

WILLIAM PATERSON UNIVERSITY OF NEW JERSEY
COTSAKOS COLLEGE OF BUSINESS
DEPARTMENT OF ECONOMICS, FINANCE, AND GLOBAL BUSINESS
COURSE SYLLABUS
Winter 2013/14

Title of course, course number, and number of credits

Business Statistics II, ECON2110, 3 credits

Instructor

Dr. Martin Gritsch

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Office Hours: N/A; all instruction will be conducted online

Description of the course

A continuation of ECON 2100 – Business Statistics I. Topics covered include one-sample and two-sample tests of hypothesis, ANOVA, simple and multiple linear regression, and non-parametric methods such as Chi-square applications and the analysis of ranked data. Optional topics are index numbers, time series and forecasting, quality control, and an introduction to decision theory.

Course prerequisite

ECON 2100

Course objectives

Statistical concepts are frequently used in economic, social science and business contexts. Business Statistics II is a continuation of the study of these widely-used concepts begun in Business Statistics I and will give the student a better understanding of the probabilistic nature of events and how statistics can be used to understand these events. A student who successfully completes this course should feel much more comfortable in reading about economics, the social sciences and business. S/he should also be able to read more critically about these subjects, using the statistical knowledge gained in this course.

The problems, examples, and projects used in this course are specifically designed to help students apply their newly-gained knowledge and skills to business and economic situations. This knowledge should then help them in future courses, as well as in the business world and beyond.

Tentative outline

<i>Part 1</i>	Chapters*
One-sample tests of hypothesis	10
Two-sample tests of hypothesis	11
<i>Part 2</i>	
Analysis of Variance	12
Simple linear regression and correlation	13
<i>Part 3</i>	
Multiple regression and correlation analysis	14
Nonparametric methods: Chi-square applications	17
Nonparametric methods: Analysis of ranked data	18

* The chapters refer to *Statistical Techniques in Business and Economics*, 15th ed. Boston: Irwin, McGraw-Hill, 2012 by Douglas A. Lind, William G. Marchal, and Samuel A. Wathen

Note that purchasing the textbook is a course requirement.

Additionally, readings other than the textbook may be assigned.

Notes on Technology

This online course will be conducted via Blackboard. If you have any problems, please click on the “Student Support” link below the login fields at bb.wpunj.edu. (You may need to scroll down a little.) You will find descriptions of many features as well as a link to contact the Blackboard Support Center.

The documents that I will be posting on the Blackboard pages will typically be files in Microsoft Office format. Please ensure that the computer that you are planning to use for this course is able to open this type of files. For some of the assignments Microsoft Excel, in particular Excel’s Data Analysis feature, is required. Additionally, the assignments that you submit must be in a format that I will be able to open with Microsoft Office 2007 products.

Teaching methods and expectations on student participation

The course will be conducted in the following format: I will post notes for each chapter that will describe the main features of the chapter, examples, references to additional readings, and practice problems. There will be class discussion of some topics using the Discussion Board in Blackboard.

You are required to access the Blackboard pages daily to check for announcements and other postings such as assignments. I strongly encourage you to keep up with the course since the material that is covered in fifteen weeks in a fall or spring semester is compressed into about three weeks.

Academic integrity

Cheating in its various forms will be severely punished. The *minimum* penalty is a grade of zero on the assignment in question, but it can go up to expulsion from the university. If you have not done so yet, please familiarize yourself with the “**Academic Integrity Policy**” (available online at <http://www.wpunj.edu/dotAsset/230122.pdf>). **All parts of that Policy are relevant and important**, but for the online setting of the class, I especially would like to stress sections II.B. (on plagiarism) and II.C. (on collusion). **Please make sure that you truly understand what all parts of the policy mean. To name a few examples, working together with another student on an assignment, getting help on an assignment from someone else (e.g., a tutor), and copying another student’s work are all violations of the Academic Integrity Policy.**

Student learning outcomes

By the end of this course, students should be able to:

- ◆ Construct a hypothesis.
- ◆ Conduct a test of hypothesis about population parameters, both using the five-step procedure and the p-value.
- ◆ Understand Type I and Type II errors and discuss their relationship.
- ◆ Carry out a hypothesis test for the equality of two population variances.
- ◆ Organize data into ANOVA tables.
- ◆ Understand and interpret the terms dependent and independent variable.
- ◆ Calculate and interpret the coefficient of correlation, the coefficient of determination, regression coefficients, the regression line, and the standard error of estimate.
- ◆ Conduct a test of hypothesis to determine whether regression coefficients are statistically significantly different from zero.
- ◆ Describe the relationship between several independent variables and a dependent variable using a multiple regression equation.
- ◆ Utilize the Chi-square distribution for goodness-of-fit tests.
- ◆ Apply nonparametric methods to analyze ranked data.
- ◆ Use Microsoft Excel to carry out the above techniques as applicable.

Methods of student evaluation

The course grade is determined by the following components and their indicated weights and follow the dates shown in the table on this page:

Assignments: 90%

There will be nine (9) assignments each worth 10% of your course grade. These assignments will take the form of short-answer questions in which you describe a method we covered, calculate a numerical example, compare results from different methods, etc. Some of them they will require the use of Microsoft Excel, in particular Excel's Data Analysis feature.

Participation: 10%

Two (2) times during the course, we will have an online discussion on a topic that is related to the course material. You will need to make at least two separate, meaningful posts to the Discussion Board in each of these online discussion periods to earn full credit (5 % of your course grade per discussion).

Date	Reading and Practice Problems	Assignment Available	Assignment Due	Discussions
Thursday, December 26	Chapter 10			
Friday, December 27	Chapter 10	1		
Saturday, December 28	Chapter 10	2		Start Discussion 1
Sunday, December 29			1	
Monday, December 30	Chapter 11	3	2	End Discussion 1
Tuesday, December 31				
Wednesday, January 1	Chapter 12			
Thursday, January 2	Chapter 12	4	3	
Friday, January 3				
Saturday, January 4	Chapter 13	5	4	
Sunday, January 5	Chapter 13			Start Discussion 2
Monday, January 6	Chapter 13	6	5	
Tuesday, January 7	Chapter 14			End Discussion 2
Wednesday, January 8	Chapter 14	7	6	
Thursday, January 9				
Friday, January 10	Chapter 17	8	7	
Saturday, January 11				
Sunday, January 12	Chapter 18	9	8	
Monday, January 13				
Tuesday, January 14			9	

Please note that there will be *no* extra credit assignments!

You will submit your assignments by attaching them to an e-mail to me (GritschM@wpunj.edu).

Assignments are due at 11:59 p.m. Eastern Time on the day specified. Your grade for an assignment will be lowered by two (2) points for each day that the assignment is turned in after

that (including Saturdays and Sundays). If I have not received one of your assignments at the end of the course, you will receive a score of zero (0) on that assignment.

In assigning your course grades, I will use the following grading scale:

93-100: A
90-92: A-
87-89: B+
83-86: B
80-82: B-
77-79: C+
73-76: C
70-72: C-
67-69: D+
60-66: D
0-59: F