

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, dance, and performance 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 CPSC 1001 which should be taken during the first year. There are two additional prerequisites for the Art concentration, ART 1111 and ART 1514. There are two additional prerequisites for the Theater, Dance, and Performance Studies concentration, TDPS 1000 and TDPS 1001. There are no additional prerequisites for the Architecture, History of Art, or Music concentrations. There is no required favorable review of studio work for admission to the major in any concentration, but a sophomore review advising session is required for the Art concentration.

REQUIREMENTS OF THE MAJOR

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

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 2010, 2020, and 2230. Students are advised to complete CPSC 2020 and 2230 by the end of the sophomore year. MATH 2440 may be substituted for CPSC 2020. The six remaining courses are selected from one of the arts disciplines. Students choose a concentration in architecture, art, history of art, music, or theater, dance, and performance studies. All requirements for a single concentration must be satisfied, as specified below.

The Architecture concentration requires the following courses in addition to the Computer Science courses listed above: (1) ARCH 1001 and ARCH 2000; (2) two courses from ARCH 2001, 2003, 3304, and 3305; (3) two elective courses from either of the two Architecture specific concentrations: Design; or History, Theory, Criticism of Architecture, and Urbanism; (4) two courses from CPSC 3760, CPSC 4381, 4460, 4510, 4750, 4780, 4790, or 4840; and (5) one additional intermediate or advanced CPSC course (excluding CPSC 4900).

The Art concentration 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 1000-level courses beyond ART 1111 and ART 1514, such as ART 1732 and/or ART 1784 or ART 1985; (2) two courses in Art at the 2000 or 3000 level, such as ART 2985 and/or ART 3770; (3) ART 3995; (4) ART 4995; (5) two courses selected from CPSC 3760, CPSC 4381, 4460, 4510, 4750, 4780, 4790, or 4840; (6) one additional intermediate or advanced Computer Science course (excluding CPSC 4900). Seniors following the art concentration will have access to a shared studio and many facilities in the School of Art.

The History of Art concentration requires the following courses in addition to the Computer Science courses listed above: (1) one introductory, 1000-level, History of Art course; (2) two History of Art courses at the 2000, 3000, or 4000 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 4401; (5) one 4000-level seminar in History of Art; (6) two courses selected from CPSC 3760, CPSC 4381, 4510, 4750, 4780, or 4790, one of which must be CPSC 4780 or 4790; (7) one additional intermediate or advanced Computer Science course (excluding CPSC 4900).

The Music concentration requires the following courses in addition to the Computer Science courses listed above: (1) two courses from *Group I* (Music Theory); (2) three additional courses from *Group I* or *Group II* (Creative Practices); (3) one course from *Group III* (Western Art Music) or *Group IV* (World and Popular Music); (4) CPSC 4310; (5) CPSC 4320; (6) one additional intermediate or advanced Computer Science course (excluding CPSC 4900).

The Theater, Dance, and Performance Studies concentration requires the following courses in addition to the prerequisites and Computer Science courses listed above: (1) one course in the Artistic Practice domain; (2) one course in the Histories domain; (3) one course in the Performance Theory domain; (4) one course in the Interarts domain; (5) two additional courses in any of the domains; (6) CPSC 4310 or 4320; (7) CPSC 4780, 4790, or CPSC 4840; (8) one additional intermediate or advanced Computer Science course (excluding CPSC 4900).

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

Outside credit Courses taken 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 project requires two terms: one term of CPSC 4900, and one term of ARCH 4910, ART 4996, HSAR 4499, one from MUSI 4996–4999, or one from TDPS 4701, 4900 or 4901, depending on the concentration 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.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites *All concentrations* – CPSC 1001; *Art concentration* – ART 1111, ART 1514, and sophomore review; *Theater, Dance, and Performance Studies concentration* – TDPS 1000, TDPS 1001

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

Specific courses required *All concentrations* – CPSC 2010, 2020, 2230; *Architecture* – ARCH 1001, ARCH 2000; 2 courses from ARCH 2001, 2003, 3304, 3305; *Art* – ART 3995, ART 4995; *History of Art* – HSAR 4401; *Music* – CPSC 4310, 4320; *Theater, Dance, and Performance Studies* – CPSC 4310 or 4320; CPSC 4780, 4790, or CPSC 4840

Distribution of courses *All concentrations* – 3 addtl courses in Comp Sci as specified for each concentration, to incl 1 intermediate or advanced course (excluding CPSC 4900); *Architecture* – 2 courses from the Architecture specific concentrations, as specified; *Art* – 2 courses in Art at 1000 level (excluding prereqs), 2 courses at 2000 or 3000 level; *History of Art* – 1 intro, 1000-level course; 2 courses in different areas of History of Art at 2000, 3000, or 4000 level, as specified; 1 sem at 4000-level in History of Art; 1 studio art course; *Music* – 2 courses from *Group I* (Music Theory); 3 courses from *Group I* or *Group II* (Creative Practices); (3) one course from *Group III* (Western Art Music) or *Group IV* (World and Popular Music); *Theater, Dance, and Performance Studies* – 1 course in each of 4 domains; 2 additional courses in any domain

Substitution permitted MATH 2440 for CPSC 2020

Senior requirement *All concentrations* – Two-term senior project including CPSC 4900, approved by DUS; *Architecture* – ARCH 4910; *Art* – ART 4996; *History of Art* – HSAR 4499; *Music* – one from MUSI 4996–4999; *Theater, Dance, and Performance Studies* – TDPS 4701, 4900 or 4901