

# 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 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 first year. There are two additional prerequisites for the Art track, ART 111 and 114. There are no additional prerequisites for the Architecture, History of Art track, or the Music track. Additional prerequisites for the Theater and Performance 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

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 and performance studies. All requirements for a single track must be satisfied, as specified below.

**Students in the Class of 2020 and 2021** With DUS approval, students may follow the requirements listed here that include a larger selection of computer science courses or they may follow the course requirements that were in place when they declared their major.

*The Architecture track* requires the following courses in addition to the Computer Science courses listed above: (1) ARCH 150 and 200; (2) two courses from ARCH 260, 261, 360, and 362; (3) two elective courses from any of the three concentrations: Design; History, Theory, and Criticism; Urbanism; (4) two courses from CPSC 475, 478, or 479; and (5) 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, as well as a sophomore review at the School of Art: (1) two 100-level courses beyond ART 111 and 114, such as ART 132 or 184; (2) two courses in Art at the 200 or 300 level, such as ART 285 or ART 369; (3) ART 395 or ART 301; (4) one course in Art at the 400 level, such as ART 495; (5) two courses selected from CPSC 475, 478, and 479; (6) one additional intermediate or advanced Computer Science course (excluding CPSC 490). Seniors following the art track are charged a \$200 facility access fee each semester and will have access to a shared studio and many facilities in the School of Art.

*The History of Art track* requires the following courses in addition to the Computer Science courses listed above: (1) one introductory, 100-level, History of Art course; (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 315; (2) five term courses chosen from MUSI 231, S290, MUSI 316, 320, 321, 409, 414, 420, 421, 425, 481, 495; (3) CPSC 431; (4) CPSC 432; (5) one additional intermediate or advanced Computer Science course (excluding CPSC 490).

*The Theater and Performance Studies track* requires the following courses in addition to the Computer Science courses listed above: (1) THST 210; (2) three courses in dramatic literature, theater history, or performance theory; (3) two Theater and Performance Studies 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).

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

**SENIOR REQUIREMENT**

The senior project requires two terms: one term of CPAR 491, and one term of ARCH 491, ART 496, HSAR 499, one from MUSI 496–499, or THST 471 or 491, depending on the track chosen. The project must be approved by the DUS and be acceptable to both departments. Students must submit a written report, including an electronic abstract and webpage(s).

**ADVISING AND APPROVAL OF PROGRAM**

The entire program of each student majoring in Computing and the Arts must be approved by the DUS.

**REQUIREMENTS OF THE MAJOR**

**Prerequisites** *All tracks*—CPSC 100 or CPSC 112; *Art track*—ART 111, 114, and sophomore review; *Theater and Performance 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 150, 200; 2 courses from ARCH 260, 261, 360, 362; 2 courses from CPSC 475, 478, or 479; *Art track*—ART 395 or 301; 2 from CPSC 475, 478, 479; *History of Art track*—2 from CPSC 437, 475, 478, 479, including 1 of CPSC 478, 479; 1 intro, 100-level course; HSAR 401; *Music track*—CPSC 431, 432; MUSI 315; *Theater and Performance 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 the concentrations: Design; History, Theory, and Criticism; and Urbanism; *Art track*—2 courses in Art at 100 level (excluding prereqs), 2 at 200 or 300 level, and 1 at 400 level as specified; *History of Art track*—2 courses in different areas of History of Art at 200, 300, or 400 level; 1 sem at 400-level in History of Art; 1 studio art course; *Music track*—5 courses from MUSI 231, S290, MUSI 316, 320, 321, 409, 414, 420, 421, 425, 481, 495; *Theater and Performance Studies track*—3 courses in dramatic literature, theater history, or performance theory; 2 seminars, 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 496; *History of Art track*—HSAR 499; *Music track*—one from MUSI 496–499; *Theater and Performance Studies track*—THST 471 or 491

Computing and the Arts is an interdepartmental major for students who wish to integrate computing with work in architecture, art, history of art, music, or theater studies. Majors explore topics from these arts disciplines in the context of mathematics, computer science, and information technology. For students with a computing perspective, issues in these disciplines present interesting and substantive problems. For students with an artistic perspective, computing methods offer a systematic approach to achieving their vision.

In addition to prerequisites, the major requires six term courses in Computer Science, six in the arts, and a two-term senior project. Students choose a track in one of the arts disciplines and satisfy the corresponding requirements. The capstone of the program is a two-term senior project advised by faculty from Computer Science and from the chosen art.

During the first year, prospective majors with little or no programming experience should take CPSC 100 or CPSC 112, either of which is a prerequisite for all tracks. Students with sufficient programming experience may instead enroll in CPSC 201, which is a requirement of the major for all tracks.

Students considering the music track should take the music theory placement test during orientation. Those whose placement requires them to take MUSI 110 should complete this course by the end of the first year.

Prospective majors should also consider the following courses during the first year, depending on their track of interest:

- ARCH 260, History of Architecture I: Antiquity to the Baroque
- ARCH 262, Modern Architecture from the Enlightenment to the Millenium
- ART 111, Visual Thinking
- ART 114, Basic Drawing
- HSAR 112, Introduction to the History of Art: Prehistory to the Renaissance
- HSAR 115, Introduction to the History of Art: Renaissance to the Present
- MUSI 210, Elementary Studies in Analysis and Model Composition I
- THST 110, Survey of Theater and Drama
- THST 111, Survey of Theater and Drama

Students interested in the major are encouraged to discuss their programs with the director of undergraduate studies (DUS) as early as possible.

View Courses

## Courses

\* **CPAR 491a or b, Senior Project in Computing and the Arts** Julie Dorsey

Individual research project for majors in Computing and the Arts. Requires two faculty supervisors, one from Computer Science and one from the department in the chosen track. Requires permission of the director of undergraduate studies. The student must present both a verbal and a written report describing the results of the project. May be taken more than once for credit.