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## QMB6755: Managerial Quantitative Analysis I (Spring 18)

Time:	MW 9:35am – 11:30am	Place:	STZ 103
Instructor:	Dr. Tharanga Rajapakshe	Email:	tharanga@ufl.edu
Office:	STZ 335	Phone:	352- 273 - 0342
Office Hours:		Web:	<a href="https://lss.at.ufl.edu/">E-learning site</a> (https://lss.at.ufl.edu/)

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### COURSE DESCRIPTION:

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This course provides an introduction to the concepts and applications of Management Science. The primary goal of Management Science is to help you become an intelligent consumer of Management Science analyses. Another important goal is to encourage a more disciplined thinking process in the way you approach management situations. As a result of this course you will become more confident in understanding and using models, both in other courses and on the job.

Upon successful completion of this course, you will be able to:

1. Formulate and solve excel spreadsheet based analytic models;
2. Formulate linear programming problems from word descriptions;
3. Solve linear programs using computer-based techniques;
4. Interpret and apply LP shadow prices, reduced costs, and other sensitivity analysis data to economic and business problems;
5. Identify, formulate, and solve
  - a. transportation problems,
  - b. integer programming problems,
  - c. etc.
6. Understand issues involved in the successful implementation of Management Science projects in actual practice.

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### COURSE MATERIALS:

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#### 1. Required Text

- Nagraj Balakrishnan, Barry Render and Ralph M. Stair, *Managerial Decision Modeling with Spreadsheets and Student CD Package, 3/E*. ISBN-10/13: [0136115837](https://www.amazon.com/dp/0136115837) / [9780136115830](https://www.amazon.com/dp/9780136115830)

**2. Course Website:** This course will use the E-learning substantially. The login page is located at <https://lss.at.ufl.edu/>

- (a) **Course Notes:** PowerPoint slides will be posted on the E-learning site.
- (b) **Assignments:** Homework exercises provide opportunities to practice the skills of modeling and analysis introduced in the course. The homework emphasizes quantitative aspects of the course material and provides feedback on how well you have mastered the analytic techniques. The only way to learn Management Science is to work problems, and so the homework exercises are substantial.
- (c) **Forums:** You are invited to further discuss topics brought up in class on the forum. You can also post any comments you have about the material and ask questions. Finally, you can post comments, criticisms and suggestions anonymously regarding the course.

- (d) **Grades:** Grades on exams will be posted on the E-learning site. Please check that the grade posted matches the grade on your paper copy and notify the instructor as soon as possible in case of a discrepancy. According to the university rules, the final grades will not be posted, given over the telephone, or released by e-mail.

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## **PERFORMANCE EVALUATION:**

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The grades for this course will be based on a curve. This means the grade that you get for this course will depend on your relative rank in the class. As per college norms, the grading will maintain a maximum mean grade point average of 3.50 (for example, 20% A, 20% A-, 50% B+, 10% B is one possible distribution). Grades of C+, C and below can and will be given when student performance warrants.

	<b>Grade</b>
Exam 1	35%
Exam 2	35%
Quizzes	10%
Group HW	10%
Group Project	10%
<b>Total</b>	<b>100%</b>

### **Exams**

**THERE WILL BE NO MAKEUP EXAMS.** Conflicts for the exams must be resolved before the exam dates. You should contact me at least two weeks prior to the exam date and let me know in writing. Last minute requests will not be entertained. The only reasons for not being able to sit for an examination in its announced time should be part of University policy, or a documented medical excuse. Note that, for example, attending a wedding (even your own), job interviews, or early vacation plans will not be considered a valid excuse for missing an exam: **mark your calendars now and plan around these times.** The penalty for a missed exam is a zero grade on that exam.

### **Quizzes**

Quizzes will be given in class on the dates shown in the schedule. However, the dates may change, I will announce it at least one class period prior to the quiz. Students are responsible for any announcements in class including upcoming quizzes. **THERE WILL BE NO MAKEUP QUIZZES.**

### **Group Homework**

Students are required to form a group up to 3 members. All the homework assignments (**one file per group**) have to be submitted through Canvas by the due date. **No late homework assignments will be accepted.** Note that in our class, there is NO individual assignment.

**Group Project** (Please see the **separate** document for the project): Choose a problem in your daily life that you are interested and you are expected to use the methods and tools you learned in QMB 6755 to optimize to make decisions or provide rational suggestions. Your model should have decision variables, objective function and constraints (3-7) clearly defined. You can collect the data by field study, interview or from the Internet. Organize them into your spreadsheet (with all relevant data, setup all the constraints and objective).

- **Project proposal:** It should include motivation, model description and source of the data. The length should be one page. Be creative when you choose the topic and perform the analysis. You are welcome to discuss your topic with me during office hours.
- **Presentation:** The time for each group is around 10 minutes including Q&A.
- **Final report:** Must include the managerial insight (or interpretation of your results) and Excel file (QMB6755Section# \_\_ Group# \_Project).

### **Peer Evaluations of Team Assignments**

There will be peer evaluations of group assignments at the end of course. Grades of team assignments will be adjusted according to the consensus feedback from the peer evaluations.

### **Extra Credit Work**

There will be **NO** extra credit work available at any time for any part of the coursework.

### **Class Participation**

You are expected to attend all classes. There is no formal class participation grade but I will make a note of students who participate regularly in class, solve problems that I pose to the class for in class solving, etc., and may adjust their grade favorably in borderline cases. Please **leave your name-card up** for the entire duration of each class and **keep the same seat** for the duration of the course. You are expected to be punctual in class attendance and remain in the classroom for the entire class session, as you would in any business appointment, unless an urgent need arises or prior arrangements have been made with me.

Laptops and other electronic devices should be used with discretion and **only as permitted for work directly related to the class session**. Emailing, accessing the Internet, and working on matters unrelated to the work at hand are inappropriate behaviors because they are disrespectful and distracting to the class and to the instructor.

Classroom discussion is an important part of the pedagogy. Students should be fully prepared to engage in class discussion, and they should use the opportunity to develop positive and professional communication skills. This includes according respect for differing perspectives and contributions to discussion, as well as building on the base for discussion laid by student colleagues and the instructor.

### **Discipline in class**

I would expect you to maintain the decorum of the class at all times. As with any other group activity, be acutely aware that your actions in class can have negative externalities that can collectively affect the performance of the entire group. Teaching policies (academic honesty, student illness, religious holidays, accommodating students with disabilities and others): <http://www.registrar.ufl.edu/staff/policies.html>.

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## **ACADEMIC INTEGRITY**

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Academic integrity and honesty are essential in the development of a professional manager. This society is not willing to tolerate dishonest or otherwise unethical professional business managers. Students must attend to, and follow, the University of Florida code of student conduct, with special attention to academic integrity and academic honesty. They must never appropriate the ideas and

work of others, including both academic sources and fellow students, without appropriate attribution or by claiming others work as their own. They must exercise complete honesty in following the conditions established by the instructor for examinations and other assignments. Finally, they must be honest with one another, be willing to be accountable for their own failures of honesty and integrity, and not tolerate such failures in classmates.

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## COMMUNICATION

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I will be available at my office during the office hours. I will also be available by appointment and I am very accessible via email. If you need to set up an appointment other than during my regular office hours or ask questions via email, please send me e-mail at [tharanga@ufl.edu](mailto:tharanga@ufl.edu) with subject containing the course information, i.e., **QMB6755 and Section Number**. I will respond as quickly as I can.

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## TENTATIVE COURSE SCHEDULE

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The following is a tentative schedule of meetings, chapters, and deliverables for the semester. This schedule is subject to change (deletion of assignments/topics, modification of examination dates, etc.). The instructor will explain any changes; however, it is the student's responsibility to keep up with any modifications that are made throughout the semester. An updated schedule will always be available on the <https://lss.at.ufl.edu/>.

Week	Date	Topic	Reading	Assignments*
1	Jan 8 M	Introduction to Management Science	Chapter 1	
	Jan 10 W	Linear Programming (Graphical)		
2	Jan 15 M	Martin Luther King Jr. Day (No Classes)		
	Jan 17 W	Linear Programming (Computer methods)	Chapter 2	HW1 (Jan 17)
3	Jan 22 M	Linear Programming (Application)	Chapter 3	Quiz 1
	Jan 24 W	Linear Programming (Application) & Review	Chapter 3	HW2 (Jan 24)
4	Jan 29 M	Transportation/Network Models	Chapter 5	
	Jan 31 W	<b>Exam 1 (Chapters 1-3)</b>		
5	Feb 5 M	Transportation/Network Models	Chapter 5	
	Feb 7 W	Integer Programming	Chapter 6	Quiz 2
6	Feb 12 M	Integer Programming	Chapter 6	HW3 (Feb 12)
	Feb 14 W	Sensitivity Analysis & Review	Chapter 4	
7	Feb 19 M	Project Presentation		
	Feb 21 W	Project Presentation		
8	Feb 28 W	<b>Exam 2 (Chapters 4-6)</b>		Project Report (Feb 26)