University of Washington
Computer Science & Engineering

CSE 321, Sp '09: Discrete Structures

Lecture:	EEB 037 (schematic)	MWF 1:30-2:20	
Section A:	EEB 025 (schematic)	Th 1:30-2:20	
Section B:	EEB 025 (schematic)	Th 2:30-3:20	
		Office Hours	**Location Phone**
Instructor:	Larry Ruzzo, ruzzo at cs	TBA	CSE 554 206-543-6298
TAs:	Aeron Bryce, paradoxa at cs	TBA	
	In Cheng, imcheng at cs	TBA	

Course Email: cse321a_sp09@u.washington.edu. Use this list to ask and/or answer questions about homework, lectures, etc. The instructor and TAs are subscribed to this list. All messages are automatically archived. Questions not of general interest may be directed to the instructor and TAs: cse321-staff, or just to the instructor: ruzzo at cs. You will probably want to change your subscription options.

Catalog Description: Fundamentals of set theory, graph theory, enumeration, and algebraic structures, with applications in computing.

Prerequisite: CSE 143; either MATH 126, MATH 129, or MATH 136.

Credits: 4

Standard Syllabus: CSE 321 Syllabus

Grading: Homework, Midterm, Final. Overall weights: HW 55%, midterm 15%, final 30%, roughly.

Late Policy: Assignments are due at the start of class on the due date. 20% off per day thereafter (day = business day, e.g., Monday = Friday + 1).

Extra Credit: Assignments may include "extra credit" sections. These will enrich your understanding of the material, but at a low points per hour ratio. Do them for the glory, not the points, and don't start extra credit until the basics are complete.

Collaboration: Homeworks are all individual, not group, exercises. Discussing them with others is fine, even encouraged, but *you must produce your own homework solutions*. Follow the "Gilligan's Island Rule": if you discuss the assignment with someone else, don't keep any notes (paper or electronic) from the discussion, then go watch 30+ minutes of mind-numbing TV (Gilligan's Island reruns especially recommended) before you continue work on the homework by yourself. You may *not* look at other people's written solutions to these problems, not in your friends' notes, not in the dorm files, not on the internet, *ever*. If in any doubt about whether your activities cross allowable boundaries, *tell us before*, not after, you turn in your assignment. See also the UW CSE Academic Misconduct Policy, and the links there.

Textbook: *Discrete Mathematics and Its Applications*, (sixth edition) by Kenneth Rosen, McGraw-Hill, 2006. Errata. (Available from U Book Store, Amazon, etc.)

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The *primary* goal of this course is to develop your ability to do the kind of formal reasoning required in computer science. In particular you will be asked to learn what a proof is, how to organize a proof, how to break a problem into cases, and how to distinguish valid from invalid reasoning.

The *secondary* goal is to learn material about specific domains within discrete mathematics (logic, number theory, combinatorics, graph theory) with applications throughout computer science.

CSE 321

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proposition a statement

T or F

P 整数 is prime F

3 2+2=4 T

weather is nice ?

compound propositions

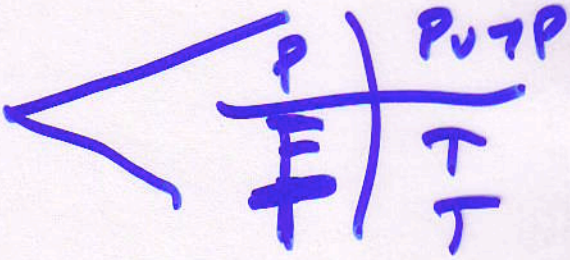
logical connectives

conjunction	$P \wedge Q$	$\wedge$ "and"
disjunction	$P \vee Q$	$\vee$ "or" inclusive
negation	$\neg P$	$\neg$ "not"

A compound proposition is a tautology if it is true for all possible values of constituent propositions

$P \vee \neg P$

$P \oplus \neg P$



$P \vee (q \wedge \neg q \vee (r \wedge s))$

... is a tautology exactly when the last column in truth table is all "T"

... contradiction ... all 'F'

... contingent ... neither

$(\neg p \vee q) \wedge r$

$\neg p \vee q \wedge r$

$((\neg p) \vee (q \wedge r))$

$p \oplus q$ $\oplus$ "exclusive or"

Truth Table

p	q	$\neg p$	$p \vee q$	$p \wedge q$	$p \oplus q$
F	F	T	F	F	F
F	T	T	T	F	T
T	F	F	T	F	T
T	T	F	T	T	F