Spring 2012

CS 350/550: Computational Tools and Techniques for Data Analysis

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CS 350/550 – Computational Tools and Techniques for Data Analysis  
Spring Quarter 2012  
Last Updated: 3/25/12

Description

CS 350/550 is an introduction to the representation, visualization, and modeling of large data sets using standard, high-level software tools. The course is designed to expose students to tools and methods useful to conduct analysis of large data sets often encountered in science and engineering pursuits. The goal of this course is to help students understand how they might summarize and interpret data, identify non-trivial facts and patterns in that data, and how to make predictions based on that data. Topics include summarizing data, making predictions from data, and finding hidden relationships in data. Familiarity with spreadsheet software is assumed and students should be able to construct simple programs in C like languages (C, C++, Java, etc.). Knowledge of basic statistics and either Matlab or Octave is desirable, but not required.

Instructor

John C. Gallagher  
352 Russ Engineering  
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Office Hours

3:00 – 4:00 PM Monday and Wednesday

Textbook

Handouts and Online Reading

Software

Use of numerical analysis programs will be an important part of this course. Assignments will include the use of GNU Octave (https://www.gnu.org/software/octave/) or Mathworks Matlab (http://www.mathworks.com/products/matlab/). Octave is open source and available for download at no cost. Matlab is available in college laboratories and a student edition is available to students in the college of engineering and computer science. Some assignments will make use of spreadsheet software (MS Excel and/or OpenOffice Calc).

Email/Web

To participate in this course, you must be able to access the web, and email account you check regularly. Course announcements will be sent via email and supplementary materials will be made available via web links to an archive site maintained by the instructor. Please ensure you have both reliable email and web access by the second week of the course. Also be sure that spam filters are set to allow the instructor’s emails into your mail queue.
Grades

You will have an opportunity to earn up to 100 points for various course activities and assessments. Letter grades will be based on the following scale:

- **A**: 90 points and up
- **B**: 89 - 80 points
- **C**: 79 - 70 points
- **D**: 69 - 60 points
- **F**: 59 points and below

The maximum point values of each course assessment and activity are:

- Midterm Exam: 20
- Comprehensive Final Exam: 30
- Homework Assignments: 50 (5 assignments at 10 points each)

Those registered at the graduate level (CS 550) will be required to complete extra homework problems and/or special additional questions on the midterm and final exams.

Policies

**Attendance**

Attendance is not tracked nor is it a formal part of your grade. However, students are expected to attend lecture regularly and participate in course discussions. Lower exam and homework grades will invariably result from non-attendance and/or non-participation.

**Late Homework**

All homework assignments will be due at the day and time listed on the assignment handouts. Assignments will be accepted up to 24 hours late with a 10% penalty. Assignments turned in more than 24 hours after their due date will be given zero points and NOT graded. Exceptions to the above policy will be made in exceptional circumstances. Written documentation of those circumstances will be required. Otherwise expect strict enforcement of the above policy.

**Missed Exams**

Missed exams will be scored at zero points with no possibility of make-up unless one of the following two conditions exist:

- a) A documentable extraordinary circumstance prevented the student from making it to the exam. Examples would include death in the family, illness, or natural disaster.

- b) Specific arrangements had been made with the instructor BEFORE the day and time of the exam. This is to cover the needs of students who might be traveling for work or have other unavoidable conflicts.
**Academic Integrity**  
All students are expected to read, understand, and follow the University Academic Integrity Policy at:

http://www.wright.edu/students/judicial/integrity.html

Infractions of the academic integrity policy will result in initiation of an academic integrity violation action with the university office of community standards and student conduct.

**Office Hours**  
In addition to the standard time blocks given, office hours are also available by appointment as a courtesy to students who may have divergent schedules not amenable to a one-size-fits-all time blocking. Please do not be shy about requesting time to discuss class work in more detail. If anything, the instructor will talk too much and likely leave you looking for an escape. That being said, please be aware that office hours are not private lectures meant to cover for lack of attendance and/or non-participation. They are meant either to help students through difficult patches or to expand upon beyond basic topics according to student needs or interests. Office hour visits will be much more productive and interesting for those who are putting in full efforts in the classroom.

**Schedule**  
A homework, and exam schedule and reading schedule will be provided in a separate document. The schedule is subject to modification based on student needs and interests. Such modifications, if necessary, will be made based on student input given in normal lecture meetings. Modified schedules will be sent to all students via email as needed.