Syllabus

Course catalog information

Semester: Fall 2025

Course name: Capstone Project

Course ID: CS 4800

Section number: 103

Credit hours: 3

Modality: face-to-face

Meeting days: Tuesday

Meeting time: 2:00pm to 5:00pm

Meeting location: 317 Anne Belk Hall

Course description: The senior capstone project provides the student an independent and collaborative software development experience with a significant project. The course introduces aspects of project management, requirements analysis, and the software lifecycle, but will primarily be concerned with the practical integration of core theories, practices, and ethics of the discipline. Writing and speaking communication skills are reinforced.

Course prerequisites/co-requisites: Prerequisites: senior standing; CS 3667; and CS 3460 with a minimum grade of “C-” (1.7).

Instructor information



Instructor name: Dr. Mark Hills

Instructor office: 312L Anne Belk Hall

Instructor phone: 828-262-7159

Instructor email: hillsma@appstate.edu (mailto:hillsma@appstate.edu)

Office hours: Monday noon - 2pm Wednesday 1pm - 2pm Thursday 2pm - 4pm

Course objectives

The senior capstone project provides the student an opportunity to develop a significant software project as part of a small team. The course introduces or reviews aspects of project management, requirements analysis, and the software lifecycle, but will primarily be concerned with the practical integration of core theories, practices and ethics of the discipline. Writing and speaking communication skills are practiced.

Required materials and resources

Course materials (slides, resources, etc.) will all be available on the course AsULearn site.

Grades

Grading

Your performance in this course will be assessed in a manner similar to that used in commercial software development teams. More specifically, performance is measured by:

1. Quality and timeliness of carrying out assignments and/or development goals, demonstrated by delivering assignments on time, progress tracking, one-to-one reports and software developed/demonstrated.
2. Initiative (displayed in learning, creative problem-solving, and adapting to obstacles)
3. Integrity (giving credit appropriately for resources developed by others, contributing fairly to team effort, giving honest account of work, no excuses for lack of effort)
4. Enthusiasm/Teamwork (encouraging rather than critical attitude, give help where possible)
5. Quality of communication as demonstrated by formal (short) presentations and also through stand-up reports.
6. Final project results as described in the Final Technical Report and Final Project (oral) Defense.

Degree of project difficulty (either in terms of scope or new knowledge required) will also be considered when assessing projects.

Final Grades

Final grades are based on a 10 point scale with +/- given within three points of either end of the scale, i.e., 93-100, A, 90-92, A-, 87-89, B+, 83-86, B, 80-82, B-, etc. The grade of I (incomplete) will only be given in rare circumstances. Here is the approximate point distribution for various activities:

Grade Component	Points
Project Scoping/Proposal (based on provided projects)	5
Project Management and/or “Stand-up” reports (attendance is used as a component of this)	5
Presentations (3)	30
Final Project Results (Final Technical Report, Project Demonstration and Oral Defense)	60

Assignment details

Background

Some think of project development as an opportunity to apply what we know--and it is. However, it is often an opportunity to find out what we don't know, and begin to really learn.

Employers often look for project experience in the interview process. What has the candidate done outside the classroom? What kinds of projects have they developed on their own initiative? It doesn’t always matter the content of the project -- as long as the candidate has designed and (re-)built something (a house, a bike, an arcade game, etc.)--a project that has required definition, design, development, and delivery. Project experience is an important and sometimes deciding factor in the hiring process.

The "Intern Perspective"

The CS Capstone course is a class; however, it is unique in that it is a class in which students work with an external client on a significant project. One way to look at this course is to consider yourself an intern at a company. Your assignment is to develop a project that demonstrates your knowledge and skill in computer science and your ability to manage a project. You provide regular status updates to your supervisor/manager and receive feedback on your progress. Over the internship you have opportunities to present to larger audiences and you document your development in a final project report. (Usually at the end of an internship the company will decide whether to make you a permanent employment offer--or not.)

I will run this class with that kind of perspective in mind. I will do my best to help you with resources and additional knowledge that may bear on your project. Since this may be your first significant project, we will discuss principles of project development, management, professional development, and communication (speech and writing) during the semester. It is difficult to overestimate the importance of "soft skills" in addition to technical knowledge and skill. Soft skills include the ability to communicate clearly and concisely in speech and writing along with the ability to work well in a team setting.

Course Outline

Your project will be developed over about 15 calendar weeks with each class meeting consisting of a variety of presentation types from brief informal “standups” to formal presentations with accompanying slides and work time. Your project will require work time outside of class, so plan accordingly.

Final Project Defense and Demonstration

Each student or project team will give a final project defense and demonstration during the last week of class (though this may extend into finals week). This provides an opportunity for students to present their final results and answer questions concerning their project and its development.

General course policies

Class Attendance

Students are expected to act as professionals, and class attendance is mandatory. Consider class time as work hours, schedule it into your life each week.

Each unexcused absence will result in five points deduction from the final point total.

Obviously, medical or legitimate family emergencies are excluded from this policy, but you must give as much notice in advance as possible by contacting me. Routine appointments, including medical appointments (e.g., a routine dental exam) should not be scheduled to conflict with our class time.

General Education

This course satisfies the Gen Ed Capstone experience for undergraduates. The course strives to meet the following general education goals through course content, assignments, and student experiences.

Goal #1 Thinking Critically & Creatively

Goal #2: Communicating Effectively

Academic Integrity Violations

Violations of the academic integrity policy can result in various sanctions. You can learn more about the policy on the university Academic Integrity page (https://academicintegrity.appstate.edu/). If you are not sure if something you are doing would violate the policy (e.g., incorporating code from StackOverflow into your or your team's codebase, using code provided by tools such as GitHub Copilot or ChatGPT), please ask.

Class Cancellations

The university will send out an email should classes be cancelled for adverse weather. If I need to cancel class for any reason, I will notify you via email.

Special Days

Please reference the registrar’s official 2025-2026 academic calendar for special days for the semester. Be aware of Add/Drop days and final exam periods. You can find the academic calendar here (https://registrar.appstate.eduhttps//registrar.appstate.edu/sites/default/files/printable_2025-26_academic_calendar.pdf). You can find the final exam schedule here (https://registrar.appstate.edu/sites/default/files/fall_2025_exam_schedule.pdf).

Appalachian State University Policies and Statements

Appalachian State University has policies and statements including the academic integrity code, disability resources (accommodations for students with disabilities), attendance, and student engagement with courses. You can find the current version of these policies and statements on the Academic Affairs Syllabi Policy and Statement Information page (https://academicaffairs.appstate.edu/resources-forms/syllabi-policy-and-statement-information).

Public Sharing of Course Materials

All course materials, including video, may be subject to intellectual property protections under applicable law and regulation and are for the sole use of students enrolled in this class. Students do not have permission to copy or record materials except for personal use in the context of this class and students do not have permission to share any class materials, including videos, in any manner on any platform without the prior express permission of the faculty member teaching this course.

AI Policy

You are encouraged to use existing AI tools as assistants to help as you are learning about new technologies, languages, and libraries. It is fine to ask an AI tool questions and to ask it for learning resources. You should not directly copy in code from an AI, both because this is not your code, and because ownership of the code is unclear, but you can use code examples from AI tools to better understand the code you need to write. This is essentially the same policy as we have for other sources of code online, such as StackOverflow or LinkedIn Learning courses.

Withdraw dates

Withdraw no academic penalty: Friday, August 22, 2025

Withdraw using a career drop: Wednesday, October 22, 2025

Learn more about how to withdraw in the Withdrawal Policy (https://registrar.appstate.edu/resources/policies/academic-policies/withdrawal-policy)

Syllabi Policy and Statement Information (https://academicaffairs.appstate.edu/resources-forms/syllabi-policy-and-statement-information)

Additional Syllabi Policy and Statement Information (https://academicaffairs.appstate.edu/resources-forms/optional-syllabi-policy-and-statement-information)