

*last updated 08/22/2022*

*telephone: (303) 492-4015*  
*email: torin.clark@colorado.edu*  
*office: AERO N301*

*email: sage.sherman@colorado.edu*  
*office: AERO 340*

*Course Description*

This 6000 level graduate student course is aimed at examining the fundamental issues associ-6d2 Tw 2.22 0 ds

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## Textbook

[Engineering Psychology and Human Performance](#), Wickens and Hollands, ideally the Fourth (or Fifth!) Edition, but earlier versions should be fine.

There will be numerous additional readings, book chapters, etc. which will be posted to Canvas.

In general, there will be a reading to be done prior to each class lecture.

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## Class Website

We will use Canvas for our class website

Please check regularly (or set up alerts!) as new material, assignments, etc. will be posted regularly.

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## Topics (subject to revision)

Application of human operated aerospace vehicles

Case study 1

Case study 2

Theoretical considerations of human operation of aerospace vehicles

Information processing theory

Rational decision and signal detection theory

Information acquisition and Bayes theory

Judgement under uncertainty including biases in human naturalistic decision making

Physiological and cognitive limitations of humans in aerospace vehicles

Hypoxia

Gravity-induced Loss of Consciousness (G-LOC)

Introduction to vestibular system and orientation perception

Sensory integration

Spatial disorientation illusions

Geographic disorientation and controlled flight into terrain (CFIT)

Sensorimotor impairment and spaceflight applications

Motion sickness

Galvanic vestibular stimulation

Design of display and control interfaces

Manual control theory

Display design principles

Multimodal displays and pilot attention

Supervisory control and vigilance

Automation

Evaluating human system designs

Design of experiments

Usability testing and evaluation

Workload and situation awareness (background and experimental methods)

Trust, complacency, and over-automated systems

~ Saturday Dec 10, 7:30-10pm.

*Will not have a formal final “exam”. Will may use this time for final project presentations.*

### Grading

50% on Group Projects (3 fixed projects at 10% each, 1 semester/final project 20% total)

50% from 4 Unit Quizzes (12.5% each)

Group Projects are due *at the posted due date on Canvas.*

Please let me know as soon as you are able, if a major issue arises that will impact your timely submission.

Collaboration on Group Projects (within your group) is expected and encouraged. Working with other groups is allowed, but your submission must be your own group’s effort. This means you may discuss the means and methods for solving the project problems and even compare answers, but you are not free to copy someone’s work.

Missed quizzes will not be made up. You will have a full one week window to complete each on Canvas.

Quizzes will cover all concepts/material in this course. This includes lecture slides, discussions in class, readings projects, etc. Quizzes

and the Student Code of Conduct. If you require accommodation because a disability prevents you from fulfilling these safety measures, please follow the steps in the “Accommodation for Disabilities” statement on this syllabus.

If you feel ill and think you might have COVID, if you have tested positive for COVID, or if you are unvaccinated or partially vaccinated and have been in close contact with someone who has COVID, you should stay home and follow the further guidance of the Public Health Office ([contacttracing@colorado.edu](mailto:contacttracing@colorado.edu)). If you are fully vaccinated and have been in close contact with someone who has COVID, you do not need to stay home; rather, you should self-monitor for symptoms and follow the further guidance of the Public Health Office ([contacttracing@colorado.edu](mailto:contacttracing@colorado.edu)). Please let me know as soon as you are able to, if you are unable to participate in class to an extent that you won't be able to immediately make up for missed time (e.g., unable to complete a quiz or contribute to a group project).

## ACCOMMODATION FOR DISABILITIES

If you qualify for accommodations because of a disability, please submit your accommodation letter from Disability Services to your faculty member in a timely manner so that your needs can be addressed. Disability

