

# User Interface Design

CSCI 3160 (CRN 12697)\*

Fall 2012/2013

Meeting Time:	Tues. & Thurs. 10:05 – 11:25 a.m.
Meeting Room:	Life Sciences Centre room C236
Professor:	Jamie Blustein Office Hours: Tues. & Wed. 2:30–3:30 p.m. <i>and</i> by appointment Office: #223, Goldberg Computer Science Bldg. E-mail: <jamie@cs.dal.ca> Telephone: +1 (902) 494-6104
Class website:	<URL: <a href="http://www.cs.dal.ca/~jamie/CS3160/">http://www.cs.dal.ca/~jamie/CS3160/</a> >
Prerequisites <sup>†</sup> :	CSCI 2132 or INFX 1616
Co-requisite <sup>†</sup> :	CSCI 2140 or CSCI 2141
Ante-requisite:	CSCI 4163
Required Textbook: (either one)	<i>The Resonant Interface: HCI Foundations for Interaction Design</i> by Steven Heim. © 2008. Published by Addison Wesley Higher Education (ISBN 978 0 321 37596 4). <i>User Interface Design and Evaluation</i> by Debbie Stone <i>et al.</i> © 2005. Published by Elsevier, Inc. as Morgan Kaufmann (ISBN 978 0 120 88436 0).
Recommended Textbook: (any edition)	<i>The Non-Designer's Design Book</i> by Robin Williams. Published by Peachpit Press (3 <sup>rd</sup> ed. (2008), ISBN 978 0 321 53404 0)
Assessment Components:	Project 33% Test (25 October) 15% Final exam 40% Class participation, Assignments, Homework, Quizzes } 12%
Syllabus and Course Updates:	The schedule and procedures in this syllabus are subject to change in the event of extenuating circumstances. Updates to the syllabus or other material on the CD-ROM will be posted to the webpage at <URL: <a href="http://web.cs.dal.ca/~jamie/course/CS/3160/Updates/">http://web.cs.dal.ca/~jamie/course/CS/3160/Updates/</a> >.

## 1 Class Content and Goals

'This class deals with concepts and techniques underlying the design of interactive systems. Both human factors and the technical methods of user interface design are covered. Students will learn how to apply various techniques through the design, creation, and testing of a prototype system.'

quoted from  
Dalhousie  
University  
Calendar  
2012/2013

\*3 credit hours, undergraduate class, syllabus version 02 September 2012 (1c).

<sup>†</sup>According to *Dalhousie University Undergraduate Calendar 2012/2013*.

## 1.1 Teaching Perspective

As the professor my first goal in this class is to raise awareness of the importance of design that accounts for users' physical, behavioural and information processing characteristics and requirements. Experience has shown that failure to deal with such characteristics can lead to wasted functionality, user frustration, inefficient practices, discomfort and error-prone activity.

You (the student) will develop the following basic skills:

- abstract task analysis
- design specification
- user testing
- critical evaluation of results of user testing
- working in small groups to develop a draft of a user interface for specific users with specific needs

A secondary goal is to teach you how to develop interfaces for software and hardware applications in which user experience is a central issue. I will use a hands-on approach to introduce techniques and tools to support a an iterative user centred software lifecycle consisting of

1. requirements gathering
2. design
3. evaluation
4. prototyping
5. testing
6. refinement

## 1.2 Tentative Topic List

1. Introduction to HCI
  - what is HCI, why we need it
  - how it fits into software design
2. Introduction to usability engineering and project
  - Usability Engineering lifecycle models
  - Items of production
3. Models of usability
4. Basics properties of users
  - sensation, perception, cognition, and motor skills
  - memory, reasoning and information processing, expertise
5. Interaction styles
  - Menus,
  - Form fill-in,
  - Command line interfaces,
  - Direct manipulation,
  - Novel interfaces (e.g. haptic feedback)
6. Evaluation of user interfaces
  - Testing without users
    - Guidelines and heuristics
    - Scenarios and cognitive walkthroughs
  - Prototyping
    - Paper prototypes
    - Web prototypes
    - Code prototypes
7. Design methods
  - Formative evaluation
  - User and feature analysis
  - Task analysis
  - Prototyping
8. Potential Additional Topics
  - Design for Happiness (Pieter Desmet)
  - Activity Theory for HCI

The schedule and procedures in this syllabus are subject to change in the event of extenuating circumstances.

### 1.3 Unofficial Learning Outcomes

The Faculty's Curriculum and Teaching committee has produced a non-binding list of 'student learning outcomes' for this course. The list from [URL:https://academics.cs.dal.ca/curriculum/manage/course/CSCI/3160](https://academics.cs.dal.ca/curriculum/manage/course/CSCI/3160)) as it appeared on 13 August 2012 is below.

- Describe the importance of user interface design and usability in the application development process.
- Select appropriate interaction styles input choices, and navigation types for different interfaces and information spaces.
- Identify the basic properties of users and devices that must be considered when designing and implementing interactive applications.
- Recognize the different models of usability.
- Develop a user interface prototype that considers the basic properties of users and devices.
- Evaluate user interfaces without users.
- Design a user interface in agreement with the standard user interface guidelines and best practices.
- Identify and contrast different user interface design methods.
- Justify the design decisions made for appropriate interface types.
- Apply a user interface design method to develop a user interface prototype.
- Contrast the role of low and high fidelity prototypes in user design and evaluation.
- Construct low and high fidelity prototypes.

## 2 Expectations

My **rôle of your professor** is not to teach as such but to *help you to learn*. You are responsible for your own learning. I will explain and motivate the material. Grades will be based on my assessment of the quality of your work. You must *demonstrate* that you understand *and* can apply the material to succeed in this course. I will give you assignments that will help you to practice and improve your skills. I will try to make the assignments interesting and challenging.

Our **time in the classroom** will be used for lectures, discussions, quizzes, and work in groups.

The typical **student should** spend at least three hours studying for every hour of time in the class meetings. Some of that time will be preparation for lectures, some will be for review, and some will be time spent on the project and assignments. Some weeks more time will be required than in other weeks, but to best use your time I recommend that you spend at least some time *on the day of* a class meeting reviewing your notes and the material that was presented.

**I expect you to** attend each class meeting, to be on-time, and to be prepared for virtually all of the class meetings. I expect you to participate meaningfully in all of the activities in the classroom. I remind you that part of your grade is based on your participation in the intellectual atmosphere of inquiry in the class (see §3.2.4 on page 9).

**If you miss a class** meeting, for any reason, you are responsible for the material covered, any assignments that were given, and any announcements that were made. I will try to make copies of lecture notes, etc. available to you on the CD-ROM you got at the start of the class, on my website, at the Killam library, or all three.

A **tentative list of topics** for us to study is in §1.2 on page 2. The list and order may change depending on what you (the students as a whole) have as background knowledge and what I feel is necessary for you to get the most out of the project.

Before I lecture about most topics I will assign **readings from the textbook or elsewhere** for you. You should consider that the readings listed in the schedule (§4, pp. 11ff) as assigned unless I inform you otherwise. *You will get the most benefit from the class if you complete the assigned reading and make notes before the class meets.* If you cannot complete the reading before the lecture and in-class discussion then you should do the reading carefully after the meeting has met to discuss the topic.

The schedule and procedures in this syllabus are subject to change in the event of extenuating circumstances.

## 2.1 Prerequisites

At a minimum I expect students to be familiar with modern computer systems, have some experience writing computer software (preferably interactive programs with a graphical interface), basic problem-solving ability, fluency in written and spoken English to be expected of a successful student after two full years of university education in English.

**Formal prerequisites** for this class are one of CSCI 2132 (Software Development) or INFX 1616 (Applications of Computing) and the former CSCI 2140 (Data and Knowledge Fundamentals) or CSCI 2141 (Introduction to Database Systems). Of those classes, only CSCI 2140 can be taken concurrent with this class.

Students with experience working in groups might find the collaborative project part of the class easier. An important part of the course is an introduction to concepts in user-centred design and usability engineering. Students with experience, and knowledge of, the fundamentals of software engineering should find the introduction of usability engineering lifecycle models easier than students without formal exposure to those concepts. Many projects that students select for this class are fundamentally about structuring, using, and managing information and knowledge, so it can be to the advantage of prospective students to have a practical understanding of databases and related issues.

Therefore the following courses are **recommended but not required**:

- CSCI 2110 (Computer Science III)
- CSCI 2132 (Software Development)
- CSCI 3130 (Intro to Software Engineering)
- INFX 2640 (Use and Design of Databases)

## 2.2 Help

There are many resources to help you in this class: me (your professor), the materials provided by your professor, the textbooks, the lab, certain websites, and the other students. In the end however the responsibility for learning is yours. Details of the various assignments will be discussed in meetings. All students are expected to do their own work!

### 2.2.1 Office Hours

The office hours listed on the front of this syllabus are times when I will be in or near my office. You may drop-in to discuss anything related to the class during those times. If you want to meet with me at some other times then it is best for you to make appointment, but you can also come to my office in case I have time available right then. You can make appointments in person (e.g., after class meetings or during my office hours), by e-mail or by telephone.

### 2.2.2 Materials in the Killam Library

Federal law and university policy forbid me from *directly* providing you with photocopies or digital copies of materials from textbooks. Several books (including the textbook by Stone et al.) are on [reserve in the Killam Library](#). All of those materials should be listed by your instructor's surname viz. BLUSTEIN but not necessarily by course name or number.

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\*Dalhousie University Undergraduate Calendar 2012/2013 p. 266

The FCS requires a minimum grade of C- to satisfy a pre-requisite\*.

### 2.2.3 Writing Centre

The Writing Centre has asked me to pass along the following information in the syllabus.

Writing expectations at university are higher than you will have experienced at high school (or if you are entering a master's or PhD program, the expectations are higher than at lower levels). The Writing Centre is a Student Service academic unit that supports your writing development. Make an appointment to discuss your writing. Learning more about the writing process and discipline-specific practices and conventions will allow you to adapt more easily to your field of study.

**Dalhousie Writing Centre Main Location** (Learning Commons, Main Floor)

Monday & Tuesday	10:00 – 19:00
Wednesday & Thursday	10:00 – 21:00
Friday	10:00 – 16:00
Sunday	12:00 – 17:00

**At Sexton** (Room A108)

Wednesday	18:00 – 21:00
Friday	09:00 – 12:00

**At Black Student Advising** (4<sup>th</sup> Floor SUB)

Monday	12:00 – 14:00
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**Weldon Law Library** (Basement — Room 114 F)

Wednesday	18:00 – 20:00
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**Book an appointment:** E-mail [writingcentre@dal.ca](mailto:writingcentre@dal.ca) or call 494-1963 or go to the Dalhousie homepage, log on to [MyDal](#), and select the “Learning Resources” tab. You’ll see the “Writing Centre” BOOK AN APPOINTMENT button.

## 3 Policies and Rules

Students are subject to all applicable University and Faculty policies. By your enrollment in this class beyond the first day you are deemed to be fully aware of all such obligations and responsibilities so most of them will not be repeated here.

### 3.1 General

Your attention is particularly drawn to some of the policies, rules, and regulations that apply to all undergraduate classes.

#### 3.1.1 Grading Scale

I do not assign grades, rather I assess the quality of your work to determine how well you demonstrate your understanding of the topics of the class. The definitions of grade levels are in Dalhousie University's current Undergraduate Calendar. I am bound by Faculty of Computer Science regulations that do not allow more than 20% of the students to get *A*-level grades other than in the most exceptional circumstances.

Regulations:  
FCS Council  
Meetings of  
2004-03-23\* and  
2005-05-24.

#### 3.1.2 Accommodations to Ensure Accessibility

Any student wishing to discuss an accommodation on the basis of permanent or temporary disability is asked to register with the [Advising & Access Services Centre \(AASC\)](#) in the Mark A. Hill Accessibility Centre off the patio in front of the Killam library, by telephone at 494-2836, by e-mail at [staccess@dal.ca](mailto:staccess@dal.ca), or by fax at 494-2042. *Your grade should reflect how much you can demonstrate you know and can apply about the topics of this class.* If you have registered with the AASC then I will be guided by their advice in deciding how you are asked to demonstrate that knowledge.

The AASC asked me to pass on the following statement to my students.

Students may request accommodation as a result of barriers related to disability, religious obligation, or any characteristic under the Nova Scotia Human Rights Act. Students who require academic accommodation for either classroom participation or the writing of tests and exams should make their request to the Advising and Access Services Center (AASC) prior to or at the outset of the regular academic year. Please visit [www.dal.ca/access](http://www.dal.ca/access) for more information and to obtain the Request for Accommodation – Form A.

A note taker may be required as part of a student's accommodation. There is an honorarium of \$75/course/term (with some exceptions). If you are interested, please contact AASC at 494-2836 for more information.

Please note that your classroom may contain specialized accessible furniture and equipment. It is important that these items remain in the classroom, untouched, so that students who require their usage will be able to participate in the class.

#### 3.1.3 Plagiarism

Plagiarism will not be tolerated in any part of any work presented or submitted to the professor for any reason. You must do your own work and provide proper credit when quoting or paraphrasing the work of others. This policy applies equally to text, images, program code and algorithms. This policy applies to everything that you present or submit (in class meetings, in assignments, etc.) as part of this class. This policy applies to the whole of everything that you present or submit and every part of everything that you present or submit.

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\*'2004-03-23' is the ISO format for the date 23 March 2004.

You may use any standard style guide you wish so long as you use it consistently. The reference desk at the Killam library or your professor can offer suggestions for style guides. Further details are in the §3.1.4 (immediately below).

### 3.1.4 Academic Integrity\*

At Dalhousie University, we respect the values of academic integrity: honesty, trust, fairness, responsibility and respect. As a Dalhousie student and a member of the academic community, you are expected to abide by these values and the policies which enforce them. What is academic integrity?

Academic integrity means ensuring that any work you submit is your own and that you have given appropriate acknowledgment to any sources that you consulted. 'Dalhousie University defines plagiarism as the submission or presentation of the work of another as if it were one's own. Plagiarism is considered a serious academic offence which may lead to the assignment of a failing grade, suspension or expulsion from the University.' (from Undergraduate Calendar (2010/2011) section on Intellectual Honesty, p. 22).

Some examples of plagiarism are:

- failure to attribute authorship when using a broad spectrum of sources such as written or oral work, computer codes/programs, artistic or architectural works, scientific projects, performances, web page designs, graphical representations, diagrams, videos, and images;
- downloading all or part of the work of another from the Internet and submitting as one's own
- the submission of an assignment or other work prepared by any person other than the individual claiming to be the author
- submitting work that has been completed through collaboration or previously submitted for another assignment without permission from your instructor

**How is plagiarism detected?** Professors and TAs are highly skilled at recognizing discrepancies between writing styles, inappropriate citations, and obvious word-for-word copying. In addition, the Senate has affirmed the right of any instructor to require that student papers be submitted in both written and digital format, and to submit any paper to an originality check such as that performed by Turnitin.com for essay papers, and MOSS for software code. Copies of student essay papers checked by this process will be retained by Turnitin.com.

**What happens if I am accused of plagiarism?** Instructors are required to forward any suspected cases of plagiarism to the Academic Integrity Officer (AIO) for the Faculty. You will be informed of the allegation by the AIO and a meeting will be convened. You may contact the Dalhousie Student Advocacy Service who will be able to assist you in preparing a defence. Until the case is resolved, your final grade will be 'PND'. If you are judged to have committed an offence, penalties may include a loss of credit, 'F' in a class, suspension or expulsion from the University, or even the revocation of a degree (for more information see Dalhousie's Academic Integrity website).

PND status came  
into effect  
2009-01-21

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\*The section is adapted from the original version which is from the Faculty Resources section of Dalhousie University's Academic Integrity website ([URL:http://academicintegrity.dal.ca/Faculty%20Resources/index.php](http://academicintegrity.dal.ca/Faculty%20Resources/index.php)) entitled *Academic Integrity Statement for Syllabus*. The original is dated 16 July 2008. It was copied on 25 September 2008.

### 3.1.4 Academic Integrity (*cont.*)

#### How can I avoid plagiarism?

- Give appropriate credit to the sources used in all of your assignments
  - Use RefWorks to keep track of your research and edit and format bibliographies in the citation style required by the instructor — [URL:http://www.library.dal.ca/How/RefWorks](http://www.library.dal.ca/How/RefWorks)
- If you are unsure about anything, contact your instructor or TA
- Prepare your assignments completely independently
- Make sure you understand Dalhousie's policies on academic integrity

**Specifics for CSCI 3160:** You must do your own work and provide proper credit when quoting or paraphrasing the work of others. This policy applies equally to text, images, program code and algorithms. You may use any standard style guide you wish so long as you use it consistently.

**When citing webpages** you must include the following details:

1. the address of the webpage,
2. the author of the webpage or a note that it is anonymous,
3. the date that the page was last updated or, if that is not available, the date that you read the page and a note to that effect.

**Use of images** (e.g. logos and icons) by someone else is essentially the same as quoting text. You must provide full citation information for any image that is not your own, even if the image is 'royalty free', you purchased rights to use it, or it includes the trademark symbol '™' or registered trademark symbol '®'.

If you alter an image by someone else (for example by cropping or blurring it) or you combine two or more images to make a new image then you must identify the source of the original images (just as though you had used them without alteration) and note that you have modified, combined, or modified and combined the images.

• **In all circumstances** it is the student's responsibility to ensure that full credit is given and that it is clear whom is being credited for what.

### 3.1.5 Where can I turn for help?

**Academic Integrity website** — [URL:http://academicintegrity.dal.ca](http://academicintegrity.dal.ca)

Links to policies, definitions, online tutorials, tips on citing and paraphrasing

**Writing Centre** — [URL:http://writingcentre.dal.ca](http://writingcentre.dal.ca)

Proofreading, writing styles, citations

**Dalhousie Libraries** — [URL:http://www.library.dal.ca/How/Classes](http://www.library.dal.ca/How/Classes)

Workshops, online tutorials, citation guides, Assignment Calculator, RefWorks

**Dalhousie Regulations** — [URL:http://ug.cal.dal.ca/UREG.htm#12](http://ug.cal.dal.ca/UREG.htm#12)

— [URL:http://ug.cal.dal.ca/UREG.htm#13A](http://ug.cal.dal.ca/UREG.htm#13A)

Definitions of 'intellectual honesty' and 'academic dishonesty', respectively

The schedule and procedures in this syllabus are subject to change in the event of extenuating circumstances.

## 3.2 Regulations specific to this class

### 3.2.1 Late Policy

Since my comments on your work should influence the next stage of your project it is especially important that I receive your assignments on time.

**Deadlines** are at the beginning of class on Tuesdays and Thursdays, and noon otherwise. Work which is due at the start of the class meeting period but was not submitted to me in-class by that time will be late. *Even if your work is late* you should attend that day's class meeting.

Late work will be penalized by one grade level\* per day (or part thereof) for the first day, and two grade levels per day after that. Saturday and Sunday will count as one day for this policy. You may not receive credit for work that is more than three calendar days late.

### 3.2.2 Assignments and Homework

**Multi-page homework submissions** must be neatly stapled (or otherwise bound) and your name must appear on the top sheet. Homeworks that are not stapled and documented will not receive full marks. **When sending documents by e-mail** please use either Adobe's portable document format (PDF) or plain text.

### 3.2.3 Quizzes, Tests, and Exams

The project guide includes a calendar of milestones for the class, including dates of tests. Exams will be scheduled by the Faculty and University. Quizzes are unlikely to be announced in advance. The dates for the test or tests are shown on the first page of this syllabus.

There will be no make-ups for quizzes. The quizzes are intended mostly to give you and me an indication of how well you understand material recently covered. If there are three or more quizzes then your lowest quiz score will not be used in the computation of your grade.

No make-up tests will be given without my permission. You will not get my permission without either prior notice of absence, a detailed letter from your physician, or evidence of a serious family crisis that required your attention. Make-up exams and tests may be administered in an essay form.

Unless specifically noted the following conditions will apply to all of your tests and the examination:

1. Your answers will be graded for accuracy, clarity, and completeness. It follows that rambling or excessively lengthy answers cannot earn full marks.
2. Answers which do not clearly refer to specific principles will not earn full marks.

### 3.2.4 Participation<sup>†</sup>

Your participation will be assessed on your contributions to discussion during class meetings, i.e., your readiness and eagerness to engage actively in discussion, your display of familiarity with the class materials, *and* willingness to ask intelligent and helpful questions. Participation is assessed more by contribution to the intellectual atmosphere of inquiry than by the number of questions, answers or comments.

Uncollegial behaviour will reduce your grade.

**Pre-test Review** One component of your participation will be based on the quality of the written questions and answers you submit as homework at the start of the class meeting preceding a test or exam. To help you prepare for tests, each student should submit two or three questions with answers that could appear on the forthcoming test. The class as a whole will take up some of the questions to help review the material prior to being tested on it.

\*One 'grade level' is the difference between an  $\mathcal{A}^+$  (A-plus) and an  $\mathcal{A}^{\dagger}$  (plain A).

<sup>†</sup>The description of criteria for your participation grade is based on text used by A.-B. Graff of Nipissing U.

The schedule and procedures in this syllabus are subject to change in the event of extenuating circumstances.

### 3.2.4 Participation (cont.)

**Assessment Scale** Please be aware of the following scale:

<i>A</i> -level	student always has something interesting to say or work through with the help of the other students and professor; needs little or no prodding to participate.
<i>B</i> -level	student more often than not productively participates in discussion generated by others.
<i>C</i> -level	student occasionally participates in discussion, usually with some prodding; does not always demonstrate a grounding in the material, perhaps the student has not read all of the assigned material.
<i>D</i> or <i>F</i>	student does not participate in class discussion, for whatever reason.

### Semester Calendar

Week # ⇒	0	1	2	3	4	5	6	7	8	9	10	11	12	X	↓ Day
Su		9	16	23	30	7	14	21	28	4	11	18	25	2	Su
M		10	17	24	1	8	15	22	29	5	12	19	26	3	M
<b>Tu</b>		<b>11</b>	<b>18</b>	<b>25</b>	<b>2</b>	<b>9</b>	<b>16</b>	<b>23</b>	<b>30</b>	<b>6</b>	<b>13</b>	<b>20</b>	<b>27</b>	<b>4</b>	<b>Tu</b>
W		12	19	26	3	10	17	24	31	7	14	21	28		W
<b>Th</b>	<b>6</b>	<b>13</b>	<b>20</b>	<b>27</b>	<b>4</b>	<b>11</b>	<b>18</b>	<b>25</b>	<b>1</b>	<b>8</b>	<b>15</b>	<b>22</b>	<b>29</b>		<b>Th</b>
F	7	14	21	28	5	12	19	26	2	9	16	23	30		F
Sa	8	15	22	29	6	13	20	27	3	10	17	24	1		Sa
Day ↑	September				October				November				Dec.	← Month	

Dalhousie will be closed on 08 October.

There will be no classes at Dalhousie on 12 & 13 November.

Dr. Blustein will be away on 17, 18, 26 September, and 05 October.

The Registrar's Office will schedule the exam for sometime between 06 and 17 December.

**Deadlines** are at the beginning of class on Tuesdays and Thursdays, and noon otherwise.

The schedule and procedures in this syllabus are subject to change in the event of extenuating circumstances.

## 4 Tentative Lecture Schedule

15 August 2012 (1a)

This schedule is subject to change to meet the learning needs of the students. In general, we will follow this order although some of the usability engineering (UE) implementation lectures may move to earlier dates. Those lectures should occur before the project phases to which they are most relevant.

The following notation is used

### Books

- Heim* refers to the textbook by Steven Heim  
*Stone et al.* refers to the textbook by Debbie Stone and others  
*Williams* refers to the textbook by Robin Williams

### Materials

- ⊙ : X → Y refers to files on the CD-ROM.  
 To navigate to the appropriate file begin with the *Main Menu*, then go to the *Topics*, then go to the named topic ('X' in the example), then go the material or lecture named ('Y' in the example). *Note* that although much of the material on the CD-ROM are simple PDF files, some of the materials are lists of resources, and some may require access to the Internet. The icons in the menu indicate the file type.

**Week 0\*** \_\_\_\_\_ 06 Sept

### Readings<sup>†</sup>

- either { *Heim*: Chapter 1  
           *Stone et al.*: Chapter 1

### Lecture slides and major topics

- ⊙ : Introduction → Human Factors Basics
- Overview of human-computer interaction (human factors)
  - Concept of usability

### Assignment

Read project guide and syllabus

**Week 1** \_\_\_\_\_ 11 & 13 Sept

### Readings

- either { *Heim*: Chapters 3 and 4  
           *Stone et al.*: Chapters 3, 4, 6, 7 (esp. §7.4)

### Lecture slides and major topics

1. video demonstrations of user interface projects from KMDI at UofT
2. ⊙ : Usability Engineering → Early Analysis Activities
  - Needs analysis
  - User analysis
  - Risk analysis
  - Why no one should design for themselves
3. ⊙ : Introduction → Usability (by Andrew Dillon)
  - Usability and why it is important
  - Process-Outcome-Affect model

### Assignment

Homework #1 (*Lewis & Reiman's* exercise 0.1)

\*The dates corresponding to week numbers are in [the project guide](#).

†Students will get the most out of the lecture/discussions if they prepare by reading either Stone et al.'s *User Interface Design and Evaluation* or Heim's *The Resonant Interface* before the class meets.

The schedule and procedures in this syllabus are subject to change in the event of extenuating circumstances.

**Week 2**

18 &amp; 20 Sept

**Readings**

1. either  $\left\{ \begin{array}{l} \text{Heim: §2.1, §2.2} \\ \text{Stone et al.: Ch. 5 (esp. §5.3), Ch. 9 (esp. §9.3), Ch. 10} \end{array} \right.$
2. *Some of Don Norman's User-Centred Terminology* (attached to P.O.E.T. lecture slide handout)

**Lecture slides and major topics**

1. ☉ : Introduction → User Centered Design (*P.O.E.T.*)
  - User-Centred Design

**Assignment**

Homework #2 (*Lewis & Reiman's* exercise 0.1 using UCD terms)

**Reinforcement**

Quiz

**Week 3**

25 &amp; 27 Sept

**Readings**

1. HTA handout\*
2. Brad Myers's 'Challenges of HCI design and implementation' in *interactions* v.I n.1 pp.73–83 (esp. sidebar)  
(URL:<http://doi.acm.org/10.1145/174800.174808>)

**Lecture slides and major topics**

1. ☉ : Usability Engineering → UE Lifecycle Models
  - usability engineering (UE)
  - UE lifecycle models
  - Principles of UI design
2. ☉ : Usability Engineering → Early Analysis Activities
  - Task analysis
  - Participatory design
  - The design team & centrality
  - Types of task analysis

**Assignments**

In-class cognitive task analysis group exercise

Group exercise: Apply prior 'use scenario' for informal assessment of a product found online

**Project Phase** User & Needs Analyses **due** this week

**Assignment** Group exercise: Create 'use scenario' for a product found online

\*The HTA handout is in the Killam library.

**Week 4**

02 &amp; 04 Oct

**Readings**

1. either  $\left\{ \begin{array}{l} \text{Heim: } \S 11.1\text{--}11.4, \S 6.5.4 \\ \text{Stone et al.: Ch.4 } \S 1.3, \text{Ch.5 } \S 2 \end{array} \right.$

**Lecture slides and major topics**

⊙ : Psychology Basics → Learning & Information Processing Part I

- Basic psychological understanding of human cognition
- Learning
- Information Processing
- Recall, Recognition
- Expertise, Memory, Representation

**Week 5**

09 &amp; 11 Oct

**Readings**

- either Heim  
or  
Stone et al.
- Heim:*
- Chapter 6 and Appendix B (for standards and guidelines)
  - §2.3 (Interface Styles)
  - Ch. 5 (Design)
    - We'll revisit §5.4 (about evaluation) later, so you can skim it for now
    - Less important are Chapters 6, 10–14
- In Stone et al.:*
- Design guidance** Chapters 9, 10, 14, 15
- Interface styles** Chapters 11, 13, 14, 16, 17, app. to Ch. 19
- less important** Chapters 12, 15, 18, 19 (read at least intros)

**Lecture slides and major topics**

1. ⊙ : Introduction → Standard & Guidelines (part I)
  - Standards, guidelines, principles, and theories
  - Types of standards and guidelines
  - Shneiderman's 8 Golden Rules
  - Overview of interaction styles
2. ⊙ : Usability Engineering → Design Documents
  - The design process
  - Concrete and conceptual design
  - Operators and actions

**Project Phase** Task Analysis due this week

**Assignment** Guidelines group assignment

Week 6
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16 &amp; 18 Oct

**Readings****(required)**(a) Walter Maner's *Formative Usability Evaluation*

Heim:

Ch. 6 (esp. §6.6–§6.10),  
 Ch. 9,  
 Scenario 10.2

(b) either *Stone et al.:*

Ch. 5 (esp. §5.2),  
 Ch. 9 (esp. §9.3),  
 Ch. 13 (esp. §13.2–§13.5),  
 Ch. 14

**(optional)** Williams: Chapter 1 and Chapters 2–6**Lecture slides and major topics**

1. ☉ : Psychology Basics → Gestalt & Design
  - Principles of human perception
  - Principles of visual design
  - Grid method
  - Colour
2. ☉ : S/W Development → Testing
  - Summative and Formative testing
  - Discount (non-user) testing methods
    - expert review (especially with heuristics)
    - GOMS
    - cognitive walkthrough
  - Testing with users
    - measures
    - scripts and scenarios
    - types of errors and what they indicate about users' mental models
    - data collection protocols

**Project Phase** Design Document **due** this week

Week 7
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23 &amp; 25 Oct

**Lecture slides and major topics**

- catch-up
- review

**Test**

The schedule and procedures in this syllabus are subject to change in the event of extenuating circumstances.

## Week 8

30 Oct &  
01 Nov

## Readings

- either Heim  
or  
Stone et al.
- (Heim:
    - §5.3 – end of Ch. 5 (pp. 168–192)
  - (Stone et al.:
    - §6.6 (pp. 114–122)
    - Case studies
      - Ch. 15 from §15.4.3 (pp. 286–294)
      - §19.5.1 (pp. 398–399)

## Lecture slides and major topics

1. ☉ : Usability Engineering → Prototyping
  - Lecture slides and discussion
  - Nielsen Norman Group Video: Paper Prototyping: A How-To Training Video [record at [URL:http://www.worldcat.org/oclc/53887908](http://www.worldcat.org/oclc/53887908)]
2. ☉ : UI Styles → Overview
  - Overview of user interface styles

- Project Phases**
1. Testing Strategy **due**
  2. Private Demonstrations to the professor **begin** this week

## Week 9

06 &amp; 08 Nov

## Readings

1. either
- (Heim:
    - Design guidance** Chs. 5–7,
    - Interface styles** Chs. 2, 10
  - (Stone et al.:
    - Design guidance** Chs. 9, 10, 14, 15
    - Interface styles**
      - Chs. 11, 13, 14, 16, 17
      - Ch. 19's appendices
      - less important: intro and summary of Chs. 12, 15, 18, 19
2. ☉ : UI Styles → Physical Principles

## Lecture slides and major topics

1. ☉ : UI Styles → Standard & Guidelines (part II)
  - Explanatory models and theories
  - Grammars
  - Shneiderman's O-A-I model
2. Certain Fundamental Physical Principles in HCI

**Project Phase Due** Private Demonstration to Professor will continue *if* necessary

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**Week 10**

13 &amp; 15 Nov

**Lecture slides and major topics**

- continued from previous week
- review

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**Week 11**

20 &amp; 27 Nov

**Readings** To be announced / distributed**Lecture slides and major topics**

⊙ : Psychology Basics → Learning &amp; Information Processing Part II

- Basic psychological understanding of human cognition
- Reasoning and the rôle of representation
- Information Processing

**Project Phases**

1. Analysis of Testing Data **due** this week
2. Demonstration of 'final' version to professor and the other students

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**Week 12**

27 &amp; 29 Nov

**Readings** To be announced / distributed**Lecture slides and major topics** To be announced

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**Week X**

04 Dec

**Lecture slides and major topics**

1. catch-up
2. pre-exam review

**Project Phases Due**

1. Final portfolio
2. Fairness evaluation

**Optional**

Anonymous Project Assessment due 12 December

**Optional**

Anonymous Project Assessment due 12 December

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## 5 Anonymous Feedback to Your Professor

To help your professor to help you with your learning I will occasionally ask you for feedback on my teaching and the course. The views you share with me during the course can help me to make adjustments to suit you (the current students).

Thumbnail images of the two questionnaires I plan to use are below. PDF versions of the questionnaires are on your CD.

Please answer the questions honestly and constructively. Feel free to be candid since your responses are anonymous.

### 5.1 Student Assessment of Test

**Student Assessment of Test**  
Which test: 25 October 2012 Course & Time: CSCI 3160 (UI Design), Fall 2012-2013

**Part A**

1. Did the content you expected to see appear on this test? .....  yes /  no  
 2. Did you understand what the questions were asking? .....  yes /  no  
 3. List the numbers of the questions you were unclear about: .....  
 4. Are you satisfied with your responses to most of the test questions? .....  yes /  no  
 5. List the number(s) of the question(s) that you weren't satisfied with your answers to: .....

**Part B**

Assign a percentage grade on the line after each of the following statements. The grade should reflect how well you believe the test accomplished each objective.

1. Test corresponded to textbook content ..... %  
 2. Test corresponded to class lectures ..... %  
 3. Test related to discussion in class ..... %  
 4. Test challenged you to think creatively ..... %  
 5. Test included concepts studied in homework ..... %  
 6. Test motivated you to question ideas you previously took for granted ..... %

**Part C**

1. Grade the test — assign it a letter grade based on its form, content, and fairness: .....  
 2. What grade do you think you earned on the test? .....  
 ☐ Continues on other side ...

Instrument adapted from Figure 1 of 'Examinations: Accounting the Positive' by McMullen, Pastrick and Gleason in Teaching College: Collected Readings for the New Instructor; Nell and Weiner (ed.), Magna Publications, Inc. (1996).

**Part D**

1. Which part of the test most challenged your thinking? Explain why.  
 2. Which part of the test least challenged your thinking? Explain why.  
 3. If you were to take this test again with only one section remaining the same, which section would you want that to be? Explain why.  
 4. If you were to take this test again and only one section could be changed, which section would you choose? Explain why.

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**Part E**

Student Academic Success Services offers special workshops for critical reading skills and learning from lectures. The workshops require registration. Details are on the WWW at: [www.usask.ca/student-services/academic-success-services/](http://www.usask.ca/student-services/academic-success-services/), by telephone at 484-3877 or in person at the office in the Kilam Library's Learning Commons (room G28).

Would you like your professor to arrange a special short workshop or presentation during class time on these topics?

critical reading skills .....  yes /  no  
 learning from lectures .....  yes /  no

*The post-test questionnaire will be distributed with the test but you can submit it during the class after the test. Unlike the test, the questionnaire is anonymous.*

### 5.2 Mid-semester Teaching Feedback

Today's Date: \_\_\_\_\_, 2012 Course: CSCI 3160 (UI Design) / Fall 2012-2013

**Mid-semester Teaching Assessment**

Please answer these questions carefully. They will help your professor to help you better. If you need more space to explain something you may include an extra page(s) of your own.

This is anonymous — do not include your name or ID #!

**1. About your time in the classroom**

(a) The explanations in class are .....  
 (b) The atmosphere for asking questions in class is .....  
 (c) The group work during class is .....  
 (d) The pace of the classes is .....  
 (e) I attend ..... of the classes .....  
 (f) I attend ..... of the classes .....

**2. About the methods of evaluation**

(a) The amount/length of assignments is .....  
 (b) The assignments are .....  
 (c) The quizzes (and final) are .....

**3. Office hours**

(a) If you have not seen the professor during office hours, why not?  
 (b) If you have seen the professor during office hours, please rate your experience .....

**4. About your learning experience**

So far I am understanding the material .....  
 5. Overall so far, this class is .....

☐ Continues overleaf ☐

6. Something I do not quite understand yet is ...

7. What new things do you think the professor should start doing to help you learn the material better?

8. What things does the professor do in class that help you to learn the material and that he should continue doing?

9. Are there any things that the professor does in class that he should stop doing?

**10** Once you have completed this form please print it, and bring the hardcopy to class. Do not include your name or identification number.

I have made more comments on the attached sheet(s)

*The questionnaire will be distributed by e-mail. Please complete it using a PDF reader (such as Adobe® Reader®), then print the file with your responses and bring it to class.*

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