# COMPUTER SCIENCE SCHOLARS PROGRAM

Concordia University offers a unique and affordable accelerated path to a master's degree in Computer Science. The Computer Science Scholars program would allow incoming qualified students with a CS declared major to earn both a Bachelor of Science degree in Computer Science and a Master of Science degree in Computer Science within four years. Approval would mean tuition costs for the graduate degree courses would remain the same as the traditional four-year undergraduate degree. The course load would require 18 credits per semester, with the ability to utilize enrollment in summer and online sessions.

## Program Structure

Computer Science Scholars would complete the undergraduate courses required for the Bachelor of Science in Computer Science degree, CS Professional Core, Common Core, along with elective courses totaling 120 undergraduate credits, and the required graduate courses for the Master of Science in Computer Science coursework totaling 30 credits. The minimum required credits for graduation as a CS Scholar would be 150 credits. It should be noted that the scholars program requires the student to meet all traditional requirements of an undergraduate and graduate degree in Computer Science. There are zero courses omitted or counted in multiple degree programs. The scholars program is designed to provided a time compressed path to a B.S. and M.S. in Computer Science for the distinguished student.

## Program Learning Outcomes

- Professional responsibility. Students will recognize and be guided by the professional, legal and worldview issues involved in the use of computer technology.
- Problem solving. Students will demonstrate how to solve problems in various user domains using the tools of computer science and information technology.
- Elements of computational thinking. Students will recognize the broad relevance of computational thinking in everyday life as well as its applicability within other domains, and apply it in appropriate circumstances.
- Modeling. Students will use such knowledge and understanding in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoff involved in design choices.
- Methods and tools. Students will deploy appropriate theory, practices, and tools for the specification, design, implementation, and maintenance as well as the evaluation of computer-based systems.
- Critical evaluation and testing. Students will analyze the extent to which a computer-based system meets the criteria defined for its current use and future development.
- Requirements and Specifications. Students will identify and analyze criteria and specifications appropriate to specific problems, and plan strategies for their solution.
- Knowledge and understanding. Students will exhibit knowledge and understanding of essential facts, concepts, principles, and theories relating to computer science and information technology (especially the nine grand ideas).
- A solid, classic foundation in graduate-level computer science
- Excellent preparation for professional positions in software development and other technical and design oriented pursuits in computing
- Excellent preparation for Ph.D.-level study in computer science or related fields
- Intense, focused classroom instruction with an immersive experience

## Curriculum

| Code | Title | Hours |
|---|---|---|
| Core Requirements (https://catalog.cuw.edu/undergraduate/university/acad-prog/trad/core/) | | **45** |
| **Bachelor of Science in Computer Science Major** | | **54** |
| **Master of Science in Computer Science** | | **30** |
| **Electives** | | **21** |
| **Total Hours** | | **150** |

| Code | Title | Hours |
|---|---|---|
| **Bachelor of Science in Computer Science Major** | | |
| **Required Courses** | | |
| CSC 175 | Theory and Fundamentals of Computer Science | 3 |
| CSC 200 | Coding I- Fundamentals | 3 |
| CSC 250 | Coding II - Algorithms | 3 |
| CSC 325 | Computer Architecture | 3 |
| CSC 350 | Operating Systems | 3 |
| CSC 370 | Software Engineering | 3 |
| CSC 410 | Computational Dilemmas | 3 |
| CSC 420 | User Experience and Interactive Systems | 3 |
| CSC 430 | Database Fundamentals | 3 |
| CSC 460 | Advanced Database and Web Development | 3 |
| CSC 491 | Capstone Project | 3 |
| MATH 205 | Statistics I | 3 |
| *Concentration (Please see program director for details.)* | | *18* |
| **Total Hours** | | **54** |

| Code | Title | Hours |
|---|---|---|
| **Master of Science in Computer Science** | | |
| **Required Courses** | | |
| CSC 510 | Vocation and Ethical Computing | 3 |
| CSC 515 | Applied Artificial Intelligence | 3 |
| CSC 520 | User Experience | 3 |
| CSC 525 | Data Security and Information Assurance | 3 |
| CSC 540 | Applied Computer Networking | 3 |
| CSC 548 | Mobile Computer Architecture | 3 |
| **Total Hours** | | **18** |

## Please select one of the following concentrations:

| Code | Title | Hours |
|---|---|---|
| **Software Engineering Concentration** | | |
| CSC 530 | Database Administration | 3 |
| CSC 543 | Advanced Algorithms | 3 |
| CSC 549 | Language Theory | 3 |
| CSC 560 | Applied Restful APIs and Integrations | 3 |
| **Total Hours** | | **12** |

| Code | Title | Hours |
|---|---|---|
| **Information Systems Concentration** | | |
| CSC 530 | Database Administration | 3 |
| CSC 545 | System Analysis and Design | 3 |
| CSC 550 | System Administration and Maintenance | 3 |
| CSC 552 | Advanced Networking | 3 |
| **Total Hours** | | **12** |

| Code | Title | Hours |
|---|---|---|
| **Business Data Applications Concentration** | | |
| CSC 530 | Database Administration | 3 |
| MBA 534 | Mastering Analytics and Decision Making | 3 |
| MBA 562 | Financial Analyses to Drive Business Growth | 3 |
| MBA 569 | Management Science and Analytics | 3 |
| **Total Hours** | | **12** |

## Admission Requirements

This program is open to incoming Computer Science majors who have met the following high school academic requirements:

- High school cumulative GPA of 3.5 out of 4.0
- ACT scores of 25 or higher
- Combined SAT scores of 1200 or higher

Once accepted, Computer Science Scholar students must maintain a 3.5 cumulative average while in the program, and take an average of 39 credits per year, utilizing fall, spring, summer and/or online sessions to complete the program within the 4 years.