BMI 548/BMI 648  Human Computer Interaction in Biomedicine

COURSE OVERVIEW

Credits: 3.0

Term: Summer – Hybrid course

Prerequisite: Graduate level standing

Course Description: This course will provide an overview of the principles and tools of HCI design and evaluation techniques. It will consist of 6 weeks of online lectures, directed readings, discussions and term project milestones. The online portion will be followed by one week on campus and the completion of the term project. The on-campus portion of the course will include lectures, hands on usability activities and time for working on the class project. Topics to be covered include:

- User centered design
  - Iterative process of design
  - Requirements gathering
  - Prototyping
  - Development
  - Evaluation
- Principles of good interface design
  - Cognitive processes affecting usability
  - Design guidelines
  - Designing for accessibility
- Evaluation
  - Quantitative
  - Qualitative
  - Think-aloud protocols
  - Discount usability testing
- Emerging interfaces
- Usability of biomedical applications
- Research topics in HCI

Instructors:
Michelle Hribar, PhD
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Michael F. Chiang, MD
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TA:
TBD
Textbook:

Required: We are no longer requiring a textbook for this course, but will instead assign readings from articles and webpages. You may find the recommended textbooks helpful, but they are not required.

Recommended:

"User Interface Design and Evaluation" by Debbie Stone, Caroline Jarrett, Mark Woodroffe and Shailey Minocha (Morgan Kaufmann, 2005).


On-Campus Dates: Thursday 8/16/18 – Monday 8/20/18

Location: BICC 124

SYLLABUS

A) OFF CAMPUS (July 2 – August 15, 2018)

Note: Summer term begins June 25, 2018, but we will not start the online portion until the following week. There will be 6 weeks of lectures, readings, discussion questions, and project milestones.

Topics, week of:

July 2 – Introduction to User Interfaces and Usability
July 9 – Requirements
July 16 – Prototyping
July 23 – Design principles
July 30 – Interaction design
August 6 – Evaluation

B) ON CAMPUS SCHEDULE (August 16 – 20, 2018):

Note: The schedule below is being finalized and may change.

Day 1 (Thursday, August 16)

AM: Overview of Evaluation  PM: Qualitative and quantitative evaluation
   Lab: Heuristic Evaluation     Group Projects
Day 2 (Friday, August 17)
AM: EHR Demo
    Eye Tracking Demo
PM: Data Visualization
    Group Projects

Day 3 (Saturday, August 18)
AM: Storyboarding & Prototyping
PM: Group Projects

Day 4 (Sunday, August 19)
AM: Design for disabilities
    The use of color
PM: HCI and Health IT
    Group Projects

Day 5 (Monday, August 20)
AM: Presentation of final projects
PM: Next steps with project

C) OFF CAMPUS (August 21 - September 10, 2018)
Complete final term projects. Due Monday, September 10, 2018

FINAL TERM PROJECT
Students will work on redesigning a healthcare information system (the IRIS Registry). The goal is to
design or redesign the interface for one of three uses cases, create a prototype and then to plan an
evaluation of that design/redesign. The project paper should consist of four sections:

1. Description of the information system and the use case.
2. Requirements.
3. Initial design/prototype and final design/prototype, including design rationales for both.
4. Design of the task-specific evaluation of the information system.

GRADING
The class will require participation in online discussions, completion of 4 project milestones, an in class
presentation and the submission of the final project. The final grade will be determined with an
approximate weighting of

    Participation/discussion 15%
    Milestones 20%
    In-Class Presentation 30%
    Final Term Project 35%
Grades are usually assigned based on the following criteria, although criteria may change depending on class performance:

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<thead>
<tr>
<th>Grade</th>
<th>Minimum Score</th>
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<tbody>
<tr>
<td>A</td>
<td>93-100</td>
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<tr>
<td>A-</td>
<td>90-92.99</td>
</tr>
<tr>
<td>B+</td>
<td>87-89.99</td>
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<tr>
<td>B</td>
<td>83-86.99</td>
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<td>B-</td>
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<td>C+</td>
<td>77-79.99</td>
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<tr>
<td>C</td>
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<tr>
<td>C-</td>
<td>70-72.99</td>
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<tr>
<td>F</td>
<td>&lt;70</td>
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Because assignments in this course build upon one another, it will be important to keep up. Assignments will be due at 11:59 PT on the deadline date. If you have difficulties with any deadlines, please discuss contact all of the instructors in advance. Otherwise, late assignments will be penalized 25% if they are submitted after the deadline, an additional 25% if they are submitted more than 1 week after the deadline, and an additional 25% for every week after that.

**Hybrid attendance:** Students taking a hybrid class are required to be present for all in-person sessions.

Graduate Studies in the OHSU School of Medicine is committed to providing grades to students in a timely manner. Course instructors will provide students with information in writing at the beginning of each course that describes the grading policies and procedures including but not limited to evaluation criteria, expected time needed to grade individual student examinations and type of feedback they will provide.

Class grades are due to the Registrar by the Friday following the week of finals. However, on those occasions when a grade has not been submitted by the deadline, the following procedure shall be followed:

1) The Department¹ /Program Coordinator² will immediately contact the Instructor requesting the missing grade, with a copy to the Program Director and Registrar.

2) If the grade is still overdue by the end of next week, the Department¹ /Program Coordinator² will email the Department Chair directly, with a copy to the Instructor and Program Director requesting resolution of the missing grade.

3) If, after an additional week the grade is still outstanding, the student or Department¹ /Program Coordinator² may petition the Office of Graduate students for final resolution.

¹ For courses that are run by a specific department.
² For the conjoined courses (course number is preceded by CON_ that are run by Graduate Studies.

**MISCELLANEOUS**

**ACADEMIC HONESTY:**

Academic honesty is required in order to pass this course. Students are encouraged to help each other; nevertheless, all quizzes, written assignments and presentations must be the work of the individual
student. Literature and resources (including Internet resources) employed in fulfilling assignments must be cited. See http://www.ohsu.edu/xd/education/library/research-assistance/plagiarism.cfm?WT_rank=1# for information on code of conduct for OHSU and http://www.ohsu.edu/xd/education/teaching-and-learning-center/for-students/index.cfm for more information on citing sources and recognizing plagiarism.

See http://ozone.ohsu.edu/som/faculty/docs/graduatecouncil/profconductpolicy.pdf for the OHSU School of Medicine Professional Conduct Policy.

In an effort to uphold the principles and practice of academic honesty, faculty members at OHSU may use originality checking systems such as Turnitin to compare a student’s submitted work against multiple sources.

To protect student privacy in this process, it will be necessary to remove all personal information, i.e. student name, email address, student u-number, or any other personal information, from documents BEFORE submission.

OHSU Student Access
OHSU is committed to providing equal access to qualified students with disabilities. Student Access determines and facilitates reasonable accommodations, including academic adjustments and auxiliary aids, for students with documented disabilities. A qualified student with a disability is a person who meets the academic and technical standards requisite to admission or participation in a particular program of study. As defined by the Americans with Disability Act (ADA), a person with a disability has a physical or mental impairment that substantially limits one or more major life activities of the individual. This may include, but is not limited to, physical conditions, chronic health issues, sensory impairments, mental health conditions, learning disabilities and ADHD. Student Access works with students with disabilities from all of OHSU’s educational programs and at each campus.

Each school has an assigned Program Accommodation Liaison (PAL), who acts as an “in-house” resource for students and faculty concerning access issues for students with disabilities. The PAL works in collaboration with Student Access to implement recommended accommodations for students with disabilities.

It is recommended that you contact Student Access to consult about possible accommodations if you a) received disability accommodations in the past, b) begin experiencing academic difficulties, and/or c) are given a new diagnosis from your healthcare provider.

Learn more about Student Access:
Phone: 503 494-0082
Email: studentaccess@ohsu.edu
Website: www.ohsu.edu/student-access

COPYRIGHT INFORMATION
Every reasonable effort has been made to protect the copyright requirements of materials used in this course. Class participants are warned not to copy, audio, or videotape in violation of copyright laws. Journal articles will be kept on reserve at the library or online for student access. Copyright law does allow for making one personal copy of each article from the original article. This limit also applies to electronic sources.
To comply with the fair use doctrine of the US copyright law, Sakai course sites close three weeks after grades are posted with the Registrar. Please be sure to download all course material you wish to keep before this time as you will have no further access to your courses.

**USE OF SAKAI**
This course will have an online component, which can be accessed through Sakai, OHSU’s online course management system. For any technical questions or if you need help logging in, please contact the Sakai Help Desk.

Sakai Help Desk is available:
Mon – Fri, 8 am – 9 pm
Weekends, 12 pm – 5 pm
They are closed on OHSU-observed holidays
Contact Information:
(Toll-free) 877-972-5249
(Web) [http://atech.ohsu.edu/help](http://atech.ohsu.edu/help)
(Email) sakai@ohsu.edu

**NOTE:**
This syllabus and class schedule is subject to changes by the instructors. Changes will be made with as much advance notice as possible.

Last updated: April 23, 2018