

**Ateneo de Manila University**

John Gokongwei School of Management

**QMT 128 – Advance Operations Research**2<sup>nd</sup> Semester, School Year 2012-2013

Instructor: Mr. Alyson L. Yap

**Course Description**

Advance Operations Research is the continuation of Intermediate Operations Research (QMT 127) focusing on standard Operations Research Models other than Linear Programming models and their extensions. The focus of Advance Operations Research is more on non-linear optimization such as Network Optimization, Dynamic Programming, Inventory, Queuing, and Simulation Models.

**Main Reference**

*Operations Research, An Introduction, 8<sup>th</sup> edition*; Taha, Hamdy A.; Prentice-Hall, 2007

*Introduction to Operations Research 8<sup>th</sup> edition*, Hillier, Frederick S.; Lieberman, Gerald J. New York. McGraw-Hill.

**Other References**

*Operations Research Applications and Algorithms 4<sup>th</sup> edition*, Wayne L. Winston, Thomson Brooks/Cole

**Course Outline**

Topic	Long Test
1. Network Models a. Minimum Spanning Tree b. Shortest-Path Problems c. Maximum-Flow Problems d. PERT-CPM	Long Test 1
2. Dynamic Programming a. Deterministic Dynamic Programming b. Formulating Dynamic Programming Recursions c. Probabilistic Dynamic Programming d. Continuous Dynamic Programming	Long Test 2
3. Inventory Models a. Introduction to Basic Inventory Model b. The Basic EOQ Model c. The Continuous Rate EOQ Model d. Quantity Discounts Model e. The EOQ Models with Back Orders f. Single-Period Decision Models	Long Test 3
4. Queuing Theory a. Queuing Terminologies b. Modelling Arrival and Service Processes c. Birth-Death Processes d. The M/M/1 Model e. The M/M/s Model f. The M/M/1/k Model, M/M/s/k Model g. Finite Source Models	Long Test 4

## Course Requirements and Grade Equivalents

4 Long Tests	400 pts	92.00 – 100.00	A
Quizzes and Assignments	100 pts (max)	86.00 – 91.99	B+
Final Exam	200 pts	77.00 – 85.99	B
		69.00 – 76.99	C+
		60.00 – 68.99	C
		50.00 – 59.99	D
		00.00 – 49.99	F

Consultation Hours:  
MWF 2:30 – 4:30 pm

## Classroom Policies

1. 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.
2. 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.
3. Eating is not allowed during class.
4. Cellphones should, at least be put in silent mode during class hours. During exams, they should be turned off.
5. If a letter of "F" is given for any reason, its numerical equivalent will be zero.
6. After an exam is checked and returned, students are given one (1) week, after which appeals for change of grade will not be entertained.
7. Quizzes will always be surprised. No make up quizzes will be given.
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.  
Refer to student handbook for other policies.