



NJIT@JerseyCity

# Certificate in Computer Science

## Certificate in Computer Science (12 credits) Training Computer Science Professionals

This certificate program provides essential skills for **computing professionals** interested in designing and developing a variety of software systems. This includes the theoretical foundations of computer science and practical applications of database design, software development and engineering.

The curriculum focuses on the core skill set needed by all computer science professionals: logic and discrete math, programming and data management. Participants learn how to evaluate important computer algorithms, build and maintain efficient database systems, and gain the advanced programming skills to continue their software development career. The program consists of four courses (three core courses and one elective) typically taught over two semesters of 15 weeks each. Instruction includes formal lectures as well as hands-on coding projects.

In this program, we make use of software tools such as MySQL, integrated development environments like Eclipse and various high-level programming languages (**C++**, **Java**, and **Python**). Student complete assignments and projects covering both theory and applications with guidance from the professor and teaching assistants.

### Recommended part-time credit schedule:

First semester: six, Second semester: six. Total: 12 credits over two semesters (**incl. summer**).

### Core (required) courses:

- CS 505 Programming, Data Structure and Algorithms  
(or CS 602 Java Programming)  
(or CS 635 Computer Programming Languages)  
(or IS 601 Web Systems Development)
- CS 506 Foundations of Computer Science  
(or CS 630 Operating Systems Design)
- CS 631 Data Management System Design

### Sample electives:

- CS 634 Data Mining
- CS 644 Introduction to Big Data
- CS 645 Security and Privacy in Computer Systems

- CS 656 Internet and Higher Layer Protocols
- CS 675 Machine Learning

To be eligible for admission to the certificate program, a candidate must hold an undergraduate degree with a minimum GPA of 2.6 on a 4.0 scale. A GPA of 2.75 on a 4.0 scale in the certificate program is required to earn the certificate.

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### Program Outcomes:

- Develop a professional working knowledge of one or more high-level programming languages.
- Assess the efficiency of a given computer algorithm and identify common logic errors in software design.
- Build a robust and secure database system – from design to implementation – for a wide range of purposes.

For more information and to apply, contact:  
Tim Hart, Enrollment Services Manager  
Phone: 973-596-2911, 862-234-5706  
Email: hart@njit.edu

[jerseycity.njit.edu](http://jerseycity.njit.edu)

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