VIP Diabetes & Chronic Disease Systems

Spring 2027

VIP 2601 VX7, 3601 VX7, 3602 VX7, 4601 VX7, 4602 VX7, 4603 VX7, 6601 VX7, 6602 VX7, 6603 VX7, 6603 OX7

Meeting Time: Tues 3:30pm

Meeting Location: Skiles 202

Instructor Information

Instructor	Email	Drop-in Hours & Location
Doug Bodner, Ph.D., P.E.	Available on Canvas	Available on Canvas

General Course Information

Description

As the U.S. population ages, chronic diseases have become more prevalent. This has important implications for society in terms of healthcare costs and quality of life. One such chronic disease is diabetes, which is characterized by elevated levels of blood sugar. Diabetes exhibits significant complexity by co-occurring with other chronic diseases and interacting with other phenomena. Co-occurring diseases include hypertension, cardiovascular disease, and kidney disease, among others. Interacting factors include lifestyle, social networks, economic standing, health insurance, and the healthcare system.

This interdisciplinary, project-based course challenges students to utilize computational models and other methods to study and develop solutions for care regimens, networked diagnosis and care system design, healthcare business models, and insurance/payment models.

Pre- &/or Co-Requisites

There are no pre-requisites or co-requisites for this course.

Course Goals and Learning Outcomes

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

1. **Apply major-specific technical skills** to solve a problem in the area of chronic disease with a focus on diabetes.
2. **Integrate diverse skillsets within a team framework** to solve a problem in the area of chronic disease with a focus on diabetes.
3. **Apply computational and data-driven approaches** such as machine learning, analytics, statistics and serious games to the study of chronic disease and diabetes.
4. **Understand and engage in the research process**, including proposal development, research question generation, literature reviews, human subjects protection, research performance, documentation and publication of results.

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 (33%)**
    - Maintain individual documentation (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.

Credit Hours Overview

Students may take 1-3 credit hours. The credit hour options are explained below.

1. 1 credit hour (2-3 hours per week). Students are expected to participate in a sub-team and contribute commensurate to their credit hour load. This should be evidenced by notebook entries and peer evaluations.
2. 2 credit hours (4-6 hours per week). Students are expected to participate in a sub-team and contribute commensurate to their credit hour load. This should be evidenced by notebook entries and peer evaluations. This option may also result in additional assignments.
3. 3 credit hours (7-9 hours per week).
    a. Undergraduate students are allowed to take 3 credit hours. Students may participate in a sub-team or engage in his or her own project, either way with contributions commensurate to their credit hour load. In addition to evidence from notebook entries and peer evaluations (if participating in a sub-team), students must submit a written report of their findings. If you are taking 3 credit hours as part of your major's design requirements, please contact the instructor. In this case, if you are required to submit a report by your department, it can be used to satisfy the report requirement noted. This option may also result in additional assignments.
    b. Graduate students are also allowed to take 3 credit hours. A graduate student typically pursues his or her own project as a single-person sub-team. It is possible to have an undergraduate student participate as a junior partner if one is interested. Mentorship is an important role for the graduate student in this case. In addition to evidence from notebook entries and peer evaluations (if participating in a sub-team), students must submit a written report of their findings.

Rubric

The VIP rubric is shown below.

	Poor	Adequate	Spectacular	Points
Documentation				
Consistent individual to-do lists	Does not consistently create to-do lists. Difficult to track when work was done.	Leaves each meeting with work to do, with intended work easy to find in notebook. Checks items off as work is completed.	Same as previous + Highly detailed to-do items on a consistent basis	10
Explanation of what was done individually	Very little explanation of work and progress	Adequate explanation of work & progress Someone knowledgeable/ skilled in the field would be able to: - Understand decisions made - Repeat what was done Obtain the same result	Same as previous + Highly detailed to-do items on a consistent basis	10
Team documentation	Little to no documentation provided in team shared folder or platform (e.g., Github)	Adequate documentation	Same as previous + Known within team for superb documentation	10
Contributions				
Attitude and approach	Uninterested in the project. Avoids work, waits for tasks to be assigned. Stops working when encounters obstacles, makes excuses.	Cares about the project. Proactively identifies or asks for tasks to do. Searches for solutions when encounters obstacles.	Same as previous + Has high standards for the team. Wants the team to succeed.	10
Quality of effort	Sloppy or incomplete performance on weekly work. Unprepared, late, or misses meetings.	Work is timely, complete, and accurate. Comes to meetings prepared.	Work quality exceeds what is expected. Looks ahead, identifies and explores next steps.	20
Learning	Unable or unwilling to develop knowledge or skills to contribute to the team.	Acquires knowledge or skills needed for the project.	Acquires knowledge or skills above/beyond the minimum needed for the project, to improve the team's performance.	20
Personal contributions to project (given experience, course level & credit hours)	Very few contributions. The work was too simple. The work did not advance the project or help the student gain skills that would advance the project.	Adequate contributions. The work advanced the project and/or helped the student gain skills needed to advance the project.	Same as previous + Exceptional contributions.	30
Teamwork				
Interaction	Interrupts or ignores teammates. Distracted during meetings (phone, email, etc.).	Avoids distractions during meetings and pays attention to others. Respects teammates' contributions, work, and ideas.	Same as previous + Shows an active interest in teammates' ideas and contributions.	10
Engages with others' work	Does not pay attention to teammates' progress.	Knows what everyone on the team (or subteam) is doing.	Makes sure teammates are making progress. Provides encouragement or enthusiasm to the team.	10
Communication	Does not share information. Takes actions that affect teammates without input.	Shares information with teammates. Communicates clearly.	Facilitates communication within team.	10

Giving help and feedback	Gives no help or advice.	Helps and gives advice when asked.	Offers help and advice. Gives constructive feedback.	10
Accepting help and feedback	Accepts no help or advice.	Respects and responds to feedback. Uses suggestions to improve.	Asks for feedback.	10
Competed peer evaluations*	Did not complete peer evaluations.	Completed peer evaluations by the program's posted deadline.		10

* Not completing peer evaluations is associated with a letter grade reduction

Major Requirements

Different schools allow specific types of degree credit for VIP above and beyond use as an elective. In some cases, schools have requirements for this type of credit. The instructor will work with students seeking this type of credit and their major schools to make sure that the requirements are met.

Grading Scale

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%

Course Materials

Materials/Resources

There are no required textbooks. This course uses a variety of software dependent on the particular sub-team focus. In addition, students are highly encouraged to read research literature related to course topics.

Course Website and Other Classroom Management Tools

The course uses Canvas for the course website and learning management system. Individual sub-teams use Github, Slack and other tools to manage their projects.

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.

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

All students are expected to attend each team meeting, as well as their sub-team meetings outside of class. Students who have participated on the team in prior semesters are allowed to register for the course if they have a time conflict with another course. They may attend the class virtually, viewing recorded team meetings asynchronously. Similarly, online master's students may attend virtually. When possible, virtual students are encouraged to attend presentation sessions synchronously.

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

Late assignment submissions will be offered only if you have a valid reason (severe illness, severe illness or death of an immediate family member, serious accident, important religious holiday, or Institute-approved activities with proper documentation). Such reasons must be submitted as early as possible, preferably well before the due date. Late non-exam submissions will incur a grade penalty.

Inclement Weather and Digital Learning Days

Campus closures or opening delays may occur due to inclement conditions. If class is cancelled, a digital learning day will be used to deliver scheduled material. If feasible, a synchronous class session will be broadcast online at the regular class time. If not, an asynchronous class session will be used. Either way, it

will be recorded and posted for viewing later. Assignment deadlines may be modified if, in the instructor's judgment, conditions impair successful performance of assignments.

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

Cell phone, tablet and/or computer use is permitted only if you are using the device to take notes or participate in a class activity.

Additional Course Policies

Time Zone:
Unless otherwise stated, all times are assumed to be expressed using Eastern Time (ET).

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)

Course Schedule

Available on Canvas