

Syllabus

AE 6551 Cognitive Engineering

Fall 2026

Instructor: Dr. Karen Feigh
Email: karen.feigh@gatech.edu

Office Hours: Use booking Link on Canvas

Required Course Materials: All papers are available on Canvas

Please note that some students have tried to print all of the papers at once to central printing causing central printing to hold the prints assuming that you are violating copyright. Please print only one-two weeks at a time.

Course Description and Learning Outcomes:

Initial graduate course on Cognitive Engineering. Provide students with the knowledge and skills to:

- (1) Understand how human performance impacts the performance of large-scale systems involving humans, technologies, and procedural/regulatory demands on behavior.
- (2) Understand the fundamental determinants of human behavior within these systems, including their interaction with technological artifacts (such as computer displays and decision aids, information systems, and automated systems), context and situational factors, and their personal attributes and goals.
- (3) Apply structured design methods to developing technologies (such as information systems) and procedures, in order to enable desired human behavior and system performance.
- (4) Develop ability to critically review and discuss literature in the domain, connecting concepts and using precise terminology associated with cognitive Engineering.

Assignments

In support of each of these goals the following assignments are set. Each assignment will be assessed Satisfactory/No Credit, with descriptions of each given in an assignment specific rubric.

Mini-projects: (MP)

- Automation analysis using SRK & COCOM models
- Cognitive work analysis modeling building and procedure implementation
- Topic Area Initial Literature Report

Course Management Tasks (MT)

- Read assigned papers
- Answer discussion questions – bullet point format
- Watch video “answers” or clarification from instructor

Discussion Sessions – Small Group (DS)

- Participate in class discussion – sometimes whole class, sometimes in smaller groups.
- [Q section] – Watch Class Videos & Submit Video Reflection assignments.

Weekly Rhythm & Flexibility:

Each week we will tackle a different topic in Cognitive Engineering. While, some care has been taken in the ordering of the topics to help students build the understanding and vocabulary needed – in reality there is no “perfect” ordering of the topics. Each topic will have an associated set of readings posted on

Canvas. Each set of readings will have an accompanying set of discussion questions. **All papers and discussion questions are available now.**

Monday:

- A&Q sections: Answers to discussion questions are due every Monday 9pm EST on Canvas.

Tuesday:

- You will have access to one other person's answers to discussion questions via the Peer Review Function.
- Prior to class for the week, read over them and see how they differ or concur with your own. We will use this for our discussion. This is for your own benefit and is not assessed in any way.

Tuesday-Friday: (Section A will nominally meet W/F 3:30-4:45.)

- A Section: Participate in discussion in class.
- Q Section: Watch videos and prepare Video Reflection by the following Saturday @11:59pm.
- A&Q sections: Watch any mini-lectures/explanations posted by instructor in response to discussion group needs. These are aimed at Q section students, but available to all the week following a topic. There may also be introductions or other "mini explanation" videos on Canvas that were made during COVID. You may utilize these at your discretion.

Grading & Attendance Policy:

Course is graded on letter grade Basis. In this course we will use a variant of what is called *specifications grading*. Rather than achieving a certain percentage of available points, you will need to meet various criteria as described below to achieve a desired grade. **You will earn the letter grade for which you meet all of the criteria.**

	A	B	C	D
Mini-projects (MPs)	See Individual Rubrics	See Individual Rubrics	See Individual Rubrics	See Individual Rubrics
Course MTs	12 Weeks of Satisfactory Discussion Question Answers*	10 Weeks of Satisfactory Discussion Question Answers*	8 Weeks of Satisfactory Discussion Question Answers*	6 Weeks of Satisfactory Discussion Question Answers*
(DS) Discussion	12 Weeks of Satisfactory Discussion Participation*	10 Weeks of Satisfactory Discussion Participation*	8 Weeks of Satisfactory Discussion Participation*	6 Weeks of Satisfactory Discussion Participation*

* Week 1 is automatically satisfied.

Second attempts.

- The first two MPs qualify for one re-grade at the grade level which was originally sought.
- All re-grade requests are due within a week of the assignment return.
- All regrade materials are due within two weeks of assignment return.
- All regrades require a cover sheet with short (no longer than 1 page) explanation of how you have improved the assignment to meet the specifications that were previously unmet.

Illness. It is likely that many of us will experience illness at some point during the semester. If you become too ill to participate or complete assignments, please let me know as soon as you are able (but definitely 24 hours prior to any mini-project due date). Should a documented illness occur you will automatically earn a 1-week exemption from Course MT's, and DS participation without penalty to your grade. For example, if you have a documented illness and only earn 11 satisfactory Discussion Participation, then you will still be eligible to earn an A in the course (whereas normally you would need 12). Should your illness persist beyond a single week, please reach out to me and we can discuss a path forward. Prolonged illnesses may result in the need to take an incomplete for the course, or for withdrawal depending on circumstances and your preferences.

Academic and Research Honesty/Integrity Statement:

Georgia Tech has an honor code which applies to this class, just as every other class. All answers to discussion questions prior to class are to be individual work; all projects are to be original work. Individual assignments are considered to be an individual effort and should be treated as such. Group assignments are considered to be equal effort by all team members. Plagiarizing is not condoned. Please cite all material to which you do not own the intellectual property. When in doubt cite it.

Use of Generative AI:

AI tools are permitted only as aids, not as substitutes for the student's own work. AI may help with brainstorming, editing, formatting, or simple concept checking, but it may not be used to produce a complete response, figure set, model, or literature synthesis. The submitted work must reflect the student's own judgment and reasoning, and any AI assistance must be disclosed. Where used, I encourage you to utilize Generative AI with SIGNIFICANT OVERSIGHT. My suggestion is to use it for first drafts only, grammatical checks, for study aides, to help summarize things for your own benefit. Use of generative AI does not remove your responsibility for not plagiarizing work.

Mental and Physical Well Being:

This semester I sincerely hope will be smooth for everyone; it may still present challenges for you. Please let me know of any circumstances that will keep you out of the classroom or delay your progress so that we can work out a plan. Should you need support beyond this class, please know that the counseling center is available to you.

Georgia Tech CARE: 404.894.3498 – Georgia Tech Counseling Center: 404.894.2575 – GT Police: 404.894.2500

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, contact the Office of Disability Services 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

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 articulates 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.