OR 542
Operations Research: Stochastic Models
Spring 2014

Instructor: Dr. Andrew Loerch

Office: Nguyen Engineering Building Room 2103

Phone: (703) 993-1657 (O)

E-mail: aloerch@gmu.edu

Office Hours: Before or after class, or by appointment

Text: Operations Research: Applications and Algorithms (4rd Ed.) by Winston

Description: The intent of this course is to provide a modern perspective on the analysis of systems that are stochastic in nature, that is, ones that have a random component. There will be an emphasis on the underlying random processes, ultimately leading to the development of practical strategies for dealing with the design and analysis of these systems in a contemporary technological environment. Prerequisites are knowledge of the fundamental elements of probability (no statistical inference is needed) and a general graduate-level maturity in applied mathematics. There will be a special emphasis on the numerical solution of problems using spreadsheet software. Description of class administration is provided.

<u>Topic</u>	<u>Assignment*</u>
Introduction and Review of Probability	Read Chapt.12 pg 735 # 4, 6, 7 Review Problem Sheet Bayes
Decision Making Under Uncertainty	Read Chapt.13, § 1-4, 6; Problems Problems2
Deterministic Inventory Modeling	Read Chapt.15, § 1-7 pg 858 #1,3,11 Pg 864 #1,3; pg 868#2,3,4; pg 872 #2
Probabilistic Inventory Models	Read Chapt.16, § 1-6 Pg 884 #1,2; Pg 888 #2,4; pg 897 #3,4
Markov Chains	Read Chapt. 17, § 1-5 Graded HW Pg 931 #1, 3; pg 934 #3, pg 940 #3, 10, 13

Pg 948 #9, 10

Queueing   Read Chapt. 20, § 1-11 pg 1062
                                  #1,2,4
                                  Pg 1072 #1,2, pg 1081#1,2,3,4,14

Forecasting   Read Chapt. 24, § 1-6 Extra Credit
HW

Simulation   Read Chapt. 21, § 1-9, Exp WS,
Sim WS

                                  Sim Graded HW

* Homework sets will be assigned on a weekly basis from appropriate problems in the
textbook.

Grading: Midterm   40%
                          Final Exam   40%
                          Class & Homework   20%
                                               100%