

## COMPUTING AND THE ARTS

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Computing and the Arts is an interdepartmental major designed for students who wish to integrate work in computing with work in one of the arts disciplines: 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; 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 prerequisites for all students in the major is CPSC 112a or b. Additional prerequisites for the *art* track are ART 111a or b and 114a or b. Additional prerequisite for the *music* track is MUSI 210a or b, as determined by the Music Theory Placement Test. (Students who do not place into or out of MUSI 210 a or b may have to take a lower-level course first.) Additional prerequisites for the *theater studies* track are THST 110a and 111b. There are no additional prerequisites for the *history of art* track. There is no required favorable review of studio work for admission to the major in any track.

*The major.* Twelve term courses are required beyond the prerequisites, not including a two-term senior project. Six of the courses must be in Computer Science, including CPSC 201a or b, 202a, and 223b. Students are advised to complete CPSC 202a and 223b by the end of the sophomore year. MATH 244a may be substituted for CPSC 202a.

The six remaining courses are selected from one of the arts disciplines. Students choose a track in art, history of art, music or theater studies. All requirements for a single track must be satisfied, as specified below.

Regardless of the track chosen, the senior requirement is a two-term project that is acceptable to both departments. Students must submit a written report, including an electronic abstract and web page(s).

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

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 112a or 115b; (2) one 400-level seminar in History of Art; (3) 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); (4) one studio art

course (students may need to take a prerequisite course in Art to prepare for the studio course); (5) HSAR 401a or b; (6) CPSC 478a; (7) one from CPSC 437a, 475b, or 479b; (8) one additional intermediate or advanced computer science course (excluding CPSC 490a or b).

The *music* track requires the following courses in addition to the Computer Science courses listed above: (1) MUSI 325a; (2) MUSI 395a; (3) four courses chosen from MUSI 312a or b, 343a, 412a or b, 450b, 466b, 471a, and 472b; (4) CPSC 431a; (5) CPSC 432a; (6) one additional intermediate or advanced computer science course (excluding CPSC 490a or b).

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

*Senior requirement.* The senior project must be approved by the director of undergraduate studies. The project requires two terms: one term of CPAR 491a or b, and one term of ART 495a or b, HSAR 499a or b, MUSI 490, or THST 491a or b, depending on the track chosen.

The entire program of each student majoring in Computing and the Arts must be approved by the director of undergraduate studies. Courses taken Credit/D/Fail may not be counted toward the major.

## REQUIREMENTS OF THE MAJOR

**Prerequisites:** *All tracks*—CPSC 112a or b; *Art track*—ART 111a or b, 114a or b; *Music track*—MUSI 210a or b; *Theater studies track*—THST 110a, 111b

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

**Specific courses required:** *All tracks*—CPSC 201a or b, 202a, 223b; *Art track*—2 from CPSC 475b, 478a, 479b; *History of art track*—CPSC 478a; 1 from CPSC 437a, 475b, 479b; HSAR 112a or 115b; HSAR 401a or b; *Music track*—CPSC 431a, 432a; MUSI 325a, 395a; *Theater studies track*—CPSC 431a or 432a; CPSC 478a or 479b; THST 210a

**Distribution of courses:** *All tracks*—6 courses in Comp Sci, incl 1 addtl intermediate or advanced course beyond specific reqs (excluding CPSC 490a or b); *Art track*—3 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*—4 term courses from MUSI 312a or b, 343a, 412a or b, 450b, 466a, 471a, 472b; *Theater studies track*—3 courses in dramatic lit or theater history; 2 upper-level Theater Studies production seminars in design, directing, or playwriting

**Substitution permitted:** MATH 244a for CPSC 202a

**Senior requirement:** *All tracks*—Two-term senior project approved by DUS; *Art track*—Senior project completed in CPAR 491a or b and ART 495a or b; *History of art track*—Senior project completed in CPAR 491a or b and HSAR 499a or b; *Music track*—Senior project completed in CPAR 491a or b and one term of MUSI 490; *Theater studies track*—Senior project completed in CPAR 491a or b and THST 491a or b