

The Bridge Program

Students join our Computer Science program from a variety of educational backgrounds. Students who we deem require additional exposure to Computer Science or Mathematics course work in order to be successful in graduate level CS course work will be assigned courses from the Bridge Program. Bridge courses will be noted on the Program of Study.

Students who require bridge courses are 'conditionally' admitted to the MS program and are required to successfully complete all assigned bridge courses in addition to the 30 credits constituting the MS program. Each bridge course must be passed with a grade of 'B' or better. If a student repeats a bridge course more than once without achieving at least a grade of 'B', they will not be admitted into the MS program. The Graduate Director may waive bridge courses if the student passes the related bridge course exam given during Orientation the first term the student is admitted. Exams in each subject area can only be taken once during orientation. The decision of the Graduate Director is final. *Graduate students will be charged graduate tuition for any courses they take at RIT. This includes all bridge courses – even if they are at the undergraduate level.*

Bridge Areas of Study

Computer Programming

The Computer Science MS program requires a substantial amount of computer programming. Students need to be proficient in a modern, object-oriented programming language, specifically Java and C++. This area of study generally consists of three courses:

- A course on the application of computational thinking using a problem-centered approach. Specific topics include: expression of algorithms in pseudo-code and a programming language; elementary data structures such as lists, trees and graphs; problem solving using recursion; and debugging and testing
- A course on identifying advanced object-oriented programming concepts and implementing them in the context of specific problems. This course covers advanced concepts such as event-driven programming, design patterns, distributed and concurrent programming, and the use, design and implementation of applications
- A course focusing on the theory of computation including formal languages, grammars, automata theory, computability, and complexity

Typical Courses from the RIT Computer Science Department:

CSCI 603 Computational Problem Solving

CSCI 605 Advanced Object Oriented Programming Concepts

CSCI 661 Foundations of Computer Theory

Calculus

We require a standard, one-year sequence in differential and integral calculus.

Suggested courses from the RIT Mathematics Department:

MATH 181 Project-Based Calculus I

MATH 182 Project-Based Calculus II

Probability Theory

This should be a calculus-based course.

Suggested course from the RIT Mathematics Department:

MATH 251 Probability and Statistics I

Discrete Mathematics

Abstract mathematics courses give computer scientists some of the analytical tools needed to reason about algorithms and programs. Topics include symbolic logic, elementary set theory, functions and relations, permutations and combinations, and introductory graph theory. An important topic is the principle of mathematical induction.

Suggested course from the RIT Mathematics Department:

MATH 190 Discrete Mathematics for Computing