



FREEMAN SCHOOL OF BUSINESS

INFO 7320 Advanced Spreadsheet Modeling Fall 2015

Instructor: Professor Yinliang (Ricky) Tan

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Office Hours: TR – 2:00 PM - 3:30 PM

Blackboard Site:
myTulane.blackboard.com

Class Meeting Day & Time:
TR – 11:00 AM - 12:15 PM

Class Location:
GW2 – 1110

Course Description:

This course introduces students to the use of the spreadsheet as a business modeling tool. 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

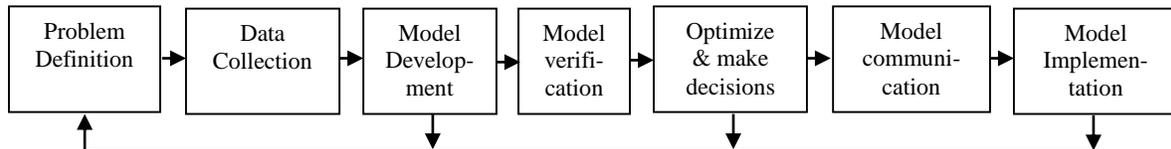
- Data Analysis;
- Spreadsheet modeling and optimization
- Models of deterministic linear programming

- 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.

Course Material

1. Textbook: *Managerial Decision Modeling with Spreadsheets*, Nagraj Balakrishnan, Barry Render & Jr. Ralph Stair, 3rd edition:
ISBN-13: 978-0136115830; ISBN-10: 0136115837
2. Lecture notes, homework problems, solutions, and other supplemental materials will be posted on Blackboard.

Software Requirement

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

Grading

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

| <u>Grade component</u> | <u>Percentage weight</u> |
|------------------------|--------------------------|
| Quiz | 10% |
| Team Assignment | 10% |
| Class Participation | 10% |
| Team Project | 10% |
| Exam 1 (Midterm) | 30% |
| Exam 2 (Final) | 30% |

- **Final grades:** The final grades will be curved with an average GPA 3.0-3.5, and letter grades assigned according to natural breaks in the grades that are near the following cutoffs:

| <u>Letter grade</u> | <u>Approximate cutoff (subject to natural breaks)</u> |
|---------------------|---|
|---------------------|---|

| | |
|----|----|
| A | 92 |
| A- | 87 |
| B+ | 84 |
| B | 80 |
| B- | 77 |
| C+ | 75 |
| C | 70 |

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 Blackboard 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

Team will be assigned on a principle of "resource wealth distribution" during the first class period. The instructor will help the students to form the team based on their previous courses in

spreadsheet, college statistics, background, and work experience. These team project 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 Blackboard. NO LATE CASE ASSIGNMENTS WILL BE ACCEPTED.
- A single grade is assigned to each group.
- Cases will be discussed in the class but solutions will not be distributed.

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 competition, focusing on a real-world applications of the tools covered during the lecture. For each competition, each member of the first two teams who submitted the most accurate answer will be rewarded bonus points towards their final grade, although the most accurate solutions were not announced until after all teams submitted to avoid discouraging the teams who submitted their solutions after the first two teams. During the competition, 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 two 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.

Quiz

There will be a random number of individual quizzes throughout the course, however you will be able to drop the lowest grade of one of them automatically. The quiz problem will test your understanding of the course material and will be very similar to the lecture examples. A typical quiz should take no longer than 10-20 minutes to finish.

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 CITRIX where you can access Excel for Windows, but it only works when you are inside the Freeman buildings.

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

| Week Dates | | | Topic | Reading | Assignments |
|------------|--------|------------------|--|---------------|--------------------------------------|
| 1 | T R | 18-Aug 20-Aug | Course Introduction 1.Basics of Spreadsheet modeling | Chapter 1 | |
| 2 | T R | 25-Aug 27-Aug | 1.Basics of Spreadsheet modeling 2.Introduction to Optimization | Chapter 2 | |
| 3 | T R | 01-Sep 03-Sep | 2.Introduction to Optimization 3.Linear Programming | Chapter 2 | HW1 (due Mon) |
| 4 | T R | 08-Sep 10-Sep | 3.Linear Programming 3.Linear Programming | Chapter 2 | |
| 5 | T R | 15-Sep 17-Sep | 4.Sensitivity Analysis 4.Sensitivity Analysis | Chapter 3 | HW2 (due Wed) |
| 6 | T R | 22-Sep 24-Sep | 5.Integer Programming 5.Integer Programming | Chapter 6 | |
| 7 | T R | 29-Sep 01-Oct | 6.Non-linear Programming Midterm Exam Review | Chapter 6 | HW3 (due Wed) |
| 8 | T R | 06-Oct 08-Oct | Midterm Exam 7.Project Management (Career Expo) | Chapter 7 | |
| 9 | T R | 13-Oct 15-Oct | 7.Project Management Fall Break | Chapter 7 | Couse Project 1 (due Mon 5pm) |
| 10 | T R | 20-Oct 22-Oct | 7.Simulation 8.Forecasting | Chapter 10,11 | HW4 (due Wed) |
| 11 | T R | 27-Oct 29-Oct | 8.Forecasting 8.Forecasting | Chapter 11 | Couse Project 2 (due Mon 5pm) |
| 12 | T R | 03-Nov 05-Nov | No Class 9.Queuing Theory | Chapter 9 | HW5 (due Mon) |
| 13 | T R | 10-Nov 12-Nov | 9.Queuing Theory 9.Queuing Theory | Chapter 8 | |
| 14 | T R | 17-Nov 19-Nov | 10.Decision Analysis 10.Decision Analysis | Chapter 8 | HW6 (due Mon) |
| 15 | T R | 24-Nov 26-Nov | 10.Decision Analysis Thanksgiving Holiday | | HW7 (due Wed) |
| 16 | T | 01-Dec | Final Exam | | |

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.