

INF2169H-S – User-Centred Information System Development

KMD2001H-S – Human-Centred Design

Synopsis

The focus of the course is on understanding the experiences of users and their communities as affected by their interaction with digital technologies in information-centric societies. Students will learn the theoretical framework and practical aspects of advanced user-centred design principles (such as participatory design, techno-centric ethnographies and contextual inquiries, or controlled experimentation) required to build interactive information systems. This course will represent an opportunity for students to enrich their understanding of the deep interconnections between human factors, human needs, interactive technologies, information, as projected on several dimensions: cultural, societal, ergonomic, and economic.

Lecture and tutorial

Tue 6:30 to 9:30pm (BL 313 - Bissell Building)

Office hours

Wed 3pm to 7pm (CCT 3067 @ UTM)

Thu 11am to 1pm (BA 7200 @ St George)

Thu 5pm to 7pm (BA 7200 @ St George)

Instructor:

Prof. Cosmin Munteanu

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TA:

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Goals and learning objectives

Building upon the design skills and human-computer interaction knowledge acquired in prior INF and KMDI courses, this course allows students to gain a theoretical and practical understanding of advanced user-centred design skills. These learning objectives extend beyond the design and implementation of interactive interfaces, and offer students hands-on training in engaging users and other stakeholders to ensure that any interactive technology is properly designed, implemented, and updated according to (often changing) human factors, cultural aspects, and environmental considerations. In particular, students will learn how to conduct contextual analyses, participatory design, techno-centric ethnography, controlled experiments (AB testing), and longitudinal evaluations. At the end of the course, students will be prepared to become true “user experience” designers or managers that are well grounded in a cultural, societal, economical, and human understanding of how we interact with information and with digital technologies.

Some of the personal skills that students are expected to develop in the course are:

- Ability to conduct independent research into a problem space
- Ability to envision and design user-centred interactive technologies
- Ability to collect and analyze data about human behaviours
- Ability to engage with all stakeholders in the design/production cycle of interactive technologies
- Ability to use advanced statistical methods and tools to interpret data and provide evidence to support a hypothesis
- Ability to work in teams
- Ability to develop a project plan and to present results

Required materials

There are no required textbooks for this class. The instructor will provide excerpts from academic and industry papers and documents and will guide the students through independent reading.

The following texts are recommended (some shorter versions of these are available online):

Recommended:

- Contextual Design: Defining Customer-Centered Systems (Hugh Beyer, Karen Holtzblatt)
- Research Methods In Human-Computer Interaction (Jonathan Lazar, Jinjuan Heidi Feng, Harry Hochheiser)
- Participatory Design: Principles and Practices (Douglas Schuler, Aki Namioka)
- Social Research Methods (Alan Bryman)
- Experimental Design: Procedures for Behavioral Sciences (Roger E. Kirk)

Optional:

- Interaction Design: Beyond Human - Computer Interaction (Yvonne Rogers, Helen Sharp, Jenny Preece)
- The Design of Everyday Things (Don Norman)
- Fundamental Statistics for the Behavioural Sciences (David Howell)

Assessment and Grading Policies

Type	Assignment	Due by	Marks
Assignment	A1: Team formation	Jan 15	
Assignment	A2: Analysis of preliminary observations and project idea	Jan 22	
Other	C1: Team contracts	Jan 22	
Other	C2: Photo release forms (optional)	Jan 22	
Other	GM1: Grading Milestone 1 – all prior work must be completed by this date	Jan 22	5%
Other	Peer reviews, mandatory beginning with A3	ongoing	
Other	U1: User participation (details announced in class)	ongoing	3%

Assignment	A3: Task analysis specification	Jan 29	
Lab	S4: Preliminary contextual inquiry (task analysis)	Jan 29	
Assignment	A4: Contextual inquiry (field report)	Feb 5	
Lab	S5: Preliminary contextual analysis	Feb 6	
Other	C3: Updated team contracts	Feb 5	
Assignment	A5: Contextual analysis (coding + thematic analysis)	Feb 12	
Other	GM2: Grading Milestone 2 – all prior work must be completed by this date	Feb 13	24%
Assignment	A6: Design proposal	Feb 19	
Assignment	A7: Ethics protocol	Mar 5	
Lab	S8: Participatory design	Mar 6	
Assignment	A8: Participatory design report	Mar 12	
Other	GM3: Grading Milestone 3 – all prior work must be completed by this date	Mar 13	24%
Assignment	A9: Functional prototype	Mar 19	
Lab	S10: Focus group usability evaluation	Mar 20	
Assignment	A10: Analysis of focus group evaluation and protocol for experimental AB testing	Mar 26	
Lab	S11: AB testing	Mar 27	
Assignment	A11: Analysis of AB testing and updated prototype	Mar 27	
Lab	S12: Final task-based usability evaluation of updated prototype	Apr 3	
Assignment	A12: Final report	Apr 6	
Other	GM4: Grading Milestone 4 – all prior work must be completed by this date	Apr 7	24%
Exam	GM5: Grading Milestone 5 – practical (hands-on) examination	TBD	20%

Outline (topics and schedule)

Main topics:

Date	Topic and focus
Jan 9	Introductions Course overview User Experience Design “in the wild”
Jan 16	Formal methods for understanding users in place: contextual inquiry, ethnographies, task analysis
Jan 23	From qualitative and quantitative data to UX designs: open coding and grounded theory
Jan 30	Qualitative and quantitative UX (continued) Studio work
Feb 6	Ethics Studio work
Feb 13	Designing for UX: participatory design and stakeholder engagement Measuring UX: models of user acceptance and technology adoption
Feb 20	Reading week
Feb 27	Formal methods to evaluate UIs and UX designs: - Controlled experiments - Fitt's law - Parametric and non-parametric testing - Statistics for behavioural experiments - Interpreting subjective and objective UX data - Industry methods (SUS testing, NASA TLX)
Mar 6	Studio
Mar 13	Formal methods to evaluate UIs and UX designs (continued)
Mar 20	Formal methods to evaluate UIs and UX designs (continued) Studio (tutorial time only)
Mar 27	Studio
Apr 3	Studio

Requirements and criteria

All assignments are team-based except the first assignment. The assignments are components of a longitudinal technology deployment project, each representing the steps required to design and formally evaluate the user adoption of and experience using an interactive software interface. There are no constraints for the domain or the form factor of the interface; however, there are practical requirements due to the nature of the course:

- The domain must be something that available users (largely, students in the class or family members and acquaintances) can ordinarily use
- The platform should be consumer-level (e.g. laptop, mobile phone, tablet)

- The interface must be easily implementable (e.g. desktop website, mobile website, app) and allow for simulated components where necessary (e.g. database).
- An existing software interface can be used as long as it is modifiable

Specific requirements for each assignment and for the final project will be announced in class and through Blackboard's announcement system, and adjusted for the particularities of each project.

Due dates and times

All paper submissions are due by 11:59pm on the date indicated. Other materials for the in-class studio work are due by 5:30pm on the date indicated.

Team projects

- Team projects will be carried out in teams of at least 2 and no more than 3 students. Teams of 4 will be permitted only under special circumstances.
- Students will be semi-randomly assigned to teams. Students can indicate their preference for the exact team composition; however, note that the final team assignments are the decision of the instructor and the TA.
- Team members must draft and sign a contract that establishes roles, responsibilities, and team policies (a template will be provided)
- Each team will submit assignments as a group (one submission per team for each assignment). **IMPORTANT:** The cover page of each submission must detail the roles and contribution of each team member for that particular assignment. **OPTIONAL:** it is recommended that the cover page of each assignment contains individual profile pictures of each team member.
- Each member of the team is expected to take an active part in the studio-based work and will be required to publicly present updates and results from such practical work.
- For all assignments beginning with A3, each team member must submit an individual and confidential peer-review form, which will be the basis for the teamwork grades for each assignment (details to be provided in class). **Up to 30% of marks for each assignment may be deducted when lack of teamwork is evident.**
- Teams are required to recruit participants for their evaluation/testing sessions from among the students registered in INF2169/KMD2011 (except for when public observations are appropriate). **NOTE: Permission from the instructor is required before soliciting participants from outside the class! Failure to do so is considered an academic misconduct and will result in the student and/or the entire team receiving a failing grade for the course.**

Graded assignments (note these are subject to adjustments as project evolve, and may slightly differ from one team to another – always check with the instructor and the TA):

- Written assignments, each representing a concrete and formal step in the UX design and evaluation process for an interactive software application. **IMPORTANT: The details for each assignment will be communicated only in class or office hours!** (This is due to the nature of having highly-distinct projects, each with its own unique set of constraints and paths toward a final solution).
- Studio-based design and evaluation sessions. Work for this will be conducted in class during the lecture and/or practical (tutorial) time. Grades will reflect how well prepared the teams are in conducting the work. Team members who are not present are not eligible to receive a grade.
- Team contract (template will be provided).
- Final exam.

Non-graded submissions

- Some submissions are not graded – these are still mandatory. Submission of subsequent assignments will not be permitted until the preceding non-graded submission had been received.
- NOTE: semi-confidential peer-review forms are mandatory for each team submission. Peer review forms are to be submitted individually by each team member and are meant to present a student's assessment of the performance and teamwork of their teammates. Failure to submit a peer review form for an assignment will result in forfeiting the “teamwork” marks that are allocated as part of the grading for that assignment.

Graduate Research Consideration

The instructor encourages and acknowledges that students may wish to enhance their learning experience by blending their own research agenda into the coursework. This will certainly be accommodated to the extent that the work conducted by the student(s) still meets the learning objectives of the course (in a nutshell, “Advances Quantitative and Qualitative UX”) and the pedagogy of the course (team projects). The accommodation may include substituting assignment work with research work – the criteria for this are at the instructor's discretion, but may include the requirement to submit the resulting research for peer-review to academic publications (e.g. conferences, workshops, journals).

Teaching Methods

Class sessions are typically two-hour lectures weekly, with a mix of topic presentation and classroom and seminar-style discussions, guided research through bibliographic resources, and practical activities using the lab or personal computers. Students are expected to spend a significant amount of time devoted to reading and synthesizing materials and recommended reading prior to class. **Attendance to class, practical (tutorial), and office hours is essential!** A strong emphasis will be placed on initiative, critical thinking, teamwork, and project management skills.

Format

Each topic will be covered in approximately two weeks. Graded works consist of a mix of papers, reports, design sketches, evaluation results, and group projects. Additionally there are mandatory non-graded assignments and peer-review submissions. The course topics will be presented in class, but active participation will be expected during all classes. The practical sessions (tutorials) will be reserved for in-depth discussions, student presentations, development/design activities, design critiques, and studio-based participation and user trials. Attendance and presentation of designs for critique during the practical is expected. **NOTE:** due to the creative nature of the projects, the schedule may require corrections through the term, with graded activities such as in-class presentations scheduled at any time during the 6:30pm to 9:30pm interval.

The examination will consist of a short hands-on UX project, to be completed individually. Students will be required to bring appropriate technology (e.g. own laptops) for the exam.

Independent reading:

There is no textbook for this courses. However, students are expected to engage in independent or semi-guided reading. Materials (excerpts from books, papers, or other sources) will be posted on Blackboard or handed out in class. Additional readings will be indicated in the lecture handouts. These sources are carefully selected to complement the material presented in class and are required for the

successful completion of the course projects.

Teamwork:

Students are expected to work in teams - this emulates and prepares students for challenges faced in the workplace. This includes working together in person or making use of online collaborative tools (e.g. e-mail, Skype, Google Docs, etc.) Teams are required to share workloads equally and fairly -- their contributions will be marked both individually and as a team.

Peer-review forms are used to judge the fairness of teamwork. However, team members are encouraged to approach the instructor confidentially if they believe team members do not cooperate fairly. The instructor will take appropriate action, such as individual meetings with team members or group conflict resolution meetings.

Procedures and rules

E-Culture Policy

Only student Utormail accounts should be used for course communication and all emails from students must have INF2169 or KMD2001 (no space) at the beginning of the subject line and should be signed with the full student name and student number. Emails lacking "INF2169" or "KMD2001" starting the subject line may not be responded to. Otherwise, you can normally expect a response within 48 hours. No emails will be answered during the 12 hours before an assignment is due.

The course website located via the Portal (portal.utoronto.ca) is used to distribute course materials and lectures slides (generally after any given lecture), for announcements, and on-line forum discussions (related to this course). Students are required to monitor the portal announcements.

NOTE: The official course on the Portal is INF2169 – this applies to both KMD2001 and INF2169 students.

IMPORTANT: Email should be used only for brief administrative communications and not for receiving extensive guidance for completing the assignments. Minor, specific clarifications related to an assignment or follow-ups of in-person discussions will be answered. For all other assignment-related questions please use the available in-person time (class, tutorial, and office hours).

Learning Technology

Submission of assignments, unless otherwise stated, should be submitted via the Portal (portal.utoronto.ca). Students are responsible for ensuring their submission is made on time and that they allow sufficient time for uploading and completing all required forms on the Portal before the submission is due.

Some assignments may require the use of specialized software packages. Most of such software is available for use throughout the university computer labs – students should consult with the instructor on the use and appropriateness of such software. However, students may be required to install specialized software on their own computers or laptops.

Policy on in-class technology use

Students are expected to use technology such as personal laptops during some classroom activities. This is not a requirement, but a strong recommendation. Students may at times work collaboratively and will be asked to share laptops if classroom desktop computers are not available.

Using personal technologies (laptops, cell phones, tablets, etc.) is encouraged if it supports the classroom activities. The use of such technologies for any other use is tolerated as long as it is not disruptive of students' learning – such decisions are at the discretion of the instructor on a case-by-case basis.

NOTE: the nature of UX activities that are part of the assigned work requires the use of video recording during studio exercises. While students are asked to safeguard everyone's privacy, it should be noted that full confidentiality of such recordings cannot be guaranteed. Additionally, the instructor and/or the TA may photograph studio-based exercises for curriculum and pedagogy improvement purposes – some of these photographs may be used publicly. Students will be invited to sign official photo release forms, but can opt out if they so wish with no consequence over their academic standing in this course.

Late Assignments, Extensions

All assignment submissions (all “A#” submissions: A1 to A12) in the due dates table are eligible for late submission according to a grading milestone scheme (outlined below). All other submissions are required to be on time, except in document circumstances as per university policy (outlined below).

The grading milestone scheme functions as follows:

- All “A” assignments with due date before each grading milestone (“GM”) can be submitted late
- The absolute cut-off submission time for each block of such assignment is the date indicated for the corresponding GM
- After the GM due date has passed, the assignments corresponding to that block will receive a grade of 0.
- Note that assignments submitted late may not receive any written or oral feedback from the instructor or the TA (however, these will still receive a grade as long as they are submitted before their corresponding GM deadline).

If you otherwise require more time to complete term work for circumstances outside your control please follow the iSchool policies as indicated in this syllabus and at <https://ischool.utoronto.ca/current-students/academic-resources/academic-regulations/>

NOTE on extension requests due to medical reasons: it is this instructor's own policy to not request medical certificates (“sick notes”). If for any medical-related reason you cannot complete an assignment within the time allowed by the corresponding Grading Milestone block, then you may request special consideration on health grounds from the instructor, using a signed Statutory Declaration of Absence (form available on the course's portal page). Note that this applies only for term work and extensions cannot be granted past the end of the examination period. For special consideration related to the final exam please see the registrar office.

Policy on Regrading

When you receive your grade on a given assignment, take careful note of the marker's feedback, the assignment instructions, and, if applicable, the detailed rubric that's attached. If you have questions about your grade, schedule an appointment with the person who marked your paper to discuss his/her comments in greater detail. The purpose of this meeting is to receive additional feedback on your work

and ask any questions you may have about how to improve going forward. The marker will not change your grade, except in the case of an obvious clerical error. If, after this meeting, you would like your paper regraded, please submit hard copies to the instructor of the following before/after lecture or during office hours: a) the marked copy of the paper; b) a clean copy of the paper; and c) a detailed letter, written by you, requesting a regrading. This letter should make specific reference to the marker's comments, aspects of the rubric (if applicable), and the assignment instructions. I will then review the materials, in consultation with the original grader if necessary, and render a decision within one week. Your grade could be raised, it could remain the same, or it could be lowered. Please remember that grading is not meant to be a punitive exercise, nor is it personal. We are here to evaluate your work according to the University's standards, and to provide detailed and timely feedback to you as to how you can improve in future. We make a significant effort in this course, and in every course, to ensure all grading is done fairly, and that grading practices are consistent across multiple sections and markers.

Academic integrity

Please consult the University's site on Academic Integrity <http://academicintegrity.utoronto.ca/>. The iSchool has a zero-tolerance policy on plagiarism as defined in section B.I.1.(d) of the University's Code of Behaviour on Academic Matters

<http://www.governingcouncil.utoronto.ca/Assets/Governing+Council+Digital+Assets/Policies/PDF/ppjun011995.pdf>. You should acquaint yourself with the Code. Please review the material in Cite it Right and if you require further clarification, consult the site How Not to Plagiarize

<http://www.writing.utoronto.ca/advice/using-sources/how-not-to-plagiarize>.

Cite it Right covers relevant parts of the U of T Code of Behaviour on Academic Matters (1995). It is expected that all iSchool students take the Cite it Right workshop and the online quiz. Completion of the online Cite it Right quiz should be made prior to the second week of classes. To review and complete the workshop, visit the orientation portion of the iSkills site:

<https://inforum.library.utoronto.ca/workshops/orientation>

Accommodations

Students with diverse learning styles and needs are welcome in this course. If you have a disability or a health consideration that may require accommodations, please feel free to approach me and/or the Accessibility Services Office <http://www.studentlife.utoronto.ca/as> as soon as possible. The Accessibility Services staff are available by appointment to assess needs, provide referrals and arrange appropriate accommodations. The sooner you let them and I know your needs, the quicker we can assist you in achieving your learning goals in this course.

Additional support

Writing Support

As stated in the iSchool's Grade Interpretation Guidelines, "work that is not well written and grammatically correct will not generally be considered eligible for a grade in the A range, regardless of its quality in other respects." With this in mind, please make use of the writing support provided to graduate students by the SGS Graduate Centre for Academic Communication. The services are designed to target the needs of both native and non-native speakers and all programs are free. Please consult the current workshop schedule <http://www.sgs.utoronto.ca/currentstudents/Pages/Current-Years-Courses.aspx> for more information.

iSchool Workshops

The following workshop series are exclusively available to the iSchool community. iSchool professors, Inforum librarians, current students, alumni, and a collective of professionals and academics from each program and concentration, work together to create these unique rosters.

Together with the MMSt and MI curricula, these academic, professional, and technical iSkills workshops provide a robust information and heritage graduate educational experience.

iSkills Workshops: <https://inforum.library.utoronto.ca/workshops/iSkills>

In an effort to ensure your success at the iSchool, key information and skills that all iSchool students must possess, regardless of program or concentration, are covered in these online orientation workshops.

Orientation Workshops: <https://inforum.library.utoronto.ca/workshops/orientation>

Statement of Acknowledgement

We would like to acknowledge this land on which the University of Toronto operates. For thousands of years it has been the traditional land of the Huron-Wendat, the Seneca, and most recently, the Mississaugas of the Credit River. Today this meeting place is still the home to many Indigenous people from across Turtle Island and we are grateful to have the opportunity to work on this land.