Martin Tuchman School of Management

NEW JERSEY INSTITUTE OF TECHNOLOGY

MGMT 116-001 (4 Credits)

Quantitative Analysis with Application for Business
Fall 2024

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"You can have data without information, but you cannot have information without data."

Daniel Keys Moran,
computer programmer
and science fiction author—

Class Hours
M/R, 11:30 AM - 12:50 PM
Location:
Central King Building 204

Lab Hours:
F, 8:30 AM - 10:35 AM

Location:
Kupfrian Hall 203

Lab TA:
Ye, Zhibo
E-mail: zy324@njit.edu

Office Hours
T, 3:00 PM -4:00 PM; 5:30PM-7:30PM
And by appointment

184-198 Central Ave, Newark, NJ 07103
4th floor, Room 4020

Section1.
Course Focus

Course Objectives and Description

Data Analytics is the science of analyzing data to convert information to useful knowledge. This course is designed for students who have no previous knowledge of data analytics but wish to acquire these skills in a short period of time This course seeks to present you with a wide range of data analytic techniques and is structured around the broad contours of the different types of data analytics, namely, descriptive, inferential, predictive, and prescriptive analytics.

Learning Goals and Objectives

Upon completion of the course students should:

- Develop a variety of business analytical skills
- Gain mastery of useful skills to process business data
- Have knowledge of common statistical tools that may be applies to solving general and practical business problems
- Have basic knowledge of modeling and optimization with software applications
- Apply the acquired knowledge and skills to the solution of business problems, knowing how to select the technique(s) appropriate for solving a particular problem and how to execute the technique(s)
- Know how to interpret and communicate the results of business analysis

Section2.
Learning Resources

Textbook (Optional):

Business Analytics, 3rd Edition By James R. Evans (Digital Version)
Published by Pearson
ISBN-13: 978-0-13-523171-5

Software (Required):

Microsoft Excel Available as part of Microsoft Office 2013, or 2016 (Windows OS);
Office: Mac 2011 or 2016 (Mac OS);
Tableau (installation instruction will be provided by an instructor on Canvas)
Power BI (installation instruction will be provided by an instructor on Canvas)
Free download at http://ist.njit.edu/software/download.php.
Please be aware of the differences among versions in features and layout.

Section 3.
Class Activities and Grading

Teaching Method:
The teaching format includes lectures, done by the instructor and Lab sessions, done by a TA. ***Attendance is mandatory for both, lectures, and Lab sessions***.
All Class-related material (lecture presentations, messages, etc.) will be posted on **Canvas**. Students should be enrolled in Canvas to access the posted materials. The URL is **http://canvas.njit.edu/ (select MGMT 116)**.

Grading
The final grade in this course will be calculated as follows:

Presentation	20%
Exam 1	15%
Exam 2	25%
Class Participation	20%
Homework	20%
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TOTAL:	100%

A	= or >92
B+	87 - 91.99
B	80 - 86.99
C+	77 - 79.99
C	70 - 76.99
D	60 - 69.99
F	<59.99

Exams may be curved at the Professor's discretion. However, the final grade will be strictly based on the mathematical average with NO ROUNDING.
Examples 91.99 is B+
86.99 is B

Grades for exams and presentation become final one week after they become available.

Incompletes
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 may need to contact the Dean of Students' office, and have it determined that the reasons given for not doing the work on time are valid.

Examinations:

Two(2) exams will be given during the semester. Note that the exams are NOT cumulative. The exams may consist of multiple-choice questions, true/false questions, and upload files questions which incorporate all materials covered in class lectures, homework assignments (e.g. book chapters), and case studies.

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.

Class Participation:
Attendance in classes is mandatory for engagement in all class activities. The grading scheme allocates 15% of your final grade to the "in-class exercises" component. It's important to note that these exercises must be completed within the class setting, and completing them outside of class, regardless of the circumstances, is not permissible.
Like others, class attendance is very important in this course because learning occurs through interaction.

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

Group Project/Presentation:
Students must work in groups.
Students need to select a research topic relevant to the business. The main objective of the group project is to allow students to train their ***analytical, reporting and communication skills.*** You also will be learning a teamwork dynamic. The time is set for each presentation and will be approximately 20 minutes for each group.

Group presentation will be graded as follows:

Criteria for Type 1 Project: "Data Analysis"	**Weight**
Team Collaboration	10%
On time project proposal	10%
Relevance of the research question background	20%
Relevance and quality of data collection and data processing	20%
Clearness and consistency of presentation	40%

Criteria for Type 2 Project: "Scholarly/Scientific Paper"	**Weight**
Team Collaboration	10%
On time project proposal	10%
Relevance and quality of presentation on the given structure	40%
Relevance and clearness of the paper findings application	40%

Some Weblinks for Reference:

Bureau of Labor statistics	www.bls.gov
Census Bureau	www.census.gov
CHANCE	www.dartmouth.edu/~chance
Data and story library	www.stat.cmu.edu/DASL
Fed Stats	www.fedstats.gov
Yahoo Finance	http://finance.yahoo.com/
Kaggle	https://www.kaggle.com/datasets

Homework:

There will be five (5) homework assignments. Each is graded by 100 points. Specifics and due dates will be announced in class and on Canvas. Each homework should be electronically submitted to Canvas— Please DO NOT e-mail me your homework submissions. **Late homework will be penalized at a rate of 40% per week.**

Team Structures:

A term project is a necessary and important part of the course for students. Each project should be a team effort of 3-4 people.

Kahoot! (Tentative)

Kahoot games are used to enhance student engagement and learning efficiency. A Kahoot game is played in each class to allow students to reinforce learning in a fun and interactive way. Kahoot quizzes/questions are not graded but used in three ways: 1) Attendance; 2) Resource for exam preparation; 3) Extra credit. The overall SEMESTER top three winners earn 0.3, 0.2, and 0.1 point, respectively, of extra credit for final grade.

TA Lab Session

For a four-credit course, a lab session is given and required weekly at the designated time by the teaching assistant. The topics of the weekly TA lab session include Excel, introduction of data sources, Bloomberg Terminal, Tableau, etc.

Section 4.
Academic Resources

Academic Integrity:

You are expected to be honest in all your academic work. Students should review and study the honor code at:
https://www.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf
New Jersey Institute of Technology is an institution dedicated to the pursuit of knowledge through teaching and research. The university expects that its graduates will assume positions of leadership within their professions and communities. Within this context, the university strives to develop and maintain a high level of ethics and honesty among all members of its community. Imperative to this goal is the commitment to truth and academic integrity. This commitment is confirmed in this NJIT University policy on Academic Integrity. The essential quality of this Policy is that each student shall demonstrate honesty and integrity in the completion of all assignments and in the participation of the learning process. Adherence to the University policy on Academic Integrity promotes the level of integrity required within the university and professional communities and assures students that their work is being judged fairly with the work of others. This Policy defines those behaviors which violate the principles of academic integrity, describes a range of appropriate sanctions for offenses, and identifies a method for promoting the principle of academic integrity on campus.
No grade is worth compromising your personal integrity!

Students with disabilities:

Students with disabilities needing accommodations of any nature so as to have a fair opportunity to perform in the class need to contact the counseling center. Staff at the counseling center will determine what constitutes a reasonable accommodation and inform the instructor of what it is.

Statement on Academic Integrity:

"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"

Tentative Schedule
(Deviations may be necessary)

Date	Topics	Lab	Homework Exercises	Note
Week 1	Course Intro	System/Software Setup		
Week 2	Intro to Business Analytics	Excel: Formulas & Cell reference		Last day to add/drop
Week 3	Database Analytics	Excel: Basic calculations in Excel (+, -, /, *, ^). Emphasis of Copy/Paste of formulas: using $ and without.		Form a group for final project
Week 4	Database Analytics	Excel: Counting & Adding. IF, COUNTIF, SUMIF, COUNTIFS, SUMIFS; Then Quiz on these functions.	HW1	
Week 5	Basic Statistics	Project Discussion. Class Material Review		
Week 6	Descriptive Statistics	Project Discussion. Class Material Review		
Week 7	Exam Review	Open Questions/Online	HW 2	Week 2-5
	Exam 1			No Makeup
Week 8	Probability Distribution: Part I.	Data Sources	Project Proposal	
Week 9	Probability Distribution Part II.	Bloomberg Terminal (Tentative)	HW3	
Week 10	Decision Analysis	Bloomberg Terminal (Tentative)		
Week 11	Tableau	Power BI	HW4	Last Day to Withdraw
Week 12	Spreadsheet Modeling & Analytics 1	Power BI Final Project Discussion	Final Project draft	
Week 13	Spreadsheet Modeling & Analytics 2 Final Project Presentation	Open Questions/Online	HW5 Final Group Project	
Week 14	Final Project Presentation Exam Review	Open Questions/Online		Week 8-13
TBA	Exam 2			No Makeup