

MATH 533 01W: OPTIMIZATION
SPRING 2015

CONTACT INFORMATION:

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OFFICE HOURS : MW 4:30-6:30p (Skype), and TR 10:00-10:50p (BIN 314),
otherwise by appointment

DESCRIPTION AND POLICIES:

1. CLASS SCHEDULE: Online (Section 01W)
Online office hours will be held via Skype (add instructor's Skype ID to your contacts) at times indicated above. You are welcome to attend both regular and online office hours which are scheduled after work hours for your convenience.
2. TEXTBOOK: Practical Optimization Methods with Mathematica Applications by M. Asghar Bhatti (required, ISBN-13: 978-0387986319 ISBN-10: 0387986316)
Linear and Nonlinear Programming by Luenberger and Ye (not required)
Nonlinear Programming by Bazaraa, Sherali and Shetty (not required)
3. WEBSITE & INTERNET: An eCollege website has been created for the course which may be accessed from student myLEO accounts following the eCollege and then the My Courses tabs. All files and documents, lecture notes and outlines, links to video content, and software modules that the instructor shares with the class will be posted in the Doc Sharing folder in the course website. All material posted at the course website is copyrighted ©. You are allowed to retain one copy of each file for your personal use, but the files should not be distributed in any form without instructor's written consent.
4. COURSE DESCRIPTION: Graphical optimization, linear programming, simplex method, interior point methods, nonlinear programming, optimality conditions, constrained and unconstrained problems, combinatorial and numerical optimization, applications. Recommended background: calculus and linear algebra. Prerequisites: Math 335 or the consent of instructor.
5. LEARNING OUTCOMES: Students who complete this course successfully will
 - a) learn the *terminology* of linear and nonlinear optimization;
 - b) learn the *methods* employed in the field of linear and nonlinear optimization;
 - c) learn the *applications* of theoretical methods to practical problems.

6. **SOFTWARE:** *Mathematica* software is required for the course. It will be used for carrying out computations in discussion sessions, homework exercises, exams and projects. *Mathematica* 10 is installed and available in Mathematics computer lab in BIN 328, and in computer labs at the Metroplex center. Personal student licenses may be purchased online at the Wolfram *Mathematica* website <http://www.wolfram.com/mathematica/how-to-buy/education/>.
7. **TESTS & PROJECTS:** There will be a take-home midterm test/project (200 points) and a comprehensive take-home final/project (200 points). No make-up test will be given without an official, written, university accepted excuse. The student must contact the instructor the next working day and present the documented excuse to make up a test.
8. **TENTATIVE EXAM SCHEDULE:**

Midterm	200 pts	Wed March 11, 2015
Final	200 pts	Wed May 13, 2015
9. **HOMEWORK** Homework will be assigned in every class meeting on a regular basis. Selected assignments and problems will be graded only, but all homework problems should be worked out. The assignments will be turned in electronically (in form of a *Mathematica* notebook) by due dates to the Dropbox for that week at the eCollege website. Student name and homework number should be printed at the top of each notebook. You may work in groups unless otherwise instructed, however the paper you turn in must be your own work. Late homework is not accepted. Homework score is worth 50 points of the total semester grade.
10. **TENTATIVE COURSE OUTLINE:**
 1. Introduction To *Mathematica*
 2. Graphical Optimization
 3. Optimality Conditions
 4. Unconstrained Problems
 5. Linear Programming
 6. Interior Point Methods
 7. Quadratic Programming
 8. Constrained Nonlinear Problems
 9. Duality
 10. Integer Programming
 11. Combinatorial Optimization

11. **GRADING SCALE:** All scores will be added and a letter grade will be assigned according to the following table.

A	406 - 450 pts
B	361 - 405 pts
C	316 - 360 pts
D	271 - 315 pts
F	0 - 270 pts

12. **OTHER IMPORTANT DATES:**

March 16-20, 2015	Spring break
May 08, 2015	Last class day

13. **MISCELLANEOUS:** Your enrollment in this course indicates that you agree to observe all the conditions and regulations of this syllabus and the Student Handbook. Your test and homework scores may be filed to be used anonymously for educational research.

It is your responsibility to secure the software licenses and other resources (such as a personal computer with proper operating system to run the software, broadband internet access to view the video recordings and participate in online discussion sessions, etc.) to be able to complete and communicate all assignments, tests and projects to the instructor as required. The access information to Library resources, and Help Desk for technical support are available through the eCollege website.

Policies pertaining to scholastic dishonesty are identical to TAMU-Commerce regulations given in the Student Handbook, available online at the website <http://web.tamuc.edu/studentLife/documents/studentGuidebook.pdf>. All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment (See Student's Guide Handbook, Policies and Procedures, Conduct). Disruptive behavior and scholastic dishonesty in any form will not be tolerated.

Students requesting accommodations for a disability should contact the Office of Student Disability Resources and Services, Texas A&M University-Commerce, Gee Library, Room 132, Phone: (903) 886-5150 or (903) 886-5835, Fax: (903) 468-8148, or Email: StudentDisabilityServices@tamuc.edu.

Any possible changes to be made in this syllabus by the instructor during the semester will be announced by email.