

COURSE GUIDE
FOR
DCTE 720/820 HUMAN-COMPUTER INTERACTION

CLUSTER FORMAT
2007 SPRING TERM, March 2, 2007 – August 1, 2007

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Getting Started

Welcome to the HCI course! This document provides specific instructions on what you need to do to complete the core course (720) and the project course (820). These are intensive, high-level courses involving the study of human-computer interaction as a field of the computer and information sciences. The focus of this course is usability engineering, including usability evaluation and testing. You will learn about the major players in the HCI field, the trends in HCI research, and how to apply a healthy blend of theory and practice to user-centered interfaces. In our class meetings (cluster), we will be discussing many pertinent topics related to the study of human-computer interaction. During the term, you will research and share resources and discuss issues with your professor and with fellow students in online discussions.

Getting organized and maintaining organization is important for successful completion of this course. Please read this document carefully and login regularly to WebCT to check for special announcements. For those who may have taken a course with me before (OLE?), the format of this course guide may be familiar to you. Please read through this carefully though, since each course has its own unique objectives and activities.

Online Access to Course Materials and Activities:

Most course activity is managed through WebCT, except for email communication. Additional information resources are available from the professor's HCI website at <http://scis.nova.edu/nova/hci/top.html>. WebCT is being used as the "central course location" to post the most essential electronic course materials such as the course syllabus and the course requirements (contained in this course guide). We will use WebCT for our online asynchronous discussions, course announcements, and for assignment submissions. With the use of WebCT and the HCI online study area combined, consider this online environment to be the "classroom" where you go to learn and communicate about this topic area. Please note: WebCT email WILL NOT be used for course correspondence. Students are required to use their SCIS email accounts through standard email software to communicate with the professor outside of WebCT. Also, email attachments of assignment submissions will not be accepted, unless pre-approved by the professor.

Information Requested Early!

When you have access to WebCT asynchronous forums (I like to call this "Student Forums" in the generic sense) and when the professor has established a thread called "Student Bios" in the forum, please post a short "e-bio" about yourself. Do not email the bio to the professor. In your "e-bio," indicate your full name, what term this is for you, and anything of interest to your fellow students. This will help us get acquainted in between cluster meetings.

About Student Forums -- Class Participation

We will use WebCT's asynchronous discussions area as an environment in which students and the professor discuss HCI issues throughout the term. I like to refer to this environment as "Student Forums". Once you have access to the course in WebCT, you will be given topic areas pertinent to HCI. The professor will be posting various new topics throughout the term. Most of our discussions will occur between the first and second cluster meetings. After the second cluster meeting in June, our discussions will slowly ramp down to topics that will focus on future research. We will be sharing an abundance of information and resources in the Forums. The Forums should serve as a significant resource for current research in HCI.

There will be several "threads" or mini-conference "themes" relating to Human-Computer Interaction (HCI). Specific topics will be posted throughout the term by the professor. Each student is required to participate in the discussions throughout the term. Points will be given on the basis of effort and meaningful contribution to the discussions throughout the term. Several short responses are encouraged, but they should be responses that reflect thought and promote further interest in the topic, not just responses for the sake of meeting the participation requirement. The class participation grade will be based on quality and quantity of contributions, and the evidence of steady contributions over the term.

Of course, it is also important that you provide effective and meaningful responses to your peers. Meaningful interaction is about discussing the issues based on what the research literature is addressing and questions and issues we raise about the topic. This also includes discussing and citing the appropriate literature into postings as often as possible. It's important that we share the research. Otherwise, our discussions will be limited to personal commentary. I look for a healthy balance of scholarly discussion with personal insight. I believe this practice makes for an interesting discourse.

Please DO NOT establish your own threads or themes. If there is a particular topic you would like to discuss as a theme, write Dr. Dringus an email. From there, the professor will post all conference threads or themes. Also, the professor is the gatekeeper of the forums. As gatekeeper, I reserve the right to delete any student postings that are considered inappropriate or irrelevant to the discussions. High-level scholarly discussions are expected for this class discussion activity.

The professor will post a couple of starter topics early in the term so that you can practice using the asynchronous discussions area in WebCT. The first formal discussion topic will be posted a couple of weeks after the first cluster meeting. Note that Student Forums is an asynchronous system enabling students to participate AT ANY TIME in the discussions. You are not required to participate in the Forums on a specific evening and at a specific time. However, to keep the discussions lively and active, students should plan as part of the weekly activity, to review postings and to contribute to the on-going themes. Steady participation throughout the term is required to earn full class participation points. The process works best when everyone participates throughout the term.

DETAILS ON COURSE ASSIGNMENTS FOR 720

ASSIGNMENTS:

These assignments require outside research and activity:

Assignment #1: Due on or before Sunday, April 15, 2007

Select and review five (5) journal articles related to the theory and practice of usability or usability as a process. Only specific HCI journals and conference proceedings may be used to select appropriate articles. One file containing all five reviews is the deliverable. Details for completing this assignment are presented in this course guide.

Assignment #2: Due on or before Monday, June 4, 2007 (The Monday after the second cluster meeting).

HCI Journal Report -- Keep and present your own HCI journal -- containing weekly observations of the HCI issues that pertain to your work and the work of others. A written report containing the journal entries and a summary of literature integration is the deliverable. Be prepared to discuss selected journal entries in class at the second cluster meeting. Details for completing this assignment are presented in this course guide.

Assignment #3 -- Due on or before Sunday, July 15, 2007

Usability evaluations -- Conduct and report a usability evaluation or test using a minimum of three participants. If the evaluation is planned and executed effectively, the results of the usability evaluation can lead to valuable recommendations for improving the quality of the product under evaluation. You will prepare a detailed report that will contain a presentation and discussion of the entire usability evaluation process (from conceptualization to reporting results and making recommendations). This exercise will give you direct experience of assessing user interface design by performing systematic observation of user participants. Instructions for completing this assignment are presented in this course guide.

INSTRUCTIONS FOR COMPLETING ASSIGNMENT #1:

Usability Article Reviews

Article Review Guidelines

Choose five articles that are related to the theory and practice of usability or articles that present methods or processes for usability evaluation. Theory articles are geared towards discussing the attributes and metrics of usability, the definitions of usability attributes and metrics, and how these attributes and metrics apply to the design of user interfaces. Theory articles can also discuss usability principles as they apply to the practice of design, e.g., principles of good web design, etc. The good articles will offer a discussion of theory and practice to further along an understanding about something related to usability.

New methods or processes for usability evaluation are a common theme in HCI-type publications. For example, an article on applying the “think aloud” method in usability evaluation is acceptable, as well as other methods such as heuristic evaluation, etc. The types of articles you need to select for the reviews can be used for Assignments #2 and #3, when you synthesize literature in the papers to support your discussions. Therefore, carefully select the articles for this assignment.

Only high-level HCI and usability articles are acceptable for this assignment, so be sure that you choose your articles **ONLY** from one of these sources:

Communications of the ACM

ACM Interactions (the official publication of ACM SIGCHI)

ACM Transactions on Computer-Human Interaction

CHI Proceedings, years 2005 to present

Proceedings from the Usability Professional’s Association, years 2004 to present.

Proceedings from ACM Computer Supported Cooperative Work (CSCW)

The International Journal of Human-Computer Interaction (Lawrence Erlbaum Associates)

Human Factors and Ergonomics Society’s The Magazine on Human Factors Applications:
Ergonomics in Design

IEEE Computer or other peer reviewed IEEE journals and conference proceedings

Interacting With Computers (Elsevier)

Computers in Human Behavior (Elsevier)

Behavior and Information Technology (BIT) (Taylor & Francis)

Computer-Supported Cooperative Work (Kluwer)

International Journal of Human-Computer Studies (Academic Press)

Many of these publications can be found directly through NSU’s Digital Library – ACM Digital Library Database and other databases.

Note: For this assignment, you should only review articles that have been published within the past two years.

Each article review should be no more than two pages in length (double-spaced). Each article review should contain the following:

1. A full citation of the article. Present this first. (Use strict APA format for correctly presenting the full citation of the article.)
2. State the problem presented in the article in your own words.
3. Summarize the article, identifying the major issues and conclusions.
4. Describe your impressions. State whether you agree or disagree with the author(s)' findings and/or conclusions, and explain why.
5. The articles you will review will have a reference list. Select one or more references that are of interest to you and that you may want to read to gain better perspective on the ideas presented in the article. (In other words, what additional resources may be available to investigate further the topic presented in the article?)

Format for the Usability Article Reviews

1. Follow all standard procedures (title page, line spacing, margins, proper citation format, etc.) as established in the SCIS Dissertation Guide.
2. Provide a title page that includes your full name, SCIS account (user) name, the course, the assignment number, and the Graduate School title. (See the Dissertation Guide for an example title page.)
3. Provide a table of contents.
4. Provide a Reference List at the end of the file containing any additional references cited in the reviews. (Again, adhere to the SCIS Dissertation Guide).
5. Submit the assignment AS ONE FILE through WebCT.

INSTRUCTIONS FOR COMPLETING ASSIGNMENT #2:

HCI Journal Report

Overall Task: Keep an HCI journal for four weeks that includes your weekly observations of the HCI issues that pertain to your work and the work of others you either service or are in contact with. This is an opportunity for you to reflect and observe on how HCI issues permeate what we do and how others are affected by how technology is designed and used.

Some directions on this: Present a chronological log of dates that provides a clear narrative of your observations/experiences in recognizing HCI in the digital environment. Some observations may include, but are certainly not limited to:

- The problems and opportunities of advocating HCI principles or strategies to fellow co-workers;
- Decisions on the job that are HCI related;
- Episodes of information overload and cause and effect;
- Norms of behaviors and habits of email communications;
- Indirect observations of library patrons using an online catalog system;
- Your own enlightened view of the design of any interface;
- Copyright and intellectual property matters you may be dealing with;
- How people respond to online or hardcopy documentation;
- Some interface design challenges of multimedia retrieval;
- Indirect observations on people and their information seeking behaviors or tasks and what HCI considerations are involved;
- Observations on differences or similarities between textual and graphical information (e.g. what was the last icon that you correctly or incorrectly identified?);
- Your thoughts on perceived vs. actual use of online library services, campus library services, Web search engines, etc.);
- Your favorite Internet sites that speak to good design and usability;
- Other creative ideas you may have!!

How you organize your time log is flexible. (See Format for the HCI Journal. Such is only an example of how you could organize your entries.)

The list of possibilities for journal entries is endless! You will need to reflect considerably on things you may not have considered important before. Please do not provide sketchy observations and/or thoughts. Write your journal entries comprehensively and succinctly and demonstrate you have thought the experience through! Focus on the HCI concept in relation to the problem. (For example, have you found a readability problem? Connect the concept of readability to your discussion.) When doing so, you should try, where appropriate, to integrate literature into the entries to provide further evidence of a similar concept or a problem. However, the concluding part of the four-week journal *must* have a four page summary of your experience observing HCI things and integrate pertinent HCI literature to support your

observations/experiences. (This is where a comprehensive literature synthesis should be pulled together to show patterns in observations, problems, and concepts, etc.) The HCI Journal report should be about 15-20 pages, including the journal entries and summary section. Be prepared to discuss selected journal entries in class.

Format for the HCI Journal

1. Follow all standard procedures (title page, line spacing, margins, proper citation format, etc.) as established in the SCIS Dissertation Guide.
2. Provide a title page and table of contents.
3. Provide an introduction section (1 page) about the general issues of HCI that will be addressed in the paper.
4. Begin presenting journal entries:
Example:
Journal Entry #1, Monday 03/12/07 or give a scale of dates: Monday 03/12/07-
Friday 03/16/07
6. Give a theme title to the observation
Example:
“The Design of a Billing Application Interface”
7. Describe the observation in third person narrative. Describe the HCI concept connected to the problem. Describe and cite literature as appropriate.
8. Continue in this style, providing journal entries over a four-week period (rough time line).
9. Provide a summary section of roughly 4 pages. The summary section should pull together many HCI issues observed or concepts considered over the four weeks. It should contain substantial integration of prominent and current HCI literature.
10. Provide a Reference List. (Again, adhere to the SCIS Dissertation Guide).

The paper should be about 15-20 pages, including back matter, etc.

INSTRUCTIONS FOR COMPLETING ASSIGNMENT #3:

Required Reading: (1) Review required texts for background on usability evaluation, (2) Review professor's notes on usability evaluation, (3) NSU IRB policy on Student Research (below), and (4) locate additional (outside) usability articles or sources.

The student will conduct a usability evaluation. The results of the usability evaluation can lead to valuable recommendations for improving the quality of the product under evaluation. This exercise will also give the student first-hand experience in assessing user interface design through systematic and direct observation. Note: these instructions are a GENERAL guide to usability evaluation. Your usability evaluation will have to expand this general method. Some of these issues may or may not be applicable to your usability evaluation.

General Method

You will need a minimum of **three** human subjects (participants) for this exercise. Choose a hardware platform and software product that you can arrange for your participants (one at a time, if necessary) to work through the major features of the software product or user interface you have chosen to evaluate. You will prepare a list of tasks that each subject will perform with a brief description of each task to be performed on the system. You may (if appropriate) prepare a flowchart showing the order tasks are to be performed and other important events and sequences. Your job, as the student researcher, is to give each participant written and/or verbal directions on how to complete the task; observe the participant working through the task; and record (on paper) the sequence of events. Upon collecting data from all invited participants, prepare a report describing the evaluation process and the results of the usability evaluation.

Important Policy on Human Subjects Research -- NSU Institutional Research Board (IRB)

Policy on Course-related Research Activities

According to NSU IRB policy, research conducted by students as part of classroom assignments does not usually fall under the federal regulation of research because it is not intended or likely to lead to generalizable results. Rather, the activities are resources of teaching which facilitate learning of concepts and the opportunity to practice various procedures, including research methods (interviewing, observation and survey techniques, as well as data analysis).

While most assignments for class do not require IRB review, some do as a result of the vulnerability of subjects or the potential risk to subjects including:

- Studies in which children will be interviewed or surveyed.
- Studies in which children are being observed, and data collected, where the investigator is also a part of the activities being observed.
- Studies involving prisoners, the mentally disabled, or pregnant women.
- Studies that ask subjects about illegal activities and which place the data at risk for subpoena and/or the subject at risk for loss of civil liberties.

- Studies in which subjects are at risk of breach of confidentiality, such as ones that ask sensitive or intrusive questions about behaviors.
- Studies that place students at risk due to emotionally charged subject matter.
- Studies which will be published by the researcher (including theses and dissertations).

In conducting responsible usability evaluation, the student researcher must ensure that minimal risk in working with human subjects (e.g., our usability evaluation participants) is achieved. The professor of this course advises that students avoid conducting their usability evaluations that would fall into one or more of the seven exceptions (listed above) to IRB exemption on course-related activities. It is advised that invited participants are of adult age (18 years or older). Also, student researchers should not video tape or audio record participants for any part of this usability evaluation exercise. Finally, a Participant Informed Consent Form should be signed by all participants. (Example consent forms that are appropriate for usability evaluations are available in most usability evaluation texts.)

Students should review the NSU IRB policies as stated in full. These are posted on a link from the GCIS website (http://www.scis.nova.edu/~cannady/IRB_Info.htm). In addition, if the student wishes to publish or share results of the evaluation, in any form, outside of the course assignment and environment protocols established for this class, then IRB approval, prior to conducting the usability research, may be necessary. According to NSU IRB policy, IRB approval must be secured prior to conducting the research activities. (Given the short duration of this course and the involved process of seeking IRB approval, the professor does not recommend any outside publication or sharing of the results of this exercise.)

A reminder to student researchers in HCI: It is the product that is being tested, not the users! It is important that your invited participants are informed that they are not being tested, but rather the interface is being tested to locate potential usability problems!

GUIDELINES FOR CONDUCTING THE USABILITY EVALUATION

The following general guidelines have been adapted from the list of references at the end of this section. These guidelines are provided to give you some ideas for organizing your usability evaluation. Some guidelines will be applicable to your evaluation; some will not. Conversely, you may have other ideas not mentioned here that would appropriately fit your test goal.

As you plan, conduct, analyze, and report your usability evaluation or test, follow this format as appropriate:

Planning Stage

1. Identify the test goals.
2. Describe what test method(s) you will use to reach test goals.
3. Identify participants to perform the usability evaluation. (See IRB Policy stated above.)

This process should give attention to:

- * a. user experience level/skills/capabilities
- * b. education
- * c. attitudes/willingness
- * d. demographics (age, gender, language, etc.). Invite those only of adult-age (18 years or older). Do not ask any intrusive information about the individual.
- * e. user satisfaction of the product

*Note: This information is normally generated through a questionnaire. You should develop a paper questionnaire or a list of interview questions to help you collect this information from your participants.

You may also need to determine the requirements of users in regard to:

- a. speed required of user
- b. skill required of user
- c. physical capability of user
- d. responsibility required of user
- e. ease of use considered for the user
- f. the user's potential for misuse or error

4. Create a task list. Create workable tasks that help the user evaluate the usability of the product design.

FOR EXAMPLE (these are not inclusive):

- a. Copy a table from a spreadsheet to a word processor document.
- b. Define a new printer.
- c. Print a document.
- d. Change a filename.
- e. Change the name of an icon.
- f. Change desktop colors and mouse speed.
- g. Move a file from one subdirectory to another.

5. Order and prioritize the tasks.

6. Determine which performance and subjective measurements to take.

7. Create the scenario (test lab) needed to conduct the evaluation (The "test lab" can be your office, home, or wherever you can set up the hardware and software.)

Remember to establish the following:

- a. workstation arrangement
- b. comfort/space of the testing lab
- c. modifiability of the testing environment
- d. room details (lighting/heat/air/cleanliness/noise/distractions)

8. In regard to tasks and task lists, be sure to:

- a. Provide a general description of each task to be performed.
- b. Describe what steps are in each task.
- c. Distinguish interaction with other tasks.
- d. Identify if it is an individual or group task (as applicable).

Conducting the Test/Collecting Data

There are different strategies for structuring the evaluation for your participants. You can either have all participants work together at the same time (if you have access to multiple workstations), co-pair the participants at one time (if you have at least two workstations), or observe one participant at a time. Whichever option is workable for you, your main role will be to initially describe the evaluation procedures to the participant and RECORD their actions. (By RECORD, this means you will need to write down their actions on paper. Do NOT video or audio tape the participants.) It is recommended that you do not offer assistance to participants during the evaluation. The “think aloud” protocol is useful to ask participants to do. Ask them to tell you what they are doing and thinking as they work through the task list. Write down what they tell you because this will become important data to present in the usability evaluation paper.

1. Explain and describe the procedures to the participant.

2. Record on paper the participant’s actions during the usability evaluation. Recording possibilities could include, but are not limited to:

- a. the participant's comments (This is known as the "Think Aloud" Method).
- b. time spent on single tasks and overall evaluation.
- c. time of day and the date participant completed the evaluation.
- d. the number of errors the participant made.
- e. the number of successes the participant gained.
- f. how the user was able to recover from errors.
- g. how often the user could not recover from errors.
- h. did the user seek help through online help,
or written documentation.
- i. the number of times the participant sought assistance from you.
- j. the nature of the usability problem encountered.
- k. the number of usability problems located during the evaluation period.

Be sure to follow good practices when working with your participants. Treat them with respect; explain you are evaluating the system, not them; explain they can stop the evaluation at any time, if they are uncomfortable; explain their results will be reported without identifying information about them; express appreciation and thank them for their participation. In following the rules of IRB, it is expected that any data collected as a class project will be destroyed after the grading of the project has been completed.

Reporting the Data

Prepare a report that describes what you did and what you found. Include the entire process (planning stage through collecting data) and the results of the usability evaluation. Write the usability evaluation in the strict third person. (The evaluator observed that.....). You should be able to highlight unique events that occurred on the basis of the participant's performance and your systematic observation. Identify the major variables associated with the usability of the product you have chosen (e.g. discuss learning factors, performance factors, error recovery factors, effort to complete a task or set of tasks, user's attitude toward program, etc). Give specific recommendations for improving the user interface or the software product in general. Discuss your results in relation to concepts presented in the required texts and in class discussions. Also, throughout the entire usability evaluation report, you should provide a substantial synthesis of current HCI literature sources that support or contradict findings relative to your usability evaluation. The report should be about 20 pages, but may be longer depending on items that are included in the Appendices.

Format for the Usability Evaluation

1. Follow all standard format procedures (title page, line spacing, margins, proper citation format, etc.) as established in the SCIS Dissertation Guide.
2. Provide an introduction section to describe what software or product is being evaluated and the general scope of the report.
3. The body of the report should contain an examination of the "process" of usability evaluation. The author should reflect on the process and integrate literature throughout the entire report to provide support for the discussion.
4. Provide a Reference List using strict APA format.
5. If appropriate, provide Appendices – can include surveys, task list, forms to organize observation and think aloud, other information gathering forms.

Note: Assignment #3 **REQUIRES** extensive discussion of detail about **PROCESS**. Outcomes are secondary to demonstrating an understanding of process. Synthesize the literature to support your notions or decisions regarding **PROCESS**.

DCTE 820: PROJECT IN HUMAN-COMPUTER INTERACTION

Cluster term dates: March 2, 2007 – August 1, 2007

Objective: This course requires the student to produce a research paper on a current topic in HCI. The project is one that delves in-depth into a specific research area of human-computer interaction.

PROJECT DELIVERABLES

Original work is expected that is grounded in theory and practice on a relevant issue in HCI research. The student is expected to isolate a particular topic relevant to HCI, investigate the topic through extensive literature search and deep synthesis, and produce a scholarly project. High-level research and writing is expected for the project work.

The primary objective of this research paper is to provide students with the opportunity to isolate a particular topic of their own interest relating to human-computer interaction and to explore the topic area in depth. Future research should be addressed in depth.

Project Requirements and Due Dates

- **All deliverables are to be submitted through WebCT.**
- **All deliverables must conform to form and style requirements as specified in the SCIS Dissertation Guide and APA Manual 5th Edition.**
- **Incompletes will not be issued for this course. All due dates must be adhered to.**
- **Work completed in DCTE 720 or any other course cannot be reused for DCTE 820**
- **Follow IRB Guidelines as appropriate.**
- **Papers will be graded for degree of original work, content, scholarly synthesis of literature, organization, language and style.**

Project idea paper: 2 pages detailing the problem and work to be done. This is for the professor to determine the suitability of the topic in writing. Students are to submit the idea paper through WebCT, not email (although some prior general discussion about the topic can be done through email if needed). **Due: Sunday, April 1, 2007.**

Project proposal: Building on the approved project idea paper, the proposal is 8-10 pages containing details of the proposed work and presenting the draft of literature integration and synthesis. **Due: Sunday, May 6, 2007.**

Project Final Report: Expanding on the approved proposal, the final paper is 30-35 pages in length providing complete expansion of the paper. **Due: Sunday, July 22, 2007.**

Sample Topic Areas:

Students will isolate a particular topic of their own interest relating to HCI, investigate the topic through literature search, and produce a scholarly paper. Below are SOME suggested areas that are appropriate for further investigation.

- **Accessibility:** The complex issues related to accessibility and design (e.g., as in accessibility in web site design)
- **Agent Technology:** Interfaces for agent technology, social aspects of agent technology, usability.
- **Analysis and Evaluation Techniques:** Methods for analyzing and evaluating the effectiveness of designs and implemented systems.
- **Application-Specific Designs:** Interfaces for specific application areas, in which the domain places significant constraints on the design or implementation of the interface.
- **Design Processes:** Explorations of the design process, techniques for capturing designs, and methodologies for producing good designs.
- **Development Tools and Methods:** Toolkits and interactive systems for constructing interfaces.
- **Group Work:** Explorations of people using computers to work together, and systems for enhancing group work.
- **HCI and the Web:** Explorations of Web technologies, user considerations, design issues, standards.
- **HCI Designs in Educational Settings:** Explorations of user interface design issues specific to educational settings.
- **Interaction Technology and Techniques:** New input/output devices and techniques, and exploration of existing devices and techniques.
- **Interface Components and Designs:** Exploration of interaction styles, metaphors, and graphic elements that support the interface.
- **Legal and Standards Issues:** Patent and copyright issues, proposed standards for user interaction, and evaluations of existing standards.
- **Models of the user:** Models of user learning and user performance, mental models of system behavior, and studies of how these models can be used to improve interfaces.
- **Organizational Context:** Understanding how HCI design and implementation fits into the organizations that use and develop interfaces.
- **Other Areas :** Additional topics of relevance to the HCI community. Prior approval from professor is required. Submit requests in writing (via email) to the professor.

Project Type

One of the following project types is acceptable for this course:

1. Exploratory discussion on a topic. An extensive examination of a problem through literature review of an HCI issue. Provide specific research questions that form the conceptual basis for the paper. Make recommendations for potential dissertation research in the area. (Most students select this project type.)
2. Evaluation: Conduct an extensive usability evaluation using various usability methods. Evaluate a single system or evaluate and compare two or more similar application products. (May require additional IRB approval depending on level of participant involvement.) (This project cannot be the same evaluation as in DCTE 720, Assignment #3.)

Note: Other project formats may be acceptable but must be pre-approved by the professor. Examples: Report the current state-of-the-art of prototyping tools or outline a strategy for initiating participatory design activities in your company. The idea paper is the deliverable that will help the professor determine the suitability of the topic for the project. Students are to submit the idea paper through WebCT, not email.

All project types require EXTENSIVE literature synthesis and review to produce a paper of publishable quality.

Basic Project Preparation Outline (This is an outline to serve as an initial guide and is not inclusive of the Dissertation Guide!) Required for idea paper (IP), proposal (P), and final report (FRPT) where indicated.

Follow the form and style rules in the Dissertation Guide! (IP, P, FRPT). This is important because each chapter has specific things that must be addressed in the paper.

Write in third person narrative and in the active voice. (IP, P, FRPT)

Title page: The title of your paper, your name and username, the course number, and date. (IP,P, FRPT)

Table of Contents: (IP, P, FRPT)

Abstract: A short description of the paper. (IP, P, FRPT).

Keywords: Key terms searchable in online databases that are related to your paper. (IP, P, FRPT).

Chapter 1: Introduction. Includes a clear and compelling problem statement with literature substantiation, and with a description of the significance of your project to the HCI area of study. Present one or more research questions that will help you organize the conceptual framework for the paper. (IP, P, FRPT).

Chapter 2: Literature Review. This is a discussion of the current literature relating to your topic. Note: In the Idea Paper, you will only provide a maximum of five references to show you have already located some literature to help you focus on the topic. In the Proposal, you will provide a brief start of the literature review therefore your Reference List should begin to grow here. The Final Report should include at least 20-30 references in your literature review and Reference List.

Preferably, these references should come from peer-reviewed academic journals and academic texts. Limit your use of magazine articles or web site sources as they are often non-refereed and contain low-level information. Web site citations should be kept to a minimum, unless cites come from respected HCI sources. Scholarly texts on HCI are acceptable, too, but such should be balanced with current research article sources. (IP, P, FRPT).

Chapter 3: Methodology. This section is only applicable if you are conducting a usability evaluation. (You will not have a Chapter 3 if you are doing an exploratory paper on a topic!!) This chapter describes the exact details and approach to the project, including the selection of subjects, procedures, experimental tasks, comparison/evaluation instruments, etc. Note that the methodology chapter is written in the future tense in the proposal and in the past tense in the final report. Important! If you have selected project option #1 (writing an exploratory paper), you will NOT have a methodology section!!! (P, FRPT).

Chapter 4. Results. This is only applicable if you are conducting a usability evaluation. Provide narrative and tabular (if appropriate) results of your study. (P, FRPT).

Chapter 5: Conclusions. This chapter presents conclusions and interpretations of results and relates conclusions to findings in the literature. *Recommendations should be made that clearly describe areas that appear promising for future research.* (This is important for ALL project types.)(FRPT).

Reference List: All sources used in researching and writing your paper. (IP, P, FRPT).

Back Matter: Appendices, large statistical tables, questionnaires, example screens, etc. (P, FRPT as appropriate).

Note to the student: You are requested to follow the five-chapter model (e.g., as presented in the Dissertation Guide) to organize your paper as much as possible. However, the five-chapter model may not fit all project types. For instance, if you are writing an exploratory paper on an issue and will not be collecting data (in effect doing a study of some kind), then you need to organize your paper in sections so that the flow of the paper is organized and easy to follow.

Tips to Providing Quality Submissions in the 720/820 Courses

It seems no matter how hard the professor tries to give explicit directions for completing assignments and project work, students often miss basic details in preparing their written work. Here I offer some “additional” tips to providing quality submissions in this course.

1. Remember that everything you submit to your professor should be of the highest quality work. You are to demonstrate scholarly knowledge of the subject area. Refrain from stating the obvious and generic things. Approach your work from a high-level of thinking – what are the underlying issues and how we can approach HCI differently. Synthesizing the literature is very important in this course. Do not simply quote authors, instead paraphrase and cite important sources that describe the essential aspects of the issues. Compare and contrast what authors are saying about a particular issue.
2. Use third person narrative throughout your papers. Take a formal approach to presenting your discussion and arguments. Avoid “I, me, you, we” statements. If you have to refer to yourself, use “the author discovered.....”
3. There should be ample literature citation in the body of the report and a correctly formatted Reference List at the end of the paper. Anything that is not of general knowledge to the reader should be cited in the body of the paper.
4. Use 12 pt type in all papers. Follow APA 5th or the SCIS Dissertation Guide for form and style.
5. Use current literature – 3 years to present will probably produce the most insightful information for assignments #2 and #3. Points will be reduced for extensive use of required reading and the use of sources that are not current. You must demonstrate that you have researched the topic beyond what the professor has already given you.
6. Limit the number of Web-based sources, UNLESS they are refereed-type HCI articles available on the Web. Only use high quality and reputable HCI Web-based sources.
7. You should have at least 10 sources for Assignments #2 and #3, but it is likely you will have 20-30 references for each assignment. Please note that the number is arbitrary. Again, demonstrate that you have researched the topic through the literature.
8. Related to #7: Do your homework! Do not expect the professor to give all needed resources for this course. As a doctoral student, you are expected to demonstrate to me you have the ability to research a topic on the highest level.
9. Assignment #3 REQUIRES extensive discussion of detail about PROCESS. Outcomes are secondary to demonstrating an understanding of process. Synthesize the literature to support your notions or decisions regarding PROCESS.
10. Want to learn how to write a publishable paper???? Read, read, read, high-level peer reviewed journal articles!!!! Model after them!!
11. Contact the professor if you have any questions!

List of Recommended Readings of Human-Computer Interaction Selected Articles from ACM

Human-Computer Interaction Selected Articles

Note: A variety of articles from publications of the Association of Computing Machinery (ACM) have been selected to get you started on reading appropriate HCI material. While full citations are given below, you must first access the NSU Electronic Library, go to the ACM Digital Library (requires NSU login and password from the NSU E-Library), and then search for these articles. Sorry, I cannot provide live links for these, because copyright laws limit this. See the “Tips” section at the end of the list on how to access the ACM Digital Library and to search the articles.

Anderson, W.L. (2003, January & February). Small details: How knowing a little can matter a lot. *Interactions*, ACM, New York, 13-16.

Beale, R. (2007, January). Slanty design. *Communications of the ACM*, 50(1), 21-24.

Chrusch, M. (2000, September & October). Seven great myths of usability. *Interactions*, ACM, New York, 13-16.

Dicks, R. S. (2002, October). Mis-usability: On the uses and misuses of usability testing. *SIGDOC'02 Conference Proceedings*, SIGDOC, ACM, New York, 26-30.

Jeffries, R., Miller, J.R., Wharton, C., and Uyeda, K.M. (1991). User interface evaluation in the real world: A comparison of four techniques. *CHI '92 Conference Proceedings*, SIGCHI, ACM, New York, 119-124.

Karat, C.M. (1998, December). Guaranteeing rights for the user. *Communications of the ACM*, 41(12), 29-31.

Myers, B.A. (1998, March & April). A brief history of human-computer interaction technology. *Interactions*, ACM, New York, 44-54.

Norman, D.A. (2002, July & August). Emotion in design. Attractive things work better. *Interactions*, ACM, New York, 36-42.

Parush, A. (2001, September & October). Usability design and testing: A question of balance. *Interactions*, ACM, New York, 13-17.

Raskin, J. (1997, February). Looking for a human interface: Will computers ever become easy to use? *Communications of the ACM*, 40(2), 98-101.

Raskin, J. (1996, December). Wanted for crimes against the interface: Thoughts on an HCI poster. *Interactions*, ACM, New York, 70-76.

Scholtz, J. (1999, October). A research agenda for highly effective human-computer interaction: useful, usable, and universal. *SIGCHI Bulletin*, 31(4), 13-16.

Seiden, J. (2002, January & February). Question and answer: Design means Remembering to ask the question. *Interactions*, ACM, New York, 11-15.

Weiser, M. (1994, January). The world is not a desktop. *Interactions*, ACM, New York, 7-8.

Tips on How to Find These Articles in the ACM Digital Library:

1. Go to the NSU's Electronic Library from the main NSU web site (www.nova.edu).

Under NSU Databases, review this first: How to Access Databases.

(www.nova.edu/library/eleclib/remotensu.htm). See Browser settings. This is important for those of you NOT accessing the system on the local NSU LAN – you'll need to set up a proxy setting in your browser so that ACM recognizes that you are connecting through NSU. Also, see the link on "Troubleshooting" from the main NSU Electronic Library page.

2. Under NSU Databases, Click by Provider/Vendor or Databases in Alpha order. (The system will prompt you at some point to enter your name and NSU ID number.)
3. Select ACM Digital Library Database.
4. Once at ACM, you can search by the publication. ACM Interactions and Communications of the ACM can be found under "Magazines". The CHI Proceedings can be found under Proceedings. Select the appropriate category, then select the appropriate publication. Once you see the publication view, type in the last name of the author to search for the article title. From there you should be able to find the .pdf full text file to access the full article.