

CSU-Pueblo Hasan School of Business
Spring 2022 Syllabus for BUSAD 360 Advanced Statistics
TTh 11:15-12:35 in HSB 110

Instructor: Justin O. Holman, Ph.D.

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Course Pages: www.justinholman.com/teaching

Office Hours: TTh 12:35-1:00 and by appointment

Course Description: This class will explore advanced techniques in business statistics with a focus on applied regression modeling, Monte Carlo simulation and exploratory data visualization using computational methods. Students will learn to analyze data and build models and simulations with Google Sheets and the Python programming language.

Prerequisites: BUSAD 265 or equivalent

Course Objectives/Instructional Methods: Students will learn to utilize Spreadsheets to mine large data sets, identify correlations, build regression models, simulate stochastic processes and produce useful data visualizations. Students will also be introduced to statistical computing using the Python programming language.

Expected student effort: 2250 minutes

Credit hours: 3

Student Learning Outcomes (SLOs)

Students will develop (1) advanced quantitative problem solving skills, (2) knowledge of contemporary computing technologies, and (3) experience analyzing and interpreting large data sets in an applied business context.

Required Text(s) and Other Materials:

- Text: Introduction to the Practice of Statistics, 6th ed. by D.S. Moore et al. [optional]
- Software: Google Sheets, Python (Repl.it)
- Courseware and video: [DataCamp.com](https://www.datacamp.com), [Against All Odds](#)

Course Requirements:

- Assignments (30%)
- Data Analysis Projects (50%)
- Final Exam (20%)

Grading: Each grading component will be assigned a score expressed as a percentage. The weighted average of these percentages will determine your final grade. Standard grading thresholds will apply, i.e., $\geq 90\%$ will earn an A, $\geq 80\%$ a B, $\geq 70\%$ a C, $\geq 60\%$ a D, and $< 60\%$ an F.

Classroom Etiquette: Professional behavior is expected at all times. Disruptive behavior in the classroom will not be tolerated. Anyone causing a disturbance will be asked to leave. Multiple infractions will result in referral to Office of Student Judicial Affairs.

Accommodations: Colorado State University-Pueblo abides by the Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973, which stipulates that no student shall be denied the benefits of an education "solely by reason of a handicap." If you have a documented disability that may impact your work in this class and for which you may require accommodations, please see the Disability Resource & Support Center as soon as possible to arrange accommodations. In order to receive accommodations, you must be registered with and provide documentation of your disability to the Disability Resource & Support Center, which is located in the Library and Academic Resources Center, Suite 169.

Mandatory Reporting: Colorado State University-Pueblo is committed to maintaining respectful, safe, and nonthreatening educational, working, and living environments. As part of this commitment, and in order to comply with federal law, the University has adopted a Policy on Discrimination, Protected Class Harassment, Sexual Misconduct, Intimate Partner Violence, Stalking, & Retaliation. You can find information regarding this policy, how to report violations of this policy, and resources available to you, on the Office of Institutional Equity's website (www.csupueblo.edu/institutional-equity).

Please familiarize yourself with the reporting requirements of this policy. Because I am a faculty member, I am a "Responsible Employee." That means I have to report to the Director of the Office of Institutional Equity if you tell me that you were subjected to, or engaged in, of any of the following acts: *discrimination, protected class harassment, sexual misconduct, intimate partner violence, stalking, and retaliation*.

Academic Dishonesty:

Academic dishonesty is any form of cheating which results in students giving or receiving unauthorized assistance in an academic exercise or receiving credit for work which is not their own. In cases of academic dishonesty, the instructor will inform the chair of the department prior to implementation of punitive action. Academic dishonesty is grounds for disciplinary action by both the instructor and the Dean of Student Services and Enrollment Management. Any student judged to have engaged in academic dishonesty may receive a failing grade for the work in question, a failing grade for the course, or any other lesser penalty which the instructor finds appropriate. To dispute an accusation of academic dishonesty, the student should first consult with the instructor. If the dispute remains unresolved, the student may then state his or her case to the department chair (or the dean if the department chair is the instructor of the course).

Academic dishonesty is a behavioral issue, not an issue of academic performance. As such, it is considered an act of misconduct and is also subject to the University disciplinary process as defined in the CSU-Pueblo Student Code of Conduct Policies and Procedures Manual. Whether or not punitive action has been implemented by the faculty, a report of the infraction should be submitted to the Dean of Student Services and Enrollment Management who may initiate additional disciplinary action. A student may appeal a grade through the Academic Appeals

Board. The Dean of Student Services and Enrollment Management's decision may be appealed through the process outlined in the Student Code of Conduct Policies and Procedures Manual.

Early Performance Survey: This course participates in the Starfish student success program. Early in the semester, information about student performance in this class will be communicated to each student by email and/or text from Starfish. Attention to suggested actions is encouraged. This information is also available to academic advisors and others involved in supporting student success. Your advisor may then ask to meet with you to discuss your plans for success. The program is designed to promote success among students through proactive advising, and through referral to appropriate resources. Efforts to inform and assist students continues throughout the semester with a mid-semester survey, and instructor concerns or kudos can be posted to Starfish at any time.

Important Dates (subject to change):

- Final Exam: Tue, May 3 at 10:30a at HSB 110

Class Schedule:

<u>Week</u>	<u>Topics</u>
1	Introduction
2	Data analysis in Spreadsheets
3	Scatterplots and Simple Linear Regression
4	Curvilinear Regression and Time Series Analysis
5	Multiple Regression Analysis
6	Multiple Regression Modeling
7	Intro to Probability and Randomization
8	Discrete Simulation
9	Continuous Simulation
10	Spring Break
11	Intro to Python
12	Data Visualization in Python
13	Simulation in Python
14	Final Project
15	Review for comprehensive final
16	Finals Week