Optimization 3450:635-001

Spring 2014, MWF 9:55–10:45am, CRH 209

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Office Hours: MWF 11:00-11:50am, other hours by appointment

Course Outline (selected topics from the following)

- Combinatorial Optimization: Simulated Annealing
- 1 Introduction
- 2 Fundamentals of Unconstrained Optimization
- Fibonacci search, Golden section search, Newton’s method, quadratic and cubic Hermite interpolation
- 3 Line Search Methods
- 5 Conjugate Gradient Methods
- 6 Quasi-Newton Methods
- 9 Derivative-Free Optimization
- 12 Theory of Constrained Optimization
- 13 Linear Programming: The Simplex Method
- 15 Fundamentals of Algorithms for Nonlinear Constrained Optimization
- 17 Penalty and Augmented Lagrangian Methods

Policy

1. Incompletes will only be given in documentable cases of long-term illness, or similar problems. In addition, at least half of the semester’s work must have been completed, with at least an average grade of C. College policy also states that a student may not sit in on the course the next semester to make up the incompletes, but only to make up the missed work.

2. Attendance is required by University policy.

3. Homework will be assigned for each section, and collected periodically, with selected problems graded. In general, the homework will be due the second class period after a topic is completed.

4. The final scale will be no higher than A: 90+ average, B: 80-89 average, C: 70-79 average, D: 60-69 average. Plus and minus grades will be used at my discretion. The averages will be computed using Homework: 75 points, Projects: 75 points, Midterm: 100 points, Final: 150 points.
5. If you are going to miss a test (which will be announced approximately one week in advance), you must have a valid, documentable excuse and notify me in advance, or as soon as reasonable afterward. The make-up will be as soon as possible, generally within a week of the original test date.

6. **Important Dates:**
   - Monday, January 19 - Martin Luther King Day (University closed)
   - Tuesday, February 17 - President’s Day (University closed)
   - Saturday, March 21 to Sunday, March 29 - Spring Break (University closed)
   - Friday, March 2 - Last day to withdraw from the course
   - Monday, May 4 to Friday, May 8 - Final Exam week