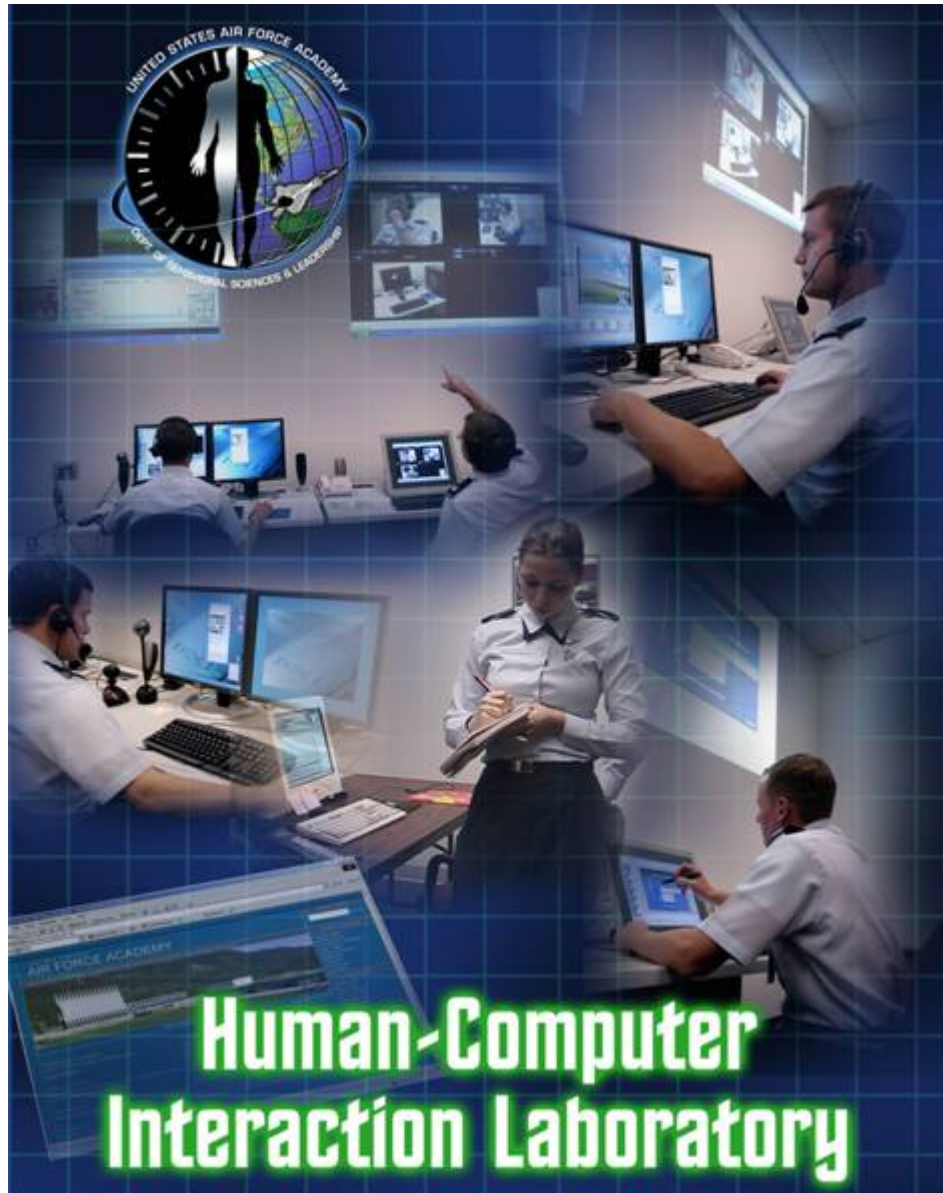


Behavioral Sciences 472

Human-Computer Interaction



Fall 2006

Beh Sci 472 Course Syllabus

INSTRUCTOR

	<u>Sections</u>	<u>Office</u>	<u>Phone</u>
Lt Col Terence Andre	T3	5L50	x2972

RESOURCES

Required Text

Preece, J., Rogers, Y., & Sharp, H. (2002). *Interaction design: Beyond human-computer interaction*. New York: John Wiley & Sons.

Additional Study Materials

Class notes are posted on the course website in the forms of download links (in the course calendar) to PowerPoint files, the same PowerPoint presentations I will use in class. This is the major source of content and discussion for the course. You are required to print these slides and bring them to every class in a notebook, so we can refer to them and you can use them for note-taking in class. Most of what we do in class and in your team projects will be based on these notes.

COURSE OVERVIEW & OBJECTIVES

Overview

Welcome to Behavioral Sciences 472, Human-Computer Interaction (HCI). HCI is a new course at USAFA, but the topic had been around since the early 1990s. This course uses the new HCI Laboratory in the form of a “teaching laboratory” to help you learn about usability methods and tools. The foundation for this course comes from Beh Sci 373, especially many of the concepts found in Don Norman’s book on “The Design of Everyday Things.” We will go well beyond Don Norman’s concepts with a focus on developing effective user interaction applications.

This course presents basic components of human-computer interaction concepts, theory, and practice. It takes a user-centered perspective, rather than a system-centered one. A central theme is on design and evaluation as highly iterative and connected processes. We look at how human-computer interaction is informed by cognitive, social, and affective issues. We also look at bridging the gulf between needs and requirements of human users and capabilities and limitations of technology. We discuss how to forge communication between users and system developers. The course covers iterative development of user interaction design, including user requirements gathering, with emphasis on usability goals; user analysis; user task analysis; design, prototyping, and evaluation. Iterative hands-on development activities are practiced in the context of several team projects.

Objectives

The outcome-oriented objectives for the course are that each student, upon successful completion, will be able to:

- participate as an HCI- or user interface-oriented development team member to represent usability issues within an interactive software system development project, and
- perform individual guidelines-based critical analysis and evaluation of a user interaction design.

These translate into the following specific instructional objective, that each student will be able to:

- apply human factors principles and interaction design guidelines in the design and critical evaluation of interaction designs,
- relate some basic cognitive characteristics of users to interaction design,
- apply an iterative evaluation-centered life cycle for user interaction development within a broader traditional software/ system development process,
- formulate quantitative, measurable usability specifications for user interaction designs,
- construct paper and computer-based rapid prototypes,
- conduct a formal process of formative usability evaluation using appropriate users as subjects/participants,
- analyze quantitative and qualitative usability evaluation data, and
- perform cost/importance and other analyses for management of the iterative life cycle.

GRADING AND ASSIGNMENTS

Quizzes

The purpose of giving quizzes is to provide a framework for arriving at a common understanding of the basic concepts and relationships in the assigned reading. You can count on your instructor to give 100 percent in preparing for each lesson, but I need you to also give 100 percent by coming prepared for class and learning as much as you can about interaction design. The course will have 10 quizzes, consisting of approximately 5-10 multiple-choice/short-answer questions each. Quizzes will be on the chapter reading and slides assigned for that lesson. In this course I will use a “quiz first” format. That is, we will take the quiz at the beginning of each lesson and then launch into the class lecture/discussion and in-class activities. You will be given an opportunity to ask questions or clarify any material that you have read before taking the quiz.

Authorized Resources: None.

Homework Assignments

Homework assignments are **due at the beginning of class** on the lesson indicated in the syllabus. There are a total of 2 homework assignments. These will help you apply the concepts in the reading and handouts. Authorized Resources: Your instructor, course notes, and course text.

Team Projects

The major work component for the course is the semester team-oriented development project, divided into 6 deliverables. It involves defining, analyzing, specifying, designing, prototyping, evaluating, and iterating the interaction design for a real application at USAFA. The purpose of the project is to give you real-world exposure to all steps involved in developing a significant user interaction design. It is not always necessary to develop a complete interaction design to learn the usability engineering process but it is important to follow all the steps in the process for at least part of an interaction design.

This is a team project. I will assign students to teams, trying to balance knowledge, skills, and backgrounds. All development activities, including writing the deliverables, are team activities. All team members are to participate in all development activities. Do not divide the overall process among the team members. Even though this might seem like a more efficient way to proceed, this leads to a kind of specialization that poses a barrier to each person learning the overall process. Authorized Resources: Your instructor, assigned team members, course notes, course text, and references you obtain.

Instructor Perogative Points

Instructor Prerogative (IP) points will be based on in-class activities, class preparation, team exercises, and participation.

Summary of Graded Events and Points			
Graded Event	Prog	Final	Weight
Quizzes (10 @ 30 pts each)	210	90	30%
Homework #1		50	5%
Homework #2		50	5%
Team Project #1	50		5%
Team Project #2	100		10%
Team Project #3	100		10%
Team Project #4		100	10%
Team Project #5		100	10%
Team Project #6		100	10%
IP Points	25	25	5%
Total	485	515	100%

*Individual project grades will be weighted by amount of participation in team effort (see Team Member Evaluations next).

Team Member Evaluations

The parts of the project assignments are described separately in the course Web site, under "Projects." Each member of the team is expected to contribute equally to each part of the project. It is possible that the most difficult part of the project assignments is working well together in a group. Be aware of possible group problems and be ready to solve them. Don't make the mistake of taking this aspect for granted.

Sometimes, despite our best efforts, some team members end up not pulling their fair share of the weight. To ensure that each team member is given a project grade reflecting individual contributions, the final project assignment is a Team Member Evaluation. Each team must **INDIVIDUALLY** turn in a paper copy of the Team Member Evaluation Form (print from Web) as a required deliverable to report the relative effort/contribution of each person on your project team over the whole project (including yourself).

This form is not optional. Be professional and give a careful rating. The ratings on these forms will be used as weightings, as explained at the beginning of the semester, to convert team project grades into individual student project grades. The team is given a grade for each part of the project. Each individual team member's grade for each project assignment is a weighting of the team grade, where the weighting is based on an evaluation of individual contributions, collected from each team member at the end of the semester (and moderated as necessary by the instructor).

COURSE POLICIES

Attendance and CAS Accountability

If you know you will be gone on a trip or for some appointment, it is your duty to notify me in advance! Except in the case of emergencies, you must have my approval prior to missing class. **If you are absent without having provided me with prior notification, you should report to me personally the same day of your absence.** If this is not possible, please send me your reason for absence via e-mail before the end of the day you were absent.

Late Work

All work is due at the beginning of the class period on the due date. If you run into problems, you need to see your instructor before the due date—it is your responsibility to keep your instructor informed. Work turned in late will receive a 10% grade reduction per 24-hour period, to include weekends. Therefore, if a written assignment is due on a Friday and you do not turn it in during class, you must e-mail it to your instructor on Saturday by the time class usually starts during the week, otherwise it will be considered late for another 24-hour period. If you know you will be gone, you must coordinate an acceptable turn-in date with your instructor prior to the due date. Your instructor will work with you to give you every opportunity to turn in top-quality work, but you must coordinate in advance!

Graded Assignments

All written assignments and all quizzes are required graded events for this course. Failure to complete any one of these assignments will result in a Controllable Incomplete (“IC”) grade for the course. Failure to resolve an “IC” within the timeline established by the course director will result in the conversion of the “IC” to an “F” for the course.” If you miss a quiz for an excused reason, you will need to come by my office and make up the quiz before the next lesson, or on the first school day after you return from a trip.

Documentation and Plagiarism

- On all written assignments (homework and team projects), you should document using APA format.

- All assignments are subject to scanning for plagiarism IAW the procedures specified in the Honor and Academics Policy Letter posted in each classroom.
- A documentation statement is required on all graded homework and team projects. If you do not use any resources or receive any help, a "Documentation: None" statement must be included with the assignment. An assignment without a documentation statement will not be accepted or will be returned ungraded to the cadet and a late penalty will be assessed based on when the documentation statement was completed.
- Assignments that violate academic integrity will be dealt with academically as well as through the honor process (if appropriate).
- Violations of academic standards (e.g., plagiarism, lack of documentation, over-reliance on outside sources or someone else's work [even if properly documented]), whether or not an Honor Code violation is suspected, will receive an academic penalty. Such penalties may include receiving a failing grade on the assignment, being required to reaccomplish the assignment, receiving a controllable incomplete for the course, and/or failing the course."

COURSE SCHEDULE

Lsn	Date	Topic	Reading	In Class Activity
1	11 Aug	Course Introduction/Admin	Intro Slides	
2	15 Aug	Interaction Design	Chap 1 Interaction Design Slides	Quiz #1
3	17 Aug	Conceptual Models of Interaction	Chap 2 (pp. 35-64) Conceptual Models Slides	Quiz #2
4	21 Aug	Comp time for usability experiment		
5	23 Aug	The Process of Interaction Design	Chap 6 (pp. 182–196) Process Slides	Quiz #3
6	25 Aug	System Analysis I: Identifying Needs and Requirements	Chap 7 (pp. 201-219) System Analysis Slides	
7	29 Aug	System Analysis II: Identifying Needs and Requirements	Chap 7 (pp. 219-233)	Project #1 Due
8	31 Aug	System Analysis III: Identifying Needs and Requirements		Team Exercise
9	5 Sep	Scenarios & Screen Design I	Chap 8 (pp. 249-262) Design Slides	Quiz #4
10	7 Sep	Scenarios & Screen Design II	Chap 8 (pp. 262-275)	Team Exercise
11	11 Sep	Guest Speaker		Project #2 Due
12	13 Sep	Usability Specifications I	USpecs Slides	
13	15 Sep	Usability Specifications II		Team Exercise
14	19 Sep	Rapid Prototyping I	Chap 8 (pp. 239-249) RP Slides	Quiz #5
15	21 Sep	Rapid Prototyping II		Team Exercise
16	25 Sep	Usability Evaluation I: Intro	Chap 10 (pp. 317-323) Eval-Intro Slides	Quiz #6 Project #3 Due
17	27 Sep	Usability Evaluation II: Before Data Collection	Chap 14 (pp. 429-443) Eval-Before Slides	Quiz #7
18	29 Sep	Field Trip		
19	3 Oct	Team Project Time		
20	5 Oct	Team Project Time		
21	10 Oct	Usability Evaluation III: During Data Collection	Chap 12 Eval-During Slides	Quiz #8

22	12 Oct	Usability Evaluation IV: During Data Collection (cont'd)		Team Exercise
23	17 Oct	Critical Incident Training		Project #4 Due
24	19 Oct	Team Project Time		
25	23 Oct	Usability Evaluation V: After Data Collection	Chap 13 (pp. 389-407) Eval-After Slides	Quiz #9
26	25 Oct	Usability Evaluation VI: After Data Collection (cont'd)		Team Exercise Homework #1 Due
27	27 Oct	Team Project Time		
28	31 Oct	Team Project Time		
29	2 Nov	User Action Framework I	UAF Slides (1-28)	
30	7 Nov	User Action Framework II	UAF Slides (29-50)	
31	9 Nov	User Action Framework III	UAF Slides (51-55) & Guidelines Exercise	Team Exercise
32	13 Nov	Usability Inspection	Chap 13 (pp. 407-423) Usability Inspection Slides	Quiz #10
33	15 Nov	Usability Problem Analysis I	Usability Problem Analysis Slides	Project #5 Due
34	17 Nov	Usability Problem Analysis II		
		THANKSGIVING BREAK		
35	29 Nov	Team Project Time		
36	1 Dec	Guest Speaker		Homework #2 Due
37	5 Dec	Project # 6 Oral Presentations (Teams 1 & 2)		
38	7 Dec	Project # 6 Oral Presentations (Teams 3 & 4)		
39	11 Dec	Project # 6 Oral Presentations (Teams 5 & 6)		
40	13 Dec	Course Critique & Wrap-up	Wrap-up Slides	