MAS275 Spring 2011, KAIST

Discrete Mathematics / 이산수학

This course will cover elementary techniques useful for discrete problem solving. These will include mathematical induction, combinatorial counting and elementary graph theory.

Lecture	TTh 1PM-2:15PM	Classroom: E4 (Creative Learning Bldg. 창의학습관), Room 309
Instructor	Sang-il Oum (엄상일)	`http://mathsci.kaist.ac.kr/~sangil/`
	Email: sangil@kaist.edu	Office: E6-1 Room 3403.
Office Hours	Tue 5:00PM-6:20PM. Make appointments on moodle. (max 25 students at each 20-min time slot)	
	We will discuss homework solutions during the office hour.	
Course website	`http://moodle.kaist.ac.kr/`.	
Textbook	J. Matousek, J. Nesetril, *Invitation to Discrete Mathematics*, 2nd edition, Oxford Univ. Press, 2008.	

Grading

Homework (25%) There will be homework assignments given (almost) every week on Thursday. The assignment is due at the beginning of class on the following Tuesday. You may collaborate with other students. But **homework should be written by yourself independently and you must understand your solution.** If a student copies the homework of another students, then both students will be given F and be reported.

Late homework is not accepted. You may submit homework early, by submitting it on moodle.

Midterm Exam (30%) March 29 Tuesday, 1PM–3:50PM (tentative)

Final Exam (40%) May 24 Tuesday, 1PM–3:50PM (tentative.)

If a student misses at least one third (9) of the lectures, he or she is not allowed to take the final exam. No excuses are accepted.

There will be no make-up exams. Exams will be “closed book”, “closed note”. But you may bring one A4-size paper “cheat sheet”; the “cheat sheet” must have your name written on top. Calculators and mobile phones are not allowed in the exams.

Class Participation (5%) You are encouraged to participate this course actively. Don’t feel afraid of asking questions during a lecture; it is encouraged! Ask questions and answers on moodle forum as well.

Some sections of the textbook will be taught by students. A group of at least 2 and at most 4 students work together to prepare their lecture, practice the (English) lecture, and have a representative to teach in class for less than 25 minutes. Be prepared to accept questions.

Here is a sample list of sections that may be assigned for students to teach: 3.8, 4.3, 4.4, 4.7, 5.4, 8.2, 10.1, 11.2, 12.5, 12.6, 12.7. Extra information will be posted on moodle.

Tentative Plan

Some sections will be omitted.

2/8- Chapter 1. Introduction.
2/15- Chapter 2. Orderings.
2/22- Chapter 3. Combinatorial Counting.
3/8- Chapter 4. Graphs: an introduction.
3/17- Chapter 5. Trees.
3/22- Chapter 6. Drawing graphs in the plane.
3/29 Midterm Exam
4/5- Chapter 7. Double Counting.
4/14- Chapter 8. The number of spanning trees.
4/19- Chapter 10. Probability and probabilistic proofs. (We may skip completely.)
4/26- Chapter 11. Order from disorder: Ramsey’s theorem.
5/12- Chapter 12. Generating functions.

Advice: Try to solve all the exercise problems in the book! Compared to other books, this book has more interesting exercise problems and less examples in the text. You don’t learn any if you only attend a lecture and read the main text only.