

Instructor: Estie Arkin, Math tower 1-106, phone: 632-8363, email: estie@ams.sunysb.edu course web site: <http://www.ams.sunysb.edu/~estie/estie.html/courses/540/ams540>;

Office hours: (Tentative) Monday 1-3, Wednesday 11-1, Thursday 10-11. You may also stop by whenever you have a question, I am usually in 10-4 every day. I also welcome questions by email or by phone.

Grader: Muqi Li, muli@ams.sunysb.edu office hour Tuesday 12:15-2:10, Math Tower 2-108.

Lectures: Tuesday, Thursday 2:20-3:40, SB Union 236.

Prerequisites: A course in linear algebra.

Required Text(s): One of: *Linear Programming and Network Flows*, by Bazaraa, Jarvis, and Sherali (any edition), or, *Linear Programming*, by Ignizio and Cavalier.

Recommended Texts: *Linear Programming*, by Chvátal, *Linear Programming and Related Problems*, by Nering and Tucker, *Linear Programming*, by K.G. Murty, *Linear Programming and Extensions*, by Dantzig, and *Linear Programming*, by H. Karloff, to name but a few of the many books on the subject.

Homeworks: You may discuss homework problems with other students taking the course, and with the instructor. But the work that you turn in should always be *your own* write-up. I usually do not accept late homework, unless you have a **very** good reason. I will drop the lowest homework score before computing your average.

Grading: 35% homework, 30% midterm (tentatively, Thursday October 20 in class), 35% final (Friday December 16, 11:15-1:45). All tests are closed notes, however you may bring 1 page of summary notes.

Course Outline:

- Introduction - formulation of LP problems and the use of Lindo/AMPL
- Results from Linear Algebra and convex analysis
- The Simplex method
- Starting solution and convergence
- Duality and sensitivity analysis
- Special forms of the Simplex method
- New algorithms for Linear Programming

Computing: We will be doing a small amount of computing using existing LP packages. You may use *any* LP package you wish. The recommended options are: (1) NEOS server for optimization (LP and many other problem types), submit an ampl (or other) file for solution: <http://www-neos.mcs.anl.gov/neos> (2) AMPL, a modeling language, and Minos, an LP (and NLP) solver, free student version available (follow link from the course web page) (3) Lindo (Some texts come with it to be installed on your own PC.)

Disability Policy: If you have a physical, psychological, medical or learning disability that may impact your course work, please contact Disability Support Services, ECC (Educational Communications Center) Building, room 128, (631) 632-6748. They will determine with you what accommodations are necessary and appropriate. All information and documentation is confidential.

Students who require assistance during emergency evacuation are encouraged to discuss their needs with their professors and Disability Support Services. For procedures and information, go to the following website: <http://www.ehs.sunysb.edu/fire/disabilities.asp>

Academic Integrity: Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Any suspected instance of academic dishonesty will be reported to the Academic Judiciary. For more comprehensive information on academic integrity, including categories of academic dishonesty, please refer to the academic judiciary website at <http://www.stonybrook.edu/uaa/academicijudiciary/>

The University at Stony Brook expects students to maintain standards of personal integrity that are in harmony with the educational goals of the institution; to observe national, state, and local laws and University regulations; and to respect the rights, privileges, and property of other people. Faculty is required to report disruptive behavior that interrupts faculty's ability to teach, the safety of the learning environment, and/or students' ability to learn to Judicial Affairs.