

# MS-HCI Project Requirements

## Overview

Students in the MS-HCI program complete a 6-credit project. This project typically (but not necessarily) is to design, implement and test an operational user interface – be it web-based, smart phone app, desktop app, physical device with embedded computation, or any other artifact that embodies human-computer interaction. This project should represent the variety of skills that you brought to and acquired during the program. It is your responsibility to identify a project and faculty project advisor, and you are encouraged to begin exploring ideas during your first semester. Projects are typically completed during the second year of the program and are graded based on a final written report and an oral presentation.

## Details

- You will develop a project proposal in the Spring semester of your first year, in consultation with an HCI faculty project advisor working in an area of interest to you. By the end of the 15<sup>th</sup> week of classes, you are required to turn in the following to the program coordinators (Carrie Bruce and Dick Henneman):
  - a hard copy of the proposal approved by your advisor
  - the signed project proposal approval form

You must also upload an electronic version of your proposal to the TSquare site. You will not be able to register for CS/ID/LMC/PSYC 6998 (project course) credits without completing the proposal process.

- You will turn in a progress report during your third semester. This report should include any changes to your original proposal and a review of your project timeline.
- Actual project work is typically performed during the third and fourth semesters of study, but can start earlier, including during the summer of your internship.
- In your third and fourth semesters, you register for an aggregate total of 6 credits of CS/ID/LMC/PSYC 6998 – whichever school your faculty project advisor is in (if the advisor is not able to assign credit, you will need to discuss your options with the program coordinators). Your course grade is assigned by the faculty project advisor in consultation with your School's MS-HCI faculty coordinator.
- Most projects will need at least one approved Institutional Review Board (IRB) protocol to perform human subjects research. IRB protocols should be developed as early as possible with your advisor as the Principal Investigator. *You cannot perform research with human subjects without an approved IRB protocol.* You should also

consult with the MS-HCI research project director (Carrie Bruce) and include her as research personnel when you submit the protocol.

- During your final semester, you are required to present a poster of your work at Interactivity (February) and the GVV Spring Showcase (mid-April), or the GVV Fall Research Showcase (end-October).
- In order to graduate, you will turn in a high-quality final report document and present your work to the program (i.e., the director, four MS-HCI faculty coordinators, MS-HCI research project director, fellow MS-HCI students, and other interested faculty members). These are graded and must be completed to a level deemed satisfactory by your advisor, the MS-HCI program director, faculty coordinators, and research project director.
- The signed project completion form is due by the last day of finals in the semester you expect to graduate. It is signed only after all project deliverables have been submitted.

### **Project Advisor**

Your School's MS-HCI faculty coordinator is likely not your faculty project advisor, however you may consult with him or her to identify potential HCI faculty project advisors whose research best aligns with your interests and project. You should also consult with the MS-HCI research project director. A listing of possible HCI faculty project advisors is listed on the MS-HCI website.

In some cases, you may have a "Project Supervisor" – typically an expert in the domain of your project, but not an HCI faculty member – in addition to an HCI faculty advisor. Your faculty project advisor need not be in your home school, but must be a faculty member. If you want to work with a faculty project advisor not listed on the MS-HCI website, speak with your School's MS-HCI faculty coordinator.

If you change your faculty advisor, you must notify the the MS-HCI research project director (Carrie Bruce). You will be required to register for 6 research credits (CS/ID/LCC/PSYC 6998) with the new advisor, regardless of the number of credits you have already completed with the previous advisor. You are also required to submit a new proposal document and signed proposal approval form.

## DELIVERABLES

### Project Proposal (Due during the 2<sup>nd</sup> semester)

Your project proposal is a 5-10 page document in which you address the following:

1. Introduction/Background: Statement of user problem this project will address, why it is a problem, intended user characteristics. Describe the general application domain: what else has been done, what is the context of thinking and making things in which your work is situated? How do users currently go about addressing this problem?
2. Potential Solution: What is the general nature of the solution? What is the general functionality? The platform?
3. Expected Methods: What will you do in each stage of the project (many of the steps listed in the schedule will be discussed in this section. How will you understand your users and their needs? How will you test the prototype? The functional system?)
4. Expected Resources: Description of computing/testing resources you will need, and how you will obtain them.
5. Schedule: Including but not limited to:
  - Understanding the users and their needs
  - Defining functionality
  - Defining final user testing processes
  - Submission to IRB (Institutional Review Board)
  - Rough prototype
  - User testing of rough prototype
  - Poster (e.g., Interactivity, GVU Showcase)
  - Implementation of a functional system
  - User testing of functional system
  - First draft final report submitted to advisor and your school's MS-HCI faculty coordinator
  - Final report and other deliverables
  - Presentation to MS-HCI faculty advisors and students

This list of milestones is suggestive, not definitive. You may adapt it, in consultation with your advisor, based on the specific characteristics of your work.

If you will be doing this project as part of a paid job (summer internship, research assistantship, etc.), a clear discussion of what elements of the project you are being paid to do, and what elements you are doing for academic credit (the two are mutually exclusive), is required. As a general guideline, one credit hour equals roughly three hours of work per week, resulting in 9+ hours per week for 3 credit hours of project work. *This translates to 144-160 hours per semester for your project.*

If your status with respect to item 5 of the proposal changes after your proposal is approved, you are expected to submit (or re-submit) item 5.

**You must turn in your signed project proposal approval form and proposal document to the program coordinators (Carrie Bruce and Dick Henneman) and upload an electronic version of proposal to the TSquare site.**

## **Project Poster (Must present during your final semester)**

There will be at least one opportunity for students to present their work using a poster display. These opportunities include GVU Showcases, Interactivity, and conferences. All students should take advantage of these opportunities and are REQUIRED to present a poster during the GVU showcase of their final semester. You are also required as part of the program to submit a poster for Interactivity (during the Spring semester) that represents your broader range of work.

## **Final Project Components**

These deliverables will be archived on the MS-HCI TSquare web site, and form a valuable part of your portfolio.

1. **Report:** This is an expanded and updated version of your project proposal, typically 30-40 pages, including screen shots and appendices containing things like questionnaires/results used in your requirements gathering and/or usability evaluations. A typical outline is:
  - a. **Introduction:** Statement of problem, why it is a problem, intended user characteristics, general capabilities of your solution.
  - b. **Background:** Previous work, theoretical foundations. Literature review. Describe the general application domain; what else has been done, what is the context of thinking and making things in which your work is situated.
  - c. **User Requirements:** How you studied user characteristics and task needs, and what you concluded. Include personas and critical use cases. What metrics did you use to assess whether or not your solution is an improvement over current solutions to this user problem?
    - i. Description of users: methods for identifying who, demographics and other characteristics
    - ii. Description of tasks/context of use: methods for identifying tasks/contexts, characteristics
    - iii. Competitive analysis or other analysis of related solutions
    - iv. Development of design requirements: mapping to identified needs, specific criteria/features/attributes, and their purpose, use cases
  - d. **User Interface**
    - i. Early design work: How created your rough prototype, how you tested the rough prototype, and what you learned (include a few sketches or screen shots).
    - ii. Design implementation: How you implemented your system – discussion about the technologies involved (include screen shots), resources required, information architecture, design principles used. Also discuss any iterative processes or activities including feedback from experts or users.
  - e. **User Evaluation:**
    - i. Methods: Details about the testing of your final version (describe with whom, what, where, and how). Discuss the study design (e.g., between or within subjects, pre/post, comparison). Describe subject characteristics,

metrics, tools, tasks, procedures, and testing location. Testing tools, such as scripts and questionnaires, should be in an appendix.

- ii. Results: Reporting or presentation of your data-- NOT an interpretation of what the data mean (that comes in the Discussion section).
- f. Discussion and Conclusions: What does your data tell you, what does it mean? How does your data relate to other work? Is this solution an improvement over existing solutions? What could be the next steps? What did you learn as a future professional in doing this project?

**Sections C (User Requirements) and E (User Evaluation) will be the longest AND required for satisfactory completion.** This outline is suggestive, not definitive. You may adapt it, in consultation with your faculty project advisor, based on the specific characteristics of your work.

If you are writing a full-length conference (extended abstracts do NOT count) or journal paper about your work, that paper might be acceptable as your final report. The paper may be co-authored with your advisor and others; you must be the first author and do a substantial amount of writing. Consult with the research project director about this option.

As per your project proposal milestones, you must have a draft final report for your faculty project advisor prior to the due date (last day of exams) for the completion form to be signed. Confer with your advisor to determine how far in advance of the due date the draft is expected to be ready for review.

2. **Presentation**: You will prepare and give a 15-minute PowerPoint or similar style presentation near the end of the semester. Your presentation will be graded according to the following elements:
  - a. Presentation of Information:
    - i. Story of work: statement of goals/purpose, framing/context of work, structure/flow
    - ii. Appeal/appearance: graphics, text balance/quantity, quality of multimedia (not blurry or hard to hear), quality of results charts and graphs
    - iii. Speaker skill: loudness level, speaking rate, eye contact, confidence, enthusiasm/interest
  - b. Discussion of User Requirements:
    - i. Description of users: methods for identifying who, demographics and other characteristics
    - ii. Description of tasks/context of use: methods for identifying tasks/contexts, characteristics
    - iii. Review of competitive analysis or other analysis of related solutions
    - iv. Description of design requirements: mapping to identified needs, specific criteria/features/attributes, and their purpose, use cases
  - c. Discussion of User Interface:
    - i. Description of implementation of user requirements: show the connection between identified requirements and features included in the design, steps or stages for implementing (including outside help, specific resource needs)

- ii. Implementation quality: clarity of approach, accessibility of design (are certain users excluded?), information architecture, integration of and conformance with effective design principles, quality of UI demo (video/audio, real-time, screenshots)
- d. Discussion of User Evaluation:
  - i. Description of study methods: study design (e.g., between or within subjects, pre/post, comparison), subject characteristics, metrics, tools, tasks, procedures, location
  - ii. Description of results: adequate mention of analysis methods, appropriate amount and type of data relevant to the “story”, clarity of data presentation (e.g., charts, tables, text are helpful and understandable).
  - iii. Presentation of conclusions: packaging/discussion of the meaningful findings, effective “wrap up” (e.g., what happens next with research/product?)

When the deliverables have been turned in via TSquare, you are ready to have your project completion form signed by your faculty advisor. This form should be turned in to the program coordinators (Carrie Bruce or Dick Henneman). This **must** be turned in before the last day of finals.