MAS477 Introduction to Graph Theory
CS600 Graph Theory
2011 Fall, KAIST

This course is an introduction to some of the major topics of graph theory. They include graph connectivity, matchings, planar graphs, graph coloring, and nowhere-zero flows.

Basic notions and theorems covered in Discrete Mathematics (MAS275 or CS204) will be assumed; but we will review them in the first week. It is recommended to take MAS275 before taking this course, unless you are familiar with proofs using the mathematical induction.

Lecture	MWF 9AM-9:50AM	Classroom: E6-1 (자연과학동), Room 2413
Instructor	Sang-il Oum (엄상일)	`http://mathsci.kaist.ac.kr/~sangil/`
	Email: sangil@kaist.edu	Office: E6-1 Room 3403.
Office Hours	Tuesday 4PM or by appointments. (tentative)	
	We will discuss homework solutions during the office hour following the due date. Therefore it is recommended to attend office hours.	
Course website	`http://moodle.kaist.ac.kr/`. (Passcode: **konig**)	
Textbook	Main textbook: R. Diestel, "Graph Theory", 3rd edition or 4th edition. Springer	
	`http://diestel-graph-theory.com/`	
	Reference: Bondy, Murty, "Graph Theory", Springer	
	`http://dx.doi.org/10.1007/978-1-84628-970-5`	
Grading	20% Homework, 30% Midterm, 50% Final.	
	The lowest score and the second lowest scores from assignments will be dropped. You will earn A if (but not only if) your score is at least 80, B if your score is at least 70, C if your score is at least 60.	
Midterm Exam	T.B.A.	
Final Exam for MAS477	T.B.A.	
	There will be no make-up exams. Exams will be "closed book", "closed note". Calculators are not allowed in the exams. Any violation of honor code will be reported.	
Final Exam for CS600	Students for CS600 will have an oral exam for the final, instead of the written exam.	
Homework	Homework will be given weekly or biweekly in class on Wednesday. The assignment is due at the beginning of class on the following Monday. You may collaborate with other students. But **homework should be written by yourself independently and you must understand your solution.**	
Plan	**Week 1-2** Basics. Reviews. (chapter 1)	
	Week 2-4 Matchings (chapter 2)	
	Week 4-5 Connectivity (chapter 3)	
	Week 6-7 Planar graphs (chapter 4)	
	Week 8 Midterm Exam	
	Week 9-10 Coloring (chapter 5)	
	Week 11-12 Flows (chapter 6)	
	Week 13-14 Extremal Graph Theory (chapter 7)	
	Week 15 Graph minors and well-quasi-ordering (chapter 12)	
	Week 16 Final Exam	

- For week 13-15, we may cover alternative materials.
- Hint for the course: Definitions are very important!

  Attend the class, Ask questions, Do the homework, Solve exercise problems.

  You should learn how to prove mathematically. Most of the homework problems and exam problems will require you to prove something.
- Try to be familiar with mathematical induction. In particular the "strong induction" is very useful. Be familiar with the well-ordering principle. (Every non-empty set of positive integers have the minimum element.)

Other interesting courses related to graph theory in Fall 2011

- MAS583A Combinatorial Optimization. MWF 11AM-12PM
- MAS581B Probabilistic methods. 2-Week Intensive Course. Prof. Mihyun Kang.

  Sep. 20-22 and 27-29, 4PM-6:30PM