

CS/ME/MGT 3743 Syllabus

Analysis of Emerging Technologies, section TM, 3 credits

Fall 2026

Instructor Information

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General Course Information

Description

Emerging technologies can change the business environment rapidly and dramatically. The Analysis of Emerging Technologies course helps you identify the implications of emerging technologies via a “timeless” and a “timely” component.

- The “timeless” component is a step-by-step, structured approach for analyzing an emerging technology, including how to seize the opportunities and mitigate the threats that it creates. This includes identifying the problem/opportunity that the technology can address, describing the challenges/uncertainties that may prevent the technology from addressing the identified problem/opportunity, and exploring how those challenges/uncertainties might be overcome. The approach encapsulates forecasting principles and tools as well as theory about whether a new technology is adopted or not.
- The “timely” component is a survey of emerging technologies, including those related to artificial intelligence, blockchain technology, energy, transportation, biotechnology, and other topics. We will study emerging technologies for their own sake as well as to illustrate how to implement the structured approach (i.e., the “timeless” component).

In this way, the course provides you with an approach for analyzing emerging technologies that you can use throughout your career. The course is also a survey of emerging technologies.

Analysis of Emerging Technologies is an excellent fit for students interested in the intersection of business and technology. It teaches skills that are important for a broad range of contexts, including:

- General managers considering the impact of an emerging technology on their organizations,
- Analysts predicting the impact of an emerging technology on an industry,
- Entrepreneurs developing a new technology, and
- Policy makers charged with helping society benefit from emerging technologies.

Course Learning Outcomes

Upon successful completion of this course, you should be able to:

- Conduct a structured analysis of an emerging technology.
- Use this analysis to craft strategy.
- Describe the current state and future prospects of the emerging technologies covered in the course.

Required Course Materials

We will use a combination of articles (available online and in the GT library) and videos. You will need to be able to use a web browser and the desktop version of Microsoft Excel (not the online version). You will need online access to Canvas and the Georgia Tech library (www.library.gatech.edu).

Grading Policy:

The graded course components sum to 100 points. Your final grade will be assigned as a letter grade according to the following scale:

- A: 90-100 points.
- B: 80-89.999 points.
- C: 70-79.999 points.
- D: 60-69.999 points.
- F: 0-59.999 points.

The graded course components are as follows:

Assignments

- Class Preparation Assignments: 9% (individual).
- Application Exercises: 24% (group).
- Quizzes on Asynchronous Session: 6% (individual).
- Interview with an Emerging Technology: 15% (group + individual).

- Progress Checkpoints for Interview with an Emerging Technology: 4% (individual).
- Critique of Classmates' Interview with an Emerging Technology: 2% (individual).
- Mid-Term Exam: 15% (individual).
- Final Exam: 11% (individual).
- Participation in T&M Program Activities: 3% (individual).
- Class Attendance and Participation: 11% (individual).

Description of Graded Components

Class Preparation Assignments

The purpose of the class preparation assignments is to guide you as you read the assigned articles or watch the assigned videos so that you are prepared for class discussion. Given their purpose, class preparation assignments are due at the beginning of the class session for which they are assigned. If you miss class, you should still complete the class preparation assignments, because this will prepare you for watching the class session recording. I will use only your 9 highest grades (out of 11) when calculating your overall score for this grading component.

Application Exercises

The application exercises prompt you to apply course concepts in a hands-on way. You will complete these with 1-3 other students to help you learn from each other and to build your professional network. If you miss class and thus an application exercise(s), you have the option to team with another classmate who missed class to complete the exercise. You may also complete one of these applications exercises individually; you will receive full credit if you complete the exercise correctly. If you submit a second application exercise individually, you will receive ½ credit if you complete the exercise correctly. If you submit additional application exercises individually, you will receive no credit.

Quizzes on Asynchronous Content

You will take quizzes (open book, open notes) to demonstrate your completion of the online, asynchronous material provided as part of the course.

Interview with an Emerging Technology

You will form a group with other students to conduct an analysis of an emerging technology of your choice. You will present your analysis as a podcast (plus an edited transcript of the podcast) in which the host interviews embodiments of the emerging technology. For example, assume that you are analyzing small modular nuclear reactors. The host, who is one of your group members, will interview other group members, who would each play the role of a small modular nuclear reactor. Your group will receive a group grade for the

podcast and edited transcript. Your individual grade will be determined as follows: Student Grade = Group Grade + Student Adjustment Factor. The Student Adjustment Factor is based on peer evaluations; it may be positive or negative. Additional instructions about this assignment will be provided in a separate document.

Progress Checkpoints for Interview with an Emerging Technology

As part of completing the Interview with an Emerging Technology assignment, you will complete graded checkpoints to ensure progress.

Critique of Classmates' Interview with an Emerging Technology Podcasts

You will prepare a brief critique of at least 2 Interview with an Emerging Technology podcasts created by other groups.

Mid-Term Exam

The mid-term exam will be administered in class, via Canvas using LockDown browser or via pen and paper. It is closed book/closed notes and will cover the material up to the date the mid-term exam is administered. The format of the mid-term exam will be discussed prior to the exam.

Final Exam

The final exam is open book/open notes. It will be available after the final class session. The format of the final exam will be discussed prior to the exam. You may not use generative AI tools to create your answers on the exam.

Participation in T&M Program Activities

This grading component will be assigned by the T&M program office and relayed to me near the end of the semester. It will be based on your participation in T&M Program activities such as corporate partner information sessions. Please contact the T&M Program office for details.

Class Attendance and Participation

See below.

Course Policies

Attendance and/or Participation

A substantial amount of the value of the course accrues during each session. Your experience and learning will suffer by missing class sessions, even if you are still able to do

well on the other assignments. That is because the assignments do not reflect the totality of the course experience. Given this, it is important to attend the class sessions and to participate in the classroom discussions and activities. It is your responsibility to attend and prepare for each class session and to participate in the discussions. I will monitor attendance, late arrivals / early exits, and behavior that signals lack of engagement with the class. To maximize your learning and achieve a good attendance and participation grade, you should:

1. Attend class. It is OK if you miss 2-3 classes; you don't need to ask permission for those, although you will need to complete assignments associated with any classes that you miss (such as class preparation assignments, application exercises, etc.). Additional absences will negatively affect your grade unless you document and provide a clear and compelling reason for them.
2. Be on time and remain engaged in the session until it is complete. Consistent late arrivals and/or early exits will lower your attendance and participation grade, potentially to 0.
3. Avoid behavior that signals lack of engagement with the class, such as walking in and out of the classroom during class and using a laptop when not needed for a classroom activity.
4. Prepare for class by completing the assigned readings, watching the assigned videos (if applicable), and completing the associated class preparation assignment (if applicable).
5. Engage with each other and participate in discussions and group work.

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.

Collaboration, Group Work, and Use of Generative AI

Generative AI tools are helpful at tasks such as brainstorming ideas and refining your writing. However, they should not be used in place of your own analysis. You may not use generative AI tools to complete the class preparation assignments, the quizzes on asynchronous content, or the final exam (except to polish your writing).

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

No make-up exams will be given. If you have to miss an exam because of unavoidable circumstances, let me know in advance so that we can work something out.

I will grant extensions on other assignments if you provide a compelling, written reason.

Student Use of Mobile Devices in the Classroom

Bring a laptop/tablet with a web browser and the desktop version of Microsoft Excel to class with you. You will sometimes need your laptop for in-class activities.

However, do not use an electronic device during class unless it is for an in-class activity. At the beginning of class, I will ask that everyone close their laptops. This improves the classroom experience by focusing student attention on what is happening during class. After the first few class sessions, I expect that students will close their laptops at the beginning of the class session without my prompting.

Campus Resources for Students

Undergraduate Student Academic and Professional Success Resources:

A list of resources for undergraduate students' academic success and information about advising can be found at [Success at Tech](#).

- Academic Support: Academic Success and Advising (a unit in the Office of Undergraduate Education & Student Success) provides free support for your courses. Students can attend scheduled supplemental review (PLUS) sessions,

stop by Drop-In Tutoring, or schedule a one-on-one appointment through Knack. To explore what options work best for you, please visit us online at success.gatech.edu/tutoring, email us at tutoring@gatech.edu, or come see us at Clough Undergraduate Learning Commons, Suite 283.

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 \(gatech.edu\)](#))

High-Level Course Schedule (Tentative)

Week 1: Course introduction and sample emerging technologies.

- Example technologies analyzed: Space-based data centers, aerial internet infrastructure.

Week 2: Overall analysis framework.

- Example technologies analyzed: 3-D printed houses, cultivated meat.

Week 3: Analysis tools: Innovation diffusion theory.

- Example technologies analyzed: Companion robots, edible containers.

Week 4: Analysis tools: Technology platforms theory.

- Example technologies analyzed: AR/VR.

Week 5: Analysis tools: Technology standards and adapters.

- Example technologies analyzed: Passkeys, modular phones.

Week 6: Interview with an Emerging Technology workshop and guest speaker.

Weeks 7 and 8: Analysis tools: Stakeholder influence, Technology infrastructure and ecosystems.

- Example technologies analyzed: Electric vehicles, hydrogen vehicles.

Week 9: Break and midterm exam.

Week 10: Analysis tools: Forecasting methods and principles.

- Example technologies analyzed: Humanoid robots.

Week 11: Analysis tools: Ethics + Deep dive: Biotechnology.

- Example technologies analyzed: CRISPR-Cas9, employee monitoring software.

Weeks 12 and 13: Deep dive: Artificial intelligence

- Example technologies analyzed: Large language models, AI agents, autonomous vehicles.

Week 14: Deep dive: Blockchain and cryptocurrency

- Example technologies analyzed: Cryptocurrencies, utility tokens, NFTs.

Week 15: Deep dive: Energy technologies

- Example technologies analyzed: Nuclear fusion, space-based solar power, next-generation biofuels.