MGT 2250 Syllabus

Management Statistics, Section A, 3 Credits, Fall 2026

Instructor Information

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General Course Information

Course Description: Every student in this class is welcome and supported. The instructor is committed to creating a learning environment that values and supports a variety of perspectives, thoughts, and experiences.

During the semester, we will learn how to apply statistical concepts and methods for the practical analysis of management decisions for a variety of areas: finance, banking, marketing, advertising, operations, real estate, accounting, and human resources. We will use case studies based on realistic business situations using real data. The e-learning and online assessment system MyLab Statistics will be used on this course. The course is divided into four modules: Variation, Probability, Inference, and Regression. The first module "Variation" introduces basic terminology, summary statistics, and graphical summaries. The second module "Probability" presents the concept of a random variable (idealized description of the data in applications). The third module "Inference" covers statistical inference (the process of inferring properties of an entire population from those of a subset known as a sample). The fourth module "Regression" introduces linear regression models (an important tool in business for assessing profitability, setting prices, identifying anomalies, and generating forecasts).

Course Learning Outcomes

Upon successful completion of MGT 2250: Management Statistics, students will be able to:

1. Organize and prepare business data by distinguishing variable types, structuring datasets appropriately, and recognizing common data formats used in statistical analysis.
2. Summarize and visualize data using descriptive statistics and graphical tools in Excel, including frequency tables, charts, histograms, and boxplots, in order to identify patterns, variability, and unusual observations.
3. Analyze relationships among variables by interpreting associations between categorical and quantitative variables and explaining the difference between association and causation.
4. Apply probability concepts and probability models to describe uncertainty, calculate expected values, and interpret normal distributions in business and management contexts.
5. Use sampling and inferential methods to draw conclusions about populations from sample data, including distinguishing between parameters and statistics and explaining sampling error.
6. Construct and interpret confidence intervals for means and proportions and explain how confidence level, sample size, and variability affect statistical estimates.
7. Perform and interpret hypothesis tests for means and proportions, including stating null and alternative hypotheses, interpreting p-values, and explaining Type I and Type II errors in context.

8. Develop and interpret simple linear regression models to evaluate relationships, assess model fit, generate predictions, and support data-driven business decisions.
9. Use Excel to conduct statistical analysis, visualize results, and communicate findings clearly in practical business applications.
10. Communicate statistical results effectively in written, visual, and presentation formats to support managerial decision-making.

Course Delivery

This class is designed to incorporate both online and face-to-face teaching modes. Students are required to attend class every Monday and Wednesday. Each Friday, the class will be conducted asynchronously online, where students will have the opportunity to enhance their learning experience and strengthen new skills using Canvas videos and other course materials**.**

Required Course Materials

Text: Statistics for Business: Decision Making and Analysis, Robert Stine & Dean Foster, 3rd Edition. Publisher: Pearson, ISBN: 9780321921772. Microsoft Excel is required for every class.

Reading Textbook: This course has a textbook, with assigned readings to help you learn what I would have covered in lectures. Reading the textbook will help you to understand all of the statistical concepts and reasoning in our curriculum. This is very important part of your preparations in this course - I expect you to do those reading prior to coming to class so that you can fully engage in learning activities and better understand homework and practice test problems.

Grading Policy:

Determination of Grade in Course: Your grade in the course will be based on the following calculation:

Your grade in the course will be based on:
(1) Class Participation: **36** points
(2) the sum of the two highest test scores and the average of all three test scores (see example below): **300** points
(3) the highest 13 out of 14 homework assignments: **130** points
(4) final Test: **120** points
(5) final AI team Presentation: **30** points
(6) two Practice Tests; the lowest score will be dropped: **40** points
(7) the highest 6 out of 7 Canvas video quiz assignments: **18** points
(8) AI Essay: **16** points

The points that can be earned from each of those components are given in the table below and yield a total of **690** points.
The letter grade corresponding with your total points earned is as follows:

A: 621 points and above;(90%)
B: 552-620 points;(80%)
C: 483-551 points; (70%)
D: 414-482 points; (60%)
F: 413 points and below

[1]**Example:** Student has the scores 70, 82, and 90 for test 1, test 2, test 3 respectively. The average, therefore, is (70+82+90)/3=80.6.
Based on the syllabus, the lowest score of 70 would be replaced by 80.6. Thus, this student would have 80.6+82+90=252.6 points, NOT 70+82+90=242 points.
Note: requests for extra credit work in pursuit of a higher course grade will be denied.

Description of Graded Components

Homework Policy: All homework assignments are posted at MyLab Statistics and are due by the deadlines specified on Canvas. Students are welcome to work on homework assignments in groups. Cooperation is not only allowed but encouraged. However, each student must make an individual submission. Emergencies, illness may occur. To account for this, I will drop the lowest homework score at the end of the semester.
Generative AI Essay: The goal of the AI Essay is to learn how to use Generative AI for Statistics and Business. Please, make sure that the task for you is to examine the posted videos and materials on Canvas under 'AI Essay Videos,' and identify the main points and important takeaways of each video. Your essay should have subheadings for 'Introduction, 'Video 1', 'Video 2', 'Summary' and your essay should explain what you learned from each video, and how its lessons relate to both analytics itself, and to business. Please, use a title for your essay.
Online Canvas/Kaltura Video Quizzes: Throughout the semester, students will complete online Canvas/Kaltura video quizzes for significant course topics. These quizzes are posted on Canvas under Assignments. In each quiz, students will watch a short instructional video designed to explain important ideas, difficult concepts, and problem-solving methods. After watching, students will answer embedded questions and, in some cases, write a short response about what they learned. These video quizzes are intended to help students review key material, strengthen conceptual understanding, and prepare for homework, tests, and the final test. Feedback from previous students has been very positive, and many students found these quizzes especially helpful as tutorials and study tools. Students are strongly encouraged to use them as their own guided practice and concept review before tests and the final exam.
Tests and Final Test: All tests and the final test will be administered in MyLabStatistics as closed-book, closed-notes, in-class tests. A formula sheet will be provided for each test and posted three weeks before the test date. Any additional instructions or requirements related to homework assignments, quizzes, tests, the AI Essay will be communicated by email prior to the due date.

Course Policies

Academic Integrity: Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. Review Georgia Tech's Honor Code and the student Code of Conduct.

Any student suspected of cheating or plagiarism on a quiz, test, homework or assignment will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

Email Communication: I will make every effort to respond to emails received on weekdays within 24 hours of receipt; emails received on weekends and holidays may result in a longer response time. Please include your first and last name as well as the course (e.g., Joan Smith, MGT 2250, section A) in your emails. Use my regular GT email (trudchenko@gatech.edu) to send me your questions.

Special Accommodations: Any student requesting accommodations because of a disability should be referred to the Office of Disability Services. Once referred, the Disability Services staff will work with that student to arrange for appropriate accommodation. Students will then receive an accommodation letter detailing their necessary accommodation and should plan to meet with each instructor to review this letter. Please obtain a letter from the Office of Disability services and send it to your instructors at the beginning of the semester. The Office of Disability Services is in the Smithgall Student Services Building, Suite 220. The phone number is 404-894-2563. http://disabilityservices.gatech.edu/

Student-Faculty Expectations Agreement: At Georgia Tech, we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. The Student-Faculty Expectations articulate some basic expectations that you can have of me and that I have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals of Georgia Tech while in this class.

Pre-or Co-Requisites. MGT 2250 (Management Statistics) at Georgia Tech requires one of the following mathematics prerequisites: MATH 1712, 1501, 15X1, 1550, 1551, or 17X2.

Class participation: Class participation is an important part of this course and is built through active learning activities completed during class and asynchronous Friday sessions. Students earn 1 participation point for each of the 36 non-testing class periods by being present for the full class and submitting required work on time; late work is not accepted. For most class meetings, students should submit an Excel file with their in-class work, called an in-class quiz, on Canvas by the posted deadline. If you are sick, you may review the class notes, slides, and recording, complete the Excel file independently, and submit it on Canvas within one week. Regular attendance, timely submissions, and active engagement with course activities will help you build confidence in quantitative analysis and strengthen your Excel skills throughout the semester.

GaTech Attendance Policy: Students who miss work because of participation in approved Institute activities (such as field trips and athletic events) will be permitted to make up the work missed during their absences. Approval of such activities will be granted by the Student Academic and Financial Affairs Committee of the Academic Senate, and statements of the approved absence may be obtained from the Office of the Registrar. Students who are absent because of participation in a particular religious observance will be permitted to make up the work missed during their absence with no late penalty –

provided the student informs the course instructor of the upcoming absence, in writing, within the first two weeks of class, and provided the student makes up the missed material within the timeframe established by the course instructor. Please, use this link to read GaTech's class attendance policy http://www.catalog.gatech.edu/rules/4/#.

Extensions, Late Assignments, & Re-Scheduled/Missed Exams: Late homework will be penalized accordingly. Make-up exams are given for illness, approved Institute activities or religious observances. Additional rules for tests 1, 2 and 3 and the final exam will be announced by email prior to every test and final exam.

AI Learning Policy: This course introduces students to the use of AI tools, including Microsoft Copilot, as part of analytics and statistical analysis for business. In selected assignments, students will use Copilot with Excel, reflect on Excel versus AI approaches, and evaluate how these tools can be used effectively in business settings. Students are encouraged to use Copilot or other approved AI tools for personalized learning, study support, and skill development. At the same time, any assignment, quiz, homework, or exam not specifically designated for AI use must be completed without AI assistance and must reflect the student's own independent work.

AI in MGT 2250

Understanding and Applying Descriptive Statistics: The course indicates a strong focus on descriptive statistics, where understanding data distributions, measures of central tendency, and variability are crucial. AI can assist students in computing these statistics quickly, allowing them to analyze and interpret large datasets more efficiently, which is crucial for practical business scenarios.

Enhancing Regression Analysis Skills: The course involves linear regression models to assess business scenarios like profitability and forecasting. AI can be used to generate regression analysis, interpret the output, and help students understand the relationship between variables, improving their analytical skills in making data-driven decisions.

Interactive Learning and AI Integration: MGT 2250 aims to use technology to enhance learning. AI is integrated to provide an interactive learning experience where students can query statistical concepts, perform exploratory data analysis, and receive instant feedback.

Practical Application of AI in Business: Including AI learning in MGT 2250 course prepares students for the increasing use of AI in business. They gain firsthand experience with AI tools, enhancing their readiness for a business environment where technological proficiency is increasingly valued.

Supports Asynchronous Learning Modules: MGT 2250 course includes asynchronous online classes, AI can serve as an on-demand resource for students to explore statistical concepts and solve problems at their pace, which could enhance understanding and retention of course material.

Topics:

1. Introduktion to AI
2. Exploring Descriptive Statistics with AI
3. Hypothesis Testing with AI
4. Regression Analysis with AI

Core IMPACTS

This course helps students build career competencies in quantitative reasoning, critical thinking, problem solving, and communication. Through business-focused statistical analysis and Excel-based applications, students learn how to interpret data, make informed decisions, and present results clearly in professional contexts.