MGT 6203 - Data Analytics for Business

Georgia Tech Scheller College of Business

Summer 2026

Instructor	Lizhen Xu, Ph.D. Associate Professor of Information Technology Management Scheller College of Business, Georgia Tech
Instructional Mode	Online Asynchronous

Course Description

Today, businesses, consumers, and societies leave behind massive amounts of data as a by-product of their activities. Leading-edge companies in every industry are using analytics to replace intuition and guesswork in their decision-making. As a result, managers are collecting and analyzing enormous data sets to discover new patterns and insights and running controlled experiments to test hypotheses.

This course prepares students to understand business analytics and become leaders in these areas in business organizations. This course teaches the scientific process of transforming data into insights for making better business decisions. It introduces a series of popular econometric, statistical, and machine learning models and methods that are especially useful for business analytics. It covers core concepts, underlying theories, model development, algorithm designs, and programming implementation with real-world data and business examples. Through extensive demonstrations and exercises, it offers students hands-on experience of applying analytics models and methods to practical business problems. This course also teaches students how to avoid common pitfalls and emphasizes the importance of applying business analytics techniques properly. It aims to equip students with a combination of analytics sophistication and a good sense of how to apply it for business insights.

Learning Objectives

- Explain the setup of popular econometric models and the key properties and applicability of these models;
- Describe the core algorithms of popular machine learning methods and the problems they are equipped to handle;
- Explain the cause of endogeneity issues and perform causal analysis;
- Use the R programming language and various packages to implement different data analytic methods;
- Describe various business contexts and applications where different data analytic methods are suitable.

Course Materials

Primary Textbook

- *An Introduction to Statistical Learning: with Applications in R* **(ISLR)**, Second Edition, *by Gareth James, Daniela Witten, Trevor Hastie, Robert Tibshirani (2021) Springer (ISBN 978-1071614174)*

Supplementary Textbook	• *Machine Learning for Business Analytics: Concepts, Techniques, and Applications in R* **(MLBA)**, Second Edition, *by Galit Shmueli, Peter C. Bruce, Peter Gedeck, Inbal Yahav, Nitin R. Patel (2023) John Wiley & Sons (ISBN 978-1119835172)*
	• *Introductory Econometrics: A Modern Approach* **(Wooldridge)**, 7th Edition, *by Jeffrey M. Wooldridge (2019) Cengage Learning (ISBN 978-1337558860)*
Required Reading	• Lecture notes and other teaching materials listed in schedule and posted on Canvas.
Class Website	• Lecture videos, lecture notes, announcements, assignments, data sets, and additional teaching materials are available on Canvas at http://canvas.gatech.edu/.
Programming Language	• R

Grading

Assignments	Due Date	Weights
Homework 1	5/31/2026 (11:59pm ET)	19%
Homework 2	6/14/2026 (11:59pm ET)	19%
Homework 3	6/28/2026 (11:59pm ET)	19%
Homework 4	7/12/2026 (11:59pm ET)	19%
Homework 5	7/30/2026 (11:59pm ET)	24%
Total		**100%**

Final Grading Policy

The final grade in this course is a letter grade. Students should expect that a total percentage grade above 90% converts to an A, between 80% and 90% a B, between 70% and 80% a C, between 60% to 70% a D, and below 60% an F.

Attendance Policy

This course is taught in online asynchronous mode. It is instructor-paced, and the course materials will be released weekly. Students are expected to watch all the videos released each week in time, which will critically determine the quality of learning. Given the asynchronous mode, however, there will be no formal attendance check.

Homework Assignments

Homework assignments are the most important avenue of learning in this course. Each main topic discussed in class will be covered by one homework assignment. Each homework is designed to give students an opportunity to apply the concepts, algorithms, and techniques taught in class to real business examples and

datasets. Students need to write and run code in R to apply appropriate econometric models or machine learning methods to solve the relevant business problems. They need to be able to interpret the results in business contexts and discuss the associated managerial implications.

Each homework assignment may consist of multiple parts of exercises. Students must complete the homework assignments individually and independently. Details of each assignment will be posted on Canvas. Each assignment must be submitted before midnight (11:59PM Eastern Time) on the day it is due.

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. For information on Georgia Tech's Academic Honor Code, please visit http://www.catalog.gatech.edu/policies/honor-code/ or http://www.catalog.gatech.edu/rules/18/.

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

Please note that, without the instructor's permission, students are NOT allowed to share the solutions of homework exercises and the answers to the quizzes/tests in this course with other current and future students in any form.

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 (https://catalog.gatech.edu/rules/22/) articulate some basic expectations between students and faculty. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. We shall all commit to the ideals of Georgia Tech while in this class.

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, contact the Office of Disability Services at (404)894-2563 or http://disabilityservices.gatech.edu/, as soon as possible, to make an appointment to discuss your special needs and to obtain an accommodations letter. You may also contact the instructor via private posts on the discussion forum to set up a time to discuss your learning needs.