MARTIN TUCHMAN SCHOOL OF MANAGEMENT
NEW JERSEY INSTITUTE OF TECHNOLOGY

Business Data Analytics
MGMT216-003
Fall 2024

Instructor: Dr. Shubham Gupta
Office: 4005 Central Avenue Building (CAB)
Phone: 973-596-6425
Email: shubham.gupta@njit.edu
Class Time & Location: Tue 2:30 PM - 3:50 PM (FMH 408)
Fri 2:30 PM - 3:50 PM (FMH 306)
Prerequisites: MGMT116 or MATH105
Office Hours: Tuesday 10:30 – 11:30 AM or by appointment via WebEx

Course Overview

This course introduces statistical concepts and tools that can be leveraged for business data analytics. The emphasis is on knowing what analytical techniques to use to address specific business questions, on the use of computer software to perform business statistical analysis. In particular, it covers descriptive statistics, confidence interval estimation, hypothesis testing, inferential statistics and regression analysis. It ends with a brief introduction to time-series analysis and forecasting.

Optional Course Materials

Anderson, David, Dennis Sweeney, Thomas Williams.
Modern Business Statistics with Microsoft® Excel®, 5th Edition
ISBN10: 1-285-43330-0; ISBN13: 978-1-285-43330-1
Cengage Learning, 2015 (5th Edition).

Learning Outcomes

In this course on the use of analytics in business we will cover why a technique is important, what a technique is actually doing, when it would be appropriate to use it and how to use it. Upon successful completion of this course, you should be able to do the following:

1. Identify the theories and methodologies used in business data analysis;
2. Critically analyze business data to solve novel problems;
3. Apply data-based methodologies and theories to process and analyze data related to business problems;
4. Use Excel spreadsheets and formulas to analyze data;
5. Interpret and communicate the results of data analysis to a variety of business stakeholders.

Expected Learning Outcomes

In addition to content specific course objectives, the course intends to help students develop a wide range of analytical, communication, interpersonal, and technology skills, namely:

Competencies	Outcome
LC 1 Develop an Understanding of Business Concepts and the Technical Knowledge to Solve Business Problems	**LO 1.1** Our students will demonstrate the knowledge and application of business fundamentals
	LO 1.2 Our students will demonstrate the ability to solve business problems using business analytics
LC 2 Develop Effective Communication Skills	**LO 2.1** Our students will demonstrate the ability to deliver effective presentations
	LO 2.2 Our students will demonstrate the ability to write clear and concise reports based on relevant information
LC 3 Interact Effectively in Teams	**LO 3.1** Our students will demonstrate the ability to understand and use team building behaviors to accomplish group tasks

Course Website
Please go to CANVAS. The Canvas site is where most course materials are posted. Make sure you have an NJIT UCID and password to access Canvas. Canvas will be used to post announcements and supplemental materials throughout the semester. Please check the site (canvas.njit.edu) frequently and contact the helpdesk (973-596-2900) for problems associated with Canvas.

Course Deliverables/ Final Grade Components
Your grade for this course will be based on the following components:

Grading:		**Points**
Exams	2 Exams (20 pts. each)	40
Projects	2 Projects (15 pts.& 20 pts.)	35
Presentation	1 Presentation (15 pts.)	15
Class Participation		10
Sum		**100**

Examinations:
Two(2) exams will be given during the semester. Note that the exams are NOT cumulative. For exams[1], you will need to bring
1) a basic calculator (with a square root button! A graphical calculator is not allowed);
2) one A4 size (8.5"x11") page of notes (two-sided, must be **handwritten** by yourself).

The exams may consist of multiple-choice questions, true/false questions and short answer questions which incorporate all materials covered in lectures, labs, and exercises.

There will be no makeup exam, nor extra work for extra credit. So please make all your effort to attend the scheduled exams. Your final grade is not subject to negotiation.

[1] Please note that the format of exams, in-class or online, is subject to change. The exact format of exams will be announced in class and on Canvas as soon as possible.

Individual Student Projects:
Individual class projects will be discussed in class. These are ***NOT*** group projects. Projects are to be submitted by each student by the designated date, including data output and formulas. ***Late projects will be penalized at a rate of 5% per calendar day.*** In addition, once the deadline has passed, no further feedback will be given. Students submitting spreadsheets that are not unique will receive ***a zero grade*** for the project. You may discuss projects with your classmates, but the work you turn in ***must be your own***.

Group Presentation
In a group of 4 (or 3), students are provided with a research topic and the objective of the project is to provide students with an opportunity to train their reporting and communication skills. The time allotted for each presentation will be approximately 15 minutes.

Class Participation:
It is very important that all students participate in class discussions. Although there is no attendance grade in this course, I strongly encourage you to attend and actively participate in class discussions.

It is important that you arrive on time so that we may start class promptly. Arriving late to class is very disruptive and discourteous to the class.

Final Grades
Grades are a reflection of the level of understanding of course content. Therefore, to achieve the grade of A or B in this class expect to:

- Be prepared. This means actively participating in discussions, exercises, and activities to further understanding.
- Turn in all course deliverables in a timely and professional manner.

Insufficient preparation and participation will result in a grade of C or lower.

Final course grades will be based on the following scale (there will be NO curve):
Grading Scale

A	B+	B	C+	C	D	F
90%	85%	80%	75%	70%	60%	<60%

Email Etiquette
This is a business course, and the expectation is that you will conform to appropriate business letter writing practice in all of your emails. The following are the basics.

- Put the course name (e.g., course name or course number) in the subject line
- Identify the subject of the e-mail with a brief but descriptive summary of the topic: include a proper salutation and the assignment details such as the title, homework, or test.
- Proofread your e-mail for proper sentence structure, capitalization, spelling and punctuation.
- Conclude the e-mail message with a proper closing (e.g. Regards, Sincerely) and your full name.

(Note: Do not e-mail requests for additional grade points unless there is an error in the grading. Please note that any grade discrepancies must be addressed within 2 weeks of the assignment due date.)

Academic Integrity
Learning is both an individual and a cooperative experience. Asking for and giving help freely in appropriate settings helps you learn. However, you should present only YOUR work as your own. University rules and standards define and prohibit "academic misconduct" by all members of the academic community including students. You are asked and expected to be familiar with these standards and abide by them.

Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found at: *http://www5.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf*.

Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. ***Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university.*** If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at *dos@njit.edu*.

Accommodations
Educational access is the provision of classroom accommodations, auxiliary aids and services to ensure equal educational opportunities for all students regardless of their disability. If you are in need of accommodations due to a disability, please contact Scott Janz (oars@njit.edu), Associate Director of the Office of Accessibility Resources & Services (OARS), Kupfrian Hall 201, to discuss your specific needs. A Letter of Accommodation Eligibility from the OARS authorizing your accommodations will be required. Accommodations need to be requested in advance and will not be granted retroactively.

Classroom Policies
Professional and personal circumstances that preclude you from performing at satisfactory levels will not be considered in the determination of the course grade. The effect of your grade on overall GPA, eligibility for graduation, loss of scholarship, loss of a United States resident card, placement on academic probation, etc., are **NOT** considered in the determination of your grade. **There are no extra**

credit assignments. Individual requests for alternative ways to improve your course grade will not be considered.

Incompletes will be given only to students who cannot finish the course on time due to major reasons outside of their control (e.g., illness, family tragedy, military service). Students must contact the Dean of Students' office to determine and verify that the reasons for not doing the work on time are valid.

Computer/Webcam/Software Requirement and Access to the Internet

NJIT requires all students to have access to a computer with a webcam and a microphone at their place of residence. Details as to this requirement may be found on the college's website on the page describing NJIT's Undergraduate Student Computer Requirement.

Microsoft Excel	Available as part of Microsoft Office 2013, or 2016 (Windows OS); Office: Mac 2011 or 2016 (Mac OS); Free download at http://ist.njit.edu/software/download.php. Please be aware of the differences among versions in features and layout. We shall only use Excel 2013 for Windows OS. If needed, please take the advantage of on-campus computers.
LockDown Browser	Please download and install LockDown Browser from the following link: https://download.respondus.com/lockdown/download.php?id=264548414 LockDown Browser is required to take the exams properly from Canvas. Canvas further needs to access your webcam to proctor the exams. Please make sure you are comfortable with Canvas-LockDown Browser prior to the exam to enssure a smooth exam experience.

Access to the stable Internet is required for this course. NJIT provides on campus access to the Internet to all students. Details as how to access the Internet as well as other resources at NJIT may be found in the Student Quick Start Guide.

Some Weblinks for Reference

- Bureau of Labor statistics
- Census Bureau
- Statista
- US Government
- Yahoo Finance
- NJIT Canvas - Student Orientation

Final Comments

I reserve the right to change any aspect of this syllabus or the course schedule at any time, as the need arises. Students registered for this course assume full responsibility for reading and understanding the course policies as stated above.

Tentative Schedule
(Deviations may be necessary)

Date	Topics	Content	Exercises	Note
9/3	Course Intro	Syllabus		
9/6 **9/10**	Descriptive Analytics Case: J&J Chocolate	Lecture 1 Lab		9/9 Last day to Add/Drop
9/13 **9/17**	Case: J&J Chocolate Forecasting Intro, Naive	Lab Lecture 2		Form a team for final presentation
9/20 **9/24**	Moving Average Exponential Smoothing	Lecture 2 Lecture 3	Ex 1: Forecasting	Project I Due 9/24 11:59pm
9/27 **10/1**	Exponential Smoothing Simple Linear Regression	Lecture 3 Lecture 4		
10/4 **10/8**	Simple Linear Regression Error Measurement	Lecture 4 Lecture 5	Ex 2: Trend&Season	
10/11 **10/15**	Review for Exam I Q&A; Group Project Discussion			
10/18	Exam I	Lecture2-5		No Makeup
10/22	Forecasting Lab	Lab		
10/25 **10/29**	Forecasting Lab Multiple Linear Regression	Lab Lecture 6		
11/1 **11/5**	Multiple Linear Regression Simulation	Lab Lecture 7		
11/8 **11/12**	Simulation Inventory	Lab Lecture 8	Ex 3: Inventory	11/11 Last Day to Withdraw
11/15 **11/19**	Decision Analysis Decision Analysis	Lecture 9	Ex 4: Decision	Project II Due 11/12 11:59pm
11/22 **11/26**	Review for Exam II Q&A; Group Project Discussion			
11/29 **12/3**	Thanksgiving Recess Group Presentation			Group Project Slides 12/2 11:59pm
12/6 **12/10**	Group Presentation			
TBD	Exam II	Lecture 6-9		No Makeup
				12/23 Grade Due