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**Department of Information Systems**  
**University of Maryland, Baltimore County (UMBC)**  
**Baltimore, Maryland 21250**  
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**HCC 629 (11850)**  
**Fundamentals of Human-Centered Computing**  
**Fall 2010**

**Professor:** Dr. Ravi Kuber

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**Office hours:** Thursdays 3.00 - 4.00 pm and by appointment

**Lectures:** Thursdays 4.30-7.00 pm (ITE Building, Room 457)

**Description:** This course provides an introduction to the theoretical foundations and research context that underlie and support the design of usable information systems. Upon completion of the course, students will have an understanding of the underlying cognitive principles, hardware input and output methods, and they will be familiar with a range of interaction modes. In addition, the course will also help students develop the following skills: writing, presentation and information literacy. In general, lectures will be interactive, combining in-class discussions with small group problem-solving exercises.

**Objectives:**

- Appreciate the role of human factors in the design of information systems.
- Develop an understanding of basic human factors concepts such as affordances, mental models, mappings, feedback and visibility.
- Be able to apply those basic concepts to the design of physical objects and computer systems.
- Be familiar with the constraints on perception, attention and memory that are critical to a usable design.
- Appreciate the human factors involved in current HCI areas including computer-supported collaborative work (CSCW), alternate input/output techniques, information visualization, virtual reality and universal usability.

**Online Resources:** A site relating to the course will be maintained on Blackboard. It can be accessed through myUMBC or at <http://blackboard.umbc.edu>. The site contains lecture slides, details of assignments, and announcements pertinent to the course. It will be updated throughout the semester. **Each student is responsible for checking the web page regularly, and for being aware of any information posted there.**

**Reading Materials:** This class requires students to read from a variety of books. Chapters which have been selected to supplement lectures are available in downloadable format from the UMBC library (<http://aok.lib.umbc.edu/reserves/access.php>). User names and passwords to access these materials will be assigned in class. The books themselves can be borrowed from the UMBC library:

- Carroll, J.M. (2003) HCI Models, Theories and Frameworks: Towards a Multidisciplinary Science. Morgan Kaufman. ISBN: 1558608087
- Dix, A., Finlay, J., Abowd, G.A. and Beale, R. (2004) Human-Computer Interaction (3rd Edition). ISBN: 0130461091
- Edwards, A.D.N. (1995) Computers and People with Disabilities. Extra-Ordinary Human Computer Interaction, Cambridge University Press.
- Norman, D.A. (2002) Design of Everyday Things. ISBN: 0465067107
- Norman, D.A. (2005) Emotional Design. ISBN: 0465051367
- Sears, A. and Jacko, J. (eds) The Human-Computer Interaction Handbook (2nd Edition). Taylor and Francis. ISBN: 0805858709
- Sharp, Y., Rodgers, H. and Preece, J. (2007) Interaction design: Beyond human-computer interaction (2nd Edition). Wiley. ISBN: 0470018666
- Shneiderman, B. and Plaisant, C. (2004) Designing the user interface: Strategies for effective Human-Computer Interaction (4th Edition).

**Grading:** The final grade will reflect the student’s achievement of the learning objectives. This will be measured through two group-based assignments, two exams, summarization of literature, and class participation. The distribution of percentages among these components is given below:

Assignment 1 (Group)	22%
Assignment 2 (Group)	22%
Summarizing Literature	6%
Mid-term Exam	22%
Final Exam	22%
Attendance and participation	6%

**Grading Standards:** IS/HCC instructors are expected to have exams and evaluations which result in a reasonable distribution of grades. With respect to the final letter grades, the University’s Undergraduate Catalogue states that, “A indicates superior achievement; B, good performance; C, adequate performance; D, minimal performance; F, failure”. There is specifically no mention of any numerical scores associated with these letter grades. Final letter grades in this course conform to the University’s officially published definitions of the respective letter grades. In accordance with the published University grading policy, it is important to understand that final letter grades reflect academic achievement and not effort. While mistakes in the arithmetic computation of grades and grade recording errors will always be corrected, it is important to understand that in all other situations final letter grades are not negotiable and challenges to final letter grades are not entertained. Historical data suggests an “A” may be in the 91-100 range, a “B” may be from 81-89 and “C” grades range from 70-80. All points from assignments and exams are additive for the semester. Each student starts at zero points which is an “F”, any other grade must be earned.

**Note: From Fall 2010, instructors have the option of assigning grades including a plus or minus (e.g. B+) to graduate students enrolled in graduate classes. It is up to each individual instructor’s discretion as to whether this form of grading will be used during the semester.**

**Assignments:** The assignments will result in a total of 44% of your semester grade. A maximum of 44 points can be awarded for Assignments 1 and 2. When submitting an assignment, be aware that numerous delays can occur. For example, computer failures, system performance issues, printing problems and other commitments. It is essential that students are able to organize their time effectively, to ensure that deliverables are handed-in on time. If an assignment is not in on time, it may possibly be accepted following the due date with an accompanying reduction of the 50% of the earned grade. If you do not hand-in an assignment, you will receive a zero grade.

### **Writing Reports and Deliverables**

- Page limits have been specified for each assignment (excluding cover page, table of contents and references). These should be adhered to, as the instructor will not read further than the page limits specified.
- Staple the report together, rather than using a folder.
- On a cover page, clearly present your name or names of those in the group, email address and title of the assignment.
- Use appropriate formatting (text size 10-12 point) and always number pages.
- Ensure that work is proof-read.
- When citing or quoting existing work, always include appropriate references. Ensure that references are consistent in style (e.g. Harvard or Vancouver formats).

**Summarizing Literature:** The ability to summarize literature is a vital skill for all postgraduate students to develop. The schedule outlines the material which should be read in advance of each class. At the beginning of the semester, students will be asked to sign-up to summarize readings for prescribed topics. The designated student(s) are to upload summaries to the class Blackboard site, **by the day of the class** where these topics will be discussed. The summaries will highlight key points discussed by each chapter, and assist all students with their revision for exams. This component will result in a total of 6% of your semester grade. Marks will be affected for late submissions.

**Exams:** There will be a mid-term exam and a final exam. The exams will result in a total of 44% of your semester grade. Each exam is 22 points. You may not use calculators, computers or other electronic devices for exams. You must bring picture ID. The exams will cover material from the lectures, readings and assignments. If you miss an exam, you will receive a zero grade.

**Class Format, Attendance and Participation:** For most classes, class participation is listed as a factor that contributes to a students' overall grade for a class. Performing assigned reading, attending class, and participating in classroom discussions, presentations and activities are considered normal and expected contributions to the class. To receive an above average grade a student must participate beyond this norm in a noteworthy way. This participation may occur in the classroom or outside of class. One example of this could be active participation in discussions on the class Blackboard site. Failure to contribute sufficiently in or outside class will result in a lower than average grade. Lateness to class may affect this grade. If you miss a class, you are responsible for getting the relevant notes and hand outs to help you prepare for the exams.

**Group Work:** All students are required to participate equally in project work. If one or more student(s) are not performing their fair share of work, their marks will be reflected accordingly.

**Course Policies:**

- **Assignments:** Submissions are due in class on the specified dates.
- **Communication:** Feel free to contact me by coming to my office (either during my office hours, or by making an appointment). You are also encouraged to send me email (rkuber@umbc.edu). Make sure you add “HCC 629” in the subject of the email and you use your UMBC email account. Emails sent to me from non-UMBC providers (e.g. verizon.net, gmail.com, comcast.net, etc.) may be filtered out and never arrive in my mailbox.
- **Make-up Exams:** There will be NO make-up exams unless an emergency occurs and an official document is submitted, verified, and pre-approved by the instructor. Notify the instructor immediately and before the class exam takes place. Important Note: Having multiple exams in the same day does not constitute a valid reason for a make-up exam.
- **Re-grading:** I will review any graded exam or assignment if you believe the grade you received was not appropriate. You have one week after the graded assignment is delivered to the class, to return it to me with a written statement discussing why you believe the item in question deserved a different grade. Please note that the entire assignment will be reviewed and your final assignment grade may be raised or lowered as a result of the review.
- **Extra Credit:** Simply stated, it does not exist, especially on an individual basis.
- **Absence:** In the case of absence due to emergency (e.g. illness), religious holiday, or participation in an official UMBC function, it is the student’s responsibility to confer with the instructor regarding the absence and missed work.
- **Readings:** Students are expected to read the materials that will be discussed in the class before the class meeting.
- **Cell phones and beepers:** All cell phones and beepers must either be turned off or set to a silent method of operation (e.g., vibrating rather than beeping). If you must answer a call, please leave the classroom. As with arriving late, if you disrupt the class you will be asked to leave the classroom.

**Academic integrity:** By enrolling in this course, each student assumes the responsibilities of an active participant in UMBC’s scholarly community in which everyone’s academic work and behavior are held to the highest standards of honesty. Cheating, fabrication, plagiarism, and helping others to commit these acts are all forms of academic dishonesty, and they are wrong. Academic misconduct could result in disciplinary action that may include, but is not limited to, suspension or dismissal. To read the full Student Academic Conduct Policy, consult the UMBC Student Handbook, the Faculty Handbook, or the UMBC Policies section of the UMBC Directory. Acts of Academic Misconduct are defined as the following:

- **Cheating:** Knowingly using or attempting to use unauthorized material, information, or study aids in any academic exercise.
- **Fabrication:** Intentional and unauthorized falsification or invention of any information or citation in an academic exercise.
- **Facilitating Academic Dishonesty:** Intentionally or knowingly helping or attempting to help another commit an act of academic dishonesty.
- **Plagiarism:** Knowingly representing the words or ideas of another as one’s own in any academic exercise, including works of art and computer-generated information/images.

**Available Support Services:** Utilize the resources that are provided to you by the University. Besides, you pay for them through your tuition, so why not to use them?

- The UMBC Writing Center is a resource I highly recommend to all students who need some help in writing.
- Blackboard. Various types of information will be posted on Blackboard, ranging from external links to a specific article relevant to the course, to internships available for IS/HCC students. Check the “Information” area in the course Blackboard site.

### **Inclement Weather**

In case of inclement weather, check the main UMBC Webpage (<http://www.umbc.edu>) to see whether UMBC is closed and classes are cancelled. Any work due on a class date that has been cancelled due to inclement weather will be due the next class meeting.

### **Using Lab Computers**

During lab times, it is essential that computers are used for activities relating to class activities, and not for personal or entertainment purposes. This includes using the computer for email, instant messaging, chatting, surfing the Web, and other activities which are not relevant during the class. Students who indulge in any of the above will be asked to leave the classroom for the remainder of the session and a record will be made of the incident.

### **Class Evaluations**

Information Systems Department Class evaluations will be filled out online. You are strongly encouraged to fill out the evaluations online at the end of the semester and will be notified accordingly.

**Tentative Schedule:** Below is a tentative schedule of lecture topics and exams. I reserve the right to adjust this schedule for any reason, but I will make every effort to advise you of any changes well in advance. Please note that for some sessions, I may be unavailable due to a scheduling clash (marked with an asterisk). Another instructor may take the class, or alternatively students will be expected to perform the work set for the session independently. The work will be then discussed either on the Blackboard messageboard or in the next class.

	<b>Date</b>	<b>Topic</b>	<b>Readings</b>	<b>Assignments Set</b>
1	9/2	Introduction Why Good Design Matters Information Literacy Skills (Library tour)	Sharp, Rogers & Preece – Chapter 1 Carroll – Chapter 1	
2	9/9	Design of Everyday Things & Mental Models	Norman (DOET) - Chapters 1 & 4	Assignment 1: Critique an Everyday Thing
3*	9/16	ONLINE CLASS: Understanding the Needs of Users (Cognitive & Perceptual)	Dix et al. - Chapter 1	
4	9/23	Understanding the Needs of Users (Motor) Cognitive Models & Architectures	Carroll – Chapter 3	
5	9/30	Visual Design & Design Rules	Dix et al. – Chapter 7	Hand-in Assignment 1 at beginning of class
6	10/7	Review for Exam 1		
*	10/14	Exam 1		
7	10/21	Universal Usability & Internationalization of Interfaces	Edwards et al. – Chapters 1 & 2	Assignment 2: Applying knowledge from a research paper (Sears & Jacko – Chapter 18)
8*	10/28	Affective and Persuasive Design Communication & Collaboration	Norman (ED) – Chapters 1 & 3 Dix et al. – Chapter 14	
9	11/4	Direct Manipulation Input Technologies and Techniques Multimodal Interactions	Shneiderman & Plaisant – Chapter 6 Dix et al. – Chapter 10	
10	11/11	Multimodal Interactions Presentations	Papers for reading will posted to the Blackboard site in advance	
11	11/18	Quality of Service, User Frustration Information Search & Visualization	Shneiderman & Plaisant Chapters 11, 13 & 14	Hand-in Assignment 2 at beginning of class
12	11/25	Thanksgiving – No class		
13	12/2	Review for Exam 2		
*	12/9	Exam 2		
	12/16	No class		