

**ECO 230 Economic Statistics**  
**Summer 2013** ◊ **TWR 1.00-3.55 PM** ◊ **Room: Hylan 206**

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**Instructor:** Tiago Tavares

- Office hours: Friday 10.00-12.00am in Harkness 116 A/B
  - In case of an emergency, I can arrange a different meeting time (contact me by email in such a case)
- Email: ttavares@mail.rochester.edu

**Teaching assistant:** This course does not have a teaching assistant. All questions and appointments should be directed to me.

**Course Webpage:** The course webpage can be located through Blackboard (<http://my.rochester.edu>). If you cannot access the site, please let me know. Announcements, homework assignments, and course materials will be posted online.

**Course Description:** Day to day life requires many choices that are often complicated to make. Information can be helpful to bring order in such complex decisions only to the extent that it can be properly interpreted by the decision maker. The field of statistics provides tools to analyze, interpret and present information stored in data. This can help us not just to describe the world we live in, but also to make projections about relevant outcomes - a feature particularly important in economics and businesses. Questions as what is the next quarter US GDP, how much can I expect Apple stocks to change next year, how does a change in inflation impact other macro variables as employment, etc., can be, at least partially, answered using statistical tools.

Among many important theoretical concepts, uncertainty and probability play a key role in this course. Randomness is a fact of life: we often find ourselves in situations which could get resolved in one of several possible ways, but we do not know in advance which particular outcome will be realized. Statistics also develops the analytical tools used in understanding randomness. You most likely are familiar with descriptive uses of statistics: charts, tables, averages, etc. which summarize patterns in the data greet us with increasing frequency in our daily experiences and help us grasp the essential features of phenomena being examined. Practical uses of statistics go far beyond data description, and may be found in virtually every field of study in which randomness plays a role.

The objective of ECO 230 is to equip students with a fundamental understanding of the theory and practice of statistics. Towards that end we will rely on elementary mathematics and computers. Students are expected to have familiarity with the computing environment at the University of Rochester. The course is designed to enhance the computational skills of students through the use of EXCEL and Stata, general purpose statistical softwares, and to develop their statistical skills through the use of computers.

**Prerequisite:** MTH 141 Calculus I or equivalent.

**Textbook:** Lectures for this course will follow loosely the chapters in the textbook *P. Newbold, W. L. Carlson and B. Thorne (2010), "Statistics for Business and Economics", 8th Edition, Prentice Hall*. Any other edition of this or any other introductory statistics textbook should be enough for this course. Additional reading materials may be given during the classes and include articles from other sources.

• **Additional Recommended Readings and Links:**

- Charles Wheelan (2013), *"Naked Statistics: Stripping the Dread from the Data"*, W. W. Norton & Company - popular reading on statistics
- Simply Statistics - popular blog on statistics: <http://simplystatistics.org/>
- Federal Reserve Economic Data - databank: <http://research.stlouisfed.org/fred2/>
- Center for International Comparisons of Production, Income and Prices - databank: <https://pwt.sas.upenn.edu/>
- Business data and statistics links: <http://www.usa.gov/Business/Business-Data.shtml>

**Assessment:** Course grades will be based on the following.

- 2 exams: One midterm weighted at 30% of the final grade, and a cumulative final exam weighted at 50%
- 4 assignments: each assignment weights 5% to a total of 20% of the final grade
- Class attendance/participation: These are not subject for assessment but is recommended for your own benefit

**Additional information:** All exams are closed-book and cover all material through the immediately preceding lecture, unless you are given different instructions.

- If you will be absent from the midterm, you must contact me by e-mail before noon on the date of the exam.
- If you will be absent from the final for a reason that can be anticipated now, you should drop the course. (ECO 230 is offered every semester and in the summer.) If you will be absent for reasons that could not have been anticipated, you must contact me by e-mail before the time of the exam. If you do not take the final, your grade for the course will be an F, independent of how you have performed in the rest of the class. Non-medical excuses will need to be extremely good to warrant any absence being excused.

**Course Roadmap:** Table 1 (next page) shows the planned course roadmap. Recommended readings for each lecture will be uploaded into the webpage before the class.

Table 1: Planned course work

| Date        | Class     | Topic   | Chapters | Observations             |
|-------------|-----------|---|----------|--------------------------|
| 20-5        | 1         | Rules; Describing Data - Graphical                        | 1        |                          |
| 21-5        | 2         | Describing Data: Numerical                                | 2        | problem set 1            |
| 22-5        | 3         | Describing Data: Numerical (cont)                         | 2        |                          |
| 27-5        | 4         | Probabilities and combinatorial calculus                  | 3        | <b>deadline for ps 1</b> |
| 28-5        | 5         | Discrete Random Variables and Probability Distributions   | 4        |                          |
| 29-5        | 6         | Continuous Random Variables and Probability Distributions | 6        | problem set 2            |
| 3-6         | 7         | Review session  |          |                          |
| <b>4-6</b>  | <b>8</b>  | <b>Midterm</b>  |          |                          |
| 5-6         | 9         | Sampling and Sampling Distributions                       | 6        | <b>deadline for ps 2</b> |
| 10-6        | 10        | Estimation: Single Population                             | 7        | problem set 3            |
| 11-6        | 11        | Estimation: Additional Topics                             | 8        |                          |
| 12-6        | 12        | Hypothesis Testing: Single Population                     | 9        |                          |
| 17-6        | 13        | Hypothesis Testing: Additional Topics                     | 10       | <b>deadline for ps 3</b> |
| 18-6        | 14        | Hypothesis Testing: Additional Topics (cont)              | 10       | problem set 4            |
| 19-6        | 15        | Simple Regression   | 11       |                          |
| 24-6        | 13        | Simple Regression (cont)                                  | 11       | <b>deadline for ps 4</b> |
| 25-6        | 14        | Review session  |          |                          |
| <b>26-6</b> | <b>15</b> | <b>final exam</b>   |          | Enjoy Summer!            |