UNIVERSITY OF TORONTO
FACULTY OF INFORMATION

Faculty of Information
School of Graduate Studies
University of Toronto – St. George
Semester: Winter 2017
INF2191H – User Interface Design

COURSE DIRECTOR: Dr. Olivier St-Cyr, PhD, LEL
Office: **BL 710**
E-mail: **olivier.st.cyr@utoronto.ca**
Office hours: **Tuesday 12:00pm – 1:00pm; Wednesday 11:00am – 1:00pm**

TEACHING ASSISTANTS: **Hervé Saint-Louis (herve.saint.louis@mail.utoronto.ca)**
Glen Farrelly (glen.farrelly@utoronto.ca)

CLASS TIME: Lecture**: Wednesday 1:00pm – 4:00pm** Location: **BL 313**

COURSE DESCRIPTION:

User Interface Design is broadly concerned with the design of user interfaces for machines and software. On computer screens, this refers to the shaping and the presentation of navigation controls and information displays, as well as functional controls. With the gradual rise over the last decade in mobile and ubiquitous computing (the "internet of things"), the study of user interface design has necessarily broadened to small screens and even everyday objects. Students will learn basic principles of user interface design, interaction models and laws, differentiation of interaction styles, and different user interface paradigms. More practical topics may include physical ergonomics, cognitive ergonomics, design guidelines for different platforms, differentiation of interaction styles, design widgets, accessibility, localization, and software prototyping tools.

PREREQUISITES:

KMD1001, INF2170.

Because this is a transition year into the new UXD Concentration, we will be waiving the prerequisites for this year only as follows: For students who entered the program in Sept 2016, the KMD1001H prerequisite for INF2191H will be waived. You can take KMD1001H at the same time as INF2191H. You must take INF2169H in the Winter of 2017 as well.

LEARNING OBJECTIVES:

INF2191H has eight (8) key learning objectives:

- Explain the design implications of cognitive aspects to user interfaces
- Connect usability and user experience goals to the design of user interfaces
- Generate user interface requirements and workflows using information from task descriptions
- Create user interface mock-ups from user needs and task descriptions
- Apply design guidelines and design principles to the layout of user interfaces
- Explain how customization design rules are applied to achieve universal usability
- Apply heuristics evaluation rules to criticize the design of user interfaces
- Assess a user interface based on usability and user experience metrics

RELATIONSHIP TO MASTERS OF INFORMATION (MI) PROGRAM-LEVEL STUDENT LEARNING OUTCOMES:

Master of Information Program-Level Student Learning Outcomes can be found here.

This course helps students master fundamental knowledge and develop skills for doing real-world design work (**Outcome 1**). Practicing user interface design skills will equip students to understand how users' work is mediated by information, and to practice socially responsible design in their careers (**Outcomes 2 and 4**). Through learning theory and practice of user interface design in tandem, students will be equipped to understand the application of new technological developments in interactive systems and continue building their knowledge through research and continuous learning (**Outcomes 5 and 6**).

CLASS FORMAT:

The course will consist of lectures, class discussions, and a major project. Students are expected to attend the classes and to actively participate in the discussions. For each class, a series of topics are provided to guide students through the readings and activities, and to frame the lectures and discussions. This course is project-based class. Participation in all group activities and deliverables is crutial.

Teaching and learning is a shared responsibility, influenced by individual knowledge and experience, and achieved through expanding our awareness of the different issues and approaches involved in information systems. Commitment, preparation, and active participation are important ingredients to realize this goal. Your preparation and participation is important to your learning and the learning of your colleagues.

All the course materials will be available on the University of Toronto learning portal (Blackboard) together with assignments and announcements.

REQUIRED TEXTBOOK:

McKay, E. N. (2013). UI is Communication: How to Design Intuitive, User Centered Interfaces by Focusing on Effective Communication. Morgan Kaufmann. ISBN: 978-0-12-396980-4. (**Referred to as McKay**)

Available online at: http://search.library.utoronto.ca/details?9041038

SUPPLEMENTAL TEXTBOOK:

Preece, J., Sharp, H., & Rogers, Y. (2015). Interaction Design: Beyond Human-Computer Interaction (4th Ed.). Wiley. ISBN: 978-1-119-02075-2. (**Course Reserve in Inforum**)

EVALUATIONS:

Theme	Evaluations	Weight
Design Analysis (20%)	Team Design Idea / Proposal	3%
	Team Design Pitch / Presentation	2%
	Early-stage Design: Conceptual Design & Preliminary Prototypes	5%
	Analysis of User Requirements	10%
User Interface Design (50%)	Low-Fidelity Prototypes	10%
	Medium-Fidelity Prototypes	15%
	High-Fidelity Prototypes	25%
Evaluation (30%)	Heuristic Evaluation of Medium-Fidelity Prototypes	5%
	Usability Testing Protocol for High-Fidelity Prototypes	5%
	Showcase of Projects and Design Competition	5%
	Project Final Report	15%

This course requirements and weights are final and will not be modified throughout the term. The penalty for late assignments is set to **5% per day**, to a maximum of one week; submissions will not be accepted after one week. Exceptions will be made only when supported by appropriate documentation.

Course work	Short description
Team Design Idea / Proposal (3%)	The main deliverable for INF2191 is a user interface design project. All project assignments are done in groups of five (5) students. The assignments are part of a course-long design project, each representing an incremental iteration of the steps required to **design** and **validate** an interactive system. The theme for this year's project is: "**Smart Cities**". Each group will select a topic within the theme and will be responsible to design **a *complete* suite of three (3)** user interfaces: **desktop**, **mobile**, and **smart watch**. In this deliverable, each team will prepare a document outlining and motivating the proposed design idea, as well as detailing, in general terms, what problem their design will solve, who the users are, and how will it work.
Team Design Pitch / Presentation (2%)	Each team will be given 3 minutes to present their design problem in front of the class, the TAs, and the instructor.
Early-stage Design – Conceptual Design & Preliminary Prototypes (5%)	The early-stage design of the proposed project (conceptual model, design sketches, basic IA, or other form of early-stage design). Teams will submit a short document describing the design and early forms of conceptual designs.
Analysis of User Requirements (10%)	An analysis of the user requirements and refined conceptual designs (motivated by the user requirements analysis).
Low-Fidelity Prototypes (10%)	Low-Fidelity prototypes for ***three (3)*** user interfaces: **desktop**, **mobile**, and **smart watch**. Each team will produce a document outlining the low-fidelity prototypes.
Medium-Fidelity Prototypes (15%)	Medium-Fidelity ***clickable*** prototypes for **three (3)** user interfaces: **desktop**, **mobile**, and **smart watch**. Each team will produce a document outlining the medium-fidelity prototypes.
High-Fidelity Prototypes (25%)	High-Fidelity ***clickable*** prototypes for **three (3)** user interfaces: **desktop**, **mobile**, and **smart watch**. Each team will produce a design report detailing the high-fidelity prototypes.
Heuristic Evaluation of Medium-Fidelity Prototypes (5%)	Teams will work in pairs to conduct a heuristic evaluation of the medium-fidelity prototypes of another team. Each team will produce a heuristics evaluation report outlining their findings and design recommendations.
Usability Testing Protocol for High-Fidelity Prototypes (5%)	Each team will produce a usability evaluation protocol/plan (motivated by the user requirements analysis) to conduct usability testing sessions with the high-fidelity prototypes.
Showcase of Projects and Design Competition (5%)	Showcase of the project, including: problem statement, implementation of the high-fidelity prototypes, results of the usability evaluation, and revised design. Presentations will also be judged by an expert panel as part of a design competition.

Project Final Report (15%)	Final project submission, including usability evaluation results and final updated design of high-fidelity prototypes (must also include a ***complete report*** of all designs, requirement, and intermediate prototypes and evaluations).

COMMUNICATION POLICY:

If you have a question, there is a high chance that other students in the course have the same question or, at least, will benefit from the answer. Please post all the questions to the INF2191 Blackboard Discussion Board so everyone in the course can benefit from your questions and our answers. Students are encouraged to post answers to the questions of other students where appropriate.

Emails to the instructor must have a subject that starts with "INF2191H" and include some more details, e.g., "INF2191H: book appointment February 3rd".

GRADING:

Please consult the iSchool's Grade Interpretation Guidelines (http://current.ischool.utoronto.ca/grade-interpretation) and the University Assessment and Grading Practices Policy (http://www.governingcouncil.utoronto.ca/Assets/Governing+Council+Digital+Assets/Policies/PDF/grading.pdf). These documents will form the basis for grading in the course.

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 Office of English Language and Writing Support (http://www.sgs.utoronto.ca/currentstudents/Pages/English-Language-and-Writing-Support.aspx). 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.

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: uoft.me/iskills

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.

RE-GRADING POLICY:

A student (group) who believes that his or her term work has been unfairly graded may submit a re-evaluation request. Students have up to one month from the date of return of an item (or from the date the mark was made available) to inquire about the mark and submit a request. For example, should the work be returned or the mark be made available on March 3rd, the student has until April 3rd to inquire ***in writing*** and start the re- evaluation process. Instructors/TAs must acknowledge receipt of a student request for re-evaluation within 3 working days, and decisions should be provided in a timely fashion. Re-evaluation requests may be submitted in writing ***to the person who marked the work***. The student must submit (1) the original piece of work and (2) a written explanation detailing why he or she believes the work was unfairly/incorrectly graded. **The course instructor must be CCed on all communications**.

Following a re-evaluation decision, if the student is still not satisfied with the result, he or she may appeal to the instructor in charge of the course if the work was not marked by the instructor (e.g., marked by a TA). In this instance (i.e., the instructor was not the one who marked the work),

the student must now submit to the instructor (1) the original piece of work, (2) the written reasons as to why he or she believes the work was unfairly/incorrectly marked, and (3) communications from the original marker. Re-evaluation appeals are at the discretion of the instructor. If a re-revaluation is granted by the instructor, the student must accept the resulting mark as the new mark, ***whether it goes up or down or remains the same***. When appealing a re-evaluation decision, the student accepts this condition. Instructors and TAs should ensure all communications with the student is in writing (e.g. follow-up e-mail) and keep a copy for later reference.

IMPORTANT DATES:

First class:	January 11th, 2017
Last day to add or substitute S (Winter) courses:	January 23rd, 2017
Last day to drop S (Winter) courses without grade:	February 27th, 2017
Reading week:	February 20th – 24th, 2017
Last class:	April 5th, 2017

SCHEDULE

Weeks	Topic	Readings	Due
#1 Jan 11	Course Overview + User Interface Basics + Types of User Interfaces	• McKay: Introduction • Preece, J., Rogers, Y., & Sharp, H. (2015). Interfaces. In Interaction Design, 4th edition. Chapter 6, pp. 158-225.	
#2 Jan 18	A Communication-Driven Design Process	• McKay: Chapter 5 & Chapter 6	• Group activity: Team Formation Project Generation Ideas Speed Dating
#3 Jan 25	User Interface Design Guidelines	• Apple Human Interface Guidelines • Windows 10 UWP User Experience Guidelines • Android User Interface Guidelines	• Team Design Pitch / Presentation • Team Design Idea / Proposal
#4 Feb 1	Communication Design Principles #1	• McKay: Chapter 1	• Early-stage Design: Conceptual Design & Preliminary Prototypes
#5 Feb 8	Communication Design Principles #2 + Interaction Design #1	• McKay: Chapter 1 & Chapter 2	• Analysis of User Requirements
#6 Feb 15	Interaction Design #2 + More AXURE	• McKay: Chapter 2 • https://www.axure.com/support/training/core/1-basics	• Low-Fidelity Prototypes
RW Feb 20-24	Reading Week (no classes)		

#7 Mar 1	Usability Testing Protocols	• Rogers, Y., Sharp, H., & Preece, J. (2011). An Evaluation Framework. In Interaction Design, 3rd edition. Chapter 13, pp. 455-475. • Barnum, C. M. (2010). Planning for usability testing. In Usability Testing Essentials: Ready, Set...Test! Morgan Kaufmann. Chapter 5, pp. 105-156. • 10 Usability Heuristics for User Interface Design	• Heuristic Evaluation of Medium-Fidelity Prototypes • Medium-Fidelity Prototypes
#8 Mar 8	Visual Design	• McKay: Chapter 3	• Usability Testing Protocol for High-Fidelity Prototypes
#9 Mar 15	Communicating to People	• McKay: Chapter 4	• High-Fidelity Prototypes
#10 Mar 22	Usability Testing Sessions	• Barnum, C. M. (2010). Preparing for usability testing. In Usability Testing Essentials: Ready, Set...Test! Morgan Kaufmann. Chapter 6, pp. 157-198.	• Usability Testing Sessions
#11 Mar 29	Accessibility + Localization + University Design + Novice vs Expert features	• Software Accessibility • Software Internationalization • The Universal Design File • Wu, J. (2000). Accommodating both Experts and Novices in One Interface. Department of Computer Science, University of Maryland.	
#12 Apr 5	Showcase and Design Competition (Location: TBD)		• Showcase Presentation • Project Final Report

SUMMARY OF DUE DATES

Team Design Pitch / Presentation	Wednesday January 25th, 2017 by 1:00:00pm
Team Design Idea / Proposal	Friday January 27th, 2017 by 11:59:59pm
Early-stage Design	Friday February 3rd, 2017 by 11:59:59pm
Analysis of User Requirements	Friday February 10th, 2017 by 11:59:59pm
Low-Fidelity Prototypes	Friday February 17th, 2017 by 11:59:59pm
Heuristic Evaluation Medium-Fidelity Prototypes	Wednesday March 1st, 2017 by 11:59:59pm
Medium-Fidelity Prototypes	Friday March 3rd, 2017 by 11:59:59pm
Usability Testing Protocol	Friday March 10th, 2017 by 11:59:59pm
High-Fidelity Prototypes	Friday March 17th, 2017 by 11:59:59pm
Showcase of Projects and Design Competition	Wednesday April 5th, 2017 by 1:00:00pm
Project Final Report	Friday April 7th, 2017 by 11:59:59pm