Ph.D. Degree Guidelines

PH.D. DEGREES OPTIONS

The SoC offers two Ph.D. degrees, one in Computer Science, and one in Computing. There are currently a Robotics track, a Graphics and Visualization track, and a Scientific Computing track, Computer Engineering track and Data Management and Analysis track available in Computing.

Courses that count toward graduation for the Computer Science degree must be on the program of study. The following restrictions apply to these courses:

- CS courses must have a course number of 6000 or above, or must be CS 6460 (Operating Systems) or CS 5470 (Compiler Principles and Techniques)
- non-CS courses must have a course number of 5000 or above;
- they must have a grade of B- or better;
- the GPA for all these courses must be at least 3.0.

For required courses, this additional restriction applies:

- the GPA for all these classes must be at least 3.5.

RESIDENCY

At least one year (i.e., two consecutive semesters) of the doctoral program must be spent in full-time academic work at the University of Utah. When a student proceeds directly from an M.S. degree to a Ph.D. degree with no break in the program of study (except for authorized leaves of absence), the residency requirement may be fulfilled at any time during the course of study.

CREDIT FOR PREVIOUS COURSES

PhD students may count some hours of coursework from other graduate degrees toward the coursework requirements associated with the program of study. Unlike for the MS programs, credit for previous courses for PhD students is administered by the DGS so these courses do not need to be be officially transferred to the University. Approved courses are certified by inclusion of the appropriate SoC form in the student's file. All coursework on the program of of study is subject to approval by the student's supervisory committee and the DGS.

Ph.D. students with a masters-level degree in a closely related discipline should work with their initial committee to create a program of study that can include graduate courses taken as part of their previous degree program. This program of study can include up to twenty total hours to be counted toward their Ph.D. requirements, and

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can be used to satisfy some or all of the Ph.D. required courses. Like all programs of study, it must then be approved by the DGS and the graduate school.

A student who has been accepted by the Graduate School is formally admitted to candidacy for the Ph.D. by the University at the recommendation of the student's supervisory committee. Admission to candidacy occurs after the student:

- forms a supervisory committee,
- files an approved Program of Study form,
- completes the core course requirements,
- passes the written portion of the qualifying examination, and
- passes the oral portion of the qualifying examination

An application for candidacy must be submitted to the Graduate School no later than two months prior to the semester of graduation. For the degree to be conferred, the approved Program of Study form must be completed and the dissertation completed and publicly defended.

A Ph.D. Supervisory Committee conducts the student's written qualifying examination, oral qualifying examination, and dissertation defense. This committee consists of five faculty members, at least three of whom must be from the SoC, and at least one member from outside the SoC. Any SoC regular faculty member may serve as a supervisory committee chair. Research or adjunct faculty may chair supervisory committees if accorded that privilege by the regular faculty. Individuals who are not faculty members may serve on supervisory committees if nominated by the regular faculty on the committee, and endorsed by the Graduate Studies Committee and School Director. For Computing degrees, further restrictions on committee makeup may apply. All official decisions of the committee are decided by majority vote.

QUALIFYING EXAMINATION

All Ph.D. students must pass a Qualifying Examination, as specified by the Graduate School. The Qualifying Exam consists of a written part, to be conducted first, and an oral part. The written part of the Qualifying Examination will cover the candidate's general area of specialization in sufficient depth to demonstrate their preparation for conducting Ph.D.-level research. Each internal member of the student's supervisory

committee will contribute one or more questions to this exam. The external member(s) of the committee can provide question(s) if they wish to. The supervisory committee will provide a written evaluation of this part of the exam, including an indication of whether or not the student will be allowed to proceed to the oral part of the Qualifying Examination. More details on the procedures for the written part is available on the GSC web page.

The oral part comprises the dissertation proposal defense. At the supervisory committee's option, it may also include follow-up questions relating to the written part of the exam. A majority of the supervisory committee should certify that the proposal is ready to be defended prior to conducting the oral part of the Qualifying Exam.

DISSERTATION

The completed dissertation must be published either in its entirety (through a legitimate publisher of the student's choice or through University Microfilms) or as one or more articles accepted for publication in approved scholarly journals. An abstract of each dissertation must be published in University Microfilms' Dissertation Abstracts International.

STUDENT PROGRESS: TERMINOLOGY

Initial committee: This consists of two University of Utah faculty members and an advisor, who must meet the School of Computing requirements for advising. The initial committee is dierent from the full committee, who will ultimately administer the qualier and evaluate the dissertation. The full committee must be chosen to conform to program requirements. The initial committee is automatically dissolved when the student forms a full committee.

Good vs acceptable progress: Students completing milestones within the time frame denoted as "good" are generally considered to be in good standing in the program. Students completing milestones within the time frame denoted as "acceptable" are considered to be making acceptable progress in the program and are encouraged to continue on and attempt to meet successive milestones within the time frames denoted as "good."

Such students may or may not be considered in good standing, depending upon evaluation of the director of graduate studies (DGS) with input from their advisor and advisory committee. Students not completing milestones within the time frame denoted as "acceptable" are not considered in good standing.

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GRADUATE STUDENT PROGRESS GUIDELINES FOR THE PH.D. PROGRAM

Milestone	Good Progress	Acceptable Progress	Comments
Choose advisor and initial committee	2 Semesters	2 Semesters	
Program of study approved by advisor and initial committee	2 Semesters	3 Semesters	
Complete required courses	3 Semesters	5 Semesters	Program requirement: 5 semesters
Full committee formed	4 Semesters	5 Semesters	
Program of study approved by committee	4 Semesters	5 Semesters	U. requirement: 1 semester before defense
Written qualifier	5 Semesters	6 Semesters	U. requirement: 1 semester before defense
Oral qualifier (proposal)	5 Semesters	7 Semesters	U. requirement: After written qualifier and 1 semester before defense
Dissertation defense	9 Semesters	12 Semesters	
Final document			U. requirement: 1 semester before defense

Master's and Ph.D. Defense

Action	Date	Recommendations
Thesis or dissertation proposal presented and passed	Prior to defense date	Committee guidelines
Possible defense date selected by committee	4 weeks prior to defense	Committee guidelines
Draft of dissertation or thesis sent to chair	4 weeks prior to defense	Committee guidelines
Draft to committee	3 weeks prior to defense	Committee guidelines
Message requesting approval of defense sent to committee by Graduate Coordinator	2 weeks prior to defense	School guidelines
Oral question and answer period after oral presentation	Day of defense	School guidelines
Document to Graduate Coordinator	10 days prior to defense	School guidelines
Abstract to Graduate Coordinator	10 days prior to defense	School guidelines
Posted on Web	10 days prior to defense	School guidelines
Meeting of committee to discuss issues and make recommendations	Day of defense	School guidelines
Signed final oral presentation document to Graduate Coordinator	Within days of defense	School guidelines
Thesis editor approval	3 months post defense	School guidelines

Ph.D. in Computing: Graphics & Visualization

COURSE REQUIREMENTS: PH.D. IN COMPUTING, GRAPHICS AND VISUALIZATION TRACK Students must choose at least three of these four specific courses:	
CS 6610	Advanced Computer Graphics I
CS 6630	Scientific Visualization
CS 6670	Computer Aided Geometric Design
CS 6640	Image Processing

Course work listed on the approved Program of Study form must comprise at least 50 semester hours of graduate course work and dissertation research, exclusive of independent study. Graduate course work applied toward an M.S. degree may be included. At least 14 semester hours of dissertation research (CS 7970) and 30 semester hours of graduate course work must be included. Up to 12 hours of graduate level course work already applied to other degrees may be used in the program of study.

Required Courses: PhD students must demonstrate core knowledge in computer graphics and visualization by passing three courses from a choice of four, prior to the start of their fifth semester of study, with grades of B or better in each course and an overall GPA in the specified courses greater than 3.5. Students may place out of this requirement by substituting or transferring courses from other institutions.

Substitute courses must be "regular" classes with exams and/or assignments, not seminar, readings, or independent study classes.

Satisfactorily completing the three courses as described constitutes completion of the Comprehensive exam; this must be completed by the the end of the fourth semester.

Ph.D. in Computing: Graphics & Visualization

ELECTIVE COURSES School of Computing Computer Science courses on the Program of Study must be at the 6000 level or above, excluding independent study, and research credits. Of the required 30 semester hours, up to nine credit hours may be graduate courses outside of the School of Computing. Admissible elective courses within the School of Computing are the following:

CS 6620	Advanced Computer Graphics II
CS 6310	Introduction to Robotics
CS 6360	Virtual Reality
CS 6210	Advanced Scientific Computing I
CS 6220	Advanced Scientific Computing II
CS 6960	Computational Geometry
CS 6540	Human/ Computer Interaction
CS 6630	Scientific Visualization
CS 7320	Computer Vision
CS 7650	Realistic Image Synthesis
CS 6680	Computer-Aided Geometric Design II
CS 7310	Advanced Robotics
CS 7961	Vision Science

Courses not on the list above must be approved by the student's committee to count toward the elective requirements. Independent study (CS 6950 and CS 7950) can not be included in the Program of Study for the PhD degree.