

QMT 127: Intermediate Operations Research I

1st Semester, School Year 2012-2013

Instructor: Mr. Alyson Lao Yap

Course Description

This course is an introduction to the core discipline that distinguishes the M.E. Program from other management programs – the quantitative approach to problem solving in management. It assumes a high level of mathematical preparation and a sufficient exposure to basic management principles. The course starts with an introduction to the general quantitative problem solving methodology. It then proceeds to one of the most widely used techniques, linear programming, covering its formulation, solution methods, other model forms, sensitivity analysis, and other applications.

Main Book:

Operations Research, An Introduction; Taha, Hamdy A.; 7th Edition; Prentice-Hall

Other References to look into:

1. *8th edition, Introduction to Operations Research*, Hillier, Frederick S.; Lieberman, Gerald J. New York. McGraw-Hill. 1995
2. *Operations Research Applications and Algorithms 4th edition*, Wayne L. Winston, Thomson Brooks/Cole
3. *Optimization in Operations Research;* Rardin, Ronald; Prentice-Hall, 1998
4. *Notes on Linear Programming* by Dr. Mari-Jo P. Ruiz; Ateneo de Manila University, 1989

Course Outline

Topic	Long Test
1. Problem Solving Methodology a. Introduction to Operations Research b. The OR Process c. Mathematical Modelling	Long Test 1
2. Introduction to Linear Programming a. Standard Linear Programs b. Formulation of Linear Programs c. Graphical Method d. Standardizing and Linearizing Programs e. Formulation of Pure Integer Programs f. Formulation of Mixed Integer Programs	
3. The Simplex Method a. Review of Matrix Theory b. Foundations of Simplex c. The Simplex Algorithm: Dictionary & Tableau	Long Test 2
4. Sensitivity Analysis a. Duality b. Game Theory c. Parametric Programming	
5. The Dual Simplex Method	Long Test 3
6. Integer Programming a. The Cutting Plane Method b. The Branch and Bound Algorithm	
7. Transportation Problems	
8. Assignment Problems	

Course Requirements and Grade Equivalent

3 Long Tests	60%	93.00 – 100.00	A
Final Exam	20%	86.00 – 92.99	B+
Quizzes & Homeworks	10%	80.00 – 85.99	B
Class Participation	10%	74.00 – 79.99	C+
		67.00 – 73.99	C
		60.00 – 66.99	D
		00.00 – 59.99	F

Consultation Hours:

MWF 2:30 to 4:30 pm

Classroom Policies

1. **Dress Code will be followed.**
2. Attendance will be checked at the start of each class. He/She who arrives after the start of class but within fifteen (15) minutes is considered late. After fifteen (15) minutes, a student is allowed to attend the class but is considered absent. An absence is equivalent to one (1) cut while a late is one-half ($\frac{1}{2}$) cut. A student is entitled to nine (9) cuts, beyond which he/she will get a grade of W.
3. If a teacher is late, students are expected to wait until he arrives unless the teacher has other instructions to the department secretary, or the class beadle.
4. Eating is not allowed during class.
5. Cellphones should, at least be put in silent mode during class hours. During exams, they should be turned off.
6. If a letter of "F" is given for any reason, its numerical equivalent will be zero.
7. After an exam is checked and returned, students are given two (2) weeks, after which appeals for change of grade will not be entertained.
8. **There will be no make-up exams.** Therefore, students who will be absent for certain dates representing the school in competitions or conferences are required to inform the teacher at least two weeks before.
9. There will be no rounding off before the conversion of the final marks to letter grades.
10. Refer to student handbook for other policies.