

Computer Science Majors

Have you thought about the benefits of adding a mathematics minor? To earn this minor, it is only one course more than the required support courses you already need to complete your Computer Science major.

Mathematics Support Courses required by the Computer Science major

- MAT 220 Calculus I (runs every semester)
- MAT 221 Calculus II (runs every semester)
- MAT 147 Statistics (runs every semester, satisfies QR)
- MAT 214A Discrete Structures (runs fall and spring)
- A three credit MAT elective that has MAT 220 or MAT 221 as a prerequisite

The Mathematics department allows only one of MAT 147 and MAT 214A to count towards the Mathematics minor, so, if you select two from the following courses, you will satisfy the last required Computer Science math support course and the requirements for the Mathematics minor, and in the process, help yourself in terms of graduate school or career plans.

- MAT 234 Introduction to Mathematical Proofs (runs every fall and spring, prerequisite is MAT 220)
One of the biggest complaints I hear about new programmers in the field is that their code lacks sound structure, something that comes from constructing logical arguments in a class such as this one.
- MAT 240 Linear Algebra (runs every fall and spring)
This course is the study of matrices and vectors, so this can be extremely useful when dealing with spacial interpretations, especially when related to computer graphics. Linear algebra is also key to computer coding scheme generation, formation and labelling.
- MAT 316 Combinatorial Mathematics (runs odd spring semesters, prerequisite is MAT 234 but will accept MAT 214A)
This class discusses block design structure, networks in terms of graph theory, generating functions, the pigeon-hole principle, and recurrence relations.
- MAT 413 Ordinary Differential Equations (runs every fall semester beginning with Fall 2020, prerequisite is MAT 240)
Ideas in this class relate to optimization problems, electromagnetic phenomena, signal processing, and modeling in such fields as physics, weather, and biology. Many of these real-world problems are too difficult to solve unless done through computer applications, and without a background in the problems it is difficult to properly code.
- MAT 414 Linear Algebra II (runs odd fall semesters, prerequisite is MAT 240)
This is an extension of MAT 240 and includes eigensystems, singular value decomposition, and QR factorization. Concepts in this class are especially useful when considering such topics as data compression and recommendation systems

If you have any questions, talk to your advisor or make an appointment with the Mathematics chairperson, Dr. Travers, who can be reached at btravers@salemstate.edu.