Economics 351-001 – Data Analysis for Economists – Summer I 2014

Robert Dinterman, Department of Economics

MTWThF 9:50 – 11:20AM, 4210 Nelson Hall

Office Hours

M/W/Th 12:00 – 12:45PM
Office location: 4305 Nelson Hall
Email address: rdinter@ncsu.edu
I am also available by appointment; please email me to schedule a time that is mutually convenient.

Course Description

In this course, you will learn tools for describing and analyzing data as used in economics. Topics include: probability, random variables, sampling, point estimation, interval estimation, hypothesis testing, and regression analysis. There will be an emphasis on economic applications. The goals for this semester are:

1. To understand the conceptual foundations of econometrics;

2. To recognize and understand the use of econometric techniques in economics and other situations of practical importance; and

3. To be able to implement econometric techniques.

Required Text

- **Introduction to Econometrics**, James Stock and Mark Watson, 3nd Edition, 2011, ISBN: 0-13-800900-7.

The 2nd edition is also available and there are no meaningful changes for our purposes in Chapters 1–9. Either edition is fine for this course. This course will cover Chapters 1-9 with Chapters 10-18 covered in EC 451 (Introduction to Econometrics), but Chapters 10–18 are significantly different for the 3rd edition. There is a companion website for the book that gives student resources such as odd-numbered solutions to end of chapter questions. Students are encouraged to practice these problems in order to succeed in this course (http://www.pearsonhighered.com/stock_watson/).

Prerequisite

One of the following courses must have been taken and passed by the student in order to be enrolled in EC 351:

- BUS/ST 350 Economics and Business Statistics (MA 114 prerequisite)

- ST 302 Statistical Methods II (MA 141 prerequisite)

- ST 361 Introduction to Statistics for Engineers (College Algebra prerequisite)

- ST 370 Probability and Statistics for Engineers (MA 241 prerequisite)

- ST 372 Introduction to Statistical Inference and Regression (MA 241 prerequisite)

All of these prerequisites are the basic foundations of statistical analysis; this course will expand beyond this foundation. Speak with the instructor if you are uncomfortable with your knowledge of algebra, calculus, economics, and/or statistics.

Grading

Determination of Final Grade:		Grading Scale:		C+	76.00	79.99
15%	Exam 1	A+	97.00	100.00	C	73.00	76.99
20%	Exam 2	A	93.00	96.99	C–	70.00	73.99
30%	Final Exam	A–	90.00	92.99	D+	66.00	69.99
25%	Project	B+	86.00	89.99	D	63.00	66.99
10%	Homework/Class	B	83.00	86.99	D–	60.00	63.99
	Participation	B–	80.00	82.99	F	0.00	59.99

The above plus/minus grading scale will be used. A curve may be used to rescale the grades of a difficult exam. Often, no curve will be used and a curve will never be used to reduce your grade.

1 Exams

There will have two exams and one **cumulative** final exam. Each exam is cumulative in nature as each topic in this course builds off of the previous topics. The exams are used to evaluate both your understanding of concepts covered in this course and to use intuition in applying the material to real world problems. If your Final Exam grade exceeds your lowest grade on Exam 1 or 2, then it will replace your lowest exam grade.

All three exams are required. Make-up exams are allowed only for university-approved excuses (link: REG 02.20.3). If you miss an exam(s) for any reason (including university-sanctioned activities, illness, or family emergency), you must notify me at the first possible moment; notification after the missed exam will only be permissible in the case of a severe illness/emergency that is fully documented. A university-approved excuse must be provided for any missed exam. **Documentation from the Student Health Center does *not* meet the requirements for a university-approved excuse.**

2 Individual Project

Each student will individually complete an original research project from a data set collected by the student. The use of statistical software will be required to complete this project. there will be extra sessions outside of class to instruct how to use the statistical program R, although other statistical software is permitted. The project is a large component of your final grade, reflecting the importance of implementing the techniques learned in class using data to address real-world problems. I encourage you to devote time to thinking of a topic that is both interesting to you and can be addressed using available data. **All students must have had their topics approved by me prior to 12:00PM (noon) Friday, May 23. Failure to do so will reduce your Project Assignment #1 grade by 20%.** You may email me your topic but I strongly encourage you to meet with me to discuss your topic because otherwise I will not be able to provide you with detailed comments.

3 Homework/Class Participation

Homework will be assigned and collected for each chapter of the course. This is to be turned in at the beginning of class when the assignments are due. In addition, you are expected to attend and participate in every class. In the unlikely event that I am late, please wait 10 minutes before choosing your next best use of time. I do not plan to waste your time so you should not waste my time. Disruptive behavior will not be tolerated in class and you will be asked to leave if I, or other students, deem your behavior disruptive. Disruptive behavior includes but is not limited to cellphone use, inappropriate computer use, and off-topic conversations.

Course Website

Material for the course is available on the NC State Moodle site (http://wolfware.ncsu.edu). This will be updated throughout the course with homework assignments, links to supplemental material, and other useful resources. Please check the website frequently and let me know if you have trouble accessing any material that is posted.

Code of Student Conduct

The University's Code of Student Conduct governs all work in this course (link: POL11.35.1). I encourage you to study with your colleagues and to discuss the material and upcoming exams. However, when you take exams and work on your project, you are expected to do your own work. Unauthorized material (such as books, notes not belonging to you, PowerPoint slides, and the work of others) are not to be used during exams. Your submission of any exam or assignment means that you neither gave nor received unauthorized aid.

Learning Needs

Reasonable accommodations will be made for students with verifiable disabilities. In order to take advantage of available accommodations, students must register with Disability Services for Students at 1900 Student Health Center, Campus Box 7509, 515-7653. For more information on NC State's policy on working with students with disabilities, please see the Academic Accommodations for Students with Disabilities Regulation (link: REG02.20.1).

Administrative Dates

Last day to add a course	Wednesday, May 21
Memorial Day	Monday, May 26
Last day to drop a course	Thursday, June 5

Tentative Exam Dates and Coverage

Exam 1	Friday, May 30	Chapters 1 – 3
Exam 2	Wednesday, June 11	Chapters 4 – 6
Final Exam	Tuesday, June 24 (8:00 – 11:00AM)	Chapters 1 – 9

Tentative Schedule of Topics and Reading

Day(s)	Chapter	Topic
5/19	1	Economic Questions and Data
5/20–5/23	2	Review of Probability
5/23–5/28	3	Review of Statistics
6/2–6/4	4	Linear Regression with One Regressor
6/4–6/6	5	Regression: Hypothesis Tests and Confidence Intervals
6/6–6/10	6	Linear Regression with Multiple Regressors
6/12–6/16	7	Hypothesis Tests and Confidence Intervals in Multiple Regression
6/16–6/18	8	Nonlinear Regression Functions
6/18–6/20	9	Assessing Studies Based on Multiple Regression