

IE 5300-002: Computational Optimization
Spring 2014

Instructor: Jay Rosenberger

Office Number: Woolf 420-D

Office Telephone Number: 817-272-5787

Email Address: jrosenbe@uta.edu

Social Media: LinkedIn, Twitter (@j_rosenbe), Google+ (jaymrosenberger@gmail.com), Facebook

Office Hours: TTh 9:30 AM - 11:00 AM

Section Information: IE 5300-002

Time and Place of Class Meetings: Woolf 402, TTh 8:00 AM -9:20 PM

Description of Course Content: Topics include Minkowski's theorem, Dantzig wolfe decomposition, multi-commodity flow problems, dual subgradient method, revenue management, branch and price, vehicle routing, benders' decomposition, kelley's cutting plane and venoitt's algorithm.

Student Learning Outcomes: At the end of this course students should be able to (1) understand the basic concepts of probability theory, hypothesis testing, and linear programming, (2) apply those concepts to solving numerical problems, (3) perform descriptive and inferential statistical analyses of data, and (4) solve linear programming problems using Microsoft Excel.

Required Textbooks and Other Course Materials: None

Mailbox: IMSE Department P.O. Box 19017

GTA: Farhana Proma (farhana.proma@mavs.uta.edu)

GTA Office Hours: TBD

Descriptions of major assignments and examinations: The course includes one written project, one oral project, attendance, lecture certifications, homework assignments, quizzes, and lecture slides.

Prerequisites: IE 5317 and IE 5301.

Projects: Projects include both a written report and oral presentation. The written report accounts for 40% of the student's final grade and is due on the final exam period Tuesday May 6 at 8:00 a.m. The oral presentation is 10% of the student's final grade and will be scheduled later in the semester. There are three options for project topics.

- Option I: A student may work on his/her research topic, but the written report should result in a publishable paper.
- Option II: A student may provide a literature review on an integer programming topic or a more detailed paper summary.
- Option III: Teams of two or three students may work on a computational study.

All projects must be approved by the instructor. Distance students should try to make arrangements with the instructor to attend a lecture to present his/her oral project.

Attendance and Lecture Certifications: The instructor will take attendance during each class. Students are to sign the attendance sheet and provide the last 4 digits of his/her Student ID. Students who do not attend class are to watch the video on the web page. To ensure students are paying attention to the video in the lectures, the instructor will announce a lecture code during each class. For each lecture, each student is asked to submit the following lecture certification statement:

I certify that I watched the video for the lecture on [date of lecture], and the lecture code is [lecture code].

The lecture certifications should be emailed to the GTA by the start of the subsequent lecture or the first lecture after census date, whichever date is later. All lecture certifications submitted after the due date and time will NOT be given credit. ***In class students are not allowed to submit more than 5 lecture certifications without a documented illnesses or emergency excusing them.*** The combination of attendance, lecture certifications, homework assignments, and quizzes will be 40% of the student's grade.

Homework and Quizzes: There instructor on occasion will assign short homework assignments or in class quizzes during the semester. Work the assigned problems. After the homework or quiz is due, the instructor will review the problems. Each student will score his/her own homework or quiz. Although these scores will not count towards the student's grade, whether the student completed the homework or quiz will count towards the student's homework. The combination of attendance, lecture certifications, homework assignments, and quizzes will be 40% of the student's grade.

Lecture Slides: Currently, the instructor has some typed and handwritten notes for this lecture. The instructor would like the students to help generate lecture slides in LaTeX. This will help students to learn LaTeX, which is a common software package required by peer reviewed research journals, and presentation writing skills. Each student will develop slides for two lectures. The instructor will provide slides from the previous lectures. The slides (both in LaTeX and pdf formats) will be due one week after the lecture. The instructor will grade based upon the quality and consistency of the presentation slides. The instructor will reduce points for such problems as typographical errors and inconsistencies with previous lecture slides. Lecture slides are 10% of the student's grade.

Class Courtesy: The instructor insists on a quiet classroom and asks that noise be minimized. This includes silencing cell phones before class and no whispering during class. Texting in class is fine but not during exams. Students who come to class late should try to enter the classroom as discreetly as possible. Due to noise in the hallway, the hallway door, which is may be locked, may be shut 10 minutes after class begins. Students who do not come to class within the first 10 minutes of the start of class may not be able to attend class. In this case, the student should watch the recorded video. *Do not knock on the door if it has already been shut.*

Late Submissions: Due dates and times represent the LAST minute that you can receive full credit for your project and lecture certifications. A written project will be reduced by 10% (one full letter grade) and an additional 10% for each 24-hour period elapsed from the due date and time. Usually, the instructor will place a box in front of his office to submit projects before the due date. You may submit your projects early by handing it to the instructor in class, placing it in the box outside the instructor's office door, sliding it under the instructor's office door, or emailing it to the instructor. Late lecture certifications and unattended lectures will not be graded.

Grading: Grading Format: A = 90, B = 80, C = 65, D = 55, F = below 55. Exams are curved as described below, but projects and other work are not curved. The grade weights are as follows:

- Attendance, lecture certifications, homework, and quizzes are 40%
- Lecture slides are 10%
- Written project is 40%
- Oral project is 10%

Students are expected to keep track of their performance throughout the semester and seek guidance from available sources (including the instructor) if their performance drops below satisfactory levels.

Expectations for Out-of-Class Study: Beyond the time required to attend each class meeting, students enrolled in this course should expect to spend at least an additional 9 hours per week of their own time in course-related activities, including reading required materials, completing assignments, preparing for exams, etc.

Drop Policy: Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. Students will not be automatically dropped for non-attendance. Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (<http://www.uta.edu/ses/fao>).

Americans with Disabilities Act: The University of Texas at Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including the *Americans with Disabilities Act (ADA)*. All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability or by calling the Office for Students with Disabilities at (817) 272-3364.

Academic Integrity: All students enrolled in this course are expected to adhere to the UT Arlington Honor Code:

I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.

I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.

Instructors may employ the Honor Code as they see fit in their courses, including (but not limited to) having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System *Regents' Rule* 50101, §2.2, suspected violations of university's standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student's suspension or expulsion from the University.

Student Support Services: UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at www.uta.edu/resources.

Electronic Communication: UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and

are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at <http://www.uta.edu/oit/cs/email/mavmail.php>.

Student Feedback Survey: At the end of each term, students enrolled in classes categorized as lecture, seminar, or laboratory shall be directed to complete a Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student's feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit <http://www.uta.edu/sfs>.

Final Review Week: A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

Emergency Exit Procedures: Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit, which is located across the hallway through the double doors on the right. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist handicapped individuals.

Website: Blackboard (<http://elearn.uta.edu>)

Blackboard Help: Ann Hoang; Email: hoanga@uta.edu

Distance Student Contact and Assignment Policies: Distance students are required to communicate with the faculty before the second class period. Distance students are expected to complete all of the regular requirements for a class. This includes submission of projects within 24 hours of the in-class students. These materials may be submitted electronically.

Course Schedule: Written project is due 8:00 AM Tues. May 6th (Final)

The instructor for this course reserves the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course.
