Georgia Institute of Technology

Course Syllabus

BCP 6600: Applied Human Factors and Ergonomics

Fall 2026

Delivery: 100% Web-Based, Asynchronous

Course Dates: August 24 – October 9, 2026

Instructor Information

Gordon A. Vos, PhD, Adjunct Faculty, gordon.vos@design.gatech.edu

Office Hours: Weekly office hours via **Zoom**, **Mondays** at **6:30pm ET**. Attendance is optional but highly encouraged. Links to the Zoom information are located on the class Canvas page.

General Course Information

Description

In this course, the participant will learn how to apply human factors and ergonomic principles for the reduction of stress and strain on a person's body as well as the control of work-related musculoskeletal disorders. Concepts such as job hazard analysis and effective control strategies will be covered. Participants will learn how to identify workplace characteristics that may contribute to musculoskeletal disorders, and develop methods to improve jobs, workstations, and equipment/tooling. Additionally, analysis of manual lifting tasks and estimation of reasonable lifting limits and design of lifting tasks will be covered.

Prerequisites

BCP 8843/6500 Advanced Safety Principles

Course Goals and Learning Outcomes

Students will become familiar with the physical and sensory factors important in the workplace for the design of workstations and physical tasks. Methods for evaluating existing and designing new workstations and tasks with respect to worker safety and health will be covered.

Course Learning Outcomes

By the end of this course, a student will be able to:

1. **Describe** the physical and sensory factors that are important for good workspace and task design
2. **Design** ergonomically appropriate workspaces and tasks
3. **Describe** how to utilize different methods to objectively evaluate the ergonomics of workspaces and tasks
4. **Describe** the effects of workspace and task design on worker safety and health

Course Materials

Course Textbook *(Optional)*
An Introduction to Human Factors Engineering (2nd ed.) by Christopher Wickens, John Lee, Yili Liu and Sallie Gordon-Becker

Additional Materials/Resources
All additional course materials are provided electronically and are located on the class Canvas page under the Files->Course Materials link.

These additional materials include:
- Reference documents (PDF format)
- Published journal articles (PDF format)
- Anthropometric Reference Databases (PDF and Excel format)
    - NASA Anthropometric Source Books
    - CEASAR Civilian Anthropometric Data
    - ANSUR II Anthropometric Data

Course Website and Other Classroom Management Tools
This class uses Canvas for hosting all class information, lectures, slide handouts, readings and materials. The class quizzes and the final exam are also administered via Canvas.

Course Requirements, Assignments & Grading

The activities included for this class include:
- Real-time office hours (optional but encouraged)
- Video recordings of the lectures accompanied by slide handouts in PDF format
- Assigned readings from the textbook and from additional course materials

The grading of the class will include 7 quizzes (1 for each week) and a final exam. Your average grade on the quizzes will comprise 50% of the course grade while the final exam will be the remaining 50% of the grade. All assessments (quizzes and final exam) will be multiple choice, and grades will be computed automatically by the Canvas system, letting you know your score at the completion of each assessment.

Grading Scale
Your final grade will be assigned as a letter grade according to the following scale:

A	90-100%
B	80-89%
C	70-79%
D	60-69%
F	0-59%

Late and Make-up Work Policy
If you are unable to complete an assessment on schedule due to medical or other University approved reasons, an extension may be provided on a case-by-case basis, and will adhere to university policy.

Course Schedule

Week	Topic	Quiz/Exam	Readings
1	• Introduction to Human Factors • Human Factors of the Physical Senses	Quiz 1 *Due 8/31*	**Textbook**: Chapters 1, 3, 4 **Articles**: • Hegarty-2011 • RoundAbout…-2010
2	• Anatomy and Physiology of Musculoskeletal Disorders (MSDs) • Anthropometry	Quiz 2 *Due 9/7*	**Textbook**: 9 **Articles**: • ANSUR II Anthro Data • CEASAR Anthro Data • NASA Anthro Source Bks
3	• Work Related Musculoskeletal Disorders and Biomechanics	Quiz 3 *Due 9/14*	**Textbook:** 10, 11 **Articles:** • NIOSH-LG-2021
4	• Tools for Assessment of Musculoskeletal Disorders	Quiz 4 *Due 9/21*	**Textbook**: N/A **Articles**: • BPD • RPE - BORG CR 10 • Snook Tables • SI • RULA • REBA
5	• Seating Biomechanics • Office Ergonomics	Quiz 5 *Due 9/28*	**Textbook**: N/A **Articles**: • Gerr et al., 1 and 2 • Mandal-BalancedSitting… • Treaster-1987
6	• Cognition and Decision Making	Quiz 6 *Due 10/5*	**Textbook**: Chapters 5, 6 **Articles**: • SleepLossAndDem…
7	• HCI and Automation • Displays and Controls	Quiz 7 *Due 10/9* Final Exam *Due 10/9*	**Textbook**: Chapters 14, 15 **Articles**: • TeatherAndMacKen…

Technology Requirements and Skills

Computer Hardware and Software

- High-speed Internet connection
- A Windows or Mac computer with system requirements capable of utilizing the Canvas system and streaming the required class videos
- Web browser compatible with the Canvas system
- Microsoft Office
- Adobe Acrobat Reader (latest version) or Adobe Acrobat Pro (version X or higher)

Technology Skills
Capability of navigating a computer operating system, launching, and quitting applications, connecting to the Internet, using a web browser to search the World Wide Web, downloading, saving, and uploading files, and sending and replying to email. Basic skills in MS Word, MS Excel, MS PowerPoint, and Adobe Acrobat Reader or Pro.

Onboarding Quiz and Proctoring Information
All Georgia Tech online degree and certificate students are required to complete the Onboarding Quiz with Honorlock in the first week of the course. Honorlock is utilized for student identity verification and to ensure academic integrity. Honorlock provides student identity verification via facial and ID photos. You may also be asked to scan the room around you. The Onboarding Quiz is needed to help make sure that your identity is verified and that your system is set up to work with Honorlock online proctoring tool. You are required to complete this quiz early in the semester to avoid problems when taking proctored exams.

Technology Help Guidelines
30-Minute Rule: When you encounter struggles with technology, give yourself 30 minutes to 'figure it out.' If you cannot, then post a message to the discussion board; your peers may have suggestions to assist you. You are also directed to contact the Helpdesk 24/7.

When posting or sending email requesting help with technology issues, whether to the Helpdesk, message board, or me use the following guidelines:

- Include a descriptive title for the subject field that includes 1) the name of course 2) the issue. Do NOT just simply type "Help" into the subject field or leave it blank.
- List the steps or describe the circumstance that preceded the technical issue or error. Include the exact wording of the error message.
- When possible, always include a screenshot(s) demonstrating the technical issue or error message.
- Also include what you have already tried to remedy the issue (rebooting, trying a different browser, etc.).

Course Policies, Expectations & Guidelines

Communication Policy
- Email course questions and personal concerns, including grading questions, to the professor directly. Do NOT submit posts of a personal nature to the discussion board.
- Email will be checked at least twice per day Monday through Friday; Saturday and Sunday, email is checked once per day. During the week, the professor will respond to all emails within 24 hours; on weekends and holidays, allow up to 48 hours. If there are special circumstances that will delay a response, the professor will make an announcement to the class.
- Student Forum/Q&A discussion boards will be checked twice per day Monday through Friday; Saturday and Sunday, these discussion boards will be checked once per day.
- Virtual office hours will be held using Zoom. The professor will hold Virtual Office Hours every Monday at 6:30pm Central Time, as well as special office hours for dedicated topics, such as a large, upcoming assignment. Special topic hours will be announced in advance.
- For questions related to technology, the Digital Learning Support team at https://b.gatech.edu/digitallearningsupport for assistance. You can also reach the Canvas Hotline by phone at 1(877) 259-8498 or by email at support@instructure.com.

Online Student Conduct and (N)etiquette

Although it is not expected to be a problem in a graduate-level class, students are asked to behave in the discussions and other class interactions professionally and civilly. If you are in doubt, do not post it! Instructors reserve the right to remove any postings deemed inappropriate, unprofessional, or otherwise distracting from the course.

University Use of Electronic Email

A university-assigned student e-mail account is the official university means of communication with all students at Georgia Institute of Technology. Students are responsible for all information sent to them via their university-assigned e-mail account. If a student chooses to forward information to their university e-mail account, he or she is responsible for all information, including attachments, sent to any other e-mail account. To stay current with university information, students are expected to check their official university e-mail account and other electronic communications on a frequent and consistent basis. Recognizing that some communications may be time-critical, the university recommends that electronic communications be checked minimally twice a week.

Academic and Research Honesty/Integrity Statement

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 the Student Code of Conduct and the Academic Honor Code, especially Appendix A: Graduate Addendum to the Academic Honor Code.

Students are expected to perform research in an ethical and responsible manner. All Doctoral and Master's Thesis students are required to take the Responsible Conduct of Research training, and it is expected that students abide by the principles taught in that training while performing research.

Any student suspected of cheating or plagiarizing 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.

Allegations of scientific or scholarly misconduct are handled in accordance with the procedures outlined by the Policy for Responding to Allegations of Scientific or Other Scholarly Misconduct.

Collaboration & Group Work

All assessments (quizzes and the final exam) are open book, however, they are to be completed on your own (no group work or collaboration is allowed on the assessments).

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 articulates some basic expectations that you can have of me and that I have of you. Additional information for research-related work is given in The Expectations of Advisors and Advisees. 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.

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.

Copyright

Among the materials that may be protected by copyright law are the lectures, notes, and other material presented in class or as part of the course. Always assume the materials presented by an instructor are protected by copyright unless the instructor has stated otherwise.