# Statistics

## *Economics 202*
## *Fall 2008*

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**Office Hours**:
Tuesday 10:00 – 11:30
Wednesday 1:30 – 3:00

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**Course Summary:** Statistics is all about analyzing and presenting data to support or refute hypotheses, polls, and anything else that involves data.

- The government and companies regularly provide statistical summaries of many key variables;
- Professors often base your grades on your statistical standing relative to other students (curving the grades);
- Internet providers gather detailed data on how you browse the internet and use statistical procedures to package this data so advertisers can more effectively target you personally; and
- News analysts rely on statistical sampling techniques to declare election results when only a small percentage of the votes have been tallied ("Based on our exit polling, We predict Al Gore has run Florida" (oops!))

The purpose of this course is to introduce you to the basics of statistical analysis, including: data collection and survey design; the use of summary and descriptive statistics; data analysis using statistical software (Excel and SAS); probability theory; hypothesis testing; and correlation and simple regression.

This course will require substantial work on the part of students. This is a difficult course and many students fall behind – don't let it happen to you! You should read all the assigned chapters; each section has exercises that you should do after class (the answers to these are in the back of your book). Additional homework will be assigned on a regular basis, but I still emphasize that you should work through other problems as well. Teaching fellows will be available on a regular basis for additional help with the material (see section on teaching fellows). Finally, I encourage students to make use of my office hours or to email me at any time to discuss issues raised in class.

A large part of this course is the final project. While students will work together in small groups in the early stages, EACH student must hand in a final paper during the final exam period.

**Required Textbooks:**
Johnson and Kuby, *Elementary Statistics*, Tenth Edition, 2007.

Rebecca Elliott, *Learning SAS in the Computer Lab*, Second Edition, 2000.

**Exams:** There will be a two exams: the first in week 6 **(October 9 – Thursday before Fall break)**, and the second in week 12 **(Nov 20)**. No make-up exams will be given. Material for the exams will come from class lectures, assigned readings (whether or not covered in class), and assignments.

**Homework:** There will be weekly homework assignments. The assigned problems for the first several weeks of class are listed in the class schedule. The purpose of the homework is to prepare you for the tests – if you understand the homework, you will do well on the tests. Three or four questions will be selected at random for grading every week. In the second half of the course, there will be weekly SAS assignments as well. These will be collected and graded in their entirety.

Homework and class participation are worth 15% of your final grade; class participation in this case includes your ability to correctly summarize problems when called upon in class and attendance.

**Final Project:** The final project is an integral part of the course. The purpose of the project is to collect and analyze data for a topic to be discussed at the appropriate point in the term. Students will work in small groups of 3-4 members. Each group will design and test a survey to gather data. Each *individual* group member will then distribute and gather survey results from 40 people. Each student will do their own data analyses using SAS; however, you will also compare your findings with the others in your group (and possibly other groups) as the project progresses. The final project is due during finals week.

**Class Attendance and Participation:** I expect students to attend all classes. If you miss a class or a lab, you are responsible for the material.

**Grading:**

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| Exam 1 | 25% |
| Exam 2 | 30% |
| Homework/Class Participation/Discussion | 15% |
| Final Project | 30% |

**Teaching Fellows:**

Assistance with course concepts is available through the Teaching Fellows program. Designed to augment learning in a departmental context, the Teaching Fellows program uses a collaborative approach to teaching and learning; fellows are nominated by department faculty and selected jointly by the Center for Teaching and Learning and the department. Each department provides a faculty liaison and departmental operating space, while the CTL provides training.

The Teaching Fellows, in turn, act as learning facilitators, helping their peers adapt to a subject's discourse, offering support for many course levels, and promoting academic interaction between students and faculty as well as among students. Such a collaborative, community model enhances the breadth and depth of student learning, as students learn from the questions and answers of other students and synthesize information, and fellows themselves invigorate their understanding of the subject by teaching it to others. Time spent working with a fellow is time spent well.

Note that the Fellows do not replace the one-on-one tutoring options available through CTL (this service remains available), nor do they replace faculty-student interaction. Instead, fellows extend avenues for student learning.

Teaching Fellows will have regularly scheduled hours in Stern 301. You are encouraged to take full advantage of this program.