CO454: Scheduling, Spring 2009
Course Outline

Course Goal: To give an introduction to the theory of machine scheduling with an emphasis on the design of algorithms with *provable* guarantees.

Meeting Times: Tuesday and Thursday, 11.30-12.50, MC 4060.

Lecturer: Deeparnab Chakrabarty. Office MC4009. Email: `deepc@uwaterloo.ca`
Office hours: Fridays 11am – 1pm

Teaching Assistant: Irene Pivotto, DC3145, `ipivotto@math.uwaterloo.ca`
Office hours: Tuesdays 3pm – 4pm, Fridays 2pm – 3pm.

Course Webpage: `http://www.math.uwaterloo.ca/~deepc/COURSES/CO454/co454.html`

Textbook: We will have no required textbooks. Recommended : *Scheduling: Theory, Algorithms and Systems* by Pinedo. Lecture notes will be posted on the course web-page.

Tentative Topics:

Scheduling problems: Modeling and notations.

One machine Models, Optimal schedules, Exact algorithms.

Computational complexity - P, NP, NP-completeness. Notion of Approximation Algorithms.

Dynamic Programming and their application to scheduling.

Matchings in graphs, Applications to Scheduling, The TSP.

Linear and Integer Programming techniques.

Shop Scheduling, Other Scheduling Problems.

Evaluation: Homework 30%, Midterm 25%, Final Exam 45%.
Homework assignments will be given (approximately) bi-weekly and will be due at the beginning of class on the due-date.

Collaboration Policy   We encourage you to work on the homework on your own. You may talk to other students/TA/instructor about clarifications on questions, however you should work on the homework on your own.

Information from the University   Note for students with disabilities: The Office for Persons with Disabilities (OPD), located in Needles Hall, Room 1132, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with the OPD at the beginning of each academic term.

Avoidance of Academic Offenses. Students are expected to know what constitutes academic integrity, to avoid committing academic offenses, and to take responsibility for their actions. Students who are unsure whether an action constitutes an offense, or who need help in learning how to avoid offenses (e.g., plagiarism, cheating) or about "rules" for group work/collaboration should seek guidance from the course professor, TA, academic advisor, or the Undergraduate Associate Dean. For information on categories of offenses and types of penalties, students should refer to Policy #71, Student Academic Discipline, `http://www.adm.uwaterloo.ca/infosec/Policies/policy71.html` Students who believe that they have been wrongfully or unjustly penalized have the right to grieve; refer to Policy #70, Student Grievance,
`http://www.adm.uwaterloo.ca/infosec/Policies/policy70.html`