MATH 533 01W: OPTIMIZATION
Spring 2017

CONTACT INFORMATION:

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Office Hours	: WF 11:00-11:50a (online), otherwise by appointment

DESCRIPTION and POLICIES:

1. Class Schedule: Online (Section 01W)
   Office hours will be held online at times indicated above at the Adobe Connect website: `http://connect.tamuc.edu/coskun`. Students will have access to this discussion room as a **guest** without an account. Please join office hours conveniently scheduled twice a week for all questions.

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 **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 or shared 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. Tests & Projects: There will be **two take home exams**, one midterm and one comprehensive final. The exams will be worked in **Mathematica**, and turned in electronically as a Mathematica notebook into the corresponding Dropboxes by the deadlines indicated in the **lecture outlines**. Late work is not accepted.

6. TENTATIVE EXAM SCHEDULE:

Midterm	200 pts	Monday March 6, 2017	take-home
Final	200 pts	Monday May 8, 2017	take-home

7. 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 11 may be installed in Mathematics computer lab in BIN 328, and in computer labs at the Metroplex center. **Personal student licenses** could be purchased online through the Wolfram Mathematica website (click here). Mathematica has recently introduced an **online version**. In principle, it should be the same with the desktop version, but the user interface looks different. You may use it at your own risk. We will be using the desktop version for all lecture presentations, and other activities.

8. 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.

9. 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, nonlinear optimization;
c) learn the **applications** of theoretical methods to practical problems.

10. 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

11. TENTATIVE COURSE OUTLINE: We cover **all or certain parts of these topics** from the textbook as time permits.

    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

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

    It is the **student's 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, 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. You should contact Wolfram Mathematica **technical support line** listed on their website for all installation, licensing, and other technical questions.

    Policies pertaining to scholastic dishonesty are identical to TAMU-Commerce regulations given in the **Student Handbook**, available online at the university website (click here). 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.

    Campus Concealed Carry Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a **concealed handgun** in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in

the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in **restricted locations**. For a list of locations, please refer to the policy (click here) at the university website, and/or consult your event organizer. Pursuant to PC 46.035, the **open carrying of handguns is prohibited** on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 911.

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for **persons with disabilities**. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an **accommodation**, please contact: 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: `Rebecca.Tuerk@tamuc.edu`.

Mathematica software offers various **accessibility** features, such as a screen reader, etc. Please visit Accessibility statement in the Documentation Center of the software for a full listing of these features.

Nondiscrimination notice: Texas A&M–Commerce will comply in the classroom, and in online courses, with all federal and state laws **prohibiting discrimination and related retaliation** on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment **free from discrimination** on the basis of sexual orientation, gender identity, or gender expression will be maintained.

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