MGT6500 ANALYTICAL TOOLS FOR DECISIONS

Fall 2015 (Section TSA)

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[OFFICE HOURS: Before and after class and by appointment]

**Objective: Evidence-Based Management**

To expose the participants to the basic and most commonly used analytical tools for decision support. The first part of this course will deal with statistical concepts and will introduce the fundamental concepts of statistical thinking. Several common statistical tools for the scientific analysis of data pertaining to different decision situations, such as descriptive statistics, probability concepts, sampling and estimation, hypothesis testing, regression, queuing and simulation will be covered. The knowledge of these statistical tools enables the decision maker to make informed decisions based on the data available. This part will teach the science and art of making sense out of numerical data. Following this, the last part of this course will introduce the fundamental concepts of decision modeling and optimization. This part will cover the knowledge and practice of model construction that enables the development of a scientific and organized way of analyzing decision problems. Several common optimization approaches such as linear programming, and integer programming and network flows for solving decision models will be introduced.

Specifically, the objectives of this course can be summarized below:

1. To develop the ability to analyze, manipulate, summarize and present data arising in managerial decision making,
2. To understand the nature and role of uncertainty in making decisions based on data, and
3. To develop, implement and test models of data in order to support the decision making process and to validate various decisions.

**The instructional approach will stress application rather than theory.** While necessary theoretical knowledge will need to be covered for the grounding of the fundamental concepts, the emphasis will clearly be on the application and use of these concepts through problem scenarios and cases. This is not a course in mathematics, although mathematics is used in the course as the language for formally defining models and as means of finding solutions. The emphasis in this course is on the basic structure and logic of the models, not on their mathematical details and proofs. The requirements for particular mathematical operations should be within your capabilities, the most important of which is the ability to deal with abstract symbols and relationships (algebra).

**COURSE MATERIALS & WEBSITE**

We will use the T-Square web page and tools available there for the distribution of all online resources, PowerPoint slides, and for grade results.

**Required Textbooks and Software:**

1. Albright, S.C., W.L. Winston, and C. Zappe, ***Data Analysis and Decision Making with Microsoft Excel****,* **2011, Fourth Edition**, Thomson South-Western.
2. Microsoft Excel Spreadsheet Software with multiple Add-Ins provided with the textbook.

**GRADING & ASSESSMENT POLICY**

Your final letter grade for the semester will be determined by four components according to the following system of weights:

|  |  |  |
| --- | --- | --- |
|  |  |  |
| **Class Exercises** | **35 %** | **Posted for grade prior to class, then reviewed in class!** |
| **Midterm Exam** | **30 %** | In Class: Open-book, Open-notes. |
|  |  |  |
| **Final Exam** | **35 %** | In Class: Open-book, Open-notes |
|  | **100 %** |  |

**Exams: Makeup exams will not be given.** Students missing a scheduled exam due to an official Georgia Institute of Technology event must prearrange an alternate time to take the exam. Other excused absences for the **Midterm** (for health reasons, etc.) must be documented, and the grade missed will be the replaced by the **Final exam** scores. All other cases will receive a grade of zero for the missed **Midterm exam**. **You must take the Final Exam!** An “incomplete” will be given if the **Final Exam** is missed and you have a passing grade at the time. All exams are comprehensive in nature as most chapters build on the previous chapters’ material. **NOTE: Students are expected to have their own calculator for each In-Class exam! Practice Exam Questions are available on T-Square** to help students understand the material and prepare for the exams. For those students needing additional practice with the concepts, additional homework problems and solutions are available on T-Square, but they will not be collected or graded. **Computer use will be limited to the daily in-class experiential exercises ONLY!** Daily exercises will be posted for credit prior to class on the date assigned in the “Assignments” tab on T-Square to show “active participation”. Solutions for these exercises will be briefly discussed in class and posted for students to **self-check** their work.

**The target assignment for letter grades will be as follows:**

**A** 90 and above;

**B** 80 and above, not 90;

**C** 70 and above, not 80

**D** 60 and above, not 70;

**F** Below 60 points.

For each component of your grade (exams and project), the raw scores will be analyzed to determine if a curve is appropriate. Raw scores of the class will be analyzed to determine if an adjustment is necessary based on historic trends in this course. If the instructor determines an adjustment is warranted, then individual scores will be normalized into the target ranges outlined above. Final course grades are determined using the total points accumulated based on the weight allocation above.

To protect the honest majority, a grade of "F" will be assigned in the course for any cheating on any exam, big or small, and the student will be referred to the Dean of Student Affairs for disciplinary action.

**ATTENDANCE**

Class attendance does not impact your grade for the semester. **If Georgia Institute of Technology is closed for any reason on a scheduled class day**, you should be prepared to adjust the schedule accordingly including taking an exam during that next class session. In the next class meeting (and using T-Square and Email) the instructor will provide direction as to potential changes in course necessary because of the unscheduled cancellation of class.

**CLASSROOM ENVIRONMENT**

We here in the College of Business REQUIRE A CERTAIN AMOUNT CIVILITY when attending class. The following outlines the basic rules of respectful behavior that must be followed to permit the classroom to be a positive learning experience for all who have chosen to attend. Please turn off cell phones, do not talk to your neighbors, or do not read anything other than the class material currently being discussed. Also, the use of laptop computers is restricted to class material ONLY!

**NOTE**

1. The course syllabus provides a general plan for the course; deviations may be necessary.
2. Students are responsible for the information contained in the Academic Honesty policies found at <http://www.honor.gatech.edu/>.

## Tentative Schedule

The tentative sequence of the materials covered in the class is listed below:

