

**MARTIN TUCHMAN SCHOOL OF MANAGEMENT**

**MGMT 116-002: Quantitative Analysis with Applications for Business  
Spring 2018**

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**Office Hours:** Monday: 4:00 pm – 5:00 pm, Thursdays: 4:00pm – 5:00pm, or By Appointment

**Class:** Monday and Wednesday, 11:00am – 12:20pm, CAB 1006

**Course Description:** This course introduces students to statistical concepts, basic optimization modeling and tools that can be leveraged for business data analytics. The emphasis in the course is on knowing what analytical techniques to use to address specific business questions, on the use of computer software to perform actual statistical analysis, and on the interpretation and communication of the results of such analysis. The use of Excel and other software tools is emphasized. The Course covers statistical techniques that are often used to solve problems in various business areas such as finance, marketing, and operational management. The course focus is on inferential statistics covering among other topics confidence interval estimation, hypothesis testing, and regression analysis, although descriptive statistics are also addressed. The course also introduces time-series analysis and forecasting models, as well as linear programming and its application in business.

**Course Content**

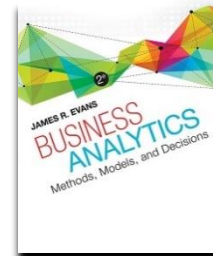
- Understanding the basics of inferential statistics including Confidence interval estimation, hypothesis testing, and regression analysis
- Basics of descriptive statistics and their use in data analysis for business
- Presenting business analysis, solutions, and recommendations based on data analysis including time series analysis forecasting, regression analysis, and basic linear programming skills.

**Required Materials –**

Business Analytics, 2nd Edition By James R. Evans (Digital Version)  
Published by Pearson

**ISBN-13: 978-0-321-99791-3**

Companion Website: [http://wps.prenhall.com/bp\\_evans\\_bus\\_2/](http://wps.prenhall.com/bp_evans_bus_2/)



**NOTE:** The above book is a digital E-book, however new/used physical copies can be ordered/used but **are not required**. The ISBN-13 for a new print copy is: 978-0-321-99782-1.

All other materials will be posted on the course website at Moodle (<http://moodle.njit.edu>) or distributed in class.

**Software (Required):**

**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-available-download/> . Please be aware of the difference among versions in features and layout. If needed, please take advantage of on-campus computers

**Learning Goals and Outcomes addressed in this course:**

- 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 applied 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

Analytical and Problem Solving Skills	Information and Communication Skills	Interpersonal Skills and Team Dynamics	Ethical Reasoning	Technology Skills	Globalization
X	X	X	X	X	X

**Analytical and Problem Solving Skills**

Develop skills to critically analyze and solve business problems.

Apply these skills to practical case study projects, which require critical thinking and strong problem solving skills.

**Information and Communication Skills**

- Develop skills to search databases, locate and use data to analyze business problems and recommend solutions, properly cite data sources.
- Advance skills that enable effective business writing.
- Practice articulating accounting concepts and gaining perspective on discussion questions
- through class participation.

**Interpersonal Skills and Team Dynamics**

- Demonstrate the skills of working in teams and achieving common goals. Develop management and leadership skills.
- Understand team roles and relationships that foster cooperation toward goals. Learn how to manage expectations and deadlines.

**Ethical Reasoning**

Develop skills to identify ethical dilemmas. Develop a sense of ethical and professional behavior.

**Technology Skills**

Prepare effective Excel spreadsheets, graphs, and a PowerPoint presentation.

## Globalization

Understand the impact of globalization and the complexity it brings.

## Grading and Evaluation

Midterm Exams (2)	30%
Final Exam	15%
Group & Individual Case Projects (2):	30%
Homework Assignments	15%
Lab participation/attendance/quizzes	10%

**Moodle:** There is a Moodle site (at <http://moodle.njit.edu/>) for this course on which documents will be posted as needed. Login to Moodle using your UCID and password. All announcements, assignments, changes, etc. are posted there. The student is responsible for remaining up to date at all times. I will send e-mails to the class through Moodle. By default, Moodle uses your NJIT email address. If you do not check that regularly, you must change the address in your Moodle profile to one that you do check. There is no excuse for not receiving information sent to the class via email.

## Class Projects:

- There will be two (2) projects required for this course:
  - Individual Project: Data Visualization for Performance Lawn Equipment Details on Page 94 of Textbook
  - Group Project: Financial Projections for Small Business
    - Groups of 3-4 students will choose a small business and develop/present formal financial projections including assumptions, spreadsheet, visualizations, and recommendations.
- For both projects, additional details will be provided including spreadsheet templates, project requirements, base-line assumptions, and business objectives to support group project.

## Grading Scale

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

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

- **Attend 100% of the classes.** During class new content is explained and then applied using in- class exercises and activities for better understanding.
- **Come to class prepared 100% of the time.** This means completing homework prior to class to the best of your abilities. To maximize learning and your competitiveness in the workplace ...

**STUDY IT! WORK IT! Don't give up.**

**READ IT! COMPLETE IT! Bring your questions to class.**

- Actively participate in class discussions, exercises, and activities to further understanding.  
*Expect the grade of C or lower with less preparation and participation.*

**Incompletes (I) are only given under special circumstances such as severe illness ... not for being unprepared for class or exams.**

**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](mailto:dos@njit.edu)”

## **CLASSROOM CODE OF CONDUCT**

**To maximize learning and help transition to a professional work environment.**

**Success in business depends on the combined performance of the professional team, not the self-centered interests of one individual. Similarly, a good learning environment is collectively created and requires the contribution of ALL students within the class. To maximize classroom learning:**

- **Attend regularly.** Arriving on time and departing when class is dismissed.
- **Prepare for class.** Arriving with assignments complete.
- **Engage in learning.** Being attentive during class. Giving class your undivided attention and actively contributing to discussion, exercises, and projects.
- **Show respect.** Listening attentively to others’ thoughts and ideas.

**Disruptive behavior includes:**

- **No Electronic Devices in Class:** Please do not use electronic devices in class unless the use is directly related to the work we are doing. Turn off cell phones, MP3 players, laptops, etc. If you want to use an electronic device to take notes, please let me know. Taking photos or making audio/visual recordings may not be done without the expressed written permission of the instructor
- Engaging in side-conversations.
- Disrespecting others.
- Using language inappropriate to a professional work environment.
- Arriving late and departing before class is dismissed.

**Non-compliance:**

- Exhibiting behavior that disrupts the class learning environment will result in a deduction of participation points. Students may also be asked to leave class.
- After continued non-compliance a student may be permanently removed from the class.

## **EXAM CODE OF CONDUCT**

### **To minimize cheating during an exam.**

- Cell phones are to be turned off (not on vibrate) and put away.
- Dumb calculators may be used.
- Bags should be zipped up and put in the front of the room.
- NO leaving the classroom once the exam starts. Therefore, before the exam plan to use the restroom, get water, etc.

**Attendance & Participation:** You are expected to arrive at class on time and stay until the end. You are responsible for everything that is said in class, which may include material not covered in the readings, modifications to the syllabus, and announcements concerning exams. Class attendance and participation are important for student learning. Starting with the second week of class, attendance and participation will be accounted in students' course grade. Excused or unexcused absences mean that course material is being missed. Students missing classes are responsible to make up the missed material. And, prior information on absence does not qualify students to have attendance. Of course, medical or other exceptional (with documents/proof) cases will be considered. Attendance: Students need to sign attendance sheet, or attendance will be called anytime (beginning, middle or end of the class)

### **Course Policies**

**Computer Requirement and Access to the Internet:** NJIT requires all students to have access to a computer 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.

Access to the 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.

**Deadlines/Late Work/Make-ups:** Specific policies concerning the acceptance of late work and make-ups are discussed in the sections covering course requirements. In general, work will be accepted late without penalty or allowed to be made-up only if there are extraordinary circumstances beyond students' control. Students will need to contact the Dean of Students' office and have it determine that the reasons given for not doing the work on time are valid.

Athletic/Games/Sports team member must submit request from dean for not being able to take test/quiz, before the quiz/test date. This request is not acceptable for Mid-term and Final Test.

**Extraordinary\_Circumstances:** The predictable demands of family, work and other courses do not mean extraordinary circumstances. Students are expected to be able to balance these with this course's demands. Being locked out of the class because of late paying tuition is not considered an extraordinary circumstance, unless it can be documented that the Registrar/Bursar's Office/Financial Aid has made an error. Inability to access the Internet or Moodle is not considered an extraordinary circumstance.

**Incompletes:** Highly discouraged. Incompletes will be given to students only due to major reasons outside of their control (e.g. major illness, family tragedy, military service). Students must contact the Dean of Students' office and have it determine that the reasons given for not doing the work on time are valid.

**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.

## MGMT-115 Section 002 Course & Assignment Schedule

Week	Dates	Topic	Assignments
1	1/23	Course Overview <b>Chapter 1:</b> Introduction to Business Analytics	<b>HW:</b> Ch 1 (Pg 31) Q's 1, 2, 3, 4, & 5 (Due: 2/3) <b>Assignment:</b> Ltr to Professor (Due: 2/3) <b>Read/Review</b> Chapters 1 & 2
2	1/28, 1/30	<b>Chapter 2:</b> Analytics on Spreadsheets Excel Basics	<b>HW:</b> Ch 2 (Pg 50) – Q's 2, 4, 5, & 6 (Due: 2/10) <b>Read/Review</b> Chapter 3
3	2/4, 2/6	<b>Chapter 3:</b> Visualizing and Exploring Data Excel Intermediate Functionalities for Data Processing	<b>HW:</b> Ch 3 (Pg 91) – Q's 1, 3, & 13 (Due 2/17) <b>Read/Review</b> Chapter 4  <b>Class Project #1: Individual (Due 3/15)</b> <b>Data Visualization – Performance Lawn Equipment (Pg 94)</b>
4	2/11, 2/13	<b>Chapter 4:</b> Descriptive Statistical Measures Excel Extended Functionalities of Data Processing	<b>HW:</b> Ch4 (Pg 126) – Q's 1, 6, 7, & 18 (Due 2/24) <b>Read/Review</b> Chapters 1 - 4
5	2/18, 2/20	<b>Exam #1 – Chapters 1 - 4</b>	<b>Read/Review</b> Chapter 5
6	2/25, 2/27	<b>Chapter 5:</b> Probability Distributions and Data Modeling	<b>HW:</b> Ch 5 (Pg 173) – Q's 1, 3, 4, 6, 8, & 9 (Due: 3/10) <b>Read/Review</b> Chapter 6
7	3/4, 3/6	<b>Chapter 6:</b> Sampling and Estimation	<b>HW:</b> Ch 6 (Pg 231) Q's 1, 4, & 8 (Due: 3/17) <b>Read/Review</b> Chapter 7
8	3/11, 3/13	<b>Chapter 7:</b> Statistical Inference	<b>HW:</b> CH 7 (Pg ) – Q's 2, 5, & 10 (Due: 3/31) <b>Read/Review</b> Chapter 8 <b>Project #1 Due</b>
9		<b><u>Spring Break 3/18 – 3/22 – NO CLASSES</u></b>	
10	3/25, 3/27	<b>Chapter 8:</b> Trendlines and Regression Analysis	<b>HW:</b> Ch 8 (Pg 268 ) – Q's 1, 2, & 5 (Due: 4/7) <b>Read/Review</b> Chapter 9  <b>Class Project #2: Group Project (Due 5/6)</b> <b>“Financial Projections Project”</b>
11	4/1, 4/3	<b>Chapter 9:</b> Forecasting Techniques	<b>HW:</b> Ch 9 (Pg 298) – Q's 3 & 7 (Due: 4/14) <b>Read/Review</b> Chapters 5-9
12	4/8, 4/10	<b>Exam #2 – Chapters 5 - 9</b>	<b>Read/Review</b> Chapter 11
13	4/15, 4/17	<b>Chapter 11:</b> Spreadsheet Modeling and Analysis	<b>HW:</b> Ch 11 Q's 1, 7, 14, & 15 (Due: 4/28) <b>Read/Review</b> Chapter 13
14	4/22, 4/24	<b>Chapter 13:</b> Linear Optimization	<b>HW:</b> Ch 13 TBD (Due 5/5) <b>Read/Review</b> Chapter 14
15	4/29, 5/1	<b>Chapter 14:</b> Applications of Linear optimization	<b>HW:</b> Ch 14 TBD (Due 5/12) <b>Read/Review</b> Chapters 11-14
16	5/6	Review for Final	<b>Project #2 Due 5/6</b>
17		<b>Final Exam TBD</b>	