CMPT 405 — Design and Analysis of Algorithms
Spring 2017

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TAs: Aminch Dadsetan, email: adadseta@sfu.ca

Learning resources:

- **Prerequisites:** CMPT 307 or equivalent.
- **Lectures:** Tu 11:30-13:20, in BLU 10011
  Th 11:30-12:20, in BLU 10021
- **Course Text:** *Algorithm Design* by Jon Kleinberg and Eva Tardos, Addison Wesley, 2005
- **References:**
  - *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:** Mo 10:00–12:00 (starting from January 16th), in TASC 8013, or by appointment
- **Assignments:** 6 sets of exercises, solutions to the first one are due on Thursday, January 26th
- **TA’s office hours:** No

Course web page:  www.cs.sfu.ca/CourseCentral/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:
6 homework assignments, worth 3% each, midterm test, worth 25%, and final exam, worth 57%, or final exam 30% + a project 27%

Students must attain an overall passing grade on the final exam in the course in order to pass the course.

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).