Trustworthy Distributed AI Syllabus

VIP (all sections), VZN, Variable Credits, Spring 2027.

Instructor Information

Instructor	Email	Drop-in Hours & Location
Viveck Cadambe	viveck@gatech.edu	Location/Link, Hours, Days

About VIP

The Vertically Integrated Projects (VIP) Program operates in a research and development context. 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.

Learning Objectives

Through VIP students will:

- Learn and practice professional skills;
- Make substantial contributions to the team project;
- Experience different roles on a large, multidisciplinary team.

Team Focus

Description

Trustworthy Distributed AI is a Vertically Integrated Projects course in which students develop a fundamental understanding of how to design AI systems that are safe, reliable, and trustworthy. Students pursue this goal through: (1) modeling and theoretical analysis of AI systems; (2) designing, developing, and implementing algorithms and systems; (3) testing system behavior under failures, uncertainty, and adversarial conditions; and (4) reading and critically evaluating contemporary research literature. The course focuses on distributed AI systems interpreted broadly. Examples include networks of nodes collaboratively training a model, edge devices performing distributed inference, and multiple AI agents coordinating to accomplish a common goal.

Course Requirements & Grading

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.

Grading Overview

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 (30%)**
Each student will maintain an Individual Weekly Notebook in a private Dropbox folder shared with the instructor and designated course staff. A dated entry is due before each weekly team meeting and should include:

- Goals, work attempted, and work completed.
- Supporting evidence such as designs, commits, experiments, or figures.
- Learning, problems encountered, decisions, and next steps.
- Relevant individual, working-group, and team meeting notes.

The team has a Git repository and a shared wiki for documentation. Students will add appropriate designs, tutorials, procedures, findings, decisions, troubleshooting guidance, and handoff material, and the grading will take into account contributions to the wiki.

2. **Personal Contributions (40%)**

A. Tutorial and Knowledge Sharing — 40% of this area; 16% of overall course grade

We will divide the class into working groups over time. Each working group of one to four students will prepare and deliver one project-relevant tutorial (about 20 minutes). The group will:

- Explain the topic accurately and at an appropriate technical level.
- Connect the topic to the team's project.
- Provide useful examples, demonstrations, or references.
- Document each member's contribution.

B. Design and Implementation — 60% of this area; 24% of overall course grade

Design must precede substantial implementation. Students will:

- Document the problem, requirements, proposed approach, and evaluation plan.
- Record major components, interfaces, alternatives, and design changes.
- Provide code updates, analysis, experiments, tests, or integration artifacts.
- Demonstrate technical understanding of the work produced.

3. **Teamwork and Interaction (30%)**
- A. Attendance and Participation — one-third of this area; 10% of overall course grade.

- B. Collaboration and Communication — one-third of this area; 10% of overall course grade
- C. Peer Evaluations — one-third of this area; 10% of overall course grade

Final presentations, final submission of individual documentation (weekly notebook and wiki), and the end-of-semester VIP peer evaluation are due during the last week of classes, which may include the Final Instructional Class Days. There is no final exam and nothing is due during the final exam period. The schedule for working-group tutorials will be announced during the semester.

Rubric and Grading Scale

Grading rubric is in the evaluation worksheet attached at the end of this syllabus. Your final grade will be assigned as a letter grade according to the following scale:

A	85–100%
B	70–84.99%
C	60–69.99%
D	50–59.99%
F	Below 50%

Course Materials

Materials/Resources

There is no required textbook and no required purchase for this course. Readings (research papers, tutorials, and technical documentation) will be freely available to enrolled Georgia Tech students and posted on the team GitHub wiki or Canvas. We will populate this jointly over the course of the semester.

Course Website and Other Classroom Management Tools

We will have:

- Dropbox folders: Individual weekly notebooks.
- Github: Shared code, and shared documentation.
- Canvas: Final grades will be published on this.
- Overleaf (optional): In case we are writing a paper.

Peer evaluations are administered by the VIP Program Click Here to access peer-evaluations from off campus. Click here to access from on campus. You will be prompted to sign in. Users can only log in from on campus or via VPN. Students can only access the peer evaluation portion of the system during active evaluation periods.

Course Policies, Expectations, & Guidelines

VIP is a collaborative, multidisciplinary, project-based learning and research experience. Your success in this course depends not only on your technical contributions but also on your active engagement with your team and the broader learning process.

Your Role in the Learning Process

As a VIP student, you are expected to:

- Take initiative in exploring and applying knowledge relevant to your project.
- Collaborate effectively with team members across disciplines and experience levels.
- Document your work thoroughly.
- Reflect on your learning and contributions throughout the semester.

This course is a real-world team environment, where learning is dynamic, self-directed, and collaborative. Your growth depends on your willingness to engage, contribute, and learn from others.

Team Meetings and Participation

Attendance and active participation in **team meetings** and **sub-team meetings** are required. These meetings are essential for:

- Coordinating project tasks and timelines.
- Sharing progress and receiving feedback.
- Learning from peers and mentors.
- Contributing to team decisions and direction.

Failure to attend meetings without valid reason may negatively impact your grade and your team's progress. If you anticipate missing a meeting, communicate with your team and advisor in advance.

Use of External Resources

You are encouraged to consult external sources to support your learning and project work. However:

- Do **not present someone else's work as your own**.
- Always **cite and reference** external materials used in your notebook, code, presentations, or other deliverables.
- Proper attribution is essential to maintain transparency and integrity in a collaborative research environment.
- Generative AI tools may be used, but you must disclose how you used them in your weekly notebook and be able to explain any work you submit. Any code generated using AI must be thoroughly human-verified.

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 plagiarizing 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.

Attendance and/or Participation

Attendance and participation in weekly meetings is required. If some other commitment precludes attendance, permission prior to absence is required. Even in this case, we expect notebooks to be turned in in a timely manner.

Attendance in sub-team meetings are also expected, and should be logged in the weekly notebook update.

Extensions, Late Assignments, & Re-Scheduled/Missed Exams

In general, late submissions of required materials (weekly notebooks, project updates, presentations) will not be permitted. In unavoidable circumstances, instructor permission is required prior to missing the activity.

Inclement Weather and Digital Learning Days

We may move to zoom meetings occasionally due to unavoidable circumstances (inclement weather, institute mandated digital learning, or instructor illness)

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.

Student Use of Mobile Devices in the Classroom

In general, mobile devices should not be used during meeting times. The only exception is for project-related use, such as presenting, consulting code or documentation, or taking meeting notes.

Additional Course Policies

VIP Room and Equipment Use Policy

VIP rooms and equipment are shared resources used by multiple teams. To ensure a productive and respectful working environment, the following rules apply:

1. Room Usage Priorities

Room use is prioritized as follows:

1. Scheduled team meetings, lectures, and learning modules
2. Weekly sub-team meetings (multiple groups may share the space)
3. Video conferences or special meetings with VIP stakeholders
4. Other project-related work (multiple groups may share the space)

Room schedules are available on the VIP website.
Note: A "good neighbor" policy applies—students may use rooms during other activities as long as they do not cause disruption. Quiet individual work or studying is allowed when it does not interfere with scheduled uses. Similarly, multiple groups may use a VIP room at the same time.

2. Cleanliness and Conduct

- Everyone is responsible for keeping rooms clean.
- Food is allowed, but spills must be cleaned immediately.
- **Gum must be disposed of properly—do not stick it under desks or on carpets.**
- Rooms are monitored by cameras; violations may be reviewed via video.

3. **Equipment Use**

- Equipment may be designated for general use or assigned to specific teams.
    - General use examples: Projector in Klaus 1440, monitors in VL 465 and VL 463B.
    - Equipment assignments may change each semester.
- If unsure about equipment access, contact: vip-request@ece.gatech.edu
- Use equipment only for its intended purpose. Misuse may pose safety risks.

Important Equipment Rules:

- Equipment may not be removed from VIP rooms without a signed loan agreement approved by a VIP Director.
- You are financially responsible for any equipment not returned in good condition.
- You must know how to operate equipment safely. Approval to use equipment does not imply safety training has been provided.

4. Computer Accounts

- Accounts are for individual use only—do not share with others.
- All usage must comply with Georgia Tech, USG Board of Regents, and State of Georgia policies.

- Respect privacy and data integrity. Having access to a file does not mean you are authorized to read or modify it.

5. BuzzCard Access

- Access is a privilege and is logged.
- Rooms are under video surveillance. In cases of theft, vandalism, or messes, logs and footage will be reviewed.
- Do not allow unauthorized individuals into VIP spaces.
- Always secure the room (close the door) when leaving.

Campus Resources for Students

Undergraduate Student Academic Success Resources:
A list of resources for undergraduate students' academic success and information about advising can be found at Success at Tech.

- 1:1 Tutoring: Students looking for additional assistance outside of the classroom are advised to consider working with a peer tutor through Knack. Georgia Institute of Technology has partnered with Knack to provide students with access to verified peer tutors who have previously aced this course. To view available tutors, visit gatech.joinknack.com and sign in with your student account.

Graduate Student Academic and Professional Success Resources:
A list of resources for graduate students is given on the Office of Graduate and Postdoctoral Education website. Specific information for current graduate students includes

- Academic Resources such as the Communications Center, Language Institute, Library, Catalog, Registrar, resources for conducting research, Advocacy and Conflict Resolution resources, and how to manage unexpected situations that may impact your academic performance;
- Student Resources such as Campus Services, Child Care/Family programs, Health & Wellness, Career Services, and the Student Resource Guide; and
- Professional Development such as the programming from the Career Center and other professional development resources and events.

Student Well-Being:
At Georgia Tech, we are concerned about your overall physical, social, and mental well-being. A comprehensive list of wellness related resources has been compiled and maintained by the Office of the Vice President for Student Engagement and Well-being (student-resource-guide (gatech.edu)

Trustworthy Distributed AI - Evaluation Worksheet

Student: _____

Semester: _____

Evaluation: Midterm _____ Final _____

Course/credit hours: _____

Project role or working group: _____

RATING SCALE

4 — Exceptional: Substantially exceeds expectations in quality, initiative, independence, or value to the team.

3 — Very Good: Consistently meets expectations; work is timely, sound, and useful to the project.

2 — Developing: Contributions are infrequent, incomplete, inconsistent, or require substantial prompting or revision.

1 — Not Demonstrated: Little or no verifiable achievement of the stated expectations.

1. PROJECT CONTRIBUTIONS (40%)

Tutorial and Knowledge Sharing (16%)

Rating (1-4): _____

Evidence/comments: _____

_____

Design and Implementation (24%)

Rating (1-4): _____

Evidence/comments: _____

_____

2. DOCUMENTATION AND RECORDS (30%)

Clarity of Individual Notebook and Team Wiki (15%)

Rating (1-4): _____

Evidence/comments: _____

_____

Consistency/Frequency of Individual Notebook and Team Wiki (15%)

Rating (1-4): _____

Evidence/comments: _____

_____

3. TEAMWORK AND INTERACTION (30%)

Attendance and Participation (10%)

Rating (1-4): _____

Evidence/comments: _____

_____

Collaboration and Communication (10%)

Rating (1-4): _____

Evidence/comments: _____

_____

Peer Evaluations (10%)

Rating (1-4): _____

Evidence/comments: _____

_____

SCORE CALCULATION

For each item: weighted score = (rating / 4) × weight.

Tutorial and Knowledge Sharing: (_____ / 4) × 16 = _____

Design and Implementation: (_____ / 4) × 24 = _____

Documentation Clarity: (_____ / 4) × 15 = _____

Documentation Consistency: (_____ / 4) × 15 = _____

Attendance and Participation: (_____ / 4) × 10 = _____

Collaboration and Communication: (_____ / 4) × 10 = _____

Peer Evaluations: (_____ / 4) × 10 = _____

TOTAL: _____ / 100

PROVISIONAL/FINAL LETTER GRADE: _____

A: 80–100 B: 70–79.99 C: 60–69.99 D: 50–59.99 F: Below 50

STRENGTHS

_____

_____

PRIORITIES FOR IMPROVEMENT / NEXT STEPS

_____

Instructor: _____ Date: _____

Student response or acknowledgement: _____