

# Course Information for Math 408 and 708

**Instructor:** Tamon Stephen  
**Meeting Time:** W 11:30–12:20 and F 10:30–12:20 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/1107\\_Math408/](http://www.math.sfu.ca/~tstephen/Teaching/1107_Math408/)  
**Office Hours:** By appointment.  
**Text:** Integer Programming by Laurence Wolsey  
**Grading:** **408:** 20% Homework, 30% Midterm, 50% Final.  
**708:** 20% Homework, 20% Presentation, 20% Midterm, 40% Final.

1. **Syllabus.** This course is an introduction to discrete optimization. The focus is on modelling problems as integer programs and polyhedral methods for solving these programs.
2. **Graduate student projects.** Near the end of the term, each graduate student will present a brief (30 to 40 minute) introductory lecture on a current topic in integer programming. The topic will be selected in conjunction with the instructor. A possible source of topics are the surveys of current topics in the book *50 Years of Integer Programming 1958-2008*, which is on reserve. There may be an option to give these presentations in the SFU Operations Research Seminar series rather than in class.
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. Solutions copied from other students, textbooks or the Internet are **not** acceptable.
4. **Computing.** Integer programming is by its nature a computational subject, and students are encouraged to experiment with software for integer programming. Some integer programming capability is now available even in general purpose software such as the Microsoft Excel spreadsheet. There are also many specialized free and commercial packages for mathematical optimization. For instance, you can obtain student versions of the AMPL modelling language and CPLEX solver from <http://www.ampl.com>. The assignments may contain a small number of questions involving the use of such solvers, however no prior computing background is required.
5. **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: Friday, October 22nd, 10:30–12:20 AM (in class)  
Final: Thursday, December 9th, 8:30–11:30 AM

6. **Reserve Books.** There is a copy of the course text on reserve at the SFU Surrey library. Additionally, there are two textbooks that cover similar ground: Bertsimas and Weismantel's *Optimization Over Integers* and Lee's *A First Course in Combinatorial Optimization*.

A nice overview of the development of integer programming is contained in the book *50 Years of Integer Programming 1958-2008*, edited by Jünger et al. Schrijver's *Combinatorial Optimization* is an excellent reference book in this area. For a refresher on linear programming, Chvatál's book is available. The books of Papadimitriou and Papadimitriou and Steiglitz provide background on computational complexity theory.

**Have a great term!**