**Project Prospectus**

Computing Practice and Theory, Spring 2013

**Project Overview:**

The project represents an opportunity for students to add more depth to their study of computer science. The learning objectives must be clear, and the faculty will guide students in their choice of topic. We encourage students to choose topics that relate to *statistics, machine learning, and modeling of scientific data*, but that is not required. For some, the project is also an opportunity to pursue a topic that got you excited about computer science in the first place.

Here are some of the constraints:

1. You must be able to complete it in 9 weeks.

2. You will learn something significant, and can demonstrate what you’ve learned.

3. You will learn some things related to CS.

Organization:

The class will be organized into groups of 4-5. Even if you have an individual project, you will be reporting to and getting feedback from your group. The faculty will meet with groups weekly. There is not enough time for them to meet with individuals on a regular basis.

**Project Schedule**

Faculty will work with students in their groups to help them create a project proposal, carry it out, and present the results. A reasonable project schedule might be:

**Week 1:** Initial Project Proposal Due – Thursday. Faculty form project affinity (research) groups, and weekly meeting times assigned. (These will be returned the following Monday or Tuesday). A project proposal should be no longer than 2 pages, and include the following:

Project title

Area of research

Short project description, including:

What you want to learn, why it is interesting, how you will learn it, how you will know that you have learned it.

Prior knowledge:

Write an evaluation of your pre-existing knowledge on the topic. Maybe you already know a little about the topic and you want to know more. Or maybe you know nothing about the topic, in this case you should talk about how what you know from some other area might help you understand what you are about to learn.

Resources needed to accomplish the project (textbooks, manuals)

Other students you know of (if any) interested in related topics

Short bibliography

**Week 2:** Students meet with faculty in affinity groups and brainstorm refinements to the project. Project proposal refinement due Thursday of week 2 or 3.

**Weeks 3,4,5,6** Project work. Students meet twice weekly in affinity groups (once with faculty). You may want to start and maintain a project web site. Weekly project status reports (one page max) due on meeting day with faculty:

Name, Date and Week#, Project title, Affinity Group,

What you did this week

What Issues or problems you encountered

What you will do next week.

**Week 7:** Outline of Project Report due to Faculty (returned Week 8)

**Week 8:**  1st draft of Project Report

**Week 9:**  Draft of presentation outline due (comments given during project meeting?).

**Week 10:**  Project presentation and final report due. Project presentation format TBD, but for group projects will likely be a presentation to the entire program, for individual projects, a presentation to the seminar group to which the affinity group belongs or a poster or software demonstration. Final report format is addressed at the end of this document.

**Student Project Meetings**

Tuesday 1--3 Student Project Meetings with faculty & Open Lab

Thursday 1:30-3 Student Project Meetings with faculty & Open Lab

**Group Project Meetings (Required only for those who choose to work in groups)**

Every time your project group meets, you will need to keep minutes of the meeting, which you'll then post on the forum website within a day.

**Group Minutes:**

Your affinity group will need to keep minutes of each of your meetings. The following is designed to let you know what we expect to see in those minutes.

**What are minutes?**

In general, the minutes of a meeting are a refined and (usually) officially approved version of formal notes taken at the meeting. Their purpose is to represent the discussion that took place, noting several kinds of things:

* who was present,
* the agenda items that were dealt with,
* the main points made during the discussion of each agenda item, and
* any decisions that were made as a result of the discussion.

While the minutes are “notes taken at the meeting”, they are generally never just the notes taken at the meeting, but processed and circulated by the notetaker soon after the meeting.

**Why take minutes?**

We intend for the keeping of minutes to serve a variety of useful purposes:

* they provide a clear record of what you've accomplished and what decisions you've made (which will be helpful when writing your self-evaluation);
* they allow anyone who missed the meeting to find out what happened there;
* along with an agenda for the meeting, they’ll probably help to keep your meetings focused on productive topics; and
* they allow your faculty to see how you’re progressing in your project work.

**Posting minutes to the web**

After each meeting of your project group, you’ll need to post minutes of your meeting under “Project Forum” on the “Forums” section of the Moodle. You may find it easiest to take minutes of your meetings in the actual forum post window – that way you’ll be ready to post the minutes as soon as your meeting ends. However you do it, you need to post your minutes within a day of your meeting.

**Who takes the minutes?**

It’s easiest and most effective if someone takes primary responsibility for typing the minutes during a meeting. We recommend that everyone share responsibility for making it easy to take minutes: stay focused on one topic at a time and pause to make sure the person taking minutes is caught up both keeping up and able to participate. We also recommend that you take turns taking minutes at different meetings.

**Template for minutes**

We’d like the minutes of each of your meetings to include the following headings:

**Date & Time**

**Those Present** – also note who’s taking the minutes and who’s absent.

**Notes on Discussion** – organized by topic of discussion; and including both the decisions you reach, the questions you still need to answer, and a brief summary of each person’s input on each topic.

**Agenda for Next Meeting** – list your objectives for the following meeting.

**Next Steps To Do Before Next Meeting** – write down what each group member has agreed to do before the next time the group meetings.

**Next Meeting** – give the date, time, duration, & location.

**Presentation**

Project presentations will be given week 10 to your affinity groups (individual projects).

**Required elements**

* Your presentation should be 12 minutes long (min of 10, max of 15) with time for questions afterward.
* Your presentation should be a polished, carefully planned performance.
* Briefly explain your learning objectives.
* Include a short performance of some kind: a live demo etc.

**Tips on Giving Good Presentations**

* **Practice ahead of time.** It's surprising how quickly 12 minutes can go by; going through your presentation a few times beforehand will help you to be clear about how long each part will take and, naturally, will help you to work out the kinks.
* **Start with an outline and end with a conclusion.** At the beginning of your presentation, let your audience know what to expect; at the end, concisely review what you've done.
* **Be confident; speak clearly.** You designed picked the topic and studied it for 9 weeks, so you should know what you are talking about.
* **Maintain eye contact with the audience.** We don't want to watch you read your notes to us.
* **Use visual aids!** Even simple visual aids will help keep your audience's attention and will help keep your talk moving along. At a minimum, it's a good idea to have a separate visual for each segment of your presentation. Whenever possible, *show* an example in addition to (or instead of) telling it.
* **Consider using handouts.** Handouts are a great way to show your audience detailed information that doesn't work well on the screen or blackboard; if you want to write a lot of information on the board, a handout may be a better alternative. If you do make handouts, remember to account for the time it will take to pass them out.
* **Plan for what to do if time runs short.** It happens all the time, so be ready – that way you won't waste more time being flustered if it happens to you.

**Project Report**

Your project report is due Week 10.

Final report format will be made available to you Week 5, but will at minimum incorporate the following:

Introduction - What’s the point of the project? What were its learning objectives?

Body of the report: (see below) - Including findings and what was accomplished?

Conclusion: Lessons learned, what would you have done differently, what are your next steps? What remains to be done?

Full bibliography and Acknowledgements (include all s/w used and all resources).

Body of the report:

**The work you did for the project.** Fully but concisely explain the work you did. What was your role in the group? Which parts did you work on more than others, and what did you do for each part?

**What you learned.** What do you now know that you didn't when you started your project? Feel free to address your learning in particular subjects (e.g. computer science) as well as in any other relevant areas you can think of (e.g., group work, project design, self-discipline). It is crucial to give examples rather than write generally about your learning. This section in particular may develop into part of your self-evaluation. You may find it useful to consider the following questions as you develop this part of your individual report:

- How did your project work deepen your understanding of concepts in computer science?

- To what extent did the final version of your project resemble your original design for the project (as described in your project proposal and project plan)?

- Which parts of your project work went the way you expected them to? Which ones didn't?

- How did keeping minutes affect your group's work? How did it shape your experience of your project work?

- If you were to do this project again, what would you do differently next time?

**Evaluation:**

Project work will be evaluated on the basis of:

1. the significance of the project

2. the documentation of the project in the report

3. the presentation

4. preparedness for meetings and demonstration of weekly progress

5. Contributions to the development of the others in your affinity group