Instructor: Tanya Rosenblat <trosenbl@umich.edu>
Office: 4332 North Quad
Office hours: TBA
By appointment
GSI: Olga Hollingsworth <ohworth@umich.edu>
Office Hours: TBA
Course Email: si301-w14@ctools.umich.edu
WebSite: http://ctools.umich.edu

Course Description:

This course focuses on how social groups form, interact, and change. We look at the technical structures of social networks and explore how individual actions are combined to produce collective effects. The techniques learned in this course can be applied to understanding friend systems like Facebook, recommender systems such as Digg, auction systems such as Ebay, and information webs used by search engines such as Google. This course introduces two conceptual models, networks and games, for how information flows and is used in multi-person settings. Network or graph representations describe the structure of connections among people and documents. They permit mathematical analysis and meaningful visualizations that highlight different roles played by different people or documents, as well as features of the collection as whole. Game representations describe, in situations of interdependence, the actions available to different people and how each person’s outcomes are contingent on the choices of other people. It permits analysis of stable sets of choices by all the people (equilibriums). It also provides a framework for analysis of the likely effects of alternative designs for markets and information elicitation mechanisms, based on their abstract game representations. Assignments in the course include problem sets exploring the mechanics of the models and essays applying them to current applications in social computing.

Required Books
The following textbooks are required:

**Networks, Crowds, and Markets by David Easley and Jon Kleinberg**
Published: May 2010
ISBN: 978-0-521-19533-1
Publisher: Cambridge Press
http://www.cambridge.org/us/knowledge/isbn/item2705443/
Author Site: http://www.cs.cornell.edu/home/kleinber/networks-book/

**Python for Informatics: Exploring Data**
Author: Charles Severance
Published: MPublishing, 2012, Shapiro Library (Circulation Desk)
http://www.lib.umich.edu/espresso-book-machine
Course Format
The three-credit course consists of 3.0 hours of lecture/discussion. This is a quantitative course which tries to present the basic concepts as intuitively as possible. The course is designed to be accessible to all students who enjoy combining conceptual thinking and practical understanding. The course combines analytical (lectures), experiential (exercises and game playing), interactive (discussion), peer (group assignments) and individual (textbook reading and papers) learning. For a number of classes, you are required to play simple games on the internet. There is no preparation required but participation is mandatory. There will be programming assignments outside of the lecture as well.

Learning Objectives
• Articulate some of the psychological, sociological, economic, and mathematical underpinnings of group interaction with technology systems, including how people function in groups, how groups form, and how groups make decisions and build knowledge.
• Model crowd interaction through the utilization of basic graph and game theories, auction strategies, and market mechanisms. Applying these theories to understand how knowledge can be extracted from groups of people or the web.
• Develop software in Python to retrieve, process, and analyze network data. Students are expected to have a working knowledge of Python (i.e. EECS182 or equivalent) or be able to pick up Python in the first few weeks of the course if they have had prior programming experience.
• Students should either have familiarity with HTML or be skilled enough to pick the basics of HTML mostly on their own.

Grading
The graded work in the course will be weighted roughly as follows to determine a final percentage grade:

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework</td>
<td>40%</td>
</tr>
<tr>
<td>Self-Paced Python</td>
<td>10%</td>
</tr>
<tr>
<td>Exams</td>
<td>50%</td>
</tr>
</tbody>
</table>

Grades will be awarded as follows:

- A     93% and above
- A-    90% and above
- B+    87% and above
- B     85% and above
- B-    80% and above
- C+    77% and above
- C     73% and above
- D     70% and above
- F     Below 70%
A+ grades will be awarded based on a combination of strong academic performance, exploring the course material beyond the assignments, class participation, and a willingness to help others. There will be few A+ grades awarded.

Exams

Midterm Exam will be in class on Th, February 20. Final Exam will be online during the week of Apr 26-30. Poor midterm scores which are obviously out of line with other grades will be discounted, and upward trends in performance will receive extra weight. Complaints about apparent grading errors will be considered, but requests for "extra credit" or other special consideration in assigning grades must regrettably be ignored.

Late Policy

Late assignments will be penalized by 20% times the number of days late. Homework that is 5 days or more late will receive zero credit.

Assignments

There will be weekly assignments throughout the course. Assignments will be a combination of written material and programming assignments.

Self-Paced Moodle

SI301 has EECS182 (Python Programming) or equivalent as a pre-requisite. In the second half of the course, we will be writing Python programs to do data analysis. During the first half of the class, we are assigning problems from the Python For Informatics (www.pythonlearn.com) to insure that you either review Python or pick up Python if your pre-requisite course was something other than Python.

www.pythonlearn.com

This web site has slides, lecture audio, sample worked problems, and other supporting materials to help you work through the problems.

You will complete the following problems and turn them into the "Python/Moodle" link in CTools with the following due dates:

<table>
<thead>
<tr>
<th>WEEK</th>
<th>Problems</th>
<th>Due Date (Fridays 9PM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>hello world</td>
<td>January 19</td>
</tr>
<tr>
<td>3</td>
<td>2.2, 2.3</td>
<td>January 25</td>
</tr>
<tr>
<td>4</td>
<td>3.1, 3.3</td>
<td>February 1</td>
</tr>
<tr>
<td>5</td>
<td>4.6, 4.7, 5.2</td>
<td>February 8</td>
</tr>
<tr>
<td>6</td>
<td>6.5, 7.1, 7.2</td>
<td>February 15</td>
</tr>
<tr>
<td>7</td>
<td>8.4, 8.5</td>
<td>February 22</td>
</tr>
<tr>
<td>8</td>
<td>9.4</td>
<td>March 1</td>
</tr>
<tr>
<td>Break</td>
<td></td>
<td>Week of March 4</td>
</tr>
</tbody>
</table>
After the second week of the class it should be possible for a student to complete and turn in all of the homework for this early – particularly if they already know Python from EECS182.

Course Mailing List

Much of the communication for the course will be done via email. Students are expected to read the email that comes to them from the course. The mailing list is also a place to get help in the class. It is completely acceptable for a student in the course to attempt to help another student over the mailing list. The Instructor will read all mail and correct any incorrect advice that one student gives another. All students have permission to post to the class-wide mailing list.

Giving and Receiving Assistance

The first time you learn technical material it is often challenging. We are going to cover a wide range of topics in the course and we will move quickly between topics. Because it is my goal for you to succeed in the course, I encourage you to get help from anyone you like, especially in the Python Review portion of the course.

However, you are responsible for learning the material, and you should make sure that all of the assistance you are getting is focused on gaining knowledge, not just on getting through the assignments. If you receive too much help and/or fail to master the material, you will crash and burn at the midterm when all of a sudden you must perform on your own.

If you receive assistance on an assignment, please indicate the nature and the amount of assistance you received. If you are a more advanced student and are willing to help other students, please feel free to do so. Just remember that your goal is to help teach the material to the student receiving the help. It is always appropriate to ask for and provide help on an assignment via the course-wide mailing list.

It is never appropriate to hand in someone else’s work and represent it as your own. The safest approach is to clearly acknowledge the sources and nature where someone has helped you create your work in a significant way.

Plagiarism

At the University of Michigan and in professional settings generally, plagiarism is an extremely serious matter. All individual written submissions must be your own, original work, written entirely in your own words. You may incorporate excerpts from publications by other authors, but they must be clearly marked as quotations and properly attributed. You may obtain copy editing assistance, and you may discuss your ideas with others, but all substantive writing and ideas must be your own or else be explicitly attributed to another, using a citation sufficiently detailed for someone else to easily locate your source.
All cases of plagiarism will be officially reported and dealt with according to the policy based on your enrollment/major. There will be no warnings, no second chances, no opportunity to rewrite; all plagiarism cases will be immediately reported as described by the policy.

For LSA Undergraduates, the following web site describes the policy:

http://www.lsa.umich.edu/academicintegrity/

Consequences can range from failing the assignment (a grade of zero) or failing the course to expulsion from the University. If you have any doubts about whether you are using the words or ideas of others appropriately, please discuss them with the instructional staff of the course.

Disabilities statement:
It is University of Michigan policy to help students with disabilities. If you think you need an accommodation for a disability, please let me know at your earliest convenience. Some aspects of the course, the assignments, the in-class activities, and the way we teach may be modified to facilitate your participation and progress. As soon as you make me aware of your needs by handing in the recommendation from your consultation with the Office of Services for Students with Disabilities (SSD), we can determine appropriate accommodations. If you do not hand in this form, I cannot make accommodations for you. SSD (734-763-3000; http://www.umich.edu/sswd/) typically recommends accommodations through a Verified Individualized Services and Accommodations (VISA) form. I will treat any information you provide as private and confidential.

Miscellaneous:
1. It is highly recommended that you attend all classes. Students are responsible for material covered and announcements made in class. If you cannot attend a lecture, please notify me by email in advance.
2. I will typically respond to all email inquiries within 48 hours.
3. Feedback is appreciated at any time!