

**TOBB UNIVERSITY OF ECONOMICS AND TECHNOLOGY**  
**DEPARTMENT OF ECONOMICS**  
**ECON 551 Quantitative Methods (Module I: Probability and Statistics)**  
**Fall 2013**

**Instructor:** Asena Caner, Ph.D.  
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**Lecture Hours:** Tuesday 13:30-14:20 [classroom # 204]  
Thursday 13:30-15:20 [classroom # 204]

**Office Hours:** Tuesdays 14:30-16:30  
(To see me at other times, please contact via e-mail.)

**Course Description:** The first module of this graduate course teaches students the principles of probability and statistics. After reviewing the basic elements of probability theory and probability distributions, we will work on generating the distributions of functions of random variables and sampling distributions. The remaining part of the course will focus on statistical inference as they are encountered in econometrics; point and interval estimation and statistical tests. Although there are no official prerequisites for the course, it is assumed that the students are familiar with calculus.

**Aim of the course:** This course aims to prepare students to econometrics and other courses in the program. The use of the basic concepts of probability and statistics is not restricted to econometrics; students will need them to understand and build models in many fields of economics such as IO, finance and game theory to name a few. Students must practice solving questions in order to master the material in this course. For this reason, homework assignments will be given regularly during the course. It is important that the students use the assignments as an opportunity to learn. Finally, since it is impossible to cover all topics of probability and statistics in a semester, students must learn how to learn on their own.

**Evaluation:**

Written Exams 60 % (First exam 25% + Second exam 35%)  
(The remaining 40% of your grade will be given based on your performance in the second module of the course)

**Textbooks:**

- Robert Hogg and Allen Craig (shortly "HC"), *Introduction to Mathematical Statistics*, 5<sup>th</sup> or 6<sup>th</sup> edition, Pearson Education.
- George Casella and Roger Berger, *Statistical Inference*, 2001, Duxbury Press.
- Takeshi Amemiya, *Introduction to Statistics and Econometrics*, Harvard University Press, 1994.
- A.N. Shiryaev, *Probability*, Graduate Texts in Mathematics, 1996, Springer-Verlag New York.

**Topics:**

Week 1	Probability and Distributions (HC Ch.1 + lecture notes)
Week 2	Multivariate Distributions (HC Ch.2 + lecture notes)
Week 3	Some Special Distributions (and introduction to transformations) (HC Ch.3 + lecture notes)
Week 4	Distributions of Functions of Random Variables (and transformations) (HC Ch.4 + lecture notes)
	<i>The first written exam (Date and time will be announced later.)</i>
Week 5	Limiting Distributions (HC Ch.5 + lecture notes)
Week 6	Introduction to Statistical Inference (HC Ch.6 + lecture notes)
Week 7	Statistical Inference (continued) (HC Ch.6 + lecture notes)
Week 8	Statistical Inference (continued) (HC Ch.6 + lecture notes)
	<i>The second written exam (Date and time will be announced later.)</i>

**Rules :**

1. In the exams, students will be responsible from all the material covered in class. Students are expected to attend lectures regularly.
2. Homework assignments are due at the time announced in the lecture; late submissions will not be accepted. Students can work on these assignments in groups (group-study is encouraged), but each student should turn in her own answers. (See note 3 below.)
3. Plagiarism and cheating: Students are expected to refrain from giving or receiving aid in examinations, or in any other work that is to be used by the instructor as the basis of grading. Furthermore, they are expected to do their share and take an active role in seeing to it that others as well as themselves obey these rules. Plagiarism and cheating are serious issues; therefore disciplinary action will be taken upon any suspicion that these rules are violated. (Plagiarism is defined as the use, without giving reasonable and appropriate credit to or acknowledging the author or source, of another person's original work, whether such work is made up of code, formulas, ideas, language, research, strategies, writing or other form(s).)
4. Make-up exams: Exam attendance at the specified time is required. A make-up exam will be given only under the condition that the student has a serious health or family condition and can provide a proof of his condition accepted by the faculty council. Make-up exams, if given, will be harder than exams taken at regular times.
5. Students can (and should) see their graded exams. If the student thinks she has been graded unfairly or incorrectly, she should inform the instructor immediately. The only reason for a grade change is the existence of errors in grading. Requests for a better grade for any other reason will be declined.