**King Saud University 1st Semester 2017/18**

**College of Business Adm. QUA 522**

**Quantitative Analysis Dr. Khalid M. Altassan**

# --------------------------------------------------------------------------------Deterministic Models for Decision Analysis (QUA 522):

**INSTRUCTOR: Dr. Khalid Altassan**

**OFFICE: Business Administration 279**

**OFFICE HRS: by appointment**

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**Course Times: 1:00 PM – 4:00 PM, Monday**

**TEXT BOOK:**

**Winston W. L.: *Operations Research - Applications and Algorithms*, 4th ed., Cengage Learning, USA, 2003. Outside handouts will be distributed as needed.**

Course Description:

This course emphasizes on building students’ analytical skills for developing mathematical models for decision-making. The course provides an introduction to Management Science (Operations Research OR) concepts and analysis techniques for mathematical programming and decision-making. The course emphasis is on problem formulation, model building, data analysis, solution techniques, and evaluation of alternative designs/processes in complex systems.

**Course Objectives:**

**The purpose of this course is to provide the students with the following capabilities:**

* **Objective 1: Understand the main concepts of Operations Research.**
* **Objective 2: Develop analytical problem solving and decision-making thinking.**
* **Objective 3: Build Management Science based models of management problems.**
* **Objective 4: Understand and analyze the results of OR models.**
* Objective 5: Select the appropriate analytical technique to real world problems.
* Objective 6: Summarize and present analysis of results in a clear and a coherent manner.

**CLASS PROCEDURE:**

**The procedures followed in this class will be similar to those followed in other Business courses. The primary method of instruction is lecture with student participation, including in-class group work. We will use class time to further develop the material from the chapters, not review it. Hence, it is to your advantage to read the chapters before class.**

**First Class will be the main method of communication of assignments and other course-related material.**

# HOMEWORKS:

**Homework sets are assigned frequently. These are intended to help you become more familiar with the application of the concepts covered in this course, and prepare you for the exams. The homework assignments may be discussed with classmates.**

**EXAMINATIONS:**

**There will be one midterm and a final exam. The midterm will cover about one half of the material and is scheduled to take 90 minutes. The final will be given at the time set by the University. It will be cumulative.**

**Exceptions to the policy of taking the final at the time scheduled are rare.**

**CASES:**

**Students will be assigned to work on few small cases during the semester. Because your grade on this assignment depends on the quality of your work, I encourage you to start working early on these cases.**

**ATTENDANCE:**

**Attendance is expected, and will be tracked daily using a sign-in sheet. Since this class meets fewer than 15 times, missing more than 3 sessions is considered excessive and will adversely affect your final course grade. In addition, poor attendance explicitly affects your class participation score.**

**If you miss class, I expect you to get the notes and be familiar with the material by the next class. You are responsible for all material covered in class during your absence, including new assignments.**

**Grades:**

# Mid-Term Exam: 30% (TBA)

**Case Analysis: 20%**

**H.W. & Participation: 10%**

**Final Exam: 40% (TBA)**

**Total: 100%**

**Course Outlines:**

**Introduction to Quantitative Methods (OR & Statistics): Outside reading**

**Ch1: Introduction to Model Building.**

**Ch 2: Basic Linear Algebra.**

**Ch3: Introduction to Linear Programming.**

**Ch4: The Simplex algorithm.**

**Ch5: Sensitivity Analysis an Applied Approach.**

**Ch6: Sensitivity Analysis and Duality.**

**Ch 7: Transportation & Assignment Problems.**

**Ch8: Network Models.**

**Ch 9: Integer Programming.**