# IMSE 680, Quantitative Problem Solving Methods


**Professor:** Todd Easton
**Office:** 221 Durland Hall
**Email**: teaston@ksu.edu
**Phone**: (785) 532-3478


**Class Time:**
**Office Hours**:

**Text Book:** Operations Research : Applications and Algorithms
by Wayne L. Winston ($4^{th}$ edition)

**Course Objectives:** By the end of this course, a successful student should be able to:

- Solve linear programs using the Simplex Method
- Mathematically model and solve complex systems in software
- Understand and apply sensitivity analysis
- Solve specialized problems with specialized algorithms (Shortest Paths, Maximum Flow, etc.)
- Solve nonlinear and integer programs
- Apply and solve stochastic systems

**Grading Scheme:**

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|---|---|
| 12.5% (each) | 4 Projects (LP, LP, IP, Stochastics) |
| 20% | 1 Midterm (Closed book, no calculator, 1 cheat sheet) |
| 30% | Final Exam (Closed book no calculator, 2 cheat sheets) (Cummulative) |

**Prerequisite and other policies:** The student must have taken at least one semester of Calculus. I assume that you can integrate and differentiate polynomials. A student cannot receive credit for IMSE 680 and also receive credit for IMSE 560 or for IMSE 780.

**Homeworks:** Homework along with the solutions will be posted on-line, but not graded. I strongly encourage you to do the homework problems even though they are not graded.

**Projects:** The projects will require the use of Excel and LINGO (it comes with your book). Each project should include a 1 page executive summary, and a technical report (as long as you think is appropriate). 50% of each project is assigned to the report and 50% for the correctness of the model and solution.

**Web Based:** All of the course material will be accessed through KSU online. The best way to contact me is by email. I may forward a relevant email to the entire class.

**Academic Honesty:** Plagiarism and cheating are serious offenses and may be punished by failure on the exam, paper or project; failure in the course; and/or expulsion from the university. The departmental policy is at http://www.imse.ksu.edu/ethics.html. Fall semester 1999 marks the beginning of Kansas State University's undergraduate and graduate Honor System. Please refer to http://www.ksu.edu/Honor for more details.

Any student with a disability who needs special accommodation or other assistance in this course should speak with me as soon as possible.