MGT 8812 Syllabus

Analysis of Emerging Technologies, section EX2, 2 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, 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 - 18% (individual)
- Application Exercises - 24% (group)
- Quizzes on Asynchronous Material - 10% (individual)
- Forecast Exercise (Xenotransplantation) - 10% (group)

- Emerging Technology Analysis - 25% (individual)
- Class Attendance and Participation - 13% (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 3 highest grades (out of 4) 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 2-4 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.

Forecast Exercise (Xenotransplantation)

You and 2-4 classmates will complete an exercise in which you prepare a forecast for an emerging technology that I will provide to you, which will be xenotransplantation. This will be done in class. If you miss this class session, you have the option to team with other classmates who missed class to complete the exercise. You may also complete this exercise individually.

Emerging Technology Analysis

You will prepare an emerging technology analysis on a technology that I provide. This will be done via Canvas and is open book/open notes. It will be available after the last in-

person class setting and is due late September (specific date TBA). The format of this assignment will be discussed in advance.

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. You may have one unexcused classroom session with no penalty to your participation grade. (If you need to miss a session(s) due to illness, family constraints, etc., please let me know.)
2. Prepare for sessions by completing the assigned readings, watching the assigned videos (if applicable), and completing the associated preparation assignment.
3. Participate in the discussions and engage with your colleagues. Provide well thought-out, substantive comments that go beyond recitation of facts.
4. Avoid behavior that signals lack of engagement with the class, such as extensive use of your laptop/phone during class, entering/exiting during the session, etc.

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, the forecast exercise, or the emerging technology analysis (except to polish your writing).

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

I will typically grant extensions 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. Please do not allow an electronic device to become a distraction to you or those around you.

Campus Resources for Students

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)

High-Level Course Schedule (Tentative)

Session 1: Overall analysis framework for analyzing an emerging technology.

- Example technologies analyzed: 3-D printed houses, cultivated meat, aerial internet infrastructure, space-based data centers.

Session 2: Forecasting and analysis tools: Innovation diffusion theory and forecasting tools.

- Example technologies analyzed: Robots, edible containers.

Session 3: Analysis tools: Stakeholder influence, Technology infrastructure and ecosystems.

- Example technologies analyzed: Electric vehicles, hydrogen vehicles.

Session 4: Analysis tools: Ethics + Deep dive: Biotechnology and energy technology.

- Example technologies analyzed: CRISPR-Cas9, employee monitoring software, nuclear fusion, space-based solar power, next-generation biofuels.

Session 5 (online asynchronous): Forecasting and analysis tools: Invention and design.

- Example technologies analyzed: Modular phones, autonomous drones.

Session 6 (online asynchronous): Forecasting and analysis tools: Laws, regulations, and policy

- Example technologies analyzed: Carbon capture, generative AI.