

# MAJOR

# BACHELOR OF SCIENCE IN COMPUTER SCIENCE AND INFORMATION SECURITY

## DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

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[www.jjay.cuny.edu/departments-mathematics-and-computer-science](http://www.jjay.cuny.edu/departments-mathematics-and-computer-science)

### MAJOR COORDINATOR

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See all major requirements at: [www.jjay.cuny.edu/computer-science-and-information-security-major-advising-resources](http://www.jjay.cuny.edu/computer-science-and-information-security-major-advising-resources)

## WHAT WILL YOU LEARN IN THIS MAJOR?

The major in Computer Science and Information Security offers the computing, quantitative and analytical expertise public and private organizations need to advance the practice of digital forensics and cybersecurity. The program provides the broad background in computing that is needed to thwart the abuse and misuse of computers, data networks, information systems and information infrastructures, in the environment of ever advancing digital technology. The courses in the Computer Science and Information Security major prepare students for direct entry into the profession as well as entry into graduate and professional programs that rely on computing and quantitative methods, especially in areas related to digital forensics and cybersecurity.

### IN THIS MAJOR YOU WILL ■■■

**Evaluate** cyber crime risks, vulnerabilities and protection requirements particularly for new digital technologies.

**Research** and study latest methods to deter computer intrusions.

**Design** and develop secure information systems and information infrastructures such as computer networks.

**Perform** forensic analyses of compromised computers and networks, and launch computer and network attacks in a controlled environment.

**Understand** the ethical considerations computer professionals encounter as custodians of sensitive data and designers of critical systems.

### FIRST COURSES IN THE MAJOR ■■■

**MAT 204:** Discrete Mathematics

**MAT 151:** Calculus I

**CSCI 271:** Introduction to Computing  
and Programming

**CSCI 272:** Object Oriented Programming

Note: Students should take the CSCI 271/272 sequence as soon as possible, preferably before the start of sophomore year.

Check the [Sample Planner](#) and [Course Flow Chart](#) on the Major Advising Resource page link at the top of this flyer.

*“America’s economic prosperity in the 21st century will depend on cyber security.”*

— President Barack Obama, May 2009

## WHAT CRITICAL THINKING SKILLS WILL YOU DEVELOP IN THIS MAJOR

- Deploy appropriate theory, methods and tools to evaluate system security as well as to design and develop secure systems.
- Identify and analyze credible information sources needed for problem solving.
- Be prepared for the lifetime of learning and retraining that is an integral part of the computing profession.
- Learn how to present findings in forensic investigations to both technical and non- technical audiences such as law enforcement officials and corporate managers.

## WHAT MINOR MIGHT BE A GOOD COMPLEMENT TO THIS MAJOR?

- Economics
- Mathematics
- Police Studies
- Public Administration
- Security Management

For more information about minors, go to:

[www.jjay.cuny.edu/minors](http://www.jjay.cuny.edu/minors)

## WHAT OPPORTUNITIES WILL THIS MAJOR OFFER YOU?

- Students will participate in a capstone research project that will provide in-depth expertise and preparation for entry into the profession, particularly in computer security and cyber investigation.
- The College's Center for Cybercrime Studies offers opportunities for students to interact with computer security professionals and law enforcement officials charged with investigating computer-related crimes. Students will learn about career opportunities and skills needed to be successful in the security profession.

- Students may participate in the PRISM program, which provides financial incentives to students to participate in faculty-mentored research projects. It also sponsors seminars and short courses to promote student research; supports student travel to scientific conferences; and funds the purchase of research supplies and equipment for student research projects.
- Students will be prepared for entry into the College's M.S. program in Digital Forensics and Cyber Security (D4CS) as well as other graduate programs in computer security and information assurance.
- Through the Computer Science Society, the student computer club, students will discover a range of career opportunities and network with fellow students.

## THIS MAJOR CAN BE A GREAT FOUNDATION FOR A WIDE RANGE OF JOBS, BUT SOME POSSIBILITIES TO CONSIDER ARE:

- Security Analyst
- Malware Analyst
- Vulnerability Handler
- Software Engineer/Programmer
- Security Engineer
- Security Penetration Tester
- System Administrator
- Security Architect
- Computer Forensic Analyst
- Reverse Engineer
- Risk Assessment Analyst