

**SUNY FREDONIA, SCHOOL OF BUSINESS**  
**COURSE SYLLABUS**  
**BUAD 300: Statistical Analysis**

Fall, 2020

Section 32354 - 01: Tuesday, Thursday 11:00 – 12:20

Section 32715 - 02: Tuesday, Thursday 2:00 – 3:20

<b>Instructor:</b>	Dr. Richard Robinson
<b>Office Location:</b>	E340 Thompson Hall
<b>E-mail:</b>	robinson@fredonia.edu
<b>Office Hours:</b>	Office hours are subject to <i>Covid-19 Virus Restrictions</i> , but if and when they are held, they will be T,R: 12:45-1:45; W: 2:30-5:30.
<b>Required Text:</b>	Title: <i>Statistics for Business and Economics, 12<sup>th</sup> Edition</i> . Authors: Anderson, Sweeney, Williams, Camm, and Corchran Publisher: South-Western , Cengage Learning ISBN: 13-978-1-133-27453-7  Online handouts and recorded lectures must also be obtained as offered by the instructor. The sources of these will be made available by the instructor.
<b>Computer Software Requirements</b>	The student must have access to a computer (personal or in an on-campus lab) that will operate Minitab.
<b>Course Catalog Description:</b>	A study of the techniques and tools used in analyzing business and economic data with equal emphasis on interpretation of results and estimation techniques. Simple and multiple regression, non-parametric tests, analysis of variance, and surveying are discussed although topics will vary depending upon students' needs. Use of computer software for statistical analysis is included.
<b>Prerequisites</b>	ECON 200/BUAD 200, MATH 120. Students must have successfully completed a course in elementary statistics that includes introductory explanations of probability distributions (especially the normal distribution), statistical inference and hypothesis testing. Students must also have completed a course in elementary calculus. Each of these courses must be completed with a minimum grade of C-.
<b>Hierarchy of Learning</b>	In addition to the elementary statistics indicated in the objectives below, students will develop technical writing and analytical skills. These skills will be developed through a series of written mini-projects involving assigned statistical analyses.
<b>General Course Objectives:</b>	The general goals for this course include: <ul style="list-style-type: none"> <li>• To familiarize the student with some statistical methods for analyzing business data.</li> <li>• To enable the students to make analytical decisions based upon statistical analysis.</li> <li>• To familiarize the student with the use of statistical software in pursuit of the two goals above.</li> <li>• To familiarize the student with proper presentation</li> </ul>

	<p>techniques of quantitative analyses expected in the business world.</p> <ul style="list-style-type: none"> <li>To familiarize the student with ethical obligations of statistical analysis and presentation.</li> </ul>
<b>Specific Course Objectives:</b>	<p>Specific course objectives include demonstration of the following through various statistical analyses:</p> <ol style="list-style-type: none"> <li>Through reinforcement of material from ECON 200, students will demonstrate proficiency in computing confidence intervals, and parametric testing of hypotheses.</li> <li>Students will demonstrate proper construction and interpretation of linear regression models.</li> <li>Students will demonstrate knowledge of the problems caused by collinearity and correlated errors associated with interpretation of linear regression.</li> <li>Students will demonstrate hypothesis testing through ANOVA analysis for surveys, and also nonparametric methods in survey analysis.</li> <li>Students will demonstrate the application of elementary time-series forecasting techniques.</li> <li>Students will demonstrate knowledge of the ethical obligations associated with statistical claims. These obligations will concern both the prohibitions against fraud and deception, and the positive duties of accurate analysis within practical limitations.</li> <li>Students will demonstrate knowledge of quantitative statistical presentations including (a) proper statements of hypotheses, (b) review of the data used for testing the hypotheses, (c) review of the statistical methods used to test the hypotheses, and (d) properly drawn conclusions based upon probability inferences. This will be demonstrated through written statistical analyses.</li> </ol>
<b>Extension of BUAD 200</b>	<p>This course is an extension of BUAD 200 as instructed at SUNY Fredonia. Some of this material is <u>reinforced</u> in the first few weeks of this course, but this review is short, and students are expected to quickly reacquaint and master this material. In particular, students must be familiar with statistical inference and hypothesis testing with samples from normal distributions (t-distributions), and must reinforce their understanding of this material within the first 2 weeks of this semester. Students who have not had this material in their introductory course should take BUAD 200 prior to attempting BUAD 300.</p>
<b>Particularly Applicable AACSB Standard</b>	<p>The School of Business at SUNY Fredonia is accredited by AACSB, the premier accrediting body for business programs. AACSB's <i>Standard</i>, titled "Student Educational Responsibility," is particularly applicable for this course. This <i>Standard</i> states:</p> <p><i>Individual students must:</i></p> <ul style="list-style-type: none"> <li><i>Operate with integrity in their dealings with faculty and</i></li> </ul>

	<p><i>other students.</i></p> <ul style="list-style-type: none"> <li>• <i>Engage the learning materials with appropriate attention and dedication.</i></li> <li>• <i>Maintain their engagement when challenged by difficult learning activities.</i></li> <li>• <i>Contribute to the learning of others.</i></li> <li>• <i>Perform to standards set by the faculty.</i></li> </ul> <p>This course is in part designed with this <i>Standard</i> in mind, particularly with respect to the challenging projects assigned, and the “Student Learning Teams” reviewed below. The students of this class are expected to fulfill this important AACSB <i>Standard</i>.</p>
<b>Exams, Written reports, and Out-of-Class Assignments</b>	<p>There will be three in-class exams (subject to University allowance due to virus restrictions) worth 100 points each. Because of classroom restrictions, they will be scheduled by the individual student with the instructor. All exams will consist of brief definitions and mathematical problems (no multiple choice). There will also be a series of homework assignments worth 50 points towards the final grade. There will also be three written reports of statistical analyses worth 250 points combined. The 300 exam points and 300 other points total 600 points upon which the student’s final grades will be based using the grading scale indicated below.</p> <p>Note: Because of the pandemic corona virus, we might not be able to have exams, or perhaps fewer than three, or maybe none. In that case, as modifications due to the virus dictate, grades will be based on fewer points as determined by the projects and other home assignments.</p>
<b>Attendance Policy:</b>	<p>Students are expected to carefully read all handouts, and to watch all video presentations. Students will proceed at their own pace, but all requirements must be completed by the end of the semester unless prior arrangements are made with the instructor.</p>
<b>Neatness Counts</b>	<p>Well organized answers with proper mathematics and neat solutions are required for all assignments, quizzes and the exam. Answers that do not meet this requirement will be given low grades. Proper presentations of quantitative analyses are required in the business world, and are demanded here.</p>
<b>Grading Policy:</b>	<p>Each of the three exams counts 100 points. Out-of-class assignments and written reports will be worth a possible 300 points. Final grades will be based upon the 600 total possible points. The following percentage grading scale, as based upon the total possible points, will be utilized:</p> <p>0 – 59% = F  60 – 62% = D-  63 – 65% = D  66 – 69% = D+</p>

	<p>70 – 72% = C-</p> <p>73 – 75% = C</p> <p>76 – 79% = C+</p> <p>80 – 82% = B-</p> <p>83 – 85% = B</p> <p>86 – 87% = B+</p> <p>88 – 89% = A-</p> <p>90 – 100% = A</p>
<b>Instructional Methods:</b>	<p>In order to achieve the objectives of the course, the following methods will be utilized:</p> <ul style="list-style-type: none"> <li>▪ Detailed handouts and assignments.</li> <li>▪ Recorded lectures.</li> <li>▪ Out of class assignments.</li> <li>▪ Written reports of statistical analyses.</li> </ul>
<b>Academic Integrity:</b>	See <i>Catalog</i> , “Student Rights and Responsibilities”
<b>Students with Disabilities:</b>	See <i>Catalog</i> , “Student Rights and Responsibilities”
<b>Relation to Mission and Goals of Department of Business Administration</b>	<p>Our mission is to integrate excellence in instruction, relevant faculty scholarship, and proactive community service to prepare students from differing backgrounds to be successful, ethical, and globally aware business professionals. In support of this mission, the curriculum in the Business School’s majors of accounting, economics, finance, management, and marketing will include strong components in critical thinking, oral and written communication, ethical awareness, leadership, and international awareness.</p> <p>BUAD 300 is mapped to the following assessable <i>Knowledge and Learning Goals</i> of the Department of Business Administration: Knowledge, Written Communication, Critical Thinking and Ethical Awareness, and is aligned to the University’s Baccalaureate Goals that students will be <i>skilled, creative and responsible</i>.</p>
<b>Educational Goals of the Business Administration Programs: The Program seeks to develop the following knowledge and skills.</b>	<p>(1) Specific Knowledge of Business Subject Areas, (2) Written Communication, (3) Oral Communication, (4) Critical Thinking, (5) Ethical Awareness, and (6) International Awareness.</p>

### Tentative Schedule

Week	Topic		Dept. Goal <sup>1</sup>
1-2	Parameters of probability distributions, linear transformations, of random variables, and the normal distribution are reviewed.		1, 4, 5
3-4	Sampling distributions and hypotheses tests are reviewed including making probability inferences from sampling distributions. Minitab is introduced as the software utilized for this course.		1, 4, 5
4-5	Correlation and example problems from the previous material are reviewed. <b>Exam 1</b>		1, 2, 4, 5
5-6	Simple OLS linear regression and goodness of fit are reviewed. Assumptions concerning residual errors are reviewed along with time-trend regressions.		1, 4
6-7	OLS Model assumptions, prediction and residual analysis and the requirements for <b>mini-project 1</b> are presented.		1,4
8	Testing model assumptions and the <b>First mini-project report</b> is due.		1, 2, 4
9	Multiple regression and model assumptions, testing significance, and prediction. <b>Second mini-project</b> analysis is explained. <b>Exam 2.</b>		1, 2, 4
9-10	Model building and explanatory power are further reviewed.		1, 2, 4
10-12	ANOVA for Surveys is introduced. <b>Second mini-project</b> report due. The requirements for the third mini-project are reviewed.		1, 2, 4, 5
12-13	The nonparametric sign-test, signed-rank test, Mann-Whitney and Kruskal-Wallis tests are reviewed.		1, 2, 4
14	Rank correlation is reviewed. <b>Third mini-project</b> report is due.		1, 2, 4
15	<b>Exam 3.</b>		1, 2, 4, 5

<sup>1</sup> See the list of *Objectives* provided above.