

CAPSTONE PROJECTS AND COURSES

A GUIDE FOR COMPUTER SCIENCE MAJORS*

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This document outlines the procedures students should follow in order to complete their capstone projects in Computer Science. It briefly describes the three options for capstone projects, the new capstone courses, the suggested registration schedule, and, most important, the schedule for work on the projects themselves. Unless otherwise indicated, the material in this document applies to all three options described in Section .

In all cases, students are responsible for conferring with their academic advisors to ensure that their plan for capstone projects is satisfactory. Academic advisors, in turn, are asked to verify the details with the department chair.

Project Options

There are three options for the capstone project, each with its own advantages and disadvantages. Students are encouraged to explore all options before selecting one.

Field Experience: This option requires suitable work at an external organization. Students who wish to select this option must find an external advisor at the proposed place of work who is willing to help the student create a project description that meets the requirements of a capstone project.

Independent Project: Students who select this option work individually on a project of their choice. They must find a faculty member in the department who is willing to serve as their project advisor.

Collaborative Project: All students who choose the collaborative project option in a given year will work as a team on components of a single, large collaborative project. The specific project is likely to vary by year and will be announced in late Fall or early Spring.

Courses

Students must take two courses: COS 397 (Capstone 1) and COS 497 (Capstone 2). *Both new capstone courses are required for all students, regardless of the option they choose for the capstone project.*

Capstone-1 is a 2-credit course that students are expected to take in the Spring semester of their junior year. Capstone-2 is a 1-credit course that students are expected to take in the Spring semester of their senior year. In order to facilitate enrollment by students who are off the regular cycle, Capstone 2, but not Capstone 1, is likely to be offered every semester (Fall, Spring, Summer).

Capstone-1 and 2 share class meetings and meet for one hour a week. *Most of the work for both courses is to occur outside the classroom.* The in-class discussions will focus on topics, such as report writing, presentations, experimental procedure, and citations, that are relevant to all projects. Students will also periodically report on the status of their project work in class.

The main requirement for a passing grade in Capstone-1 is the submission of a suitable project proposal at the end of the semester. This proposal serves as the final exam for this course. Unlike many 2-credit courses, attendance and other class participation does not guarantee a passing grade.

The main requirement for a passing grade in Capstone-2 is the successful completion of the capstone project. Successful completion consists of several components, such as a demonstration, presentation to the faculty and students, and the submission and approval of a project report, code, and other project materials.

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Timeline

Fall semester of junior year: Students should start planning for their capstone project. They should decide, at least tentatively, on which of the three options they plan to pursue. They should meet with faculty advisors to discuss ideas for their project. Depending on the chosen option, they should either start investigating field experience opportunities off campus or learning more about the project opportunities within the department. This semester is ideal for exploring several options without feeling the time pressure to immediately pick one and start work on it; students should take advantage of this time.

Spring semester of junior year: Students should enroll in the 2-credit Capstone-1 course, *making sure they budget enough time and energy for a fairly heavy course load*. Course work will include reading the research literature, written and programming homeworks, and the usual exams in addition to work that directly addresses writing the project proposal.

Summer between junior and senior years: Students who have chosen the field experience option should complete the bulk of their work with the external organization during the summer. Students who have chosen the independent project or collaborative project options are encouraged to also use the summer productively to make good progress on their projects.

Fall semester of senior year: This semester is a critical one for all capstone projects, even though most students will not be officially registered for a capstone course. The bulk of the work on all flavors of capstone projects must be completed by the end of this semester.

Spring semester of senior year: Students should enroll in the 1-credit Capstone-2 course. During this semester, they will finish work on the projects and focus on properly documenting and presenting that work.

Prerequisites

Capstone 1: The official prerequisite for Capstone-1 is “junior standing” and permission of the department. Students who have a strong background and wish to take Capstone-1 early (before they have official junior standing) should confer with their academic advisors.

Capstone 2: The official prerequisite for Capstone-2 is Capstone-1, “senior standing” and permission of the department. *Permission to register will be granted only to those students who have made enough progress in their project work to indicate a high likelihood of timely project completion*. This assessment will be made by the department chair, in consultation with the faculty. A key factor is the recommendation from the project advisor with additional input from the academic advisor. It is important to note here that most work on the project (especially as often misunderstood) needs to be done within a month or two into the course, so that there is time for report-writing, clean-up, presentations, etc. A related point is that an early completion gives projects a realistic chance at featuring in the college’s *undergraduate research awards*, for which nominations are due in March. Students who have not made sufficient progress in their project work will almost certainly be denied permission to register for Capstone 2.

Given these prerequisites, incomplete (I) grades will not be given in Capstone 2 unless truly exceptional circumstances prevail. Students who do not satisfactorily complete the required work will receive an F grade and will need to re-take the course in order to graduate.