

COMPUTER SCIENCE AND MATHEMATICS

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Computer Science and Mathematics is an interdepartmental major for students who are interested in computational mathematics, the use of computers in mathematics, mathematical aspects of algorithm design and analysis, and theoretical foundations of computing.

REQUIREMENTS OF THE MAJOR

The major requires fourteen term courses as well as a senior project. Six of the fourteen courses must be in computer science: CPSC 201; CPSC 223, 323; and CPSC 365 or 366 or 368; one advanced course with significant mathematical content; and one additional advanced course other than CPSC 490. Only one of CPSC 365, 366, and 368 may be taken for major credit. The remaining eight courses must be in mathematics: MATH 120, either MATH 225 or 226, MATH 244, and five additional term courses numbered above MATH 200 other than MATH 470, 480 and 481. MATH 222 is not recommended as a substitute for MATH 225 or 226, as it does not provide an introduction to proof writing, which is an essential skill for completing upper-level mathematics courses.

Students who completed multivariable calculus during high school may consult the DUSes about replacing MATH 120 with a higher level mathematics course. MATH 230 and MATH 231 may replace (but do not count in addition to) MATH 120 and MATH 225 or 226.

A course must be listed with a MATH number to count toward the mathematics requirements and must be listed with a CPSC number to count toward the computer science requirements – substitutions from other departments are not allowed.

Credit/D/Fail Courses taken Credit/D/Fail may not be counted toward the major.

SENIOR REQUIREMENT

The senior requirement is a project or an essay on a topic acceptable to both departments. Students typically enroll in CPSC 490 or MATH 475. An oral report on the mathematical aspects of the project must be presented to the Mathematics faculty. Permission must be obtained in writing from the director of undergraduate studies (DUS) of both departments before embarking on the project or the essay.

ADVISING

The entire program of each student majoring in Computer Science and Mathematics must be approved by the DUS in each department.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites None

Number of courses 14 term courses, 6 in computer science and 8 in math (not incl senior req)

Specific courses required CPSC 201; CPSC 223, 323; CPSC 365 or 366 or 368; MATH 120; MATH 225 or 226; MATH 244

Distribution of courses 2 addtl courses in computer science with 1 adv course with significant mathematical content and 1 adv course other than CPSC 490; 5 addtl courses in math numbered above 200 (may not be MATH 470, 480 or 481)

Substitution permitted: MATH 230 and MATH 231 for MATH 120 and MATH 225 or 226

Senior requirement Senior project or senior essay on topic acceptable to Comp Sci and Math depts with written approval from both DUSes; oral report to Math dept on mathematical aspects of the project