Fundamentals of Optimization
SIE 545 Fall Semester 2011

General Information

Instructor: Feng Pan

Time and location: 11:00 - 12:15, Tuesdays and Thursdays

Office: ENGR 265

Office Hours: 12:30 - 13:30, Tuesdays and Thursdays

E-mail: fmapan@gmail.com

Prerequisites: Elementary calculus and matrix algebra.


Grading Policy

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<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Problem Sets</td>
<td>25%</td>
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<td>Exam 1</td>
<td>25%</td>
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<td>Exam 2</td>
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<tr>
<td>Final Project</td>
<td>25%</td>
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Late problem sets will not be accepted.

Students are encouraged to work together in determining how to do the problem sets, but problem sets must be written-up individually. Students must cite their team members as well as any external references.

Teams (1-3 students) can be formed for the final project. Each team submit one final project. The objective of the final project is to apply optimization techniques to a research topic selected by a team.
Course Outline

• Introduction
  optimization models
  mathematical programming

• Unconstrained Optimization
  optimality conditions
  convex function
  algorithms

• Convex Set

• Linear Programming
  simplex algorithm
  duality
  complementary slackness

• Nonlinear Programming
  optimality conditions
  duality
  algorithms

• Discrete Optimization
  network optimization
  integer programming
  computational complexity

Additional Administrative Notes

If you have a disability or a special need for which you are or may be requesting accommodations, please contact both me and the S.A.L.T. Center (http://www.salt.arizona.edu/) or the Disability Resource Center (http://drc.arizona.edu/) as early as possible in the semester. You must submit appropriate documentation to the instructor before accommodations can be granted.

Students are encouraged to make recommendations to improve the class and my teaching skills.