THE UNIVERSITY OF WESTERN AUSTRALIA
SCHOOL OF MATHEMATICS AND STATISTICS

Unit Information – 2nd Semester 2007
MATH3321 3OR: Operations Research

Lecturers: Dr. Song Wang, Rm: 2.29, Tel: 6488 3350, email: swang@maths.uwa.edu.au
http://www.maths.uwa.edu.au/~swang/courses/3OR.

Prerequisite: Prerequisites: MATH2224 Operations Research (formerly 530.224 Operations Research 224) and [MATH2209 Calculus and Probability (formerly 530.209 Calculus and Probability 209) or MATH2210 Calculus and Algebra (formerly 530.210 Calculus and Algebra 210) or MATH2030 Calculus and Matrix Methods].

Assessment: 3 assignments totalling 30%. Final (3 hr) Examination 70%.

Text: No text is required. Lecture notes will be put on the website.


Calculators: See the Faculty ECM policy. Get your approved scientific calculator registered at M&S office.

Plagiarism: You should be familiar with the FECM policy document on the web. For this unit, you can exchange ideas on assignment problems, but the final submission should be your own version.

3OR Outline

(1) Linear Programming – Review of basic concepts and notation, formulation and solution using software.
(2) Integer Programming – Formulation and numerical solution by Branch and Bound Algorithm.
(3) Dynamic Programming – Dynamic programming principle, shortest path algorithm, deterministic dynamic programming
(4) Nonlinear Programming – Types of nonlinear programming problems, 1D search, gradient based search, quadratic programming, convex analysis, constrained and unconstrained problems.
(6) Simulated annealing and genetic algorithms.