Course Information for Math 496 and 827

Instructor: Tamon Stephen
Meeting Time: WF 2:30–4:20 in SUR 5100
Office: 14-265 Central City Tower
Office Phone: 778–782–7429
E-mail: tamon@sfu.ca
Web page: `http://www.math.sfu.ca/~tstephen/Teaching/1091_Math496/`
Office Hours: Following class and by appointment.
Text: Introduction to Linear Optimization by Bertsimas and Tsitsiklis
Grading: **496**: 20% Homework, 30% Midterm, 50% Final.
827: 20% Homework, 20% Presentation, 20% Midterm, 40% Final.

1. **Syllabus.** Convex geometry, review of the simplex method and duality, pivot rules, degeneracy, the Klee-Minty cube, decomposition and column generation methods, ellipsoid algorithm, introduction to interior point methods.

2. **Graduate student projects.** Near the end of the term, graduate students will each give a presentation on a research paper from the mathematical literature. The presentation should describe the results in the paper, as well as their context, and should be at a level where it will be understandable to the undergraduates in the class. There may be an option to give these presentations at the SFU Operations Research Seminar series rather than in class. The papers will be chosen in conjunction with the instructor.

   The presentation will normally be done using overheads projected from a computer and the overheads will also be submitted as part of the project.

3. **Homework.** There will be five homework assignments during the term. Late homework will not be accepted.

   You are encouraged to talk with each other and the instructor about the homework, but you must write up the solutions yourself, using your own words.

4. **Exams.** Books, notes and calculators cannot be used on these tests. Students **must** plan to take the tests at their scheduled times.

   The tentative dates and times for the tests are:

   `Midterm: Wednesday, March 4th, 2:30-4:20 PM  (in class)`
   `Final: Monday, April 20th, 3:30-6:30 PM`

5. **Reserve Books.** There is a copy of the course text on reserve at the SFU Surrey library. Additionally, there are three textbooks that cover similar ground: Chvatál's *Linear Programming*, Matoušek and Gärtner's *Understanding Linear Programming* and Schrijver's *Theory of Linear and Integer Programming*. There are also two books that provide interesting supplementary material, Barvinok's book on convexity and Papadimitriou and Steiglitz' book on algorithms and complexity.

6. **Software.** Depending on interest and the availability of computational resources, there may be a short introduction to the CPLEX optimization package.