ANLY460

Course Summary

Course : ANLY460 **Title :** Applied Analytics I
Length of Course : 8
Prerequisites : N/A **Credit Hours :** 3

Description

Course Description: This course is designed to provide an understanding of the basics of applied analytics based on principals starting from descriptive statistics, probability, distributions, and hypothesis testing; where sums, counts, frequencies, measures, and probabilities of collected data and occurrences, past or current, are used effectively to support reactive or corrective decisions either on real time or for the future. This course covers using Excel add-in for data analysis as a tool to create, manipulate, and report descriptive analytics outcomes for decision-making.

Course Scope:

This course is designed for students majoring in analytics, business administration or management field of study. The emphasis of the course will be on the appropriate use of business analytics, modeling, predictive modeling analytics, prescriptive analytics, and decision analysis as well as six-sigma quality control approaches. Students are expected to extrapolate the information from course materials, research, and class collaboration. Students will gain and understanding of multiple analytic models with Microsoft Excel and the use of worksheets and formulas. Students are expected to have basic computer and critical thinking skills

Objectives

After successfully completing this course, you will be able to:

CO-1: Identify various Types of Statistics for use in Analytics.

CO-2: Application of knowledge requirements for Analytics with Excel.

CO-3: Analyze how to compare outcomes of decisions based on data display & visual analysis.

CO-4: Integrate the use of normal distributions with probability

CO-5: Analyze the implications on the business decision-making process when given a set of descriptive statistics.

Outline

Week 1: Intro to Analytics

Learning Outcomes

CO-1: Identify various Types of Statistics for use in Analytics.

CO-2: Application of knowledge requirements for Analytics with Excel.

Required Readings

Required resources for your course are provided in a course eReserve. Please click here (https://apus.libguides.com/er.php), enter your course number in the 'Search for course eReserves' box, click Go, and then select the course when it appears below the search box. Information included in LibAnswers (https://apus.libanswers.com/) provides download and print options for offline reading of Library ebooks.

Week 1 - Intro to Analytics

- Introductory Business Statistics - Introduction
- Levels of Measurement
- Descriptive Statistics
- Inferential Statistics
- Nominal, ordinal, interval, ratio data : How to remember the differences
- Descriptive and Inferential Statistics

Assignments

Assignment 1

Week 2: Frequency Distributions

Learning Outcomes

CO-1: Identify various Types of Statistics for use in Analytics.

CO-2: Application of knowledge requirements for Analytics with Excel.

CO-3: Analyze how to compare outcomes of decisions based on data display & visual analysis.

Required Readings

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Week 2 - Frequency Distributions

- Introductory Statistics - 1.3
- Introductory Business Statistics - 2.1
- Graphical Representation of data
- Frequency Distribution and Graphs

- [Categorical Displays: Bar Graph, Pareto Chart, Pie Chart, and Pictogram](#)
- [Introduction to Frequency Distributions](#)
- [AP Statistics: Displaying Quantitative Data with Graphs](#)

Assignments

Assignment W2

Week 3: Describing and exploring data

Learning Outcomes

CO-3: Analyze how to compare outcomes of decisions based on data display & visual analysis.

Required Readings

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[Week 3 - Describing and exploring data](#)

- [Introductory Statistics - 2.5](#)
- [Introductory Statistics - 2.3](#)
- [Introductory Business Statistics - 2.3](#)
- [Introductory Business Statistics - 2.7](#)
- [Introductory Business Statistics - 2.5](#)
- [Introductory Business Statistics - 2.2](#)
- [2.3 Measures of Variability](#)
- [Measures of Central Tendency](#)
- [Choosing the best measure of central tendency](#)
- [Measures of Central Tendency Slides](#)
- [Mean, Median and Mode: Understanding and Calculating Measures of Central Tendency](#)
- [Best Measure of Central Tendency](#)

Assignments

Assignment W3

Week 4: Describing data analysis and display

Learning Outcomes

CO-2: Application of knowledge requirements for Analytics with Excel.

CO-3: Analyze how to compare outcomes of decisions based on data display & visual analysis.

CO-5: Analyze the implications on the business decision-making process when given a set of descriptive statistics.

Required Readings

Required resources for your course are provided in a course eReserve. Please click here (https://apus.libguides.com/er.php), enter your course number in the 'Search for course eReserves' box, click Go, and then select the course when it appears below the search box. Information included in

LibAnswers (https://apus.libanswers.com/) provides download and print options for offline reading of Library ebooks.

- Introductory Statistics - 2.4
- Introductory Statistics - 1.1
- Introductory Business Statistics - 2.6
- Introductory Business Statistics - 2.1
- 2.4 Relative Position of Data
- Measures of Shape: Skewness and Kurtosis
- Scatterplot
- Skewness and Kurtosis Slides
- Plotting a scatter graph in excel
- Elementary Statistics: Measures of Position and Outliers

Assignments

Assignment W4

Week 5: Survey of probability

Learning Outcomes

CO-3: Analyze how to compare outcomes of decisions based on data display & visual analysis.

CO-4: Integrate the use of normal distributions with probability

Required Readings

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- Introductory Statistics - Introduction
- Introductory Business Statistics - Introduction
- Basic Concepts of Probability
- Addition Rule
- Multiplication Rule
- Permutations and Combinations: How to solve problems
- Probability (part 1)
- How Bayes theorem works

Assignments

Assignment W5

Week 6: Discrete Probability Distributions

Learning Outcomes

CO-3: Analyze how to compare outcomes of decisions based on data display & visual analysis.

CO-4: Integrate the use of normal distributions with probability

CO-5: Analyze the implications on the business decision-making process when given a set of descriptive statistics.

Required Readings

Required resources for your course are provided in a course eReserve. Please click here (https://apus.libguides.com/er.php), enter your course number in the 'Search for course eReserves' box, click Go, and then select the course when it appears below the search box. Information included in LibAnswers (https://apus.libanswers.com/) provides download and print options for offline reading of Library ebooks.

Week 6 - Discrete Probability Distributions

- Introductory Business Statistics - Introduction
- Discrete Random Variables
- Discrete Probability Distribution: Definition & Examples
- Poisson Distribution: What is it?
- Binomial Distribution
- An Introduction to Discrete Random Variables and Discrete Probability Distributions
- AP Stats: Binomial Distributions

Assignments

Assignment W6

Week 7: Continuous probability distributions

Learning Outcomes

CO-4: Integrate the use of normal distributions with probability

CO-5: Analyze the implications on the business decision-making process when given a set of descriptive statistics.

Required Readings

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Week 7 - Continuous probability distributions

- Introductory Business Statistics - Introduction
- Introductory Business Statistics - Introduction
- Continuous Random Variables
- Normal Probability Distributions
- Normal Approximation to solve a Binomial Problem
- Normal Distributions: Definition, Word Problems
- What is a standard normal distribution?
- Finding probabilities for a normal distribution

Assignments

Assignment W7

Week 8: Exam Week

Learning Outcomes

CO-1: Identify various Types of Statistics for use in Analytics.

CO-2: Application of knowledge requirements for Analytics with Excel.

CO-3: Analyze how to compare outcomes of decisions based on data display & visual analysis.

CO-4: Integrate the use of normal distributions with probability

CO-5: Analyze the implications on the business decision-making process when given a set of descriptive statistics.

Required Readings

Review all Chapters

Assignments

Final Exam

Evaluation

Grading:

Name	Grade %

Materials

Book Title: Various resources from the APUS Library & the Open Web are used. Please visit http://apus.libguides.com/er.php to locate the course eReserve.*

Author:

Publication Info:

ISBN: ERESERVE NOTE

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   Web Site URL/Address

American Psychological Association (APA) Style Website	www.apastyle.org
Purdue Online Writing Lab	http://owl.english.purdue.edu/owl/resource/560/01/
YouTube Video on Formatting an APA Style Paper	http://www.youtube.com/watch?v=9pbUoNa5tyY&feature=related
Regression Examples	http://www.stat.ufl.edu/~winner/Regression_Examples.html
YouTube Videos on Microsoft Excel for Beginners	http://www.youtube.com/playlist?list=PL6D44A8F7E77DB825
Business Analytics Techniques	http://www.businessanalytics.com/

Course Guidelines

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. The due date for each assignment is listed under each Assignment. As adults, students, and working professionals, I understand you must manage competing demands on your time. We all know that "life happens" but it is important to adhere as closely to the deadlines in the class as possible.

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. If arrangements are not made in advance, a late penalty of 10% will be assessed for any assignment submitted 1-7 days past the due date. Assignments will not be accepted after the 7th day. No work will be accepted past the final day of class.

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 <u>especially</u> 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: ;-), :).

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 to **librarian@apus.edu**.

- ***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 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., SOCI111), 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

The mission of American Public University System is to provide high quality higher education with emphasis on educating the nation's military and public service communities by offering respected, relevant, accessible, affordable, and student-focused online programs that prepare students for service and leadership in a diverse, global society.