Math 362 and 363
LINEAR OPTIMIZATION
Fall 2016

Courses:  Math 362 Sec. 01 3 cr.  Math 363 Sec. 01 1 cr.
Linear Optimization  Linear Optimization Lab
M W F 2:00 pm - 2:50 pm in MA 108  Tu 2:00 pm - 2:50 pm in MA 306

Instructor: Dan Johnston  Office: 012 Math
Office Phone: none  e-mail: daniel1.johnston@umontana.edu
Office Hours: Thursday 1:00 p.m. - 3:00 p.m. and by appointment

Prerequisites: Math 172 (Calculus II); Math 221 (Linear Algebra) is recommended, or consent of instructor. Students should have background appropriate for junior-level mathematical studies. Though we shall begin from first principles, it is extremely helpful if students have, or can learn quickly, basic knowledge of elementary linear algebra.


Important Dates: Labor Day Holiday Monday, 5 September;
Last day to add/drop by Cyberbear,  or select Audit grade option Monday, 19 September (5:00pm);
Last day to drop (no $$ back) Monday, 31 October (5:00pm);
Election Day Holiday Tuesday, 8 November;
Veterans’ Day Holiday Friday, 11 November;
Thanksgiving vacation 23–25 November.
Last day of regular class Monday, 12 December

Description: Linear optimization is concerned with optimizing a linear function subject to linear inequality constraints. This pair of courses will focus on modeling real-world problems as linear programs (LP’s) and solving the resulting LP’s using various techniques, including via computer. Strayer’s text will be our guide; the plan is to cover much of this book. The simplex algorithm and duality are of principal importance. In addition, topics from the following list will be considered as time permits: matrix games, transportation and assignment problems, network-flow problems.

Assessment: Math 362 course grades will be based on homework assignments, two term tests and a final exam. Math 363 grades will be based exclusively on weekly computer projects and associated writing assignments. In both courses, traditional letter grades will be assigned using the +/− system.

Homework: Math 362 assignments will be set regularly, roughly every ten calendar days and count for 30 % of the total grade for the course. A (probably improper) subset of the assigned problems will be graded. Please use complete sentences, proofread, and polish your work prior to submission. You may work with others on homework problems, and you are encouraged to do so. Solutions should be written down privately in your own words.

If you use an important idea of someone else, then please acknowledge that person by giving an appropriate citation in your write-up. This professional courtesy will not affect your grade.
**Exams:** There are two in-class tests and a final exam. The first two in-class exams will count 20% each. The final exam will be cumulative with a slight emphasis on the material not covered by the in-class tests and count 30% of your total grade.

The final exam is scheduled for

**Thursday, December 15, 1:10 p.m. - 3:10 p.m.**

**Do not miss the final exam.**

**Attendance:** You are expected to attend class regularly. **You are responsible for all the material presented and all announcements made on the days you are absent or you are late.**

**Accommodations:** The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students. If you think you may have a disability adversely affecting your academic performance, and you have not already registered with Disability Services, please contact Disability Services in Lommasson Center 154 or 406.243.2243. I will work with you and Disability Services to provide an appropriate modification.

**Academic Honesty:** All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code. The Code is available for review online at [http://life.umt.edu/vpsa/policies/student_conduct.php](http://life.umt.edu/vpsa/policies/student_conduct.php).