

THE UNIVERSITY OF TEXAS AT DALLAS  
School of Management  
Box 830688, Richardson, Texas 75083-0688

**OPRE7330 DETERMINISTIC MODELS IN OPERATIONS RESEARCH**

**Dr. Chelliah Sriskandarajah**

- **Course Outline:** Deterministic models in operations research. Topics include linear programming, sensitivity analysis and duality, assignment problems, network models, integer programming, nonlinear programming, sequencing and scheduling models.
- **Topics:**
  1. Introduction to Operations Research
  2. Linear Programming
    - Simplex Algorithm
    - Sensitivity Analysis and Duality
  3. Transportation, Assignment Problems, Network Models
  4. Integer Programming
  5. Advanced Topics in Linear Programming
  6. Complexity of Optimization Problems
  7. Exact Methods for Optimization Problems
    - Branch and bound methods
    - Dynamic programming
  8. Heuristics Methods for optimization Problems
    - Neighborhood search techniques
    - Tabu search techniques
    - Genetic algorithms
  9. Scheduling Models
    - Scheduling problems in different shops, single machine, flowshop, etc.
    - no-wait scheduling, robotic cell scheduling.
- **Grading :**
  - 40 % final examination
  - 25 % mid-term examination.
  - 15 % one research project
  - 20 % course work (4 assignments)

- **Text:** Operations Research : Applications and Algorithms, W.L. Winston, International Thomson Publishing. 1994 (Third Edition).
- **Software:** Lindo, Cplex.
- **MID-TERM EXAMINATION :** 14 October 1999, 2:00PM to 5:00PM.
- **FINAL EXAMINATION :** 09 December 1998, 2:00PM to 5:00PM.
- **Attendance :** It is expected that students will attend all class. It is customary to inform the instructor in advance if a student has to miss a class. It is student's responsibility to make-up for missed classes.
- **Assignments:** Assignments and project must be returned on the specified due dates. You may discuss the assignments with others but make sure that you complete the work independently.
- **Examinations:** There will be a mid-term exam and a final exam. All exams are closed book. No make up exams will be given.
- **Research Project :** The following is a suitable report format that you may wish to use as a guide.
  - Title page
  - Executive Summary page
  - Introduction
  - Existing Methods
  - Analysis
  - Results
  - Conclusion
  - Lines for Further Investigation
  - Appendices : - Numbered and Titled
- Your report should be about 20-25 pages