COURSE DESCRIPTION

Dept., Number	**CS 4317** **Selected Elective**	Course Title	Human-Computer Interaction
Semester hours	45 hours	Course Coordinator	David Novick

Current Catalog Description

Human-Computer Interaction (3-0). Models and methods of human-computer interaction. Theory of human-computer interaction. Development methods for interfaces such as user-centered design, prototyping, and participatory design. Evaluation and testing techniques, such as heuristic evaluation, the cognitive walkthrough, and usability testing. User-interface programming. Ethical and societal issues.

Textbook:

Shneiderman. B. and C. Plaisant (2010). *Designing the User Interface*, 5th Edition, by Addison Wesley.

Course Outcomes:

Level 3: Synthesis and Evaluation

(Level 3 outcomes are those in which the student can apply the material in new situations. This is the highest level of mastery.) Upon successful completion of this course, students will be able to

1. Explain and apply various approaches to designing user interfaces, such as guidelines, user observation, task analysis, user-participatory design, scenario development, and prototyping

2. Design and evaluate graphical user interfaces in Web and stand-alone applications, including appropriate choice of interaction styles and widgets, information presentation, error prevention, error message design, display design, and use of color

Level 2: Application and Analysis

(Level 2 outcomes are those in which the student can apply the material in familiar situations, e.g., can work a problem of familiar structure with minor changes in the details.) Upon successful completion of this course, students will be able to

1. Explain and apply various approaches to evaluating a user interface, such as heuristic evaluation, cognitive walkthrough, GOMS analysis, usability testing, survey, and controlled experimentation

2. Use software tools such as specification methods, interface-building tools, and evaluation tools

3. Apply basic principles of human perception and ergonomics to the design of user interfaces, such as response-time models and Fitts' Law

4. Select an appropriate hardware interface device (from among various keyboards, keypads, pointing and drawing devices, screen types and sizes, etc.) for a given interface task and user population

3. Select appropriate interaction styles and interfaces (distant and co-located, synchronous and asynchronous) to support a given human collaboration need

Level 1: Knowledge and Comprehension

(Level 1 outcomes are those in which the student has been exposed to the terms and concepts at a basic level and can supply basic definitions. The material has been presented only at a superficial level.) Upon successful completion of this course, students will be able to

1. Explain the role of well-designed, usable interfaces in market success, reliability, and accessibility

2. Explain the use of guidelines, design principles, and theoretical models in designing user interfaces

3. Explain the roles of HCI professionals and practitioners of related disciplines in the workplace

4. Explain the role of systems software in achieving acceptable system response times

5. Explain how interface design is ultimately dependent on human perception and cognition

6. Explain the advantages and disadvantages of graphical user interfaces, command-language interfaces, and spoken dialog interfaces

Student Outcomes:

N/A

Prerequisites by Topic:

Prerequisite: CS 2302 with a grade of C or better