computer Designer
- Computer Equipment Analyst
- Computer Marketing Specialist
- Computer Scientist
- Computer Security Specialist
- Computer Support Analyst
- Computer Trainer
- Database Manager
- Field Engineer
- Game Designer/Tester
- Graphic Designer
- International Planner
- Internet Consultant
- Lawyer
- Maintenance Programmer
- Management Analyst/Consultant
- Network Administrator
- Operating System Programmer
- Operations Research Analyst
- Programming Manager
- Quality Assurance Specialist
- Software Developer
- Software Engineer
- Systems Analyst
- Systems Integrator
- Technical Recruiter
- Technical Writer
- Telecommunications Manager
- Turnkey Contractor
- Web Programmer
- Website Developer

Skills and Abilities

Technology is a constantly changing field, requiring professionals to continually learn new skills. In addition to technical abilities, analytical skills and attention to detail are also developed through coursework and projects. Some of the additional skills and abilities cultivated through the Computer Science major include:

- Adaptability
- Comparing information
- Critical thinking
- Innovation
- Organization
- Practical ability
- Problem solving
- Report writing/ presentation skills
- Team work/Leadership
- Understanding technical languages