

ANLY461

STUDENT WARNING: This course syllabus is from a previous semester archive and serves only as a preparatory reference. Please use this syllabus as a reference only until the professor opens the classroom and you have access to the updated course syllabus. Please do NOT purchase any books or start any work based on this syllabus; this syllabus may NOT be the one that your individual instructor uses for a course that has not yet started. If you need to verify course textbooks, please refer to the online course description through your student portal. This syllabus is proprietary material of APUS.

Course Summary

Course : ANLY461 **Title :** Applied Analytics II

Length of Course : 8

Prerequisites : ANLY460 **Credit Hours :** 3

Description

Course Description: This course further integrates applied business analytics. It continues the examination of the role of statistics and analytics techniques in the interpretation and findings of nonparametric test of hypothesis, analysis of variance ANOVA, correlation, and regression analysis. After completing this course, students are expected to understand diagnosing factors affecting a problem, variables involved, relationships among business variables, and how to generate a prediction model. PREREQUISITE: ANLY460

Course Scope:

This course provides a broad view of the frameworks and approaches to applied analytics which help organizations utilize data for decision-making. This course addresses exploratory data analysis using modern methods of regression and analytics and other tools to help find solutions to real world problems. This course will provide fundamentals to understanding procedures and interpret results to hypothesis testing.

Objectives

After successfully completing this course, you will be able to

CO – 1: Review analytics techniques for researching data

CO – 2: Diagram problems and apply visual analytics on data

CO – 3: Create a regression analysis

CO – 4: Use business variables to create solutions

CO – 5: Interpret findings of nonparametric test of hypothesis

CO – 6: Explore predictive analytics

CO – 7: Construct a plan to use Data in Decision Making

Outline

Week 1:

Topic

Applied Analytics and Sampling Methods

Learning Objectives

LO8-1: Explain why populations are sampled and describe four methods to sample a population.

LO8-2: Define sampling error.

LO8-3: Demonstrate the construction of a sampling distribution of the sample mean.

LO8-4: Recite the central limit theorem and define the mean and standard error of the sampling distribution of the sample mean.

LO8-5: Apply the central limit theorem to calculate probabilities.

Readings

Ch. 8

Assignment

Quiz # 1

Discussion Board

Week 2:

Topic

Estimation and Confidence Intervals

Learning Objectives

LO9-1: Compute and interpret a point estimate of a population mean.

LO9-2: Compute and interpret a confidence interval for a population mean.

LO9-3: Compute and interpret a confidence interval for a population proportion.

LO9-4: Calculate the required sample size to estimate a population proportion or population mean.

LO9-5: Adjust a confidence interval for finite populations

Readings

Ch. 9

Assignment

Quiz # - 2

Discussion Board

Week 3:

Topic

One-Sample Tests of Hypothesis

Learning Objectives

LO10-1: Define a hypothesis.

LO10-2: Explain the process of testing a hypothesis.

LO10-3: Apply the six-step procedure for testing a hypothesis.

LO10-4: Distinguish between a one-tailed and a two-tailed test of hypothesis.

LO10-5: Conduct a test of a hypothesis about a population mean.

LO10-6: Compute and interpret a p-value.

LO10-7: Use a t statistic to test a hypothesis.

LO10-8: Compute the probability of a Type II error.

Readings

Ch.10

Assignment

Quiz# - 3

Discussion Board

Week 4:

Topic

Two-Sample Tests of Hypothesis

Learning Objectives

LO11-1: Test a hypothesis that two independent population means are equal, assuming that the population standard deviations are known and equal.

LO11-2: Test a hypothesis that two independent population means are equal, with unknown population standard deviations.

LO11-3: Test a hypothesis about the mean population difference between paired or dependent observations.

LO11-4: Explain the difference between dependent and independent samples.

Readings

Ch. 11

Assignment

Quiz # - 4

Discussion Board

Week 5:

Topic

Analysis of Variance

Learning Objectives

LO12-1: Apply the F distribution to test a hypothesis that two population variances are equal.

LO12-2: Use ANOVA to test a hypothesis that three or more population means are equal.

LO12-3: Use confidence intervals to test and interpret differences between pairs of population means.

LO12-4: Use a blocking variable in a two-way ANOVA to test a hypothesis that three or more population means are equal.

LO12-5: Perform a two-way ANOVA with interaction and describe the results.

Readings

Ch. 12

Assignment

Quiz # - 5

Discussion Board

Week 6:

Topic

Correlation of Linear Regression

Learning Objectives

LO13-1: Explain the purpose of correlation analysis.

LO13-2: Calculate a correlation coefficient to test and interpret the relationship between two variables.

LO13-3: Apply regression analysis to estimate the linear relationship between two variables.

LO13-4: Evaluate the significance of the slope of the regression equation.

LO13-5: Evaluate a regression equation's ability to predict using the standard estimate of the error and the coefficient of determination.

LO13-6: Calculate and interpret confidence and prediction intervals.

LO13-7: Use a log function to transform a nonlinear relationship.

Readings

Ch. 13

Assignment

Assignment # - 6

Discussion Board

Week 7:

Topic

Multiple Regression Analysis

Learning Objectives

LO14-1: Use multiple regression analysis to describe and interpret a relationship between several independent variables and a dependent variable.

LO14-2: Evaluate how well a multiple regression equation fits the data.

LO14-3: Test hypotheses about the relationships inferred by a multiple regression model.

LO14-4: Evaluate the assumptions of multiple regression.

LO14-5: Use and interpret a qualitative, dummy variable in multiple regression.

LO14-6: Include and interpret an interaction effect in multiple regression analysis.

LO14-7: Apply stepwise regression to develop a multiple regression model.

LO14-8: Apply multiple regression techniques to develop a linear model.

Readings

Ch. 14

Assignment

Assignment # - 7

Discussion Board

Week 8:

Topic

Using Statistics in Business

Learning Objectives

Review of course objectives

Readings

Review Chapters 8 - 14

Assignment

Final Exam

Evaluation

Reading Assignments: Reading assignments are not graded.

Supplemental Readings: Required but not graded.

Forum Posts: Discussion Board posts will be graded on timely posts of initial discussion assignment, substantive content, grammar, analysis, and responses to other students. Students are required to post at least two substantive responses with added insight and analysis. Check participation policy posted in W1 forum.

Homework Assignments: Students will be given two-part homework assignments that will be submitted in a Word document with APA format written summaries and an Excel spreadsheet with work details & solutions shown. The grading criteria for the word document will be a minimum requested page number, APA format, grammar, mechanics, and analysis. The criteria for the Excel spreadsheet is to create a spreadsheet with tables, charts, or lists to show your work and calculations if applicable.

Exams/Quizzes: There will be Quizzes and a Final Exam in the last week of class.

Field Experience Assignments: None.

Final Project: None

Grading:

Name	Grade %
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Materials

Book Title: Various resources from the APUS Library & the Open Web are used. Links provided inside the classroom in the Lessons section.

Author:

Publication Info:

ISBN: N/A

Required Course Textbook

Statistical Techniques in Business and Economics, 16/e

Douglas A. Lind, Coastal Carolina University

William G. Marchal, University of Toledo

Samuel A. Wathen, Coastal Carolina University

ISBN: 0078020522

Web Sites

In addition to the required course texts, the following public domain web sites are useful. Please abide by the

university's academic honesty policy when using Internet sources as well. Note web site addresses are subject to change.

Site Name WebSite URL/Address

American
Psychological
Association www.apastyle.org
(APA) Style
Website

Purdue
Online <http://owl.english.purdue.edu/owl/resource/560/01/>
Writing Lab

Regression
Examples http://www.stat.ufl.edu/~winner/Regression_Examples.html

Business
Analytics <http://businessanalytics.com/>
Techniques

Course Guidelines

Writing Expectations: Students will provide scholarly writing and submit organized and transitional writing with substantive content. The writing should exhibit in-depth critical thinking processes. Students will provide a thorough analysis providing examples, statements, resources, contrasts, and comparisons which prove their argument or summary with credible sources. Final drafts should be reviewed for errors prior to submitting for a grade.

Citation and Reference Style: Attention Please: Students will follow the APA Format as the sole citation and reference style used in written work submitted as part of coursework to the University. Assignments completed in a narrative essay or composition format must follow the citation style cited in the APA Format.

Late Assignments: Students are expected to submit classroom assignments by the posted due date and to complete the course according to the published class schedule. As adults, students, and working professionals, I understand you must manage competing demands on your time. Should you need additional time to complete an assignment, please contact me before the due date so we can discuss the situation and determine an acceptable resolution. Routine submission of late assignments is unacceptable and may result in points deducted from your final course grade.

Netiquette: Online universities promote the advancement of knowledge through positive and constructive debate – both inside and outside the classroom. Forums on the Internet, however, can occasionally degenerate into needless insults and “flaming.” Such activity and the loss of good manners are not acceptable in a university setting – basic academic rules of good behavior and proper “Netiquette” must persist. Remember that you are in a place for the rewards and excitement of learning which does not include descent to personal attacks or student attempts to stifle the Forum of others.

- **Technology Limitations:** While you should feel free to explore the full-range of creative composition in your formal papers, keep e-mail layouts simple. The Sakai classroom may not fully support MIME or HTML encoded messages, which means that bold face, italics, underlining, and a variety of color-

coding or other visual effects will not translate in your e-mail messages.

- **Humor Note:** Despite the best of intentions, jokes and especially satire can easily get lost or taken seriously. If you feel the need for humor, you may wish to add “emoticons” to help alert your readers: ;-), :), J

Disclaimer Statement: Course content may vary from the outline to meet the needs of this particular group.

Academic Services

The Online Library is available to enrolled students and faculty from inside the electronic campus. This is your starting point for access to online books, subscription periodicals, and Web resources that are designed to support your classes and generally not available through search engines on the open Web. In addition, the Online Library provides access to special learning resources, which the University has contracted to assist with your studies. Questions can be directed by email to the library.

- **Charles Town Library and Inter Library Loan:** The University maintains a special library with a limited number of supporting volumes, collection of our professors’ publication, and services to search and borrow research books and articles from other libraries.
- **Electronic Books:** You can use the online library to uncover and download over 50,000 titles, which have been scanned and made available in electronic format.
- **Electronic Journals:** The University provides access to over 12,000 journals, which are available in electronic form and only through limited subscription services.
- **Tutor.com:** AMU and APU Civilian & Coast Guard students are eligible for 10 free hours of tutoring provided by APUS. [Tutor.com](http://tutor.com) connects you with a professional tutor online 24/7 to provide help with assignments, studying, test prep, resume writing, and more. Tutor.com is tutoring the way it was meant to be. You get expert tutoring whenever you need help, and you work one-to-one with your tutor in your online classroom on your specific problem until it is done.
- **Disability Accommodations:** Students are encouraged email dsa@apus.edu to discuss potential academic accommodations and begin the review process.

Request a Library Guide for your course (<http://apus.libguides.com/index.php>)

The AMU/APU Library Guides provide access to collections of trusted sites on the Open Web and licensed resources on the Deep Web. The following are specially tailored for academic research at APUS:

- Program Portals contain topical and methodological resources to help launch general research in the degree program. To locate, search by department name, or navigate by school.
- Course Lib-Guides narrow the focus to relevant resources for the corresponding course. To locate, search by class code (e.g., SOC1111), or class name.

If a guide you need is not available yet, please email the APUS Library: librarian@apus.edu.

Turnitin.com

Faculty may require assignments be submitted to Turnitin.com. Turnitin.com will analyze a paper and report instances of potential plagiarism for the student to edit before submitting it for a grade. In some cases professors may require students to use Turnitin.com. This is automatically processed through the Assignments area of the course.

University Policies

[Student Handbook](#)

- [Drop/Withdrawal policy](#)

- [Extension Requests](#)
- [Academic Probation](#)
- [Appeals](#)
- [Disability Accommodations](#)

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