



## FREEMAN SCHOOL OF BUSINESS

### MGSC 3010-05 Introduction to Business Analytics Spring 2017

**Instructor:** Prof. Yinliang (Ricky) Tan

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**Office Hours:**

- Prof. Tan: TR – 2:00 PM - 3:30 PM
- Sarah: T 2:00 PM - 3:30 PM  
W-3:30 PM – 5:00 PM

**Tulane Canvas Site:**  
<http://www2.tulane.edu/mytulane/>

**Class Meeting Day & Time:**  
MWF – 01:00 PM - 01:50 PM

**Class Location:**  
Dinwiddie Hall-102

### Course Description:

This course introduces students to the business analytics. The overarching goal is to teach students to use spreadsheet to analyze models and data for integrated decision making across multiple domains including finance, marketing, accounting, strategy, and operations. The course will review 1) Data Modeling in Excel; 2) Deterministic Optimization - linear programming, sensitivity analysis, non-linear programming and integer programming. Problems such as portfolio optimization, transportation, and assignment are covered and the concepts of problem formulation and sensitivity analysis are introduced; 3) Quantitate Analysis – we will cover the topics of project management, simulation, forecasting, queuing theory and decision analysis.

### Course Goals

The objective of this course is to help student become proficient with spreadsheet. This course is designed to teach students the elements of

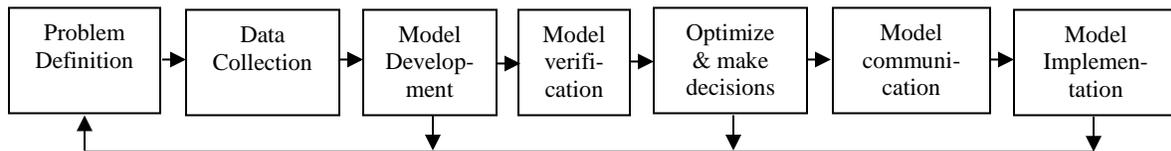
- Data Analysis;

- Spreadsheet modeling and optimization
- Models of deterministic linear programming
- Decision making under uncertainty

### Student Learning Objectives

As the result of this course students should be able to:

1. Execute the following 7-step modeling process in any relevant business problem:



Likely feedback loops

2. Improve on their quantitative skills
3. Become proficient spreadsheet users – Excel in particular

The purpose of this course is to provide students with solid intermediate computer modeling skills. These skills are expected in today’s job market and will also be very useful in many elective and required courses that you will take here at the Freeman School. In order to compete effectively in today’s information economy, graduates of the Freeman School – regardless of major – need to have the knowledge that comes from information management and decision making under uncertainty. The global economy is witnessing an exponential growth in data and thus calls for business professionals, regardless of background, to be equipped with the know-how to manage and analyze data in order to make good decisions.

In the face of resource pressure, financial constraints, and fiscal limitations, the case for extracting information from the available data to make better economic decisions has never been so strong. Thus, this class will provide students with the critical skills they need to compete and function effectively in any environment. Our emphasis has been on the use of spreadsheets to model and solve business-related problems (which our students will be confronted with upon graduation) in order to arrive at logical and informed decisions in the face of uncertainties and limited resources.

We have student feedbacks that are consistent with what we are hearing from corporations. We have conducted a number of focus groups asking firms that recruit from us what they would like to see us emphasize. In every case, strong modeling skills were mentioned first or second.

### Recommended Course Material

1. Textbook: *Managerial Decision Modeling with Spreadsheets*, Nagraj Balakrishnan, Barry Render & Jr. Ralph Stair, 3<sup>rd</sup> edition:  
ISBN-13: 978-0136115830; ISBN-10: 0136115837

### Software Requirement

- Microsoft Office 2013 Available at <https://tulane.onthehub.com/WebStore/Welcome.aspx>

### Grading

This course follows the faculty approved grading guidelines of a maximum class average GPA in the range of 2.70 to 3.00 for core classes and a maximum class average GPA in the range of 3.00-3.33 for business elective classes. Please note the stated average class GPA range is a maximum average range and the class average GPA range could be lower.

- **Course grades:** The course grades will be curved and determined by assigning the following weights to the following course components (subject to change):

<u>Grade component</u>	<u>Percentage weight</u>
Team Assignments	10%
Team Project	20%
Exam 1 (Midterm)	35%
Exam 2 (Final)	35%

- **Exam Dates:**

	<u>Time</u>	<u>Location</u>
Mid-Term Exam	March 4 <sup>th</sup> (Saturday)	TBD
Final Exam	TBD	TBD

## **Homework**

Skill-building exercises will be assigned throughout the semester.

- Each homework assignment must be submitted no later than 5:00PM on its due day. **NO LATE HOMEWORK WILL BE ACCEPTED.** A grade of zero will be assigned if you do not turn in the homework.
- Answers to homework problems should be submitted through Canvas under the **Assignments** folder. Please make sure that your submission is successful. No credit will be given to unsuccessful or incomplete submissions.
- Although the assignment is based on the teams, don't forget that there are some boundaries not to be crossed that are defined by the Tulane Honor Code. Examples of the violations of the Tulane Honor Code include, but are not limited to,
  1. Handing in someone else's work as your own. This constitutes plagiarism.
  2. Providing your work for someone else to hand in as their own. This includes e-mailing your file to someone just so they can "see what you did".
  3. Explicitly telling another student how to do the assignment in a way that hinders their learning of the material.

## **Team Assignment and Projects**

The instructor will help the students to form the team. These team projects will apply the concepts and tools introduced in class to "Real-World" problems. The objective is to encourage creative thinking when approaching unstructured problems, and critical thinking in your analysis and recommendations.

- You need to turn in just one solution per group under "Assignment" on Canvas. **NO LATE CASE ASSIGNMENTS WILL BE ACCEPTED.**
- A single grade is assigned to each group, but individual project grade may be adjusted due to the peer evaluation.

## **In-class Exercise and Participation:**

Regular attendance at all class meetings is expected. At the end of some topics, we will have team-based exercise, focusing on a real-world applications of the tools covered during the lecture. During the exercise, teams were encouraged to engage with the instructor and each other in order to arrive at the best solution.

- Attendance will be taken randomly in some class by signing the attendance sheet.
- You are allowed to miss up to three lectures without deduction from your participation grade.
- Please be on time! No disrupting classmates, no surfing the net, reading newspapers, ringing phones, talking, sleeping, or working on that assignment due in another course.

### **Peer Evaluation**

As the course emphasizes the team-based learning, we will have a lot of team activities. To ensure every team member contribute the fair amount of time and effort to the group, we will conduct the peer evaluations near the end of the course. Peer evaluation is going to affect your assignment, class participation and team project score. If you don't submit the peer evaluation before the due date, penalty will be enforced towards your grade. The peer evaluation result is confidential, which is only shared between the individual student and the instructor. Please write your truthful and objective comments to your peers.

### **Specific Course Policies**

#### **Appeals:**

If you wish to appeal your grade on any assignment or exam, you have a week from the time it was returned to the class (not when you receive it). **After that week, I will consider all grades final.** Please realize that there are standard policies for point deductions for each problem with any exam or assignment, so unless the grader has misapprehended your intent or misread your work, any partial credit is unlikely to change.

#### **Laptops:**

You need to bring your laptop to every session. Laptops are only for course related purposes. No surfing the net, tweeting, IMing etc. Freeman policy requires students to have Windows operating system on their laptops (<http://www.freeman.tulane.edu/lib-tech/computing/tools.php>). If you have a Mac, the best solution is to partition your Macintosh drive and install Windows, as well as Microsoft Office for Windows (<http://www.freeman.tulane.edu/lib-tech/computing/mac.php>). There is also a Freeman resource called VDI where you can access Excel for Windows (<https://freeman.vdi.tulane.edu>).

**Tentative Class Schedule (The class schedule is subject to change)**

Week		Dates	Topic	Reading	Assignments
1	W	18-JAN	Course Introduction 1.Basics of Spreadsheet modeling	Chapter 1	
	F	20-JAN			
2	M	23-JAN	1.Basics of Spreadsheet modeling	Chapter 2	
	W	25-JAN	1.Basics of Spreadsheet modeling		
	F	27-JAN	1.Basics of Spreadsheet modeling		
3	M	30-JAN	2.Introduction to Optimization	Chapter 2	<b>HW1 (due Mon)</b>
	W	1-FEB	2.Introduction to Optimization		
	F	3-FEB	3.Linear Programming		
4	M	6-FEB	3.Linear Programming	Chapter 2	
	W	8-FEB	3.Linear Programming		
	F	10-FEB	3.Linear Programming		
5	M	13-FEB	3.Linear Programming	Chapter 3	<b>HW2 (due Wed)</b>
	W	15-FEB	4.Sensitivity Analysis		
	F	17-FEB	4.Sensitivity Analysis		
6	M	20-FEB	4.Sensitivity Analysis	Chapter 6	
	W	22-FEB	5.Integer Programming		
	F	24-FEB	5.Integer Programming		
7	M	27-FEB	<b>Mardi Gras Holiday</b>	Chapter 6	<b>HW3 (due Thur)</b>
	W	1-MAR	6.Non-linear Programming		
	F	3-MAR	Midterm Exam Review		
8	M	6-MAR	7.Project Management	Chapter 7	
	W	8-MAR	7.Project Management		
	F	10-MAR	7.Project Management		
9	M	13-MAR	7.Project Management	Chapter 7	
	W	15-MAR	8.Forecasting		
	F	17-MAR	<b>NO CLASS</b>		

10	M W F	20-MAR 22-MAR 24-MAR	8.Forecasting 8.Forecasting 8.Forecasting	Chapter 10,11	HW4 (due Wed)
11	M W F	27-MAR 29-MAR 31-MAR	Spring Break Spring Break Spring Break	Chapter 11	
12	M W F	3-APR 5-APR 7-APR	NO CLASS 9.Queueing Theory 9.Queueing Theory	Chapter 9	HW5 (due Mon)
13	M W F	10-APR 12-APR 14-APR	9.Queueing Theory 10.Decision Analysis Easter Holiday	Chapter 8	HW6 (due Wed)
14	M W F	17-APR 19-APR 21-APR	Easter Holiday 10.Decision Analysis 10.Decision Analysis	Chapter 8	
15	M W F	24-APR 26-APR 28-APR	Project Help Session Presentation Presentation		HW7 (due Mon)
16	M	1-MAY	Final Exam Review Session		

### Statement about Academic Integrity

This class will be conducted in full accordance with Tulane's policies about academic integrity including, but not limited to, the Code of Academic Integrity and the Code of Student Conduct. These can be found at: <http://college.tulane.edu/code.htm> and <http://tulane.edu/studentaffairs/conduct/rights/code-of-conduct.cfm>.

### Freeman Educational Norms and Expectations

This class will be conducted in full accordance with Freeman's Educational Norms and Expectations. Please reread the Norms and Expectations, which can be found at <http://www.freeman.tulane.edu/students/bsm/pdf/Expected%20Behavioral%20Norms.pdf>.

### Learning Disabilities

Under the Americans with Disability Act and the Section 504 of the Rehabilitation Act, if you have a disability, you may have the right to an accommodation; however, the right is contingent upon you taking certain steps. You should review the steps that you need to take, as well as Tulane's policy concerning accommodations at <http://erc.tulane.edu/disability/index.html>.

Any student with a disability, in need of course or examination accommodation, should request an accommodation through the University's Office of Disability Services (ODS) located in the Mechanical Engineering Building. At the beginning of the semester, please provide me with a copy of your approved ODS accommodation form. I am committed to working with ODS to ensure that I provide you with all approved accommodations. If you do not deliver the approved

accommodation form to me, I will not know that ODS approved your accommodation and I will have no basis to provide those accommodations.

**PLEASE NOTE:** For students with extended time accommodation, you are to take your exams within the Freeman School, please take your Exam Request Form to Suite 200 at least **three** days before the exam and the Office of Undergraduate Programs will schedule your exam. You must begin your exam when the class normally would begin. For all other accommodations, please take your form to ODS and they will schedule your exam.