

5630 Numerical Optimization

Spring 2009

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- Topics:
 - Numerical solution of unconstrained and constrained optimization problems and nonlinear equations.
 - Topics include:
 - Optimality conditions;
 - Local convergence of Newton and Quasi - Newton methods;
 - Line search and trust region globalization techniques;
 - Quadratic penalty and augmented Lagrangian methods for equality - constrained problems;
 - Logarithmic barrier method for inequality-constrained problems; and
 - Sequential Quadratic Programming.
- Text:
 - Numerical Optimization 2nd edition
Jorge Nocedal and Stephen Wright.
ISBN : 0387303030
This text is available from the library to any mtu IP address as a 'pdf' file. Buy it or print it. We will be working through this text.
 - Handbook of test problems in local and global optimization
Call Number: TP155.2.M34 H36 1999
On reserve under MA5630.
- Coding:

You will be expected to implement many of the algorithms discussed in the class. You can use MathLab, Mathematica, or C. I will be able to provide the most help with Mathematica and C. There will be some students in the class with little programming experience. I will run a "Programming Boot Camp" for these students at the start of the course .
- Prerequisites : MA4330 or MA4610 or MA5627 or MA4630 or consent of instructor.
- Meeting Times: The course meets M/W/F 11 - 12 in Fisher 327b.