SYDE644: Human Factors Testing
Department of System Design Engineering, University of Waterloo, Canada
Course Outline (Winter 2023)

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Office: EC1 Games Institute
Office hours: via Microsoft Teams or see LEARN for 'live' times.

Teaching assistants: Ashirbad Pradhan, PhD (c)

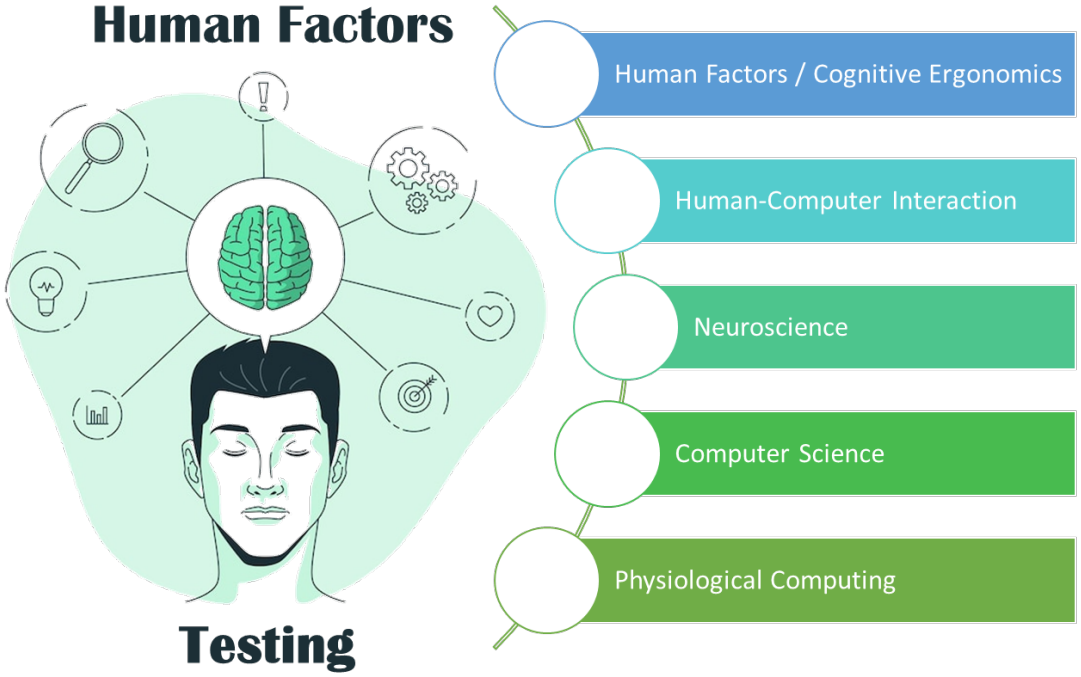

Figure 1: Scientific disciplines of Human Factors Testing

Textbook:
Stanton, Neville, Paul M. Salmon, and Laura A. Rafferty. Human factors methods: a practical guide for engineering and design. Ashgate Publishing, Ltd., 2013.

LEARN:
Course slides and asynchronous lecture materials will be posted on LEARN. Students are allowed and encouraged to download materials for their own personal files but are not authorized to post SYDE644 materials on sites other than LEARN. Tests, ethics quiz, and assignments will be available and submitted using LEARN.

Course Description
SYDE 644, Human Factors Testing is covers an in-depth exploration of primary methods of data collection used in human factors engineering research and product testing. We will begin with a review of basic research knowledge and tools including experimental design, statistics, and citation management. We will discuss the applications and implications of quantitative data collection involving human participants, including quantitative and qualitative data analysis, human performance investigation including mental workload, and situation awareness. Students

will be assigned to explore human factors literature and methods related to their own area of research interest. A seminar-discussion format will be used with the instructor serving as a discussion facilitator. Formal lectures are mixed with peer teaching and collaborative learning.

Course Objectives
The course aims to expand, consolidate and apply preliminary design skill sets developed in fundamental courses of system design and further acquire a better awareness of the important aspects to consider when using human factors to guide the design process. With a strong emphasis in cognitive factors associated with human performance, this course covers aspects that should be incorporated into the design process of systems involving end users, allowing for a more holistic understanding of user-centric design and evaluation approaches.

Learning Outcomes
Students will be given opportunities to:

1. Develop their knowledge base for human factors engineering with respect to the primary measures, experimental design, and testing.
2. Survey a range of research literature selected by the instructor and students.
3. Conduct an in-depth review of methods and measures pertaining to their interested areas of research.
4. Practice communication skills, via in-class discussions and panels, peer teaching, assignment, and term project paper.
5. Learn independently and proactively, with a structure and guidance provided by the instructor.

Upon completion of this course, students should be able to:

1. Remember and understand important human factors measures and techniques.
2. Consolidate a reference base of human factors primary measures and methods.
3. Conduct literature review for research and testing involving human subjects.
4. Apply human factors measures and design experiments for research and testing.
5. Write comprehensive research articles of experiments involving human subject.

Instruction & Assessment
Students will be exposed to both physical and cognitive ergonomics methodologies and approaches related to design principles, including neuroscience and human physiology training, human-computer interaction and usability design via weekly in-person lectures, assignments, hands-on workshops, tutorials, analysis of case of studies and group activities.

Grade Breakdown

Assessment	Weighting
Homework (4 total, 10% each)	40%
Student Seminar Presentation	20%
Final Paper	40%
Total	100%

See the weekly breakdown with more information of the topics covered.

Email Policy
Microsoft Teams or email is the best way to get in touch with the instructor or TA. When sending an email, remember the following:

1. Emails should be sent from your official UW email account.
2. Put SYDE644 in the email subject line followed by a brief description of the email subject. For example, 'SYDE644: Question concerning FTA'.
3. Sign your email with your first and last name and your student number.
4. Emails should contain professional and respectful language.
5. While we will do our best to respond to your emails as soon as possible, allow 3-5 days for a response to your email.
6. If your question or concern requires a complex answer or warrants a discussion, the instructor or teaching assistant may suggest a face-to-face meeting.

Course Schedule
The course schedule is posted on LEARN and details the following important information:
a. Weekly course topics
b. Associated textbook readings
c. Assignments and/or other deliverables (tests, ethics, presentations)
Students are expected to review the course schedule, familiarize themselves with weekly expectations, and ask questions in advance of activities and associated deadlines to clear up any confusion. Changes to the course schedule will be announced as soon as possible and an updated course schedule will be posted on LEARN.

Note: We are facing unusual and challenging times. The instructor reserves the right to modify course topics and/or assessments with due notice. In the event of further challenges, the instructor will work with the Department to find reasonable and fair solutions.

COVID-19 Considerations:
There could be a need to make alternate arrangements for in-person course activities. This alternate arrangement could be for a short period of time (e.g., one week) or a more sustained disruption to in-person course activities. In the event of a disruption, all in-person lectures and tutorials will revert to synchronous, online lectures and tutorials.
Impacted in-person deliverables will be handled on a case-by-case basis with notification provided as soon as possible. The most likely scenario for the Test 1 and Test 2 would be an online test using the LEARN quiz tool available over a 12 hour period with a time limit to complete once started.
If you are unable to attend an in-person course activity due to emergency self-isolation, please let Professor Muñoz know as soon as possible. If this will impact more than one course, you are encouraged to inform the SYDE/BME Director. They will review your case and coordinate a reasonable and fair plan in consultation with appropriate others.
Please also see 'Fair Contingencies for Remote Teaching' below and 'Instructional Contingencies for Covid-19' in the next section.

Fair Contingencies for Remote Teaching.
We are facing unusual and challenging times. The course outline presents the instructor's intentions for course assessments, their weights, and due dates in Winter 2023. As best as possible, we will keep to the specified assessments, weights, and dates. To provide contingency for unforeseen circumstances, the instructor reserves the right to modify course topics and/or assessments and/or weight and/or deadlines with due and fair notice to students. In the event of such challenges, the instructor will work with the Department/Faculty to find reasonable and fair solutions that respect rights and workloads of students, staff, and faculty.

Artificial intelligence and ChatGPT
At present, it is important for instructors to be explicit about whether artificial intelligence or tools like ChatGPT are allowed to be used to complete assignments, tests or exams, and if so, the extent to which it is allowed, and if it should be cited and how to cite it. A student who does not comply with the instructors rules about the use of such tools will be subject to Policy 71 and an investigation into academic misconduct (more here).

Turnitin.com
Text matching software (Turnitin®) may be used to screen assignments in this course. This would be done to verify that use of all material and sources in assignments is documented. Students will be given an option if they do not want to have their assignment screened by Turnitin®. Students will be provided about arrangements and alternatives for the use of Turnitin® in this course.

Writing and Communication Centre.
The Writing and Communication Centre works with students in all Faculties to help you consider your audience, clarify your ideas, develop your voice, and write in the style appropriate to your discipline. We offer one-on-one support for writing papers, delivering presentations, integrating research, and revising for clarity and coherence. Group appointments for team-based projects, presentations, and papers are also available.
All of our services are available virtually: booked appointments, drop-ins, resources, and writing groups. Check out our website for other ways to interact with us, such as open online forums and online “Question and Answers”. Visit us at www.uwaterloo.ca/wcc.
Please note that communication specialists guide you to see your work as readers would. We can teach you revising skills and strategies, but will not change or correct your work for you. Please bring your assignment instructions and any notes or drafts to your appointment.
[Link Writing and Communication Centre]