Linear Optimization – Spring 2018

This syllabus is subject to change at the discretion of the instructor.

Course:	Math 464 (3 credits)
Website:	http://www.math.wsu.edu/faculty/tasaki/...
Times:	Tu/Th 1:25–2:40
Location:	Sloan 167
Instructor:	Tom Asaki (tasaki@wsu.edu), Neill 228
Office Hours:	T W Th, 11:30-12:30; and by appointment
Text:	*Introduction to Linear Optimization* by Bertsimas and Tsitsiklis

Description

This is an upper-division mathematics course in Linear Optimization. It is expected that you have a firm background in linear algebra and proof construction. Math 364 is not a prerequisite though the concepts are likely to be beneficial to your understanding in this course. We will explore the topics discussed in Chapters 1-5, 8, 9 of the textbook and other topics as we have time and interest.

The class format is group discussion and problem solving. Class discussions will center around the assigned homework problems. The particular day-today flow of material is dependent on the progress and interests of the students. There will be occasional quizzes, one midterm exam, a final exam, and a capstone project.

My expectations for myself are to ensure that course concepts are revealed in class through problem solving and discussions, provide quizzes and exams that measure concept understanding and problem solving skills, implement a fair and reasonable grading standard, and adjust to the learning needs of my students. My expectations for you, the student, are that you will prepare for class time through reading assigned material and working through problems and proofs. These preparations are important for our best use of class time.

Grade Basis

Your course grade will be based on three equally-weighted requirements: Class Participation, Midterm Exam, Final Exam, Capstone Project.

Course grades will be based on the instructor's judgement of student mastery of concepts and problem solving skills. However, it will not be more strict than the standard 90-80-70-60 grading scale.

Class Participation

The class format is interactive. To obtain a good participation score:

- Read relevant material before class.
- Attempt to solve relevant exercises before class.
- Be prepared to present a solution or partial solution in class.
- Participate in the class discussion.
- Perform well on occasional quizzes (usually unannouced).

Notice that you cannot achieve these goals if you do not attend class.

Midterm Exam

The midterm exam will consist of both an in-class written part and a take-home part. The in-class part is tentatively scheduled for March 1 and will cover class topics discussed up to one week prior. Expectations include the ability to be conversant (in writing) in relevant material and to demonstrate proof writing and and other mathematical skills. The take-home part will test problem solving and proof writing skills that would not be normally given in a short in-class exam. This part will be given over the course of a long weekend with expected effort of a few to several hours. The take-home part of the midterm exam is expected to be completed with restricted resources (to be determined later).

Final Exam

The final exam will be an in-class written exam given during the scheduled final exam time for the class: Monday April 30 from 1:00-3:00PM. The final exam will be comprehensive in material. Expectations include the ability to be conversant (in writing) in relevant material and to demonstrate proof writing and and other mathematical skills. There will be no take-home part for the final exam.

Capstone Project

Your Capstone Project is a compilation of written homework solutions and related material, formatted using the LaTeX typesetting system. As a capstone project, your work will demonstrate your cumulative learning toward the bachelor's degree. In particular, your work should demonstrate either (a) the application of concepts from your general and specialized studies to personal, academic, service learning, professional, and/or community activities and/or (b) how the methods and concepts of optimization relate to those of other disciplines through cross-disciplinary implementation. Your work should demonstrate mathematics proficiency, ability to engage in mathematical discourse and relevancy beyond the classroom.

Each project will be composed, kept and updated regularly using Overleaf. Each student must learn basic (and some intermediate) LaTeX typesetting. You must allow me to access your working document so that I can provide regular feedback during the semester (as comments within your document). Your grade will be affected by your regular progress. Personalized formatting is encouraged, though I will provide a LaTeX document template if you need a good place to begin.

You must begin your Overleaf project document duing the first week of classes. To begin your Overleaf session:

- Navigate to www.overleaf.com
- Create an Overleaf account with username and password. While you could use overleaf without an account, having an account allows your documents to be saved.
- From the start screen choose to create a new project. Select a blank project template
- Choose 'PROJECT' in the menu bar to view the current project.
- From the Files menu at top left, upload CapstoneTemplate.tex and speed.png found on the class website.
- Delete main.tex.
- You are now ready to modify the document text in the center window.
- Your document will periodically and automatically typeset, or you can manually typeset using the options at the top of the far right window.
- Allow me to have access to your working document by clicking 'SHARE' in the menu bar and sending me the provided 'read and edit' link.

CapstoneTemplate.tex outlines an *example* project and details expectations for homework solutions. Again, I encourage individual creativity and personalization within the scope of the Capstone requirements.

WSU Reasonable Accomodation

Students with Disabilities: Reasonable accommodations are available for students with a documented disability. If you have a disability and need accommodations to fully participate in this class, please either visit or call the Access Center to schedule an appointment with an Access Advisor. All accommodations MUST be approved through the Access Center.

Academic Integrity

Academic integrity is the cornerstone of higher education. As such, all members of the university community share responsibility for maintaining and promoting the principles of integrity in all activities, including academic integrity and honest scholarship. Academic integrity will be strongly enforced in this course. Students who violate WSUs Academic Integrity Policy (identified in Washington Administrative Code (WAC) 504-26-010(3) and -404) will receive a failing grade on any relevant assignment (and possbily for the course), will not have the option to withdraw from the course pending an appeal, and will be reported to the Office of Student Conduct.

Cheating includes, but is not limited to, plagiarism and unauthorized collaboration as defined in the Standards of Conduct for Students, WAC 504-26-010(3). You need to read and understand all of the definitions of cheating. If you have any questions about what is and is not allowed in this course, you should ask course instructors before proceeding.

If you wish to appeal a faculty member's decision relating to academic integrity, please use the form available at conduct.wsu.edu.

Safety and Emergency

Classroom and campus safety are of paramount importance at Washington State University, and are the shared responsibility of the entire campus population. WSU urges students to follow the "Alert, Assess, Act," protocol for all types of emergencies and the "Run, Hide, Fight" response for an active shooter incident. Remain ALERT (through direct observation or emergency notification), ASSESS your specific situation, and ACT in the most appropriate way to assure your own safety (and the safety of others if you are able).

Please sign up for emergency alerts on your account at MyWSU. For more information on this subject, campus safety, and related topics, please view the FBIs Run, Hide, Fight video and visit the WSU safety portal.