VIP 2601 Syllabus

VIP Proj Team: SO 1, 1, 2 or 3 credit

Fall 2026

Instructor Information

Instructor: Chris Lai and Jingfeng Wang

Email: chrislck@ce.gatech.edu and Jingfeng.wang@ce.gatech.edu

General Course Information

Description

The Vertically-Integrated Projects (VIP) Program operates in a research and development context. Undergraduate students that join VIP teams earn academic credit for their participation in design/discovery efforts that assist faculty and graduate students with research and development issues in their areas of expertise.

The teams are:

Multidisciplinary - drawing students from all disciplines on campus.

Vertically-integrated - maintaining a mix of sophomores through PhD students each semester.

Long-term - each undergraduate student may participate in a project for up to three years and each graduate student may participate for the duration of their graduate career.

The continuity, technical depth, and disciplinary breadth of these teams are intended to:

Provide the time and context necessary for students to learn and practice many different professional skills, make substantial contributions to the project, and experience many different roles on a large, multidisciplinary VIP team.

Support long-term interaction between the graduate and undergraduate students on the team. The graduate students mentor the undergraduates as they work on VIP projects embedded in the graduate students' research.

Enable the completion of large-scale projects that are of significant benefit to faculty members' research programs.

<u>The focus of our ICEMAN VIP team</u>

We address one of the core issues in existing sea-level rise and climate change predictive models – what is the correct glacial ice melting rate to use? Currently, the magnitudes of predicted sea level rise by different

models can differ from each other by a factor of two to five times. The large uncertainties make climate adaptation and mitigation efforts difficult. Our focus here is to advance the understanding of glacial-ocean interactions via detailed laboratory experiments using state-of-the-art techniques in experimental fluid mechanics. Using the collected data, we seek to develop physics-informed and computationally efficient models to predict the impacts of melting glaciers on ocean circulation, climate, sea level rise, and biodiversity in polar regions.

Course Learning Outcomes

By the end of this course sequence, students will be able to:

1. Design and execute simple fluid mechanics experiments.

2. Understand and apply conservation laws in fluid mechanics for the prediction of mass concentrations and flow.

3. Communicate research findings effectively using suitable data visualization techniques and oral presentation skills.

Required Course Materials

The instructors will be assigning reading materials appropriate to their research for students to study.

Grading Policy:

VIP teams function like real-world project teams. Members work on different aspects of a shared project, ranging from sophomores to graduate students, and from first-time participants to those with multiple semesters of experience. Students may enroll for variable credit hours, which are considered in grading. Note: Zero-credit enrollment is reserved for paid participants and follows the same grading criteria.

Each student is evaluated across three core areas, with three mandatory requirements. Regardless of role or experience, students must demonstrate achievement in all three areas:

1. Documentation and Records (33%)

- Maintain individual documentation; the VIP notebook (required).
- Contribute to team documentation

2. Personal Contributions (33%)

- Complete assigned quizzes, modules, essays, or reports.
- Engage actively in the project.
- Pursue knowledge relevant to the project.
- Contribute to technical progress.
- Experienced members may also contribute to project management.

3. Teamwork and Interaction (33%)

- Participate in peer evaluations. Failure to submit results in a full letter grade deduction.

- Attend meetings on time.
- Collaborate toward team goals.
- Coordinate and assist teammates.
- Contribute to team presentations.

Student meets or does not meet specified expectations.

A = meets expectations on 11 standards and meets all * expectations

B = meets expectations on 9 standards

C = meets expectations on 7 standards

D = meets expectations on 6 or less standards

Each section should be 1/3 of the assessment. Add/removed rows to fit your needs.

Your final grade will be assigned as a letter grade according to the following scale:

A	90-100%
B	80-89%
C	70-79%
D	60-69%
F	0-59%

Description of Graded Components

Standard Met	Area	Expectations
	Documentation (1/3 of grade)	
___	Consistent to-do lists	Leaves each meeting with work to do; checks items off list as tasks/work are completed; progress/work can be tracked over time.
___*	Explanation of what was done (in individual notebook/documentation)	Sufficient explanation of work, progress, and next steps. Someone knowledgeable/skilled in the field would be able to understand decisions made, repeat what was done, and obtain the same result.
___*	Reflects on what did/did not go well	Discusses what did and did not go well.
___	Team-level documentation	It must be clear in writing that what team decisions are made and the basis for the decisions.
	Contributions (1/3 of grade)	
___	Proactive	Identifies or asks for tasks to do; does not stop working and searches for solutions when obstacles arise – checks team documentation, searches online, reaches out to teammates, etc.
___	Learning	Acquires knowledge or skills needed for the project.

___	Quality of effort	Work is timely, thorough, and accurate; Student comes to meetings prepared.
___x2*	Appropriate level of contribution	**Considering the course level and number of credit hours**, contributions to the project were appropriate. Early-stage contributions may include obtaining skills needed to do the work.
	Teamwork (1/3 of grade)	
___*	Attitude and participation	Demonstrates interest in the project; treats teammates with respect; pays attention to the people speaking during meetings; avoids distractions during meetings; participates in discussions around others' work; acknowledges the value of others' contributions.
___*	Engages with others' work	Knows what others on the team/subteam are doing; checks in/stays abreast of their progress; gives teammates constructive feedback and suggestions; helps or provides guidance to teammates; helps keep the team/subteam moving forward.
___	Communicates well	Facilitates communication within the team; exchanges relevant information with teammates; clear and timely communication.
___	Adaptable	Able to pivot when plans change or problems arise; willing to accept help; solicits and listens to suggestions and feedback; uses suggestions and feedback to improve.
___**	Peer evaluations	Completed peer evaluations by the deadline. Provided thoughtful feedback.

* Required in order to earn an A. Instructors can choose which items this applies to.

** Required in order to earn an A. Not completing peer evaluations is associated with a letter grade reduction. This is a policy of the VIP Program.

Course Policies

Attendance and/or Participation

Students are expected to actively participate in all class activities.

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. Review Georgia Tech's Honor Code and the student Code of Conduct.

Any student suspected of cheating or plagiarism on a quiz, exam, or assignment will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, contact the Office of Disability Services (404-894-2563) as soon as possible to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail me as soon as possible in order to set up a time to discuss your learning needs.

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. The Student-Faculty Expectations articulate some basic expectations that you can have of me and that I have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals of Georgia Tech while in this class.