Computer Science

Bachelor of Science Computer Science (BSCS)

The Bachelor of Science Computer Science (BSCS) degree prepares graduates to pursue careers in a wide variety of computing-related fields. The program is anchored with core courses that provide a solid foundation in theoretical and practical aspects of computer science to ensure students will have the requisite critical thinking, effective programming and problem-solving skills in a variety of modern programming languages, with an emphasis on understanding security and systems issues. In addition, students learn about algorithms, performance analysis, networks, computer architectures, information systems and software engineering.

For a roadmap that identifies the preferred sequencing of courses and other specific recommendations from faculty, please see the corresponding program map(s):

- Computer Science Bachelor of Science Computer Science (BSCS) (lowercolumbia.edu/program-maps/stem/BS-Computer-Science)
- Computer Science Bachelor of Science Computer Science (BSCS) (Calc Ready) (lowercolumbia.edu/program-maps/stem/BS-Computer-Science-Calc-Ready)

Degree Requirements

Total credits required to earn this degree: 180

LCC students must meet distribution requirements for bachelor degrees, associate degrees, and specific certificates. See Diversity and Distribution Lists (lowercolumbia.edu/publications/catalog/distribution-lists/) for more information.

General Education Requirements

- **Communications: 15 credits**
  - ENGL& 101 English Composition I
  - CMST& 220 Public Speaking ***OR***
  - CMST& 230 Small Group Communication
  - CMST 330 Professional/Organizational Communications
- **Quantitative Skills: 10 credits**
  - MATH& 146 Introduction to Statistics ***AND***
  - MATH& 151 Calculus I
- **Humanities: 10 credits**
  - ENGL& 235 Technical Writing ***AND***
  - OLTM 440 Ethics and Leadership ***OR***
  - HUM 315 Ethics
- **Natural Science: 15 credits**
  - CS 270 Data Structures I
  - MATH 215 Discrete Mathematics ***AND***
  - 5 credits of natural science with lab from the Distribution List (Recommended one of the following: BIOL& 160, BIOL& 221, BIOL& 222, BIOL& 223, BIOL& 241, CHEM& 161, PHYS& 221, PHYS& 222, PHYS& 223, ERSI 104, ENVS 215, GEOL 105, GEOL 118, GEOL& 101, GEOL& 208, ***OR*** OCEA& 101)

- **Social Science / Diversity: 5 credits**
  - SOC& 101 Introduction to Sociology: DIV OR
  - HIST& 128 World Civilizations III: DIV

Program Requirements

Course Code	Course Title	Number of Credits
CS 170	Fundamentals of Computer Programming	5
CS 275	Object-Oriented Programming	5
CS 280	Advanced Data Structures	5
CS 285	Programming Tools	5
ENGR 205	Design of Logic Circuits	5
ENGR 206	Microprocessor Systems	5
IT 249	Linux Operating Systems	5
CS 305	Linear Algebra with CS Applications	5
CS 310	Programming Languages	5
CS 318	Computer Architecture	5
CS 320	Databases and Information Management Systems	5
CS 334	Data Structures & Algorithms	5
CS 340	Operating Systems	5
CS 350	Software Engineering	5
CS 402	Statistical Methods of User Research	5
CS 410	Computer Networks	5
CS 420	Cloud Computing Software and Services	5
CS 430	Software Design and Implementation	5
CS 435	Secure Software Development	5
CS 440	Software Design Team Project	5

Course Code	Course Title	Number of Credits
CS 450	Security Foundations	5
CS 455	Data Science Development	5
CS 495	Capstone/Internship	5
Electives	Select any professional-technical course or any course from the Distribution List. Please see your advisor for recommendations.	10

Program Outcomes

Students completing this program should acquire the following skills and abilities:

- Analyze and architect innovative solutions to complex problems, considering specified constraints, and evaluate these solutions within defined contexts.
- Design, analyze, and apply secure, robust, and efficient code, while also emphasizing code reuse and adherence to coding standards.
- Design, implement, and evaluate security measures to safeguard information systems and data.
- Create software throughout the development lifecycle, adhering to best practices for efficiency, readability, modularity, and maintainability.
- Demonstrate competence in data management, including organization, storage, retrieval, and analysis of large datasets.
- Demonstrate proficiency in specialized platform development, including design optimization and adaptation to specific environments.
- Construct concise and effective communication with stakeholders through various mediums such as written, verbal, and presentations.
- Apply technical expertise and professionalism to work effectively on multidisciplinary, diverse, and global teams to achieve project objectives.
- Design individual computer science career paths, setting goals and milestones, and building a professional network through internships, industry events, and mentorship programs.
- Recognize professional responsibilities and make informed judgments in computing practice based on ethical, legal, social issues, and security principles.

Notes

Revised April 2025 (effective Summer 2025)

Program planning is based on information available at the time of preparation. It is the student's responsibility to meet with their LCC advisor. Consult the LCC catalog for LCC graduation requirements.