

Computer Science and Mathematics

Directors of undergraduate studies: Theodore Kim

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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

See Links to the attributes indicating courses approved for the Computer Science and Math major requirements.

The major requires fourteen term courses as well as a senior project. Six of the fourteen courses must be in computer science: CPSC 2010; CPSC 2230; CPSC 3230; and CPSC 3650 or 3660; one advanced course with significant mathematical content; and one additional advanced course other than CPSC 4900. Only one of CPSC 3650 and 3660 may be taken for major credit. The remaining eight courses must be in mathematics: MATH 1200, either MATH 2250 or 2260, MATH 2440, and five additional term courses numbered 2250-4690.

With prior written permission from the Mathematics DUS, students who completed multivariable calculus during high school may substitute a higher level mathematics course in the same area for MATH 1200.

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. Graduate mathematics courses level 5000-5999 may be counted as electives; graduate mathematics courses level 6000 or above may not be counted.

Credit/D/Fail No course taken Credit/D/Fail may be applied toward the requirements of the major.

Outside credit Courses taken after matriculation at Yale at another institution or during an approved summer or term-time study abroad program may count toward the major requirements with DUS approval.

SENIOR REQUIREMENT

The senior requirement is a project or an essay on a topic acceptable to both departments. Students typically enroll in CPSC 4900 or MATH 4750. 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 2010; CPSC 2230; CPSC 3230; CPSC 3650 or 3660; MATH 1200; MATH 2250 or 2260; MATH 2440

Distribution of courses 2 addtl courses in computer science with 1 adv course with significant mathematical content and 1 adv course other than CPSC 4900; 5 addtl courses in math numbered 2250–4690 (may not include MATH 4700, or MATH 4800 through MATH 4890)

Senior requirement CPSC 4900 or MATH 4750