Astr 298 - Undergraduate Research Seminar

General information
Instructor: Clarence Chang (ERC 333, clchang@kicp.uchicago.edu)

Time: Mon; Wed 4:30 PM - 5:50 PM
Location: KPTC 309

Course Objective
Overall goal is to better prepare you for entering research by introducing/developing skills that are not typically covered in other coursework and familiarizing you with the non-classroom aspects of the research process.
Examples include:
- studying scientific literature
- synthesizing research techniques
- communicating technical information

This course involves three primary activities
- reading, studying, discussing and presenting scientific papers
- analyzing unprocessed scientific data and reporting those results (includes developing your own code)
- lab tours and seminar-style presentations by guest lecturers

This course is intended to be flexible. The activities and schedule presented in this syllabus can change over the course of the quarter to better address topics of interest.

Schedule
- weeks 2-5 (literature analysis)
  - papers for reading and discussion are listed at the end of the syllabus
  - during weeks 2-3, for each class, a few papers will be intended for discussion. Students are required to read these papers before class and arrive prepared to discuss the papers
  - for week 4, every student will prepare a 10 minute presentation on one of the papers discussed during weeks 2-3. The presentation will be followed by a 10 minute discussion.
  - for week 5, every student will prepare a 10 minute presentation on a paper of their choosing. The presentation will be followed by a 10 minute discussion.
- weeks 6-8 (analyzing/processing raw data)
- This activity involves a more in-depth study of the analysis presented in Keisler et al.
- Students will write and develop their own code to carry out examples of data analysis discussed in the paper.
- Students will write up a summary of their work using Latex. A first draft of the write up will be due on May 29. The final draft of the write up will be due on June 5.
- On April 3, May 6, May 27, and June 3, there will be special presentations given by professors at the university. These include a seminar style presentation followed with a lab tour. On May 8, May 29 and June 5 we will discuss the content of the lab tours and seminars.

**Grading**

Students are expected to participate in all activities. Grades will be determined by
- Participation in week 2-5 paper discussions (25%)
- Week 5 presentation (25%)
- Participation in data processing activity (25%)
- Final June 5 write-up (25%)

**Papers for discussion**

- April 8, 10
- April 15-17
  - Hu et al., Nature 386, 37-43 (6 March 1997)
  - Kovac et al., Nature 420, 772-787 (19 December 2002)

**Paper for data processing exercises**