Syllabus for *Cloud Computing*

CIS 437 — Winter 2026

Foundations of cloud computing: infrastructure/platform/software-as-a-service, virtualization, cloud platforms, on-demand/cloud applications. Challenges of cloud computing such as security and geographic implications, full-stack development, and big data. Cloud application development, deployment, and management is also covered.

Contact Information:

Class Time: TR, 2:30pm - 3:45pm

Instructor: Dr. Erik Fredericks

E-mail: frederer@gvsu.edu

Office: D-2-210 MAK

Office Hours: TR, 10am – 11am (In-Office)

Course Page: https://efredericks.github.io/gvsu-cis437, Blackboard

Discord: https://discord.gg/pNaTDKH

Midterm exam: 02/26/2026, 2:30pm-3:45pm

Final exam: 04/30/2026, 2:00pm-3:50pm

Course Objectives:

After successful completion of the course the students will be able to:

- Define cloud computing and the role it plays in constructing modern software systems.
- Describe key issues/developments relevant to cloud computing such as security, geographic distribution, containerization, virtualization, privacy, etc.
- Develop cloud applications using modern cloud technologies.
- Compare Infrastructure-as-a-Service, Platform-as-a-Service, and Software-as-a-Service.
- Contrast the advantages and disadvantages of cloud applications

Prerequisites:

- CIS337 or CIS457, admission to computing major, or permission of instructor

Course Materials:

Primary: Instructor's Lecture Notes, Open Educational Resources, and Handouts (via Blackboard)

Course Delivery - **In Person***:*

This course will be delivered **in person**. If it becomes necessary to change delivery formats, we will change to an *online synchronous* format.

Grading Proportions:

The last day to drop a course with a grade of "**W**" is **March 27, 2026**.

The CR/NC date is **February 6, 2026**.

Your grade is based on your performance in your homework assignments, term project, exams, participation.

Graded Item	Weight
Participation:	15%
Coursework:	30%
Term Project	25%
Midterm Exam:	15%
Final Exam:	15%
Total	**100%**

A	>=93%	**B-**	>=80%	**D+**	>=67%
A-	>=90%	**C+**	>=77%	**D**	>=60%
B+	>=87%	**C**	>=73%	**F**	<60%
B	>=83%	**C-**	>=70%		

Late Policy:

- Work submitted after the due date will incur 10% late penalty per day, with a minimum penalty of 10%. **No assignment will be accepted more than 3 days late**.

- No assignment will be accepted late after the last day of class regardless of the number of days late.

If you are struggling with meeting deadlines, please contact me as soon as possible!

Coursework in this class consists of in-class assignments (participation), homework assignments, and a semester-long term project. Assignments are graded for correctness *and* communication. Pay attention to factors including content, organization, clarity/style, and mechanics.

1. Homework assignments must be completed individually (unless otherwise noted). However, it is expected that several of the finished and graded homework assignments will be used to support the creation of the term project report.

2. The term project is a half-semester long effort *centered around cloud computing*. Grades will reflect the quality of the software created. Groups of **1–3** people will be accepted, where requests for groups of a larger size will be handled on a case-by-case basis.

Course Policies and General Information:

(1) The Fred Meijer Center for Writing, with locations at the Allendale and Pew/Downtown Grand Rapids campuses, is available to assist you with writing for any of your classes. Writing consultants, who are fellow GVSU students, are trained to help you with all stages of your writing process, from brainstorming to organizing to editing your papers. Simply bring a draft of your paper, the assignment sheet, and your questions/concerns to any of the Center's locations. Also, through your Gmail account, you have access to online consultations through Google Docs. The Center's services are free and you can drop in and work with a consultant or make an appointment, either through our website or by calling the Center (331-2922). For more information about our services and locations, please visit our website: `http://www.gvsu.edu/wc/`

(2) **Cooperation and cheating**: Be aware of the SCIS policy on academic honesty. Visit the department website (`https://www.gvsu.edu/computing/academic-honesty-30.htm`) for the full statement on academic honesty. Academic dishonesty will not be tolerated. Violations will result in *at least* failure of the assignment. However, violations may also include failure of the entire course and referral to the university resulting in additional consequences, including possible expulsion. You are welcome to discuss assignments with each other or myself, however do not copy answers or plagiarize. If you are unsure of what plagiarism means, please either ask me or visit the department website mentioned above.

(3) Participation is *not* equivalent to attendance. Please ensure you keep up with the in-class assignments to ensure that you are staying current with the class (and receive the credit for it).

(4) **ChatGPT/LLM statement**: I do not mind if you use ChatGPT to help you work through problems, however do not simply copy and paste its output into your assignment. This is the same as plagiarism/cheating as you are presenting work that is **not your own**.

(5) Special Needs: If there is any student in this class who has special needs because of a disability, please contact Disability Support Resources at `http://www.gvsu.edu/dsr/`

(DSR) at 616-331-2490.

(6) This course is subject to the GVSU policies listed at `http://www.gvsu.edu/coursepolicies/`.

(7) In Case of Emergency Fire: Immediately proceed to the nearest exit during a fire alarm. Do not use elevators. More information is available on the University's Emergency website located at `http://www.gvsu.edu/emergency`.

(8) This syllabus is deprecated in favor of any syllabus uploaded to the course Blackboard page with a *more recent* "generated" date. This version of the syllabus was generated on January 5, 2026.

A course schedule of topics project deadlines are included in the table below. This schedule may be adjusted throughout the semester as needed. Note, the order topics are covered is tentative and may be adjusted throughout the semester (most will take more than 1 session).

Module	Lecture/Discussion Topic
January 19th, 2026, **Martin Luther King Jr. Day**	No classes!
March 8th − 15th, 2026, **Labor Day Recess**	No classes!
1	Introduction
2	Cloud Platforms
3	Cloud Shell / Cloud Applications
4	* as a Service, Microservices, and Serverless Computing
5	Security and Geographic Implications
6	Various Sizes of Data
7	APIs
8	Cloud Run / Cloud Build
9	Cloud Operations
9	Machine Learning and Generative AI
Midterm Exam	February 26, 2:30 pm - 3:45 pm
Final Exam	April 30, 2:00 pm - 3:50 pm