

WILLIAM PATERSON UNIVERSITY OF NEW JERSEY
COTSAKOS COLLEGE OF BUSINESS
DEPARTMENT OF ECONOMICS, FINANCE, AND GLOBAL BUSINESS
COURSE SYLLABUS
Winter 2020/21

Title of Course, Course Number, and Number of Credits

Business Statistics II, ECON 2110-080, 3 credits

Instructor

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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 – Business Statistics I

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.

Textbook:

“Statistical Techniques in Business and Economics, 17th edition (McGraw-Hill 2018)”, by D. Lind, W. Marchal, S. Wathen, (If you are able to find an older version of the text, please go ahead to get it if it’s less expensive. There might be some slight changes from one version to the next. But the concepts are the same.)

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 information technology to build data sets and retrieve relevant business information for data driven decision making.
- ◆ Use standard business technology (including, but not necessarily limited to, products of the MS Office suite) to analyze business problems and offer recommendations.
- ◆ Demonstrate an ability to apply analytical skills to solve business problems.
- ◆ Effectively apply learned quantitative methods to reach appropriate business decisions.

Academic Integrity

Violations of the Academic Integrity Policy (a.k.a. cheating in its various forms) will not be tolerated. If you have not done so yet, please familiarize yourself with the **Academic Integrity Policy** (available online at <https://www.wpunj.edu/human-resources/faculty-and-professional-staff-handbook/academic-integrity-policy-for-students.html>). **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), i.e., **you are not allowed to work with anyone else on a graded assignment**.

To name a few examples,

- **working together with another student on a graded assignment**
- **sharing your work for a graded assignment with another student**
- **getting help on a graded assignment from another student**
- **getting help on a graded assignment from a tutor (in person or online)**
- **uploading a graded assignment to an online tutoring site**
- **copying another student's work for a graded assignment**
- **submitting work for a graded assignment obtained from an online tutoring site**

are all violations of the Academic Integrity Policy. The above is **not meant to be an exhaustive list of possible violations**, so if you have any questions about whether something is permissible, I strongly encourage you to check with me ahead of time. I am available to help you with graded assignments (within certain limits, e.g., I cannot tell you whether an answer is correct before you submit an assignment, but am able to answer more general questions).

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 Help Desk.

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 products.

Methods of Student Evaluation

The course grade is determined by your performance on the following items. *Please note that there will be no extra credit assignments.*

Grading Policy

The final grade will be calculated as follows:

| | |
|--------------------------|-----|
| Discussion Participation | 20% |
| Quiz 1 | 10% |
| Quiz 2 | 10% |
| Quiz 3 | 10% |
| Exam 1 | 25% |
| Exam 2 | 25% |

Participation Policy

The discussion board serves as a "virtual classroom". Imagine you are in a classroom setting once you log in the Blackboard. After having read the book and the Power-point presentation, you want to join the discussion with other students in the “classroom.” You can ask related questions for that particular forum or answer my or other students’ questions.

The due time for the discussion board is 11:59pm of the assigned date. For example, the first discussion board will be available from 12:00am to 11:59pm on Dec 26, 2019 and you need to participate within that time to be counted in.

I will count the number of times you participate the discussion board by the due date. The **MINIMUM REQUIREMENT IS 3 TIMES PER CHAPTER.** Missing the minimum requirement for a chapter will result in a lower grade. Missing the discussion board is equivalent to be absent from a regular class.

Here is more about the requirement for three posts:

You may use all your three posts to focus on one topic. You may also use your three posts to cover different topics. In short, as for the number of topics, it’s up to you to cover one topic or two topics, or three, or even more than three.

Your reply to someone else is also considered a post.

Your comment on a topic that is not on the list, but you may think is relevant to our course is also considered a post.

Quiz and Exam:

Quiz:

1. We will have **three** online quizzes during the session. No make-up quizzes will be available.
2. **The time limit for each quiz is one hour once you open it.** The quiz must be taken within the assigned date shown in the schedule (Section 18). For example, the quiz 1 must be taken within 12:00am ~ 11:59pm at Dec 28, 2020.
3. All quizzes take the form of either True/False or Multiple Choices and there will be 8 ~10 questions for each quiz.
4. I strongly recommend you not to wait till too late (say, 11:00pm or later) to take the quiz due to the fact that the system will automatically submit the quiz at 11:59pm.

Exam:

1. There will be **two Exams (Exam 1 and Exam 2)**.
2. You are required to answer them in the assigned date and you have the entire day (24 hours) to answer them.
3. You can submit them by directly typing the answer in the blackboard, uploading a WORD document or a photo/scan of hand-written paper sheet. Note that you must submit them before 11:59pm of the due day. A late submission will be scored zero.

Problem Sets (with solutions)

Occasionally, I will also post some Problem Sets with solutions for you to practice and they are not required to submit. But note that they are very helpful for the exams.

Timetable Including Due Dates

| Date | Chapters and Tasks |
|-----------------------|--|
| Thursday, December 26 | Chapter 10: One-Sample Tests of Hypothesis Discussion 1 Due |
| Friday, December 27 | |
| Saturday, December 28 | Quiz 1 |
| Sunday, December 29 | Chapter 11: Two-Sample Tests of Hypothesis Discussion 2 Due |
| Monday, December 30 | <i>Problem Sets 1 with solutions are available</i> |
| Tuesday, December 31 | |
| Wednesday, January 1 | Chapter 12: Analysis of Variance Discussion 3 Due |
| Thursday, January 2 | Quiz 2 |
| Friday, January 3 | Chapter 13: Correlation and Linear Regression Discussion 4 Due |
| Saturday, January 4 | <i>Problem Sets 2 with solutions are available</i> |
| Sunday, January 5 | Exam 1 |
| Monday, January 6 | Chapter 14: Multiple Regression Analysis Discussion 5 Due |
| Tuesday, January 7 | |
| Wednesday, January 8 | Chapter 15: Nonparametric Methods: Nominal Level Hypothesis Tests Discussion 6 Due |
| Thursday, January 9 | |
| Friday, January 10 | Quiz 3 |
| Saturday, January 11 | Chapter 16: Nonparametric Methods: Analysis of Ordinal Data Discussion 7 Due |
| Sunday, January 12 | <i>Problem Sets 3 with solutions are available</i> |
| Monday, January 13 | |
| Tuesday, January 14 | Exam 2 |