PSYC 7101: Engineering Psychology I

Semester	Spring 2026
Time	Monday, Wednesday, 2:00 – 3:15 PM
Location	J.S. Coon Room 148
Instructor	Dr. Mengyao Li
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Instructor Office	J.S. Coon Room 228
Office Hours	Email instructor for appointments
Canvas website	https://gatech.instructure.com/courses/380790

Course Description

The evolution of technology continues to shape human interactions with both physical and virtual environments. Understanding and optimizing these interactions for the design of technologies is crucial to take their full potential. This course, **engineering psychology**, or often called **human factors (HF)**, is design for advanced undergraduate and graduate students in psychology, engineering, and computer science.

The course consists of three modules:

1. **Theoretical constructs and principles**: This module introduces foundational concepts in human factors through a set of readings, in-class seminar lectures, assignments, and online reflections and discussions.
2. **Methodology of HF:** You will engage in in-depth exploration of research methodologies, combining in-class seminar lectures with hands-on projects to provide a practical understanding of experimental human-subject research.
3. **Group project**: The final module involves a collaborative group project where student teams apply theoretical constructs and research methodologies in a real-world application domain. This hands-on experience allows for the practical application of the learned principles.

By the end of this course, you will not only have a theoretical understanding of human factors but also the practical skills to integrate this knowledge into the design and engineering processes. This course ensures that you are well-prepared to address the complex challenges at the intersection of psychology, engineering, and computer science.

Learning Objectives

- Understand the importance of human factor principles in system design and evaluation.
- Describe the human factors constructs and demonstrate their influences in systems, workplace, and products.
- Design and conduct human-subject experiments that focus on the human factors questions.
- Analyze both qualitative and quantitative data and interpret the results based on human factor theory.
- Present the research questions, analyses, and findings in a professional and engaging manner.
- Write an academic paper to report on the research design and findings.

Course Materials

Recommended textbook:
Lee, J. D., Wickens, C. D., Liu, Y., & Boyle, L. N. (2017). Designing for People: An Introduction to Human Factors Engineering. 3rd edition. https://www.amazon.com/Designing-People-Introduction-Factors-Engineering/dp/1539808009
Online PDF for the textbook: https://tinyurl.com/28rfrpad

Other readings will be available on Canvas: https://gatech.instructure.com/courses/380790/files.

Evaluation

Assessments	Points
Individual Weekly Quizzes & Reading	20
Individual Exams (2 exams x 15 pts = 30)	30
Team Project	50
	100

1. **Individual Weekly Quizzes & Readings (20 Points)**
   To assess lecture comprehension and facilitate critical engagement with weekly readings.
   Structure:
   - Module 1: Seminar Quiz
     - Multiple-choice and open-ended questions assessing lecture content.
     - Students have three attempts, and the highest score will count.
   - Module 2: Reading Critique
     - Submit 3–5 bullet points in a textbox on Canvas, summarizing reviews, critiques, or questions about the week's rea dings.
     - Contributions should encourage debate or discussion and will be graded pass/fail.

2. **Individual Exams (30 Points)**
   - Two in-class exams, each worth 15 points.
   - Exams will include open-ended questions designed to evaluate critical thinking and application of human factors principles.
   - Preparation: You are allowed to bring a 1-page cheat sheet to each exam.

3. **Team Project (50 Points):**
   1. **Form Team & Topic Selection**: 1 point
   2. **IRB Submission**: 1 point
   3. **Literature Review**: 10 points
   4. **Method**: 10 points
   5. **Midterm Team Evaluations**: 1 point
   6. **Data Collection & Manipulation Check-in**: 1 point
   7. **Analysis & Results**: 10 points
   8. **Final Paper**: 10 points

9. **Final Presentation**: 6 points

All project-related submissions are due Sundays 11:59 pm.

Team Grading Evaluation Policy:
At the middle and end of the project, students will engage in a comprehensive evaluation process at the conclusion of the project. This assessment involves self-evaluation and the evaluation of teammates' performances. The outcomes of these team-member evaluations can influence an individual student's course grade by up to 10%.

Grading Scale

Letter grade	Grade range
A	89.5–100
B	79.5–89.4
C	73.5–79.4
D	73.4–63.5
F	63.5

Course Policy

Attendance: Students are expected to attend all classes, arrive on time, participate in hands-on activities, and contribute comments on readings. It is understood that occasionally a student may need to miss a scheduled class due to illness, religious observances, or other personal reasons. If a student needs to miss more than **two** classes due to illness or other anticipated emergencies, these circumstances will be considered on a case-by-case basis.

Late Policy: Assignments and project deliverables that are not submitted by the due date will lose 20% of the total grade for that deliverable for each day that the assignment is late.

Accommodations: This course follows the accommodations procedure of Georgia Tech policy. The request can be made through the student service services. To facilitate all necessary aids and services in a timely manner, it is recommended that students send an early notification to the instructor—within the first two weeks of classes, or at least two weeks before accommodations are expected to begin.

Diversity and Inclusion Statement: Georgia Tech and the course instructor are committed to full inclusion in education for all persons. Services and reasonable accommodations are available to students with temporary and permanent disabilities, to students facing mental health or other personal challenges, and to students with other kinds of learning challenges. Please feel free to let the instructor know if there are circumstances affecting your ability to participate in class.

Academic Integrity:

In this course, which focuses on the interactions of human with emerging technologies, the ethical use of large language models (LLMs) such as ChatGPT is important to consider. These models offer significant advantages in enhancing academic writing, problem-solving, facilitating critical thinking,

and supporting programming tasks. However, it is essential to acknowledge that LLMs may introduce bias and generate inaccurate information.

Your responsibility in this context is to rigorously verify and, when necessary, revise the output information to ensure its accuracy, freedom from bias, and alignment with academic integrity standards. While these tools can be powerful aids, it is crucial to exercise vigilance in distinguishing and rectifying any biased or inaccurate content.

As the instructor, I will serve as the final judge in evaluating your assignments and projects. Points may be deducted if your submissions demonstrate a lack of effort, critical thinking, or adherence to academic integrity principles. It is important that you maintain transparency throughout the process by saving a copy of your interactions with ChatGPT, including the original input messages, prompts, and any revised versions you have implemented. These documents will be requested and discussed if disagreements on assignment evaluations emerge.

Course Schedule

Week	Date	Seminar (Mondays)	Date	Methods (Wednesdays)	Project deadline
W01	01/12	Course intro	01/14	Human factors history	Team Topic Selection
W02	01/19	MLK holiday, no class	01/21	Evaluation methods	Complete IRB
W03	01/26	Automation	01/28	Qualitative research I	
W04	02/02	Perception	02/04	Qualitative research II	
W05	02/09	Attention	02/11	Study Design I	Literature Review
W06	02/16	Memory	02/18	Study Design II	
W07	02/23	Decision making	02/25	Measurement I	
W08	03/02	Situation awareness	03/04	**Exam 1**	
W09	03/09	Workload	03/11	Measurement II	Method
W10	03/16	Trust in automation	03/18	Data analysis I (Descriptive)	Midterm Evals
W11	03/23	Spring break, no class	03/25	Spring break, no class	Data Check-in
W12	03/30	Affect and Emotion	04/01	Data analysis II (Inferential)	Data Collection
W13	04/06	Displays	04/08	Data analysis III (Predictive)	
W14	04/13	Controls	04/15	Reporting	Analysis & Results
W15	04/20	**Exam 2**	04/22	**Final presentation**	Final Evals
W16	04/27	**Final presentation**			Final Paper