IMT 540 Design methods for Interaction and Systems
Autumn 2006
Masters of Science in Information Management
Information School
University of Washington

Introduction to the theory and practice of user-centered design. Examines design methods
for identifying and describing user needs, specifying and prototyping new systems, and
evaluating the usability of systems. Examines design methodologies such as contextual
design and value-sensitive design, giving specific emphasis to human-information
interaction.
Prerequisite: permission of instructor

Course website & Listserv
http://courses.washington.edu/imt54006/
imt540b_au06@u.washington.edu
(Archive: https://mailman1.u.washington.edu/mailman/listinfo/imt540b_au06
Registered students are subscribed automatically using their UW mail account.

Credit Hours
4 (4 lecture/studio hours; 8 outside hours)

Meeting times
Lecture/studio: Friday 4:30 – 8:20 – MGH 234

Instructor
David Hendry, Assistant Professor
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dhendry@u.washington.edu | http://faculty.washington.edu/dhendry

Office hours: Friday 3 – 4 pm or by appointment.

Student services
Kathy Wong, Academic Advisor
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470E Mary Gates Hall
Tel: 352840
Overview
Design is a unique form of inquiry. We design whenever we change some existing situation into a preferred one. The difficulty, of course, is how to envision a preferred situation and then get to it. In this class we will develop an appreciation for the nature of design and we will develop specific skills for studying and creating interactive systems. You will find the concepts and methods covered in this class to be widely applicable – you will be able to use them when designing organizations of people, when designing information structures, and when designing a business plan. But, in this class we shall focus on the design of interactive systems, on human-centeredness, and on usability. The major question is how do we design interactive systems that are useful, usable, and enjoyable?

Readings
This course does not have a textbook. Rather, each week we shall read 2 – 4 papers that engage the topic for the week. You will find the readings below, week-by-week. You should read each paper carefully and to come to class with an in-depth understanding of the authors’ views.

In class we will critically discuss the papers and explore their implications for the design of interactive systems. We shall strike a balance between conceptual learning that you can build upon throughout your career and practical skills that you can try out on Monday morning.

A classic book in the field is *The Psychology of Everyday Things* by Donald Norman, later called the *Design of Everyday Things*. I urge you to buy this book and read it because it will give you a general background for many of the topics that we will cover. (In week#4, Oct 20th, we will study chapters 1 – 3.)


The readings will be available as a single “course pack” with all papers printed and bound together. In addition, individual pdf files of the readings will be available on the course website.

Learning
Aims
The general aims of this course are to:
1. Develop an appreciation for the theory and sensibilities of design.
2. Develop skills in the use and application of a variety of design methods.
3. Improve individual and collaborative skills in design problem solving.

Objectives
On the successful completion of this course, you should be able to:
1. Given a problem setting, critically discuss the appropriateness of potential design methodologies such as contextual design, scenario-based design, task-based, participatory and value-sensitive design.
2. Critically discuss the merits of the waterfall model and rapid prototyping in user-centered design.
3. Describe the impediments to achieving a human-centered design process within organizations.
4. Discuss the various roles in information system design, including visual designers, interaction designers, information architects, design ethnographers, project managers, product managers, technical developers.
5. Gather useful information about users and activities through observation or systematic inquiry.
6. Use, adapt and extend classic design standards, guidelines, and patterns.
7. Employ selected design methods at a basic level of competence: affinity diagrams, card sorting, claims analysis, scenarios of use, personas, use cases, task analysis, social impact statements, conceptual modeling, heuristic evaluation, and usability evaluation.
8. Employ notation to specify information structure and flow.
9. Employ wire-frames to describe appropriate arrangement of navigation elements (e.g., global versus local navigation) and dialog controls (e.g., fields, checkboxes, radio buttons, select lists, etc.).
10. Create a paper prototype for a small system and plan and perform a usability evaluation.

**Assessment**

The assignments strike a balance between theory and practice and between individual and group work.

<table>
<thead>
<tr>
<th>Assessment</th>
<th>% Grade</th>
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<tbody>
<tr>
<td>Weekly writing exercises</td>
<td>30%</td>
</tr>
<tr>
<td>Design activities</td>
<td>30%</td>
</tr>
<tr>
<td>Design exposition</td>
<td>30%</td>
</tr>
<tr>
<td>Participation</td>
<td>10%</td>
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</table>

**Weekly writing exercises**

The objective of the writing exercises is to prompt you to study the readings carefully, to develop an understanding for the authors views, and to take a position on them. I will use your written statements to structure our class discussions and, of course, you may also be asked to defend or elaborate your position in class.

You will use e-Submit to submit your weekly writing exercises. The URL is:

https://catalyst.washington.edu/webtools/secure/esubmit/turnin.cgi?owner=dhendry&id=4822

Your work must be submitted by 6:00 AM on the day that it is due. Responses that are late will not be graded. You can submit up to seven writing exercises. The top six scores will count in the calculation of your final grade and are worth 30% overall.
Design activities
You will complete three design activities:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Due</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>A2. Using scenarios in dialog design</td>
<td>Nov 17</td>
<td>#8</td>
</tr>
<tr>
<td>A3. Task analysis and usability evaluation</td>
<td>Dec 1</td>
<td>#10</td>
</tr>
</tbody>
</table>

Each assignment is worth 10%. All assignments are due at the beginning of class. You may do individual assignments alone or in groups of two. If you work in a group of two you must each equally participant in all aspects of the assignment. You must not work in the same group of two more than once for a design activity.

Design project
Working in groups of 3 or 4 you will develop a specification for an interactive information system.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Due</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1. Select teams</td>
<td>Oct 20</td>
<td>#4</td>
</tr>
<tr>
<td>P2. Design brief is handed out</td>
<td>Oct 27</td>
<td>#5</td>
</tr>
<tr>
<td>P3. Draft scenarios</td>
<td>Nov 3</td>
<td>#6</td>
</tr>
<tr>
<td>P4. Draft prototype</td>
<td>Nov 17</td>
<td>#8</td>
</tr>
<tr>
<td>P5. Poster presentation</td>
<td>Dec 8</td>
<td>#11</td>
</tr>
<tr>
<td>P6. Report</td>
<td>Dec 12</td>
<td>#12</td>
</tr>
</tbody>
</table>

Beginning in week #4, 1hr of class time will be given over to the design project and so that continuous progress is made throughout the quarter. The major deliverables for the project are: 1) A poster presentation on the last day of class; and 2) A group report which is due on Tuesday, Dec 12.

Participation
IMT-540 should be challenging, interesting, and fun! With spirit and a professional manner, we can create a supportive and rewarding learning environment. Among the things you can do are:

1. Treat all with respect – be constructive in all discussions
2. Come to class prepared – read carefully and be ready for discussion
3. Be an active listener – be attentive, be engaged, use in-class technology with discretion
4. Ask challenging questions, participate in discussion
5. Challenge, build on, or clarify what others have done or said
6. Post useful or interesting information to the class discussion list
7. Visit the instructor during office hours to chat, to ask questions, or to give feedback.

<table>
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<tr>
<th>Deliverable</th>
<th>Due</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal Statement</td>
<td>Dec 8</td>
<td>#11</td>
</tr>
</tbody>
</table>
Please write a 2 or 3 paragraph personal statement on how you contributed to the class. Your reflection could explore such things as how you have sought to improve the learning environment, how you have helped to make group work more effective, how your experiences contributed to our learning, and so on. You might focus on lessons learned and things that you will try in subsequent classes, difficulties you encountered in your learning and how you addressed them and so on. Your participation is worth 10% of your final grade.

**Standard cover sheet**

To protect your privacy when work is returned and to facilitate communication, submitted work must have a cover sheet. The cover sheet must include the following information and be formatted nicely:

- Course name
- Quarter, program, department, and university
- Assignment name
- Your name and e-mail address
- A date
- A web site address (if relevant).

Staple the exercise pages to the cover sheet.

**Late policy**

If you will miss the deadline for a piece of work, you should inform the instructor as soon as you can, indicating when you will submit the work. The instructor will seek to accommodate your needs.

**Right to revise**

The instructor reserves the right to revise this syllabus.

**Re-grading policy**

To have work re-graded, please submit a Re-grade Request within five days of when your work was returned. The request must be a single page, printed on paper or sent by e-mail. It should contain the following information:

- Re-grade Request
- The information contained on the standard cover sheet
- An explanation for why you believe you deserve a higher grade.

The instructor will consider your request and, if warranted, will re-grade your work.

**Guidelines on using e-mail**

When communicating with the instructor, please follow these guidelines:

- You are welcome to give feedback to the instructor about the course, to ask a question about an assignment, to share an interesting article or resource, to report that you will be absent from a class/lab, to request additional time for an assignment (because of significant health, personal, or educational matter), or similar communication;
- Whenever appropriate, please copy the class listserv with your question or comment;
• E-mail concerning assignments might not be replied to if it is sent within 36hr of the assignment due date;
• If your e-mail concerns your grade, please follow the re-grading policy (see above);
• E-mail that is sent on Friday afternoon or over the weekend is not replied to until Monday or Tuesday of the following week;
• If you don’t receive a reply within 2 days or so, please resend your e-mail or ask about it during class or lab.

Class Schedule
Most classes will follow the same basic pattern. We will begin with a short lecture on the key concepts for the week. Then, we will move to a class discussion of the readings. The aim of the class discussion is to twofold: To thoroughly understand the authors’ views and to critically examine how they can be applied to the design of information systems. Then, we will pursue an in-class activity where we will analyze a problem and work towards a design solution using a particular method. The class will end with a reflective discussion of what we learned by engaging the activity. This weekly pattern will allow us to both practice skills and develop a conceptual appreciation for design methods for interaction and systems.

To prepare for class, you will submit a writing exercise each week. Sometimes you will be asked to summarize and take a position on what you believe to be the most important (or problematic) ideas in the readings. Other times, you will be asked to write a reflective statement on what you’ve learned through the readings, drawing particularly on your own views and experiences. I will use these statements to structure our class discussions.

The readings are listed by class meeting and then by suggested reading order. All of the papers are available either at a digital library (you may need to authenticate through the UW Libraries) or in a UWID password-protected area of the course website.

From time to time, additional background readings are included. Do not read them, unless you really want to! The instructor may draw upon them occasionally and perhaps they will be useful in your own future studies or at work.

Week 1: No class meeting (Sept 29)
*** Class preempted for IMT-500B – no readings
**Week 2: Character of Design (Oct 6)**
Design is neither art nor science. This week we set stage for the entire class and examine the nature of ‘design’, especially within complex, interdisciplinary organizations, and contrast this unique form of inquiry with ‘research’. The major questions are: What is design? What is research? How do they relate? What is interaction design, usability engineering, and human-centeredness? What is a method and what is a methodology?

Read  


Other  


**Week 3: Empathy and Studying Context (Oct 13)**
This week we shall examine the concept of “empathy” and methods for studying interaction in context. The major questions are: How do we discover and understand human capacities, needs and desires? How do we study work and play in all its complexity for the purpose of design?

Read  


Other  


**Week 4: Artifacts and Studying Use (Oct 20)**
This week we shall investigate the problem of describing artifacts and making predictions about how people will likely interact with them. We shall investigate two methods: heuristic evaluation and Norman’s design vocabulary.

Read  


Other  
**Week 5: Design Representations (Oct 27)**
Design representations are used to envision, study, and communicate future possibilities. Representations are central to any design methodology. This week we shall investigate the theory and practice of three crucial design representations – personas, scenarios, and paper prototypes.

**Read**


**Other**


**Week 6: Usability Evaluations (Nov 3)**
Iterative design and evaluation is the most common and probably the most effective approach for improving the usability of an information system. This week we shall examine the process of planning and running a usability evaluation.

**Read**


**Other**


**Week 7: No class meeting (Nov 10)**

*** Veteran’s Day – no readings
Week 8: Human-Centered Design and Organizations (Nov 17)
Embedding human-centered design methodologies within organizations is notoriously difficult. Why is it difficult and what can be done about it? This week we shall examine the problem and explore solutions.


Week 9: No class meeting (Nov 24)
***  Thanksgiving – no readings

Week 10: Design Vocabularies: Guidelines, Patterns & Constraints (Dec 1)
Knowledge for how to design usable, useful, and enjoyable systems can be captured in various ways. We are, for example, already familiar with the method of heuristic evaluation (week #4). This week we shall examine three additional approaches – guidelines, patterns, and constraints – for capturing and using design knowledge.


Week 11: Design Exposition (Dec 8)
This week will be devoted to poster presentations.

***  Poster presentations – no readings
Students with Disabilities

To request academic accommodations due to a disability, please contact Disabled Student Services: 448 Schmitz, 206-543-8924 (V/TTY). If you have a letter from DSS indicating that you have a disability which requires academic accommodations, please present the letter to me so we can discuss the accommodations you might need in the class.

Academic accommodations due to disability will not be made unless the student has a letter from DSS specifying the type and nature of accommodations needed.

Grading Criteria

General grading information for the University of Washington is available at:
http://www.washington.edu/students/gencat/front/Grading_Sys.html

The iSchool has adopted its own criteria for grading graduate courses. The grading criteria used by the iSchool is available at:
http://www.ischool.washington.edu/resources/academic/grading.aspx

The UW undergraduate grading guidelines, used by the iSchool and available at http://depts.washington.edu/grading/practices/guidelin.htm, may be used in this class.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Performance Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.0</td>
<td>Exceptional work for a graduate student. Work at this level is consistently creative, well-reasoned, insightful, and well-written and shows an incisive understanding of the material.</td>
</tr>
<tr>
<td>3.7 - 3.9</td>
<td>Strong work for a graduate student. Work at this level is mostly creative, well-reasoned, insightful, and well-written and shows a solid understanding of the material. Work is very good, but it could be improved.</td>
</tr>
<tr>
<td>3.3 - 3.6</td>
<td>Competent work for a graduate student. Work at this level is often creative, well-reasoned, insightful, and well-written and shows mostly adequate understanding of the material.</td>
</tr>
<tr>
<td>3.0 - 3.2</td>
<td>Acceptable work for a graduate student. Work at this level is generally creative, well-reasoned, and well-written and shows acceptable understanding of the material. Work is competent but shows some flaws or difficulties.</td>
</tr>
<tr>
<td>2.7 - 2.9</td>
<td>Minimally passing work for a graduate student. Work at this level is occasionally creative, well-reasoned, and well-written and shows some signs of understanding the material but numerous errors, inconsistencies, or other problems are present.</td>
</tr>
<tr>
<td>2.6 &amp; below</td>
<td>Deficient work for a graduate student. Work at this level does not meet the minimal expectations for graduate level work. Work is inadequately developed and lacks understanding of the material.</td>
</tr>
<tr>
<td>2.0</td>
<td>Unacceptable work for a graduate student. Misunderstood the nature of the work required or shows very little understanding of the material.</td>
</tr>
<tr>
<td>1.0</td>
<td>Incomplete / Totally inadequate work for a graduate student</td>
</tr>
<tr>
<td>0.0</td>
<td>Work was not turned in</td>
</tr>
</tbody>
</table>
Academic Integrity
The essence of academic life revolves around respect not only for the ideas of others, but also their rights to those ideas and their promulgation. It is therefore essential that all of us engaged in the life of the mind take the utmost care that the ideas and expressions of ideas of other people always be appropriately handled, and, where necessary, cited. For writing assignments, when ideas or materials of others are used, they must be cited. The format is not that important—as long as the source material can be located and the citation verified, it's OK. What is important is that the material be cited. In any situation, if you have a question, please feel free to ask. Such attention to ideas and acknowledgment of their sources is central not only to academic life, but life in general.

Please acquaint yourself with the University of Washington's resources on academic honesty (http://depts.washington.edu/grading/issue1/honesty.htm).

Students are encouraged to take drafts of their writing assignments to the Writing Center for assistance with using citations ethically and effectively. Information on scheduling an appointment can be found at: http://depts.washington.edu/iwrite/

Copyright
All of the expressions of ideas in this class that are fixed in any tangible medium such as digital and physical documents are protected by copyright law as embodied in title 17 of the United States Code. These expressions include the work product of both: (1) your student colleagues (e.g., any assignments published here in the course environment or statements committed to text in a discussion forum); and, (2) your instructors (e.g., the syllabus, assignments, reading lists, and lectures). Within the constraints of "fair use", you may copy these copyrighted expressions for your personal intellectual use in support of your education here in the iSchool. Such fair use by you does not include further distribution by any means of copying, performance or presentation beyond the circle of your close acquaintances, student colleagues in this class and your family. If you have any questions regarding whether a use to which you wish to put one of these expressions violates the creator's copyright interests, please feel free to ask the instructor for guidance.

Privacy
To support an academic environment of rigorous discussion and open expression of personal thoughts and feelings, we, as members of the academic community, must be committed to the inviolate right of privacy of our student and instructor colleagues. As a result, we must forego sharing personally identifiable information about any member of our community including information about the ideas they express, their families, life styles and their political and social affiliations. If you have any questions regarding whether a disclosure you wish to make regarding anyone in this course or in the iSchool community violates that person's privacy interests, please feel free to ask the instructor for guidance.

Knowing violations of these principles of academic conduct, privacy or copyright may result in University disciplinary action under the Student Code of Conduct.
Student Code of Conduct
Good student conduct is important for maintaining a healthy course environment. Please familiarize yourself with the University of Washington's Student Code of Conduct at: http://www.washington.edu/students/handbook/conduct.html