

ECON 451: Intermediate Introduction to Statistics and Econometrics I

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Lectures: Monday and Wednesday, 11:30-1:00, at G127 AH

Office Hours: Friday, 3PM-5PM

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ECON 451 is an introduction to probability theory and statistical inference. Statistics offers a set of tools for the rigorous analysis and interpretation of numerical data obtained through random samples. The purpose of the course is to provide students with a deep theoretical understanding of the foundations of statistical inference. Topics include probability theory, discrete and continuous random variables, special distributions, estimation and hypothesis testing. The course is primarily intended to prepare students for the econometrics class ECON 452. No prior knowledge in probability and statistics is required, but familiarity with algebra and calculus is assumed.

Required Textbook:

Larsen, Richard J. and Marx, Morris L. “*An Introduction to Mathematical Statistics and Its Applications*.” Pearson Prentice Hall, 5th Edition, ISBN 0321693949.

Pre-Requisites:

MATH 116, 156, 186, 215, 255, 256, or 285; (C- or better)

Credit Exclusions:

No credit will be granted to those who have completed or are enrolled in similar courses which include IOE 265, STAT 265, STAT 400, or STAT 412.

Recommended Readings:

Wackerly, Mendenhall and Scheaffer. “*Mathematical Statistics with Applications*”, Thomson, 7th Edition, 2008, ISBN: 978-0-495-11081-1

Hogg and Tanis, “*Probability and Statistical Inference*”, Pearson Prentice Hall, 8th Edition, ISBN: 0321584759

Acock, “A Gentle Introduction to Stata”, Stata Press, Revised Third Edition.

Pevalin and Robson, “The Stata Survival Manual”, McGraw Hill, 2009.

Grading

Homework (20%)

Quizzes (20%)

Midterm (30%)

Final (30%)

Homework

There will be weekly assignments. Homework assignments are due on Mondays by the end of the class. To ensure prompt grading, late assignments will not be graded. In order to allow for illness, personal and family issues, overwork due to other classes, or any other reason, the lowest assignment grade will not be counted. You are encouraged to work on groups but each student has to turn in his/her own copy. Identical assignments will not be accepted.

Quizzes

There will be 3 surprise quizzes. In order to allow for illness, personal and family issues, overwork due to other classes, or any other reason, the lowest quiz grade will not be counted.

Exams

There is one midterm and one final exam. The midterm will be administered on **Wednesday, February 25th**. The final exam is scheduled for **Monday, April 27th at 4:00PM-6:00PM**. All exams will be given in G127 AH. Exams are closed-book. However, a formula sheet may be used during the exams. The formula sheet must be no larger than 8.5 inches by 11 inches, the standard size of a piece of American printer sheet, i.e. no European sized paper. Only one side may be used for formulas, notes, etc in the midterm exam. Both sides can be used in the final exam. The sheet will be checked at each exam. A basic non-graphing calculator is allowed in the exams. Programmable calculators, cell phone calculators or calculators that perform functions beyond basic math will not be allowed. Note that you need to prepare your own formula sheet. You cannot share your formula sheet with others.

Make-up Policy

There will be no make-up exam for the midterm. However, if a student provides a documented proof of special circumstances such as a medical report that explains the absence, then the final exam's weight will be adjusted accordingly for this student, i.e., final exam's weight will change to 60%. Students should provide the documentation within one week of the exam.

If a student misses the final exam, there will be a possibility to re-take the final exam only under very exceptional circumstances (like accidents, illness, major surgery etc.). The student has to provide firm documentation.¹

Re-grade Policy

Your exams are graded by your assistant. Please first consult to your assistant about your grades. If you need further assistance about your grade, you can submit a neatly written or typed note directly addressed to me explaining your questions. I will re-grade your exam by taking your concerns into consideration. Note that you are not guaranteed a higher grade with re-grading; in fact, it is possible for your grade to be lowered through the re-grading process.

Special Accommodations

If you feel you need an accommodation based on the impact of a disability, contact the instructor privately to discuss your specific needs. Students with disabilities should also contact the Office of Services with Disabilities to determine appropriate accommodations.

Academic Integrity

The department of economics expects all students to adhere at all times to the highest standards of academic integrity. The meaning of academic integrity appears at the web site of the assistant dean for student academic affairs:

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

The course complies with the departmental policy on academic integrity, as posted on the departmental web site.

¹ Make sure to fill the Medical Emergency Form which can be found at:
<http://www.lsa.umich.edu/econ/undergraduatestudy/policiesandprocedures>

Class Schedule (Tentative)

Lectures	Subject
1-4	Probability
5-6	Discrete Random Variables
7	Continuous Random Variables
8-10	Mean, Variance, Independence
11-12	Review and Exam
13	Conditional Densities
14-16	Special Distributions
17-20	Estimation
20-22	Hypothesis Testing
23-24	Deriving T Ratio and Inferences
25-26	Statistical Inference with Two Population
27	Review for the Exam