CMPT 405/705 — Design and Analysis of Algorithms
Fall 2009

Instructor: Andrei Bulatov, email: abulatov@cs.sfu.ca

TAs: TBA

Learning resources:

- Prerequisites: CMPT 307.
- Lectures: Tu 8:30–10:20, in RCB 6136
  Th 8:30–9:20, in AQ 5016
- References:
  - *Algorithm Design* by Jon Kleinberg and Eva Tardos, Addison Wesley, 2005
  - *Computational Complexity* by Christos H. Papadimitriou, Addison Wesley, 1995
  - *Concrete Mathematics* by R. L. Graham; D. E. Knuth; and O. Patashnik, Addison-Wesley, 1994
- Instructor’s office hours: Th 3:30–5:00 in TASC 8013, or by appointment
- Assignments: 4 sets of exercises, solutions to the first one are due on Thursday, October 1
- TA’s office hours: TBA

Course web page: www.cs.sfu.ca/CC/405/abulatov
Please refer to this page regularly for important information related to the course.

Course Outline: The course objectives are to introduce more advanced algorithmic techniques, methods of algorithm analysis, and models of computation.
Topics to be covered:

- Review of Models of Computation, Dynamic Programming, Greedy Algorithms
- Graph Algorithms
- Branch and Bound
- Network Flow
- NP-Completeness
- Approximation Algorithms
- Randomized Algorithms
- Algorithmic Game Theory
- Markov Chains, Monte Carlo Method
- Fast Fourier Transform

Marking scheme:
4 homework assignments, worth 10% each, midterm test, worth 20%, and final exam, worth 40%.

Students must attain an overall passing grade on the weighted average of exams in the course in order to obtain a clear pass (C or better).

Academic Honesty: Academic Honesty plays a key role in our efforts to maintain a high standard of academic excellence and integrity. Students are advised that ALL acts of intellectual dishonesty are subject to disciplinary action by the School; serious infractions are dealt with in accordance with the Code of Academic Honesty (T10.02) (http://www.sfu.ca/policies/teaching/t10-02.htm). Students are encouraged to read the School’s Statement on Intellectual Honesty (http://www.cs.sfu.ca/dean-gradstudies/honesty.html).