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Chatham University
Course Syllabus

GENERAL INFORMATION

Course Title: Business Statistics
Course Number: BUS110
Semester/Year: Spring 2018
Classroom: Sanger Auditorium in Coolidge Hall
Class Time: M W F 11:00-11:50 AM
Instructor: Dr. Stephanie Rosenthal
Contact Information: s.rosenthal@chatham.edu
Office Hours: Falk 116C by appointment

COURSE INFORMATION

Course Description:
This course introduces essential research tools in business. Topics include descriptive statistics of central tendency and variability and hypotheses testing statistical analysis using correlation, analysis of variance, and regression. Problems use applications from business cases, marketing research, and economic policy.
Prerequisite(s): BUS105

Student Learning Outcomes:
Program Level Student Learning Outcomes
Graduates of bachelor's-level programs in business will be able to demonstrate that they possess academic skills, professional attributes and broad-based and in-depth knowledge of business concepts and functions. This course fulfills the following Student Learning Outcome(s) for undergraduate business majors. Graduates of bachelor's-level programs in business will be able to

- Analyze situations and solve problems in business settings and make appropriate business decisions.
- Use quantitative reasoning skills in statistical analysis and research design. Apply decision support tools to business decision-making
- Understand the functional areas of accounting, economics, finance, management, and marketing.
- Demonstrate research, analysis and technical skills critical across all business disciplines.

Course Objectives:
At the conclusion of the course, the students will be able to:
1) Define statistical concepts: descriptive statistics, inferential statistics, population, sample, parameter, statistic, interval data, nominal data, ordinal data, histogram, mean, median, mode, variance, standard deviation, probability, independence, random variable, probability distributions, normal distribution, sampling distribution of the mean, Central Limit Theorem, unbiased estimator, hypothesis testing, significance level, Type I Error, Type II Error, t-statistic, chi-squared test, F-test, degrees of freedom, ANOVA, regression, R-squared, residual, homoscedasticity, heteroscedasticity, multicollinearity .
2) Interpret and apply descriptive statistics: visual graphs and numeric tables.
3) Interpret and apply inferential statistics: ANOVA, Chi-Squared tests, correlation, and regression.
4) Test hypotheses about business and economic data using appropriate statistical test.

Required Texts and Materials:
<u>Statistics for Business.</u> Third Edition. Robert Stine & Dean Foster. Pearson Publishing. ISBN-10 0-13-449716-3

Optional Texts and Materials:
None

Course Requirements:
Students will complete:
>3 Exams: 20% each
>10 Weekly Homeworks: 2% each
>10 In-class Activity Write-ups: 2% each

Homework Grading: Each assignment is worth 2% of your grade. The full 2% will be given to students who attempt all questions on the assignment. Half credit will be given to students who attempt at least all of the non-multiple choice questions. No credit will be given otherwise. Students must submit their own corrected assignments to the instructor by the end of the class period for which it is due. If the student is excused absent known ahead of time, then the uncorrected assignment is due before the class period. If the student is excused due to unexpected illness, the assignment should be submitted under the instructor's door or to the instructor in person the first day back.

In-Class Activity Write-ups: On designated days, students will be required to complete in class activities and submit a write up and corrections of their attempt at the problems. If the student is excused, the assignment should be submitted under the instructor's door or to the instructor in person the first day back. In-class activities will count as attendance for those classes.

Homeworks and Activity Write-ups must be submitted early or on time. No late assignments will be accepted (except in the case of excused absences).

Course Policies:
- Attendance and/or participation:
  Every student enrolled at Chatham accepts the responsibility to attend all required class meetings. To obtain the fullest benefit from their courses, students must participate fully. This implies attending regularly, engaging in course activity, completing work on time, and making up work missed because of an emergency absence. **It is the student's responsibility to let the course instructor know within the drop-add period if he or she will have to miss class for religious reasons, athletics, or other. Students are responsible for finding out what was covered during missed class periods. The student must email the professor BEFORE CLASS for an excused absence (any excuse is valid, it just must be told to the professor BEFORE CLASS).** It is the student's responsibility to make up any missed work including submitting homework assignments and in-class activities after excused absences. Unexcused absences for one exam or three missed activities will result in failure in the course.

- Grading

  UG Grading Scale*
  >94-100% = A   90-93% = A-
  >
  >87-89% = B+   83-86% = B   80-82% = B-
  >77-79% = C+   73-76% = C   70-72% = C-
  >67-69% = D+   63-66% = D   60-62% = D-
  >
  >Below 60% = F

  * See Chatham catalog for Grade Point Values

- Missed Exams/Assignments
  Homework is due on or before the due date at the start of class. Those students with excused absences on homework due dates must still submit their assignment before class and must make up the class

activities. Homework and class assignments will be marked as 0's for unexcused absences. Late homework will not be accepted.

- Midterm Grades
  Mid-term grades will be posted by noon on Friday February 23rd, 2018. The last date to withdraw from the course is <u>Tuesday March 20th</u>.

- Behavior
  Common courtesy is expected. Every student is expected to come to class prepared to learn and participate in a meaningful way. Under no circumstances is a student's behavior to detract from the learning environment of others in the class. (Disruptive behavior may result in the student's dismissal from the course.)
  <u>Tablet and Laptop Classroom Use</u>
  You are encouraged to bring your tablet or laptop to class. Laptops are to be used for class purposes only—note taking, using notes for class, problem-solving, class-related searches of the Internet. Laptops are not to be used for email, messaging, surfing the web, or other non-class related uses. Laptops should not interfere with your participation in class.

Course Calendar/Schedule:

Week 1: Introduction to Statistics
Wed. Jan. 3 Overview of Syllabus, Statistical Concepts
Fri. Jan. 5 Data and Datasets

Week 2: Descriptive Statistics
Mon. Jan. 8 Graphical methods
Wed. Jan. 10 Numerical methods
Fri. Jan. 12 **Homework 1 due Ch 2: 1-10, 21-25, In-Class Activity 1**

Week 3: Probability 1
Mon. Jan. 15 NO CLASS MLK Day
Wed. Jan. 17 Calculating Probabilities of Events
Fri. Jan. 19 **Homework 2 due Ch 4: 1-10, 27, 30, 40, 46 and Ch 5: 1-10, 33, 35, In-Class Activity 2**

Week 4: Probability 2
Mon. Jan. 22 Laws of Probability
Wed. Jan. 24 Random Variables
Fri. Jan. 26 **Homework 3 due Ch 7: 25, 26, 28, 37, 43, Ch 8: 1-6, 21-26, In-Class Activity 3**

Week 5: Random Variables
Mon. Jan. 29 Discrete Random Variables
Wed. Jan. 31 Review
Fri. Feb. 2 EXAM I

Week 6: Discrete Probability Distributions
Mon. Feb. 5 Expected Value
Wed. Feb. 7 Probability Distributions
Fri. Feb. 9 **Homework 4 due Ch 9: 1-8, 21-25, Ch 10: 1-10, 23-25, In-Class Activity 4**

Week 7: Continuous Probability Distributions
Mon. Feb. 12 Expected Value
Wed. Feb. 14 Probability Distributions
Fri. Feb. 16 **Homework 5 due Ch 11: 1-10, 23-29, In-Class Activity 5**

Week 8: Sampling
Mon. Feb. 19 No Class
Wed. Feb. 21 Sampling
Fri. Feb. 23 **Homework 6 due Ch 12: 1-10, 25, 26, 29, 30, In-Class Activity 6**

Week 9: Estimation
Mon. Feb. 26 Estimators and Confidence Intervals
Wed. Feb. 28 Sample Size
Fri. Mar. 2 **Homework 7 due Ch 13: 1-10, 21-26, In-Class Activity 7**

Week 10: Spring Break
Mon. Mar. 5 SPRING BREAK
Wed. Mar. 7 SPRING BREAK
Fri. Mar. 9 SPRING BREAK

Week 11: Hypothesis Testing and Statistical Inference
Mon. Mar. 12 Statistical testing, hypotheses
Wed. Mar. 14 Inferences and Errors about populations
Fri. March 16 **Homework 8 due Ch 15: 21, 27, 28, 31, 32, In-Class Activity 8**

Week 12: Inferences about Populations
Mon. Mar. 19 Comparing two populations
Wed. Mar. 21 Review
Fri. March 23 **EXAM II**

Week 13: Analysis of Variance
Mon. March 26 t-test
Wed. March 28 ANOVA
Fri. March 30 **Computer Activity t-test and ANOVA**

Week 14: Linear Regression
Mon. Apr. 2 Least squares estimators
Wed. Apr. 4 Linear regression and correlation
Fri. April 6 **Homework 9 due Ch 17: 1-10, 21-24, and Ch 26: 1-10, 27, 28, In-Class Activity 9**

Week 15: Chi-Squared Tests
Mon. Apr. 9 Experiments with categorical data
Wed. Apr. 11 Chi-Square Tests
Fri. April 13 **Computer Activity: Hypothesis testing**

Week 16: Review of Statistical Inference
Mon. Apr. 16 **Computer Activity: Hypothesis testing**
Wed. April 18 **Homework 10 due Ch 18: 1-10, 26, 33, 34, and Ch 19: 1-10, 28-33, In-Class Activity 10**
Fri. April 20 **Final Exam Review**

Final Exam (Exam III)

Important Dates:
- Add/Drop Ends Wednesday January 10th
- Martin Luther King Day Monday January 15th
- Last Day to Withdraw Tuesday March 20th

Plan to attend the Monthly B&E Department Career-Themed Networking Mixers:

- Thursday Jan. 18 Meet New B&E Dept. Program Chair/Director, Dr. Bonnie Richley
  http://www.chatham.edu/events/details.cfm?EventID=20500
- Tuesday Feb. 13 Marketing http://www.chatham.edu/events/details.cfm?EventID=20499
- Wednesday March 21 Student- Advisory Board
  Reception   http://www.chatham.edu/events/details.cfm?EventID=20498
- Thursday April 5 Sustainability http://www.chatham.edu/events/details.cfm?EventID=20501

CREDIT HOUR REQUIREMENTS

All courses, including those offered fully online, in a blended format, and in a seven-week session, must meet for a minimum of 14 hours per credit, **plus** the final examination period. If your class is not scheduled to physically meet for the appropriate number of hours, you must include a set of *Equivalent Instructional Activities* (EIAs) on the syllabus showing how the contact hours will be met.

POLICY STATEMENTS

Chatham University Honor Code:
Chatham University students pledge to maintain the Honor Code, which states in part: "Honor is that principle by which we at Chatham form our code of living, working, and studying together. The standards of honor at Chatham require that all students act with intellectual independence, personal integrity, honesty in all relationships, and consideration for the rights and well being of others."

Information about the Honor Code is available in the Student Handbook.

Cheating and Plagiarism:
Cheating is defined as the attempt, successful or not, to give or obtain aid and/or information by illicit means in meeting any academic requirements, including examinations. Plagiarism is defined as the use, without proper acknowledgement, of the ideas, phrases, sentences, or larger units of discourse from another writer or speaker.

Turnitin.com and FERPA
In all classes, faculty must notify students if the Turnitin service may be used. Student papers are protected by the Family Educational Rights and Privacy Act as they are educational records that contain personally identifiable information. If faculty submits a paper or an excerpt from a paper on behalf of a student for evaluation by Turnitin, an alias must be used instead of the student's name and faculty will ensure that any identifiable personal information is removed before submission.

Disability Statement:
Chatham University is committed to providing an environment that ensures that no individual is discriminated against on the basis of her/his disability. Students with disabilities, as defined under the Americans with Disabilities Act of 1990 (ADA) and who need special academic accommodations, should notify the assistant dean of the PACE Center as soon as possible. The PACE Center will work with students and the course instructor to coordinate and monitor the provision of reasonable academic accommodations.

Non-Registered Students Policy:
In accordance with University policy, only officially registered students may attend this class and all other classes offered at the University after the drop/add period. Please confer with your academic advisor if you need assistance with the registration process or you need additional information.

Minimum Grade Requirements:
Undergraduates must earn a grade of C- or above in all courses completed after spring 2011 used to fulfill major or minor requirements. Please refer to the University catalog or individual program manuals for additional information.

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MINIMUM TECHNOLOGY REQUIREMENTS:

Internet Access	Broadband cable or DSL with a minimum connection speed of 768kbit is recommended; slower connections may not provide optimal course experience and performance
Operating System	Microsoft Windows 7 or higher (PC) Mac OS X 10.6 or higher (MAC) Current students may purchase Operating System upgrades from the Chatham Helpdesk
Processor Type	2.0 GHz or higher
System Memory	4GB RAM or higher
Monitor	1024x768 or higher screen resolution
Software	Microsoft Office 2013 or higher (PC) Microsoft Office 2011 or higher (MAC) All students will be provided with Microsoft Office 365 Current students may purchase Microsoft Office from the Chatham Helpdesk
Web Browser	Mozilla Firefox (Recommended for Moodle), or Google Chrome Incognito (Recommended for myPortal); other browsers such as Internet Explorer, Opera and Apple Safari are not recommended
Storage	500GB of hard drive or greater
Audio	Computer speakers and headphones
Visual	Web Camera
E-mail	Chatham University e-mail account (Microsoft Office 365)
Web Conferencing	Courses using web conferencing for online meetings require the following: • For audio: headphones and microphone • For video: web camera
Plug-ins	Course content may include file types that require special plug-in software, which are typically available as free downloads (ex: Real Player, Java, QuickTime, Silverlight, Adobe Reader and Adobe Flash)
Mobile Devices	Some resources are available via smartphones and tablets. Please note: Mobile devices will not be able to complete all course requirements. Students will still need regular access to a computer.
On Campus Resources	Current students have access to the following resources: 24 Hour Computer Lab – JKM Library 106 Computer Lab – JKM Library 101 Computer Lab – Buhl 236 (no printer) Computer Lab – Coolidge 42 Computer/CAD Lab – Eastside 209 Chatham IT Helpdesk – Woodland 100, Eastside 219, Eden Hall Lodge Library
Off Campus Resources	Current students have access to the following resources: Atomic Learning (http://www.atomiclearning.com/) Chatham IT (http://www.chatham.edu/its) Chatham IT Helpdesk (http://services.chatham.edu)
Current Technologies	For the most up-to-date technology, please visit Chatham IT (http://www.chatham.edu/its)