

# 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 directed readings with short quizzes followed by one week on campus and then completion of a term project. The on-campus portion of the course will have lectures in the morning and lab sessions in the afternoon, for 5 days. Topics to be covered include:

- Requirements gathering
- Principles of good interface design
- The iterative process of design
- Emerging interfaces
- Surveying techniques
- Discount usability testing
- Cognitive processes affecting usability
- Think-aloud protocols
- Quantitative evaluative measures
- Research topics in HCI.

### **Instructors:**

Michelle Hribar, PhD

Michael F. Chiang, MD

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

**Location:** BICC 124

**On-Campus Dates:** Monday 9/8/14 – Friday 9/12/14

## SYLLABUS

**A) OFF CAMPUS** (July 27 – September 7, 2014)

6 weeks of readings plus short quizzes (5 – 10 questions), and begin your class project.

### **Reading assignments, week of:**

July 27 – Introduction and Requirements (1), Chapters 1 - 3

August 3 – Requirements (2), Chapters 4 - 6

August 10 – Design principles, Chapters 8 and 9  
August 17 – Interaction design, Chapters 10 - 13  
August 24 – Design areas, Chapters 14, 16, 17  
August 31 – Evaluation, Chapters 20 – 27

## **B) TENTATIVE ON CAMPUS SCHEDULE** (September 8-12, 2014):

*Note: This schedule is still being finalized and may change.*

### Day 1 (Monday, September 8)

**AM:** Principles of good design  
Heuristic Evaluation

**PM:** Lab: Prototyping

### Day 2 (Tuesday, September 9)

**AM:** Overview of design evaluation  
Formal qualitative and quantitative evaluation

**PM:** Methods of Usability Evaluation I  
Lab: Discount usability testing

### Day 3 (Wednesday, September 10)

**AM:** Web design for disabilities  
The use of color

**PM:** Data Visualization

### Day 4 (Thursday, September 11)

**AM:** HCI and Health IT

**PM:** EHR Demo  
Emerging interfaces  
Rest of Methods + TURF demo

### Day 5 (Friday, September 12)

**AM:** Presentation of final projects

**PM:** Future of HCI in biomedicine

## **C) OFF CAMPUS** (September 2014)

Complete final term projects. Due September 22, 2014

## **FINAL TERM PROJECT**

Each student will choose an information system needing improvement. The goal is to design or redesign multiple screens that are used for at least two medium-complexity tasks, and then to plan an evaluation of that design/redesign. Students should bring the application, screen shots, or drawings of the screens to the on-campus sessions. The project paper should consist of four sections:

1. Introduction to the information system and tasks that are to be accomplished.
2. Discussion of the design or redesign process, including screen shots.

3. Discussion of the evaluation strategy, including reasons for choosing that strategy.
4. Design of the task-specific evaluation of the information system.

## **GRADING**

The class will require completion of weekly quizzes, 3 project milestones, in class presentation and final project. The final grade will be determined with an approximate weighting of

Participation 5%  
Quizzes 15%  
Milestones 20%  
In-Class Presentation 30%  
Final Term Project 30%

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.

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 Department<sup>1</sup> /Program Coordinator<sup>2</sup> 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 Department<sup>1</sup> /Program Coordinator<sup>2</sup> 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 Department<sup>1</sup> /Program Coordinator<sup>2</sup> 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#](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](mailto:studentaccess@ohsu.edu)

Website: [www.ohsu.edu/student-access](http://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 – 10 pm

Weekends and holidays, 12 pm – 5 pm

Contact Information:

(Local) 503-494-7074 (4-7074 on campus)

(Toll-free) 877-972-5249

(Web) <http://atech.ohsu.edu/help>

(Email) [sakai@ohsu.edu](mailto:sakai@ohsu.edu)

### DMICE COMMUNICATION POLICY

1. If the syllabus directs the student to contact the TA before contacting the instructor, the student should do so. Otherwise, the student should contact the instructor and allow 2 business days (not including weekends) for a response.
2. If the student does not receive a response from the instructor within 2 business days, s/he should contact the TA (if there is one). When contacting the TA s/he should cc the instructor and Diane Doctor at [doctord@ohsu.edu](mailto:doctord@ohsu.edu).
3. If a student does not receive a response from the TA within 1 business day (not including weekends), s/he should contact Diane Doctor at [doctord@ohsu.edu](mailto:doctord@ohsu.edu) and cc the instructor and the TA.
4. If Diane does not reply within 1 business day (not including weekends), the student should contact Andrea Ilg at [ilgan@ohsu.edu](mailto:ilgan@ohsu.edu).
5. Students having difficulties with Sakai should contact the Sakai Help Desk at [sakai@ohsu.edu](mailto:sakai@ohsu.edu) or at (877) 972-5249. Sakai help is available M-F from 8am to 10-pm and weekends from Noon to 5pm. Do not contact the instructor.

### 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: May 29, 2014