

Syllabus - CEE 4090 Civil & Env Engineering Capstone Design Summer 2026

As of 4-20-26

Class Date/Time: May 18- Aug 6, Monday and Wednesday 3:30-4:45 pm

Location: Mason 5134

Lab Date/Time: May 22- July 30, Thursday 2:00-6:15 pm

Location: Mason 5134

Finals Date/Time: Aug 3-6

Location: Mason 5134

Credit Hours: 3

Instructor:

Prof. Jon Drysdale, PE

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(404) 312-1843

Team;

Additional instructors are on call for other expertise.

General Information

Capstone Design is an interdisciplinary civil and environmental design experience. Students form teams of 3 or 4 people, and these teams function as “companies” that provide consulting services to a selected sponsor (“client”) on a specific design project. Students go through the stages of problem definition, data acquisition, and evaluation of design alternatives. The course culminates in a written report and oral presentation of the final design to the client with the lead instructor in attendance.

Course Requirements & Grading

The following submittals are used during capstone:

1. Letter Proposal - Graded 0-100%. Average grade & other factors are used to match teams to projects.
2. Kick-off Meeting Report - Detailed Record of kick-off meeting.
3. Midterm Presentation (slides & selected speakers) - Feedback provided. Does not equate to a grade; however, excellent preparation for the midterm presentation and responsiveness to addressing feedback generally reflects in a better final project.
4. Midterm Summary Report - Feedback provided from lead advisor. Does not equate to a grade; however, excellent preparation and responsiveness to comments generally reflect in better projects.
5. Final Presentation (all team members must speak) and Project Report (including calculations and drawings). Graded by client, external firm, lead advisor, faculty

review panel, and engineering communication professor. Average grade calculated. Panel of lead advisors may adjust grades for factors such as engagement level of sponsor and individual student contribution to the team.

Letter Proposal	Group submittal/grade, for matching
Kick-off Meeting Report	Feedback provided (by lead instructor)
Midterm Presentation to Class	Feedback provided (by instructors present)
Midterm Summary Report	Feedback provided (by lead instructor and by engineering communications, to guide final report)
Final Report & Presentation	Weighted grades based on input from: 3/9 - client sponsor rating 2/9 - cooperating external firm rating 2/9 - lead advisor/instructor rating 1/9 - faculty review panel rating 1/9 - Tech writing rating
Debriefing & ABET Reports	Individual Confidential & Final Feedback
Participation/Contribution	Individual grade adjustments

Course Organization:

During the first couple of weeks of class, Professor Drysdale will present information on available projects from some of the following areas:

- Environmental - Air
- Environmental - Water/Wastewater/Soil/Leachate
- CE Structures - Buildings & Bridges
- CE - Land Development
- CE - Hydrology/Geotech
- CE - Construction/Transportation
- CE - Transportation

After the projects are described, students will have time at the end of class to meet other students and organize into teams. Teams will consist of three or four students unless otherwise approved by the instructor. Students will submit lists of their desired teammates, and professors will set-up the teams based on the lists and other factors.

As will be discussed during the first class, ABET requirements vary for civil vs. environmental engineers. Team members must select projects appropriate to their degree. Professors will provide information on whether specific projects may be used to fulfill only civil, only environmental, or either/both requirements.

“Deliverables”:

The following submittals are required:

Letter Proposal - Each team will prepare a letter proposal. See instructions and examples.

The letter proposal will be reviewed by lead instructor and will receive a grade as to the quality of the proposal. Teams will be matched to projects based on proposal quality, faculty assessment of best talent match-up based on the proposals, client balancing, and team project preferences.

Client Weekly Status Report - Fridays - Each team will submit a status report to the client and Professor Drysdale each week on Fridays before noon. Examples and details to be provided

Kick-Off Meeting Report - Each team will select a team leader, prepare an introduction email to the client, attend a kick-off meeting (zoom or in person, coordinated with the lead instructor and client), and organize an initial site visit. All site visits should be completed on or before Monday June 13.

Midterm Presentation (Written Site Info Report, Powerpoint Slides & Oral Presentation)- After assessing available data and performing the site visit, students will present their scope of work, existing conditions, and their selected design approach (or discussion of alternatives) in a presentation. For the midterm presentations, the team may elect to have only some members speak (at least two are required).

- For civil students, the presentation will be informal and timed (15-minutes— including Q/A) on the scope of work, existing conditions, and design approach
- For civil teams, the site information is due at the midterm presentations, and shall consist of an initial summary of site information, as well as a one-page scope of work and one-page list of deliverables, for submittal to client after discussion and feedback from instructor.

Final Design Report and Presentation - At the end of the semester, each student group is required to prepare a final written report (including calculations and design drawings) and to make a final oral presentation to the sponsor with all team members having a presentation part, and with at least one instructor in attendance. Final presentations are typically 20 minutes to a max of 60 min, including Q and A.

Projects will be graded by the client sponsor, external engineering firm, lead instructor, faculty review panel, and communications instructor, with each reviewer rating items with which they are familiar. Refer to the capstone assessment plan for details.

Debriefing Reports (required) - At the conclusion of the semester, a debriefing module will be posted with information regarding the following. Each student is individually required to provide a synopsis of your experiences, both corporately and individually, including:

- Assessment/reflection memo (public)
- Assessment/reflection memo (private)
- ABET self-assessment

See *CEE 4090-Student-Reflection-and-Closeout-Instructions* for details.

Grading Metric

An ABET-based scoring sheet has been developed that is used both for the self-assessment (above) as well as for input from client sponsors and other reviewers.

Team Grades: Scores will be combined in the ratios described to determine a team score. The team grade may be adjusted by the instructors based on factors such as the strictness of the client sponsor reviewer, whether that year's reviewing firm and faculty ratings diverge, if unusual project challenges were encountered, and other factors.

Individual Grades: Professors will make final adjustments to individual grades that may differ from the team grade (up or down) based on each student's participation/contribution, as observed in weekly meetings with the professor and as assessed by teammates in the debriefing reports.

Course Materials

Please see the separate "resources" document for information on CAD, RS Means, etc.

Course Schedule

Instructional seminars will be presented at the beginning of class on selected dates (30 minutes to max 1 hr). The remaining class time will be devoted to weekly individual team meetings with instructors, as well as student team meetings. Teams are expected to also meet at other times. See schedule (last pages of this Syllabus).

Course Expectations & Guidelines

Academic Integrity

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. For information on Georgia Tech's Academic Honor Code, please visit

<http://www.catalog.gatech.edu/policies/honor-code/> or
<http://www.catalog.gatech.edu/rules/18/>.

Collaboration & Group Work

In contrast to many courses at Georgia Tech,

- Students are permitted and encouraged to work together without limit.
- Individuals and groups may consult with any individuals and organizations that they deem appropriate, with the exception of GT faculty not assigned as instructors for this class.
- Requests for consultation with other GT faculty should be made through and will be coordinated by the instructor(s).

All interactions both within groups and with outsiders should comply with the highest ethical standards. Citations must be properly made, and each team should include an acknowledgements section to credit people used for consultation. Cheating or plagiarizing will be addressed by the instructors and/or the Office of Student Integrity.

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, contact the Office of Disability Services at (404) 894-2563 or <http://disabilityservices.gatech.edu/>, as soon as possible, to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail us as soon as possible in order to set up a time to discuss your learning needs. We want to help you succeed!

Attendance and/or Participation

Students are expected to attend class instruction and group meetings. If you are sick, please arrange to get information from your group and contact your lead instructor.

If an increase in COVID or flu cases is occurring, lectures may be broadcast for certain dates, but likely not routinely.

Extensions & Late Assignments

Late submittals of the qualifications statement will impact both the grade and the project assigned. Incomplete final reports will detrimentally impact the group grade.

Student-Faculty Expectations Agreement

At Georgia Tech we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. See <http://www.catalog.gatech.edu/rules/22/> for an articulation of some basic expectations. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek, and we encourage you to remain committed to the ideals of Georgia Tech while in this class.

Please let us know if you are struggling in any way and need help!

Week	Day	Class	Date	Activity
				Class MW 3:30 pm - 4:45 pm; Lab TBD -TH 2:00-6:15 pm
1	M	1	5/18	Intro and team formation, 3:30-4:00 - Writing letter proposals - Dr. Menagarishvili, 4:00 - Teamwork - Dr. Martin
1	W	2	5/20	Proposal Preparation
2	M		5/25	Memorial Day - no class
2	W	3	5/27	Class starting at 3:30, Proposals Due - 5:00 pm
3	M	4	6/1	No class - Kick-Off Meetings with Clients
3	W	5	6/3	No class - Kick-Off Meetings with Clients
4	M	6	6/8	
4	W	7	6/10	Meeting with Professor Drysdale at 3:30 PM
5	M	8	6/15	Meeting with Professor Drysdale at 3:30 PM Midterm Presentation Instructions and Digital Content Title II ADA - Dr. Menagarishvili
5	W	9	6/17	Meeting with Professor Drysdale at 3:30 PM
6	M	10	6/22	Meeting with Professor Drysdale at 3:30 PM
6	W	11	6/24	Meeting with Professor Drysdale at 3:30 PM
7	M	12	6/29	Meeting with Professor Drysdale at 3:30 PM - Midterm Presentations
7	W	13	7/1	Meeting with Professor Drysdale at 3:30 PM Final Report Preparation - Dr. Menagarishvili
8	M	14	7/6	Team or Client Meetings or Meeting with Professor Drysdale
8	W	15	7/8	Meeting with Professor Drysdale at 3:30 PM
9	M	16	7/13	Team or Client Meetings or Meeting with Professor Drysdale
9	W	17	7/15	Meeting with Professor Drysdale at 3:30 PM
10	M	18	7/20	Team or Client Meetings or Meeting with Professor Drysdale
10	W	19	7/27	Meeting with Professor Drysdale at 3:30 PM
11	M	20	7/29	Team or Client Meetings or Meeting with Professor Drysdale
11	W	21	7/21	8/3-8/6 Client Presentations
12	M	22	8/3	All team and individual submittals due by noon on 7/24
13	M		8/10	Grades due NLT noon