Instructor: Chantal Trudel
chantaltrudel@cunet.carleton.ca
Room 3476 Mackenzie Bldg.
Tel. 613 • 520 • 2600, ext. 5626
Office Hours: By appointment.

Teaching Assistant: Alexandra Close
alexandraclose@cmail.carleton.ca
Office Hours: By appointment.

Time and Location: Please refer to Carleton Central under Student Services – Registration – Search Schedule: https://admissions.carleton.ca/faqs/where-can-i-find-the-class-schedule/

Course Description

Foundation course in human factors/ergonomics providing an overview of physical and cognitive considerations in product design and related design fields. Anthropometrics, biomechanical considerations, cognition, social interaction, and emotional interaction are introduced in relation to supporting user experience, health and safety, performance and productivity. Includes: Experiential Learning Activity. Prerequisite(s): PSYC 1001 and PSYC 1002, or PSYC 1000. Lectures and discussion three hours a week.
Learning Outcomes

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

1. Identify and apply HF/E principles and methods to better understand issues affecting people and systems to inform potential design interventions to improve quality of life.
2. Apply relevant principles and information on anthropometrics and the physiological limitations/capabilities of people to identify issues and opportunities affecting user experience, health, safety, performance and/or productivity.
3. Apply relevant knowledge of cognitive, social and/or emotional factors in design to improve people’s experience, health, safety, performance and/or productivity.
4. Identify possible environmental influences on people’s experience and design such as spatial considerations, materiality, lighting, thermal considerations, noise and vibration, and air quality.
5. Describe possible work/activity influences on design such as pace of work, stress, fatigue, and boredom.
6. Apply HF/E principles and methods to evaluate and/or design: seating, handles, manual materials handling devices or systems, digital devices or experiences, wearables, consumer electronics, work areas, residential products or areas, services and/or systems.
7. Produce written reports, oral and visual presentations demonstrating HF/E research, analysis and design recommendations/proposals.
8. Collaborate with team members and take responsibility for individual contributions.
9. Demonstrate professional behaviour.

Course Deliverables

These are the deliverables for this course. Please see ‘Appendix A Course Schedule’ for more detailed information.

- Quizzes - 4 Reading Quizzes x 15% and one Optional Make-up Quiz 60%
- Final Assignment 40%

Student Access to Quiz, Test and Exam Papers

Examinations will be returned to students with comments and explanations.
Required Materials

Materials required for the course are listed below. You may be asked by your instructor to refer to cuLearn for a more comprehensive list of required materials.

Both textbooks below are required and are available at the Carleton Bookstore. There are also hardcopies of each book on reserve at the Carleton Library and an etext of the books available (for more information see Library Reserves - View course in Ares on CULearn).


Computer Requirements

Please refer to the computer requirements on the School of Industrial Design Website. You may be asked by your instructor to refer to cuLearn for other information or requirements related to computer work.

http://www.id.carleton.ca/undergraduate/about-the-bid-program/computer-requirements

Individual/Group Work

Courses may include individual and group work. It is important in collaborative work that students clearly demonstrate their individual contribution.

Review/Presentation Attendance

Attendance at scheduled SID Reviews/Presentations is mandatory. These are equivalent to exams when indicated in the course outline. Failure to attend the Review/Presentation without reasonable cause, will result in a grade of F. Students arriving late for the Review/Presentation or not remaining for the complete session without approval from the instructor, will be addressed on a case-by-case basis at the discretion of the instructor.
If you are not able to attend a Review/Presentation, foresee arriving late or need to leave before it is complete, please email your instructor in advance explaining the reason for the situation. It is important that you provide a reasonable rationale for your absence, late arrival or early departure. In the event of an illness or death in the family, you will be required to sign a form verifying your claim and this form is available through the SID administration office.

**Late Submission of Lecture & Studio Deliverables**

Students who do not hand in deliverables on time will have their earned grade reduced by XX% per day up to a maximum of 3 days.

**Participation and Professionalism**

Active participation and professional conduct (e.g. class discussion, consultations with instructors, work ethic, etc.) are important in lecture and studio courses and may be formally evaluated by a grade. Professionalism also includes Carleton’s Policy on Academic Integrity described in more detail below with links to content which you are required to review.

**Academic Integrity**

*Carleton’s Policy on Academic Integrity* is available at: [https://carleton.ca/registrar/academic-integrity/](https://carleton.ca/registrar/academic-integrity/) and covers the following topics:

*Plagiarism* (e.g. submitting work in whole or in part by someone else, failing to acknowledge sources through the use of proper citations when using another’s work).

*Test and Exam Rules* (e.g. attempting to read another student’s exam paper, speaking to another student even if the subject matter is irrelevant to the text, using material not authorized by the examiner).

*Other Violations* (e.g. improper access to confidential information, disruption in classroom activities, misrepresentation of facts for any academic purpose).

This policy governs the academic behavior of students. In industrial design, ideas and concepts come from a multitude of sources and may be modified and utilized in the design and development process.
The student should reference such sources appropriately and it is strongly advised that you read Carleton’s Policy on Academic Integrity prior to conducting any work at the University.

Requests for Academic Accommodation

You may require special arrangements to meet your academic obligations during the term. For an accommodation request for any of the following topics below, refer to the link provided for more information: https://students.carleton.ca/course-outline/

- Parental Leave
- Religious/Spiritual Obligation
- Academic Accommodations for Students with Disabilities
- Survivors of Sexual Violence
- Accommodations for Student Activities

Student Responsibility

The student is responsible for knowing the content of this course outline; the schedule of classes, assignments, and/or Reviews; and the material that was covered when absent. The studio is a professional environment and students should be working during the scheduled hours.

Unless otherwise arranged, the class will meet during scheduled class hours. Please note that attendance is important since issues and questions may be raised in class, and announcements made, along with information disseminated through cuLearn. As external professionals are often involved in our work, scheduling changes for guest lectures, presentations, and Reviews may occur at short notice, requiring students to stay informed.

Changes to the Course Outline

The course outline may be subject to change in the event of extenuating circumstances.
## Appendix A - Course Schedule

### IDES 2600 – Winter Term 2019

<table>
<thead>
<tr>
<th>Wk</th>
<th>Date</th>
<th>Class Content &amp; Deliverables</th>
<th>How to prepare for class this week</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>J8</td>
<td>Fundamentals - Introduction to human factors/ergonomics (HF/E).</td>
<td>Read Bodyspace to prepare for Quiz 1 Ch. 1 Introduction to Ergonomic Design</td>
</tr>
<tr>
<td>2</td>
<td>J15</td>
<td>Fundamentals - Anthropometric data, posture, body dimensions, design constraints, fitting trials. <strong>Quiz 1</strong></td>
<td>Read Bodyspace to prepare for Quiz 2 Ch. 2 Principles and Practice of Anthropometrics</td>
</tr>
<tr>
<td>3</td>
<td>J22</td>
<td>Fundamentals - Human variation in sex, body proportion, strength, developmental, ethnicity, social class, occupation, ageing.</td>
<td>Read Bodyspace to prepare for Quiz 2 Ch. 3 Human Diversity</td>
</tr>
<tr>
<td>4</td>
<td>J29</td>
<td><strong>Quiz 2</strong> Application to Design - Clearances, reach, range of motion, postural loading, posture and strength, vision related to posture of head and neck, physical considerations in barrier-free/accessible design.</td>
<td>Read Bodyspace to prepare for Quiz 2 Ch. 4 Workspace Design</td>
</tr>
<tr>
<td>5</td>
<td>F5</td>
<td>Sitting, spine considerations, anthropometric principles of seat design and evaluation.</td>
<td>Read Bodyspace to prepare for Quiz 3 Ch. 5 Sitting and Seating</td>
</tr>
<tr>
<td>6</td>
<td>F12</td>
<td>Hand anthropometrics, handedness, strength, handle design, biomechanics, neutral posture. <strong>Quiz 3</strong></td>
<td>Read Bodyspace to prepare for Quiz 3 Ch. 6 Hands and Handles</td>
</tr>
</tbody>
</table>

### February 17 - 21 Winter Break, No Class

<table>
<thead>
<tr>
<th>Wk</th>
<th>Date</th>
<th>Class Content &amp; Deliverables</th>
<th>How to prepare for class this week</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>F26</td>
<td>What do we mean by Interaction Design, User Experience (UX) design and whose involved? Conceptual Models of Interaction, Metaphors, Interaction Types, Paradigms</td>
<td>Read Interaction Design to prepare for Quiz 4 Ch. 1 What is Interaction Design? Ch. 2 Understanding and Conceptualizing Interaction</td>
</tr>
<tr>
<td>8</td>
<td>M4</td>
<td>Basics of Cognition and Frameworks <strong>Quiz 4</strong></td>
<td>Read Interaction Design to prepare for Quiz 4 Ch. 3 Cognitive Aspects</td>
</tr>
<tr>
<td>9</td>
<td>M11</td>
<td>Social Interaction &amp; Design</td>
<td>Read Interaction Design to prepare for Optional Make-up Quiz Ch. 4 Social Interaction</td>
</tr>
<tr>
<td>10</td>
<td>M18</td>
<td>Emotional Interaction &amp; Design <strong>Proposal/Sign-off for Final Assignment Optional Make-up Quiz</strong></td>
<td>Read Interaction Design to prepare for Optional Make-up Quiz Ch. 5 Emotional Interaction</td>
</tr>
<tr>
<td>11</td>
<td>M25</td>
<td>Types of Interfaces <strong>Proposal/Sign-off for Final Assignment</strong></td>
<td>Read Interaction Design to assist with Final Assignment Ch. 6 Interfaces</td>
</tr>
<tr>
<td>12</td>
<td>A1</td>
<td>Interaction Design and Process <strong>Proposal/Sign-off for Final Assignment</strong></td>
<td>Read Interaction Design to assist with Final Assignment Ch. 9 The Process of Interaction Design</td>
</tr>
<tr>
<td></td>
<td>A25</td>
<td>Final Assignment (Take-Home Exam)</td>
<td></td>
</tr>
</tbody>
</table>