

# Computer Integrated Surgery II

## 600.446/646/452

Spring 2016  
Russell H. Taylor  
Tu, Th 1:30-2:45



## Course concept

- Combination:
  - Lectures on computer-integrated surgery and related subjects by instructor, guests
  - Projects
  - Seminar on current research
- Similar material to 600.445, but with much greater implementation & project focus
- Prerequisite: 600.445 or my consent



## Course Numbers and Credits

- 600.446 (3 credits)
  - Full course (lecture/seminar + project)
  - Advanced undergrads
- 600.646 (3 credits)
  - Same as 600.446 but intended for grad students
  - Projects tend to be more advanced
  - Project teams can consist of grad students and undergrads
- 600.452 (1 credit)
  - Seminar only



## Contact Information

- Course web sites:
  - Wiki page: <https://ciis.lcsr.jhu.edu/dokuwiki/doku.php?id=courses:446>
  - Piazza: <https://piazza.com/jhu/spring2015/600446452646/home>
- TA = Alexis Cheng
  - Email: [acheng22@jhu.edu](mailto:acheng22@jhu.edu)
  - Office Address: Hackerman 137
  - TA office Hours = TBD
- My office hours
  - By appointment (see Alison in Hackerman 200)
- My lab meeting is Mon. 16:00-17:00 in Hackerman B08
  - May change
- ERC/LCSR Seminars Wed. 12-1:00 in Hackerman B17
- Medical Image Analysis Seminar (500.746, 520.746)
  - Jointly led by Prof. Taylor and Prof. Prince
  - Paper reading and discussion on medical image analysis



## Grades

- 600.446/646
  - 25 % seminar presentation/writeup
  - 15 % project plan
  - 10 % project checkpoint presentation
  - 10 % project final presentation (poster presentation)
  - 40 % project implementation & final report
  - Attendance can affect your seminar / presentation grades, so see me if you have special situation or needs
- 600.452
  - Letter grade or Pass/Fail
  - Grade based on seminar presentation & critical summary of pertinent research papers



## Date conflicts

- I will be out of town occasionally
  - Will arrange for guest speakers
- We may need to find make-up dates
  - Pick an evening (e.g., 5-7pm) or dawn (7-8am)
  - Evenings preferred



## Rough Calendar

- 1/26, 1/28, 2/2, 2/4 (if need): Discuss possible projects in class
- Pick project & seminar topics by 2/9 (preferably sooner)
- Approved project proposals by 2/16
- Project plan presentations 2/9 or sooner through early March
- Paper seminars March through April
- Project checkpoints mid-March through mid-April
- Project poster session on final exam day
- Project final reports on final exam day
- Will modify a bit as semester unfolds



## Projects

- Typically will involve some substantial implementation/ experimentation component
- Require a “mentor”
  - Me, colleague, or an end user
  - **Mentor must interview you and agree that you are appropriate for the project**
- Require funding/equipment support
  - Can come from me or end user
- Require a defined plan and budget
- Team projects encouraged



## Project Web Sites

- **The course web site is a Wiki**
  - <http://ciis.lcsr.jhu.edu/dokuwiki/doku.php?id=courses:446>
  - Access to students-only pages is controlled
  - Log in with JHED ID
    - I preloaded from class enrollment on ISIS, but may not have all.
    - Try login; if problem send your JHED id as soon as possible to me and the TA.
- **Piazza web site for communication**
- **Each group should maintain a project web site as a wiki page under the course web site**
  - Will contain project descriptions and also PDF copies of all reports and presentations.
  - May contain media and other material as well.
  - Format and template guidelines on the web site
  - Each group will have permissions to write own site, read others in course
  - Each group should indicate if their web site may be viewed outside of course
  - Please respect the rules for where things can be put
  - Please keep them up-to-date. The TA and I will be spot-checking them.



## Seminar Presentations

- Select a single important paper or series of papers (2-5) relevant to your project or other interest
- Give short (typically, 20 minutes) talk
  - Critical summary of what paper says & its significance
- Bring hard copy of presentation materials to class to be put in your notebook
- Also, write a short (3-5 page) critical review
  - Due day before talk ( post on class WIKI page)
  - Will be flexible on due date for the first talks
- Copy of paper will go into your notebook & one to me
- Will be critiqued in class (in a friendly way)



## Typical Outline (modify as appropriate)

- 1 slide statement of your project
- Paper selection and why
- Summary of problem & key result
- Significance of key result
- Necessary background
- Description of what the author(s) actually did
  - Theory, experiment, etc.
- Your assessment
  - Importance, relevance to you, good & bad points, etc.
  - Possible next steps for this work
- Conclusions



## Confidentiality and Projects

- Some of the projects may involve potentially patentable or otherwise confidential material
  - Premature disclosure can compromise patentability
  - Student inventors can get patents and licensing income
  - Some projects (e.g., those using ISI API data) may require students to sign a non-disclosure agreement with a company.
  - You need to close the loop with me on projects involving 3<sup>rd</sup> party confidential data, to be sure that something is publishable. Usually, this has not been a problem, but should be addressed early
- Web sites for these projects will be only accessible by me, the TA, the students involved, and the mentors
- To permit free discussion in class, we can consider this plan
  - The whole class can sign a non-disclosure agreement to cover in-class presentations and discussion (JHTT has promised a template)
  - If any student is uncomfortable with this, please speak up. In that case, we will not have such a blanket agreement.



## Project Proposals

- “Closed” plan by 2/18 or before
- Approximately 3 page summary containing
  - Stated topic and goal
  - Team members, mentor
  - **Short** statement of relevance/importance
  - **Short** technical summary of approach
  - List of “deliverables” (min, expected, max)
  - Key dates & assigned responsibilities
  - List of dependencies & plan for resolving
  - Management Plan
  - Reading list
- Project plan presentations in late Feb, early March
  - Cover similar material to written proposals



## Project Checkpoint Presentation

- Approximately 20 minutes talk
- Given in late March, early April
- Summarize/update plan material
- Present work to date
- Present problems, exposures, dependencies
- Bring hard copy of presentation materials to class to be put in your notebook
- Will be critiqued in class (in a friendly way)



## Project Final Presentation (Poster)

- Currently planned for date of final exam, but may move to last day of class
- Standard format
- Project should be done or nearly so
- Present/demo results
- Discuss work remaining to be done
- Discuss significance of work
  
- Discuss lessons learned
- Prizes awarded in various categories



## Project Final Report

- Technical summary
  - Similar to a short conference paper
  - Explain background, problem, approach, results, significance, etc.
- Management summary (1 page)
  - Who did what
  - Discuss what was accomplished vs planned
  - Discuss what might be next
  - What you learned
- Technical appendices
  - Code, user' s manual, etc. (may be on the Wiki)

