**Independent Study / Research Credit Requirements**

**Fall 2016**

**Project Proposal**

The first deliverable for each project is a proposal for the work you will do this semester. The proposal should include:

* An overview of the project idea and how it fits into the larger research agenda of your team, if you have one
* A description of the motivation for the project and your specific goals for the research
* If you are collaborating as part of a larger team, how your work will fit in and what your specific contributions will be
* High-Level requirements analysis, if you are creating an artifact (hardware or software). What does the artifact need to do?
* A detailed project plan, including a description of each deliverable (see below). Also what percentage of the project work each deliverable represents, which will be used in calculating your grade.
* An evaluation plan for how you will assess the quality of your deliverables
* A detailed schedule for completing our project

**Deliverables**

Specific deliverables will depend on the stage of the research. Deliverables will be graded individually, and must be turned in on time or a penalty of ten points (one letter grade) per day will be incurred. All deliverables are due by midnight on the due date. Each student will produce a minimum of FIVE deliverables over the course of the semester (you may produce more than five to enhance your grade). Examples of deliverables are:

* *Survey paper*. This paper surveys the current literature on your topic and summarizes papers, comparing and contrasting approaches with appropriate references. This is NOT simply a list of abstracts of related papers. Typical length will be 6-8 pages.
* *Detailed requirements analysis*. Expanding on the high level analysis from the project proposal, what are the functional and nonfunctional requirements of an artifact you are producing? Each functional requirement should be testable in your evaluation.
* *Detailed design document*. Describe your design, illustrate with drawings, system architecture diagrams, flowcharts, E-R diagrams, HTA diagrams, etc. to fully specify the design of your artifact or system.
* *Evaluation Plan*. A detailed document describing how you will test your artifact. What specific cases will you test? What paths through the system? What benchmark tasks will you use? What subjects will you test?
* *Prototype.* Build a workable, testable artifact (hardware or software) and demonstrate it.
* *Experiment protocol*. Details of how you will test your artifact or software. Who will your subjects be? How will you recruit them? (NOTE: all human subjects research MUST have IRB approval, and all animal subjects research must have IACUC approval before any testing can be conducted. Please make sure your protocol fits within an existing approved protocol, or work with me to amend an existing protocol. This can take weeks or months, so do not wait on this or you may not be able to test.)
* *Experimental results*. After conducting the experiment you described in your protocol, collect and organize the data.
* *Data analysis*. From the data collected in your experiment or evaluation, perform appropriate analyses to test your hypotheses or to evaluate the effectiveness of an artifact.
* *Paper for publication*. Draft a paper about your experiment or artifact in the format of a conference paper that could be submitted to a related conference.
* *Proposal for further work*. Draft an NSF-style proposal for a larger project that builds on your work for the semester. Include background, related work, significance, research plan, and a proposed plan of work including a schedule.
* *Other deliverables as needed*. There may be other deliverables that are appropriate for your project that you may propose (but you need to get approval for anything not on this list).

**Weekly reporting**

Each Friday, you will write a weekly status report detailing:

* What was on your schedule for this week
* What you accomplished this week
* Problems or roadblocks encountered
* Plans for next week

You will submit these to your team leader, who will summarize them and send the summary to me each Friday. In team meetings on Mondays, we will use the weekly reports as discussion agendas. KEEP YOUR WEEKLY REPORTS, they will be part of your final project notebook that you will submit at the end of the semester.

**Midterm and Final presentations**

In our weekly team meetings, you will present your work at midterm and then again at the end of the semester. You may have a powerpoint presentation, a prototype demonstration, a description of data analysis or other results.

**Project Notebook**

Your final deliverable will be a project notebook containing all of your deliverables, including your weekly status reports, consent forms for experiments, etc. All code will be checked into GITHub before the end of the semester, and all documents will be archived on our Chase server.

**Grading**

Each deliverable will be graded on a 0-100% scale. Grading criteria include completeness, quality of work, quality of writing, quality of analysis, creativity, and others as appropriate. Final grades will be weighted by the percentages in the project plan.

**Schedule**

The project plan will include a schedule for the semester. Here are general guidelines for due dates, but this can be adjusted to fit your project. However, once you commit to a due date, the deliverable is due on that date and any late work will be penalized 10 points per day.

Sept 6 – Project Proposals due (this date is not negotiable)

Sept 16 – Deliverable 1

Sept 30 – Deliverable 2

Oct 14 – Deliverable 3

Oct 28 – Deliverable 4

Nov 11 – Deliverable 5

Dec 2 – Final Project Notebooks due