
CIS 400 Senior Design

Fall 2014

Prof. Insup Lee
lee@cis.upenn.edu

Goals and Objectives

- Define a project
 - Conduct research
 - Produce and execute a work plan
 - Present your ideas and results
-

TAs

- Rado Ivanov, rivanov@seas.upenn.edu
 - Ran Chen, ranchen@seas.upenn.edu:
systems, hardware, networks,...
 - Charu Jangid, jangidc@wharton.upenn.edu:
online ad, web site,...
 - Alex Roederer, roederer@seas.upenn.edu:
data analytics, machine learning, user
interface...
-

Course Schedule CIS 400

- Project Proposal (~25% of grade)
 - 4-5 pages
 - Due by Thursday Oct 2 by 5 pm
 - Electronic form – PDF to Dropbox
AND hardcopy signed by your advisor
 - Must be in LaTeX
 - Proposal Meetings: Oct 3-7
 - Sign up later
 - Progress Presentation and Report (~75% of grade)
 - 8-10 pages
 - Report Due by Friday, Dec 12 by 5 pm
 - Progress presentations in class: Nov 13-25
-

CIS 400 in-class meetings (tentative)

- ❑ Meet with your TA, 4:30 pm, Thursday, LRSM Auditorium
 - ❑ Introduction to Latex, 4:30 pm, TBD, LRSM Auditorium
 - ❑ Proposal writing tips/feedback, TBD
 - ❑ Library/Research resource info session, TBD
 - ❑ Presentation on “security precautions in the real world,” by Charles Buchholtz, TBD in Nov
 - ❑ Presentation tips session, TBD
 - ❑ Project presentations, Nov 13, 18, 20, 25
-

Tentative Course Schedule CIS 401

- Project progress presentations (in Feb/March)
 - Poster presentation (in April)
 - Judgment Day, late April
 - End of semester demo and poster presentation
 - Prizes awarded to outstanding projects
 - Panel of external judges
 - Top 3 goes to SEAS competition
 - Final report
-

To Do in Fall Semester

- Select a topic
 - Select a team of 4 members (3 or 5 allowed)
 - Find a faculty project advisor
 - Turn in Project Proposal by Oct 2
 - Meet with me and TAs for Project Review
 - Attend **mandatory** information resources sessions
 - In-class Project Presentation in November
 - Turn in Project Progress Report by Dec 12
-

Course Web Page

- www.seas.upenn.edu/~cis400
 - Includes some project suggestions and links to past project descriptions
 - Other helpful information:
 - http://www.seas.upenn.edu/~cse400/CSE400_2014_2015/spec_proposal/prop_spec.pdf
 - http://www.seas.upenn.edu/~cse400/CSE400_2014_2015/prelims/write_guide.pdf
-

Characteristics of a good project

- The problem is **interesting**
- The problem has a **novel** research component and/or can result in high-quality, **innovative** product
- You are aware of prior work and can explain why your project is better/different
- You have a clear idea of what your end result will be
- You understand what's required in terms of skills, personnel, equipment, tools, and time
- ~~Grading rubric available online~~

Project Proposal Format

- **Title**

- Project Name, participants, faculty advisor

- **Abstract**

- 1-2 paragraph description of the project including a clear description of what your software system will eventually do
-

Project Proposal Format

■ Introduction

- Motivation, problem statement

■ Related Work (1 – 2 pages)

- Summarize related research, products and systems
- Explain why the proposed system is better/different from what already exists
- Multiple information sources:
 - Patents, Textbooks, Scholarly articles, tech reports, web sites

■ Proposed Work (2 pages approx)

- Explain how your system will work
 - Provide a block diagram of major components
 - Explain the principal technical challenges
 - Evaluation Criteria
-

Project Proposal Format

■ Milestones/Timetable

- List the major tasks that you will need to perform and when you expect to do them
- **Must indicate tangible deliverables to be demonstrated at the end of fall and spring semesters**
- Resources Required (if needed)
 - Which computers will you use, what hardware and software tools are required what new textbooks and reference material

■ References

- List the articles, textbooks, web sites, etc. that you cited in the body of your project proposal
-

Project Progress Report

- Similar format to Project Proposal but Technical approach section will be expanded
 - Description of work done to date
 - Results of prototype implementation
 - Detailed plan for work to be done next semester
-

Grading Considerations

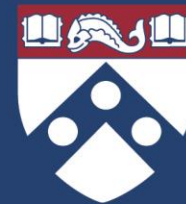
- Is it clear what the project is about?
 - Have you done sufficient research to identify related projects, products and relevant resources?
 - Do you have a plausible technical approach and a clear idea of the challenges?
 - Do you have a clear idea of what it will take to get the project done, time, equipment tools personnel etc.?
 - Is the project innovative?
-

Plagiarism Policy

- All reports and code turned in are expected to be original work.
 - If and when in question, ask the instructor
 - Refer to the web site for a detailed plagiarism policy
 - <http://www.vpul.upenn.edu/osl/acadint.html>
 - Violations of the policy will be viewed as a serious breach of Academic Ethics and may result in a trip to the OSC
-



CIS Faculty Research Areas



- **Graphics** (Badler, Gallier, Kavan, Lane)
- **Computational linguistics** (Callison-Burch, Marcus, Nenkova, Liberman)
- **Robotics/vision** (Daniilidis, Gallier, Mintz, Shi, Taylor)
- **Algorithms and Complexity Theory** (Alur, Guha, Kannan, Kearns, Khanna, Roth)
- **Computer Architecture** (Devietti, Martin, DeHon)
- **Databases** (Davidson, Guha, Khanna, Ives, Loo, Pierce, Tannen, Weinstein)
- **Embedded Systems** (Alur, Lee, Phan, Sokolsky, Mangharam)
- **Machine Learning** (Kearns, Ungar)
- **Networks and Distributed Systems** (Haeberlen, Loo, Smith)
- **Programming Languages** (Pierce, Weirich, Zdancewic)
- **Security, Privacy, Trust Management** (Blaze, Lee, Heninger, Smith, Sokolsky, Zdancewic)
- **Software Engineering** (Lee, Murphy)