

COMPUTING AND THE ARTS

Director of undergraduate studies: Holly Rushmeier (Computer Science), 207 AKW, 432-4091, holly.rushmeier@yale.edu [F], Julie Dorsey (Computer Science), 507 AKW, 432-4249, julie.dorsey@yale.edu [Sp] (julie.dorsey@yale.edu)

Computing and the Arts is an interdepartmental major designed for students who wish to integrate work in computing with work in one of five arts disciplines: architecture, art, history of art, music, or theater studies.

For students with a computing perspective, issues in these disciplines present interesting and substantive problems: how musicians use computers to compose; the limitations of current software tools used by artists; the types of analyses done by art historians; challenges in designing and using virtual sets in the theater; ways that virtual worlds might help to envision new forms of artistic expression; and lessons that can be learned from trying to create a robotic conductor or performer.

For students with an artistic perspective, computing methods offer a systematic approach to achieving their vision. A foundation in computer science allows artists to understand existing computing tools more comprehensively and to use them more effectively. Furthermore, it gives them insight into what fundamentally can and cannot be done with computers, so they can anticipate the future development of new tools for computing in their field.

Prerequisites The prerequisite for all students in the major is either CPSC 100 or CPSC 112, which should be taken during the freshman year. There is one additional prerequisite for the Architecture track, ARCH 150, and two additional prerequisites for the Art track, ART 111 and 114. There are no additional prerequisites for the History of Art track. An additional prerequisite for the Music track is MUSI 210, as determined by the music theory placement test. (Students who do not place into or out of MUSI 210 may need to take a lower-level course first.) Additional prerequisites for the Theater Studies track are THST 110 and 111. There is no required favorable review of studio work for admission to the major in any track.

Requirements of the major for the Class of 2018 and previous classes Students in the Class of 2018 and previous classes may fulfill the requirements of Computing and the Arts that were in place when they entered the major, as described in previous editions of this bulletin. Alternatively, they may fulfill the requirements for the major as described below for the Class of 2019 and subsequent classes.

Requirements of the major for the Class of 2019 and subsequent classes Twelve term courses are required beyond the prerequisites, not including the two-term senior project. Six of the courses must be in Computer Science, including CPSC 201, 202, and 223. Students are advised to complete CPSC 202 and 223 by the end of the sophomore year. MATH 244 may be substituted for CPSC 202. The six remaining courses are selected from one of the arts disciplines. Students choose a track in architecture, art, history of art, music, or theater studies. All requirements for a single track must be satisfied, as specified below.

The Architecture track requires the following courses in addition to the Computer Science courses listed above: (1) ARCH 154, 249, 260, 261; (2) two elective courses from Architectural History and Theory; Materials and Technology; or Structures and Computation; (3) two courses from CPSC 475, 478, or 479; and (4) one additional intermediate or advanced CPSC course (excluding CPSC 490).

The Art track requires the following courses in addition to the Computer Science courses listed above: (1) two 100-level courses beyond ART 111 and 114, such as ART 132, 138, or 145; (2) two courses in Art at the 200 or 300 level; (3) ART 395; (4) one course in Art at the 400 level; (5) two courses selected from CPSC 475, 478, and 479; (6) one additional intermediate or advanced Computer Science course (excluding CPSC 490).

The History of Art track requires the following courses in addition to the Computer Science courses listed above: (1) one introductory History of Art course: HSAR 112, HSAR 142, or HSAR 143; (2) two History of Art courses at the 200, 300, or 400 level (the courses must represent two different areas as defined in the History of Art program description); (3) one studio art course (students may need to take a prerequisite course in Art to prepare for the studio course); (4) HSAR 401; (5) one 400-level seminar in History of Art; (6) two courses selected from CPSC 437, 475, 478, or 479, one of which must be CPSC 478 or 479; (7) one additional intermediate or advanced Computer Science course (excluding CPSC 490).

The Music track requires the following courses in addition to the Computer Science courses listed above: (1) MUSI 325; (2) five term courses chosen from MUSI 231, S290, MUSI 295, MUSI 309, 312, 313, MUSI 343, 371, 412, 413, 471, and 472; (3) CPSC 431; (4) CPSC 432; (5) one additional intermediate or advanced Computer Science course (excluding CPSC 490).

The Theater Studies track requires the following courses in addition to the Computer Science courses listed above: (1) THST 210; (2) three courses in dramatic literature or theater history; (3) two upper-level Theater Studies production seminars in design, directing, or playwriting; (4) CPSC 431 or 432; (5) CPSC 478 or 479; (6) one additional intermediate or advanced Computer Science course (excluding CPSC 490).

Senior requirement The senior project requires two terms: one term of CPAR 491, and one term of ARCH 491, ART 495, HSAR 499, MUSI 490 or 491, or THST 471 or 491, depending on the track chosen. The project must be approved by the director of undergraduate studies and be acceptable to both departments. Students must submit a written report, including an electronic abstract and Web page(s).

Approval of program The entire program of each student majoring in Computing and the Arts must be approved by the director of undergraduate studies.

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

REQUIREMENTS OF THE MAJOR

Prerequisites *All tracks* – CPSC 100 or CPSC 112; *Architecture track* – ARCH 150; *Art track* – ART 111, 114; *Music track* – MUSI 210; *Theater Studies track* – THST 110, 111

Number of courses 12 term courses beyond prereqs (not incl senior project)

Specific courses required *All tracks* – CPSC 201, 202, 223; *Architecture track* – ARCH 154, 249, 260, 261; 2 courses from CPSC 475, 478, or 479; *Art track* – ART 395, 2 from CPSC 475, 478, 479; *History of Art track* – 2 from CPSC 437, 475, 478, 479, including 1 of CPSC 478, 479; 1 from HSAR 112, HSAR 142, HSAR 143; HSAR 401; *Music track* – CPSC 431, 432; MUSI 325; *Theater Studies track* – CPSC 431 or 432; CPSC 478 or 479; THST 210

Distribution of courses *All tracks* – 3 addtl courses in Comp Sci, incl 1 intermediate or advanced course beyond specific reqs (excluding CPSC 490); *Architecture track* – 2 courses from Architectural History and Theory; Materials and Technology; or Structures and Computation; *Art track* – 2 courses in Art at 100 level (excluding prereqs), 2 at 200 or 300 level, and 1 at 400 level (in addition to senior req); *History of Art track* – 2 courses in different areas of History of Art at 200, 300, or 400 level; one 400-level sem in History of Art; 1 studio art course; *Music track* – 5 courses from MUSI 231, S290, MUSI 295, MUSI 309, 312, 313, MUSI 343, 371, 412, 413, 471, 472; *Theater Studies track* – 3 courses in dramatic lit or theater history; 2 production sems, as specified

Substitution permitted MATH 244 for CPSC 202

Senior requirement *All tracks* – Two-term senior project including CPAR 491, approved by DUS; *Architecture track* – ARCH 491; *Art track* – ART 495; *History of Art track* – HSAR 499 *Music track* – MUSI 490 or 491; *Theater Studies track* – THST 471 or 491