CX 3803 Fall 2026

Senior Capstone

Instructor

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Office Hours: **TBD**

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TAs

TBD

Course Description

This capstone is your opportunity to bring together the knowledge and skills you've built across the CS curriculum. Working in teams with a real client, you will tackle a real-world problem from initial research through to a functional software product.

You will begin by analyzing client and user needs, then translate them into a design and prototype. From there, you will integrate prior knowledge, apply new technologies, and follow industry best practices to build and refine your solution.

Throughout the process, students will:

- Strengthen their skills in teamwork and client communication.
- Integrate and apply prior knowledge in a professional, client-facing context.
- Learn and apply new technologies while following industry best practices in software design and development.
- Present their work at key milestones, culminating in a final showcase at the course expo.

By the end of the semester, students will have delivered a functional product and gained valuable, hands-on experience preparing them for professional software development work.

Course learning objectives

- Define a real-world problem by analyzing client and user needs, and translate those needs into proposed features and justified design decisions.
- Design and implement a functional software product, progressing from prototype to deployment-ready solution.
- Integrate knowledge from across the CS curriculum to inform your design and development decisions.
- Evaluate and refine your solution through usability testing, client feedback, and user experience data.
- Demonstrate effective collaboration through documented teamwork processes and sustained client communication.
- Communicate technical work clearly through professional writing, presentations, and live software demonstrations.
- Critically integrate Generative AI tools into your design and development workflow, assessing both their benefits and limitations.

When and where

- **Lectures:**
  - Room: Klaus 1447
  - Days: Tuesday and Thursday
  - Time: 3:30 pm – 4:45 pm

Course Components

1. **Lectures** – Lectures introduce concepts, tools, and strategies to guide your project. You are expected to attend, participate, and bring a laptop for collaborative activities. In-class exercises and occasional quizzes count toward your participation grade. The Living Schedule on Canvas outlines topics so you can stay on track.
2. **Ed Discussion** – Our class uses Ed Discussion as the central online forum for questions, clarifications, and resource sharing. You can access it through Canvas. Use it to ask questions, exchange ideas, and discuss course material with peers and instructors. While the forum is checked regularly, please allow up to 24 hours for a response.
3. **Project Work** – The majority of your time outside of class will be spent collaborating with your team to research, design, prototype, and implement your client's solution. Expect to meet regularly outside of scheduled class time to stay on track with deliverables. You are responsible for contributing meaningfully to your team's progress and for documenting your work so others can understand and build upon it.
4. **Detailed Design Documentation** – Each team will produce a comprehensive design document outlining the system architecture, features, user flows, and technical specifications of their solution. This document should include diagrams, interface

designs, and explanations of key design decisions. It will serve as a blueprint for development and a reference for your client. High-quality documentation will clearly communicate your design to both technical and non-technical audiences and will be updated as the project evolves.

5. **Tech Demos (3)** – These are milestone presentations where your team will demonstrate progress on your project. Each demo focuses on specific sets of features your team planned to implement, and provides an opportunity to receive feedback from your client and instructor. Treat these as checkpoints to showcase progress, highlight challenges, and improve your approach.
6. **Final Expo** – The final deliverable for this course is a live presentation and demonstration of your completed project during the official expo event. This is your chance to show your client, peers, and invited guests what your team has accomplished. Your presentation should include a functional demo of your solution, a summary of key features, and a reflection on your development process. Attendance at the expo is required for all students, and grades will be based on both the quality of your final product and the clarity and professionalism of your presentation.

Course Materials

All course information and resources can be found in Canvas and Gradescope. This includes Syllabus, Assignments, Submissions, Announcements, Grades and Feedback, Resources, Recorded Lectures (if available), etc. Most assignments will be submitted on Canvas. Canvas and Gradescope are NOT forgiving about due dates and times. **Once the assignment folder closes, you are not allowed to turn in your work any other way.**

Grading Policies

Grades are calculated using the following weights:

Assignment Category	**Weight**
Logistics	2%
Project Tracking and Documentation	5%
Peer Evaluations	3%
Research and Planning	15%
Detailed Design	15%
Stand up Meetings	5%

Tech Demos	40%
Expo	10%
Client Evaluations	5%

There is no curve in this course. Scores do not round up. You must have 90.0 or better to get an A, 80.0 or better to get a B, etc.

- **Client Handoff:** At the end of the semester, your team is expected to transfer all project materials to the client in accordance with your Client Charter. This includes, but is not limited to, GitHub repositories, binaries, and any relevant documentation. Failure to complete the client handoff will result in a one-letter reduction of the final course grade for each team member. Additional details and specific expectations will be provided in a Canvas assignment later this semester.

Grade Disputes

All grading disputes must be submitted within one week of the grade being posted. Submit disputes as a private post on Ed, clearly explaining the specific grading error you believe occurred.

Attendance

This course is highly collaborative and team-driven, so consistent attendance is essential. You are expected to attend all scheduled class sessions, team meetings, and client check-ins unless you have an excused absence through the Dean of Students. Missing class not only impacts your individual performance but also affects your team's ability to make progress.

Students who miss more than **two** class sessions without an approved excuse will receive a **10-point deduction from their final course grade for each additional unexcused absence**. Repeated unexcused absences may also result in grade penalties on team deliverables.

As this course is collaborative in nature, assignment due dates will not be extended due to the absence of an individual team member. Teams are expected to redistribute responsibilities as needed to accommodate absences. In rare cases where the absence of one or more individuals creates extreme difficulty for the team, a petition for a short extension may be submitted by emailing the instructional team and will be considered on a case-by-case basis.

Academic Integrity and Collaboration Policy

All students are expected to uphold the Georgia Tech Honor Code. Academic dishonesty—including plagiarism, unauthorized collaboration, use of prohibited resources, falsification, or misrepresentation—will not be tolerated. Any suspected violations will be reported to the Office

of Student Integrity. Maintaining integrity in your academic work is essential to your success at Georgia Tech and in your professional career.

This is a team-based course, and your success depends not only on your individual effort but also on how well you collaborate with others. You are expected to:

- Communicate regularly and respectfully with your team through the agreed upon communication channels (e.g. Microsoft Teams).
- Contribute reliably by completing your assigned tasks on time and sharing progress in a transparent way.
- Engage constructively in peer reviews, code reviews, and discussions, offering feedback that helps the team improve while being open to feedback yourself.
- Support equitable workloads, ensuring responsibilities are distributed fairly and that no one is left carrying disproportionate effort.
- Maintain accountability, recognizing that peer evaluations are part of your grade and that failure to contribute meaningfully will be documented.

Collaboration in this course does not mean dividing tasks and working in isolation. Instead, it means building together: sharing ideas, integrating work, and helping each other succeed. Students who consistently fail to engage with their peers will be referred to the instructors for further action.

Finally, if you believe that a teammate is not contributing meaningfully, you should first make a good-faith effort to address the issue within your team. Document these efforts (e.g. meeting notes, messages) so there is a clear record of your attempts to resolve the conflict. If the problem persists, escalate through official Georgia Tech channels by contacting the instructors. Reports that lack evidence of prior resolution attempts will not be considered.

Artificial Intelligence Policy

Generative AI tools can be powerful aids in this course, and you are encouraged to use them responsibly to support your learning and project work. Acceptable uses include:

- Learning new technologies, frameworks, and programming languages.
- Generating skeleton or starter code to accelerate development.
- Using AI to brainstorm design ideas, improve technical communication, and prepare presentations.

With regards to code writing: You are responsible for all code you submit in this course. **While you may use AI tools to assist in writing code, you must ensure that the final implementation is correct, functional, and fully understood by you.** Do not include in your repository any code that you cannot explain or justify.

With regards to report writing: You may use AI tools to check or improve spelling, grammar, or sentence phrasing, but you must declare this use in your report in the "Acknowledgements" section. The use of AI to generate multi-sentence portions of text is not permitted. **All ideas, explanations, analyses and conclusions must be entirely your own.** If the instructional team suspects a violation, you may be asked to provide evidence of authorship (e.g., Overleaf edit history). Failure to provide convincing evidence will result in a zero for the project and a report to the Office of Student Integrity.

Excused Absence and Exceptions Policy

Excused absences include documented incapacitating illness, death in the family, judicial procedures, military service, or official school functions. Please contact the Dean of Students with your excuse; they can provide the proper documentation. Documentation must be provided on letterhead with the signature of a physician, supervisor, or another appropriate official to the Dean of Students. Please do not send this documentation to me. Fill out the form you will find at https://studentlife.gatech.edu/request-assistance . Once you receive the response, please forward the email from the Dean of Students directly to your instructor.

Email Policy

When emailing your TAs or instructor, **always include the course number and section you are in as the email's subject**. If you have questions about the homework, please direct those to Ed Discussion instead of email as you will have a better chance of receiving a quick reply. If you have personal issues or grade-related concerns, email your instructor. Please allow 48 hours to receive a response to your email. If your email is sent after 6:00 PM on Friday, you will most likely receive a response in the following business day.

Professionalism, Communication, and Student-Faculty Expectations

We strive for a professional and respectful learning environment by following the Georgia Tech Student-Faculty Expectations. Professional behavior is expected at all times—both in-person and online. This includes clear, courteous, and constructive communication with peers, teaching assistants, and instructors in all contexts, including email, forums, meetings, and class discussions.

A positive classroom community depends on respectful dialogue and a commitment to mutual responsibility between students and faculty. Inappropriate tone, hostile language, or disrespect directed toward instructional staff or fellow students—particularly in matters related to assignments—will not be tolerated. Any student who communicates disrespectfully about an assignment may receive a zero on that assignment, regardless of its point value or context.

Accessibility

Students with disabilities: your access to this course is extremely important to us. The institute has policies regarding disability accommodation, which are administered through the Office of Disability Services. Please request your accommodation letter as early in the semester as possible so we can arrange your approved academic accommodation as we cannot retroactively apply accommodations.

Mental Health Resources

As a student, you may experience a range of issues that can cause barriers to learning. These might include strained relationships, anxiety, high levels of stress, feeling down, or loss of motivation. The Center for Assessment, Referral, and Education (CARE) may help you find the best resource to address issues you might experience over the semester. You can learn more about free mental health services available on campus by accessing their website https://care.gatech.edu Links to an external site.. If you are experiencing a crisis, call 404-894-3498. Help is available 24 hours a day, seven days a week.

How to Succeed in This Course

- **Engage consistently** – Show up prepared, contribute in class and team meetings, and ask questions early.
- **Be dependable** – Communicate clearly, meet deadlines, and deliver on your commitments.
- **Iterate deliberately** – Use feedback from clients, peers, and instructors to strengthen your solution.
- **Present professionally** – Rehearse demos and the final expo to showcase your work with clarity and polish.

Success in this course comes from treating it like professional work: steady effort, effective collaboration, and adaptability to change.