

Syllabus **CS 214 (Sect. 01) Introduction to Discrete Structures** Fall 2005

Class Lecture Meeting Times: MW 12:45-2:05 pm (in TH N 308).

Instructor: Dr. Tim Newman
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Office: TH N 364
Phone: 824-6619

Office Hours: MW 2:15-4:15pm
TR 11:30am-noon
Or phone or email for appointment
Please note that I try to reserve Fridays for research

Prerequisite: CS 121 and MA 171

Course Overall Aim: Learn fundamental discrete mathematical concepts which provide foundational background for later courses in computing

Topics Addressed:

- Formal Logic
- Proofs
- Operations on Sets, Relations, and Functions
- Graphs and Trees
- Boolean Algebra
- Algebraic Structures (Groups and Semigroups)

Text: *Mathematical Structures for Computer Science, 5th Ed.* by J. Gersting, W. H. Freeman, 2003.

Grading: The final grade will be composed of the following weights. The instructor reserves the right to make changes to this system. Changes will be announced in class.

Activity	Total Points
Mid-term Exams (2)	200 pts. total
Final Exam	125 pts.
Programming Assignments (2)	60 pts. total
Quizzes and Homeworks	80 pts. total
Participation	15 pts.
Grand Total	480 pts.

The grading scale will be **no stricter than:**

At/Above 435 pts.	for a 4.0;	At/Above 385 pts.	for a 3.0;
At/Above 340 pts.	for a 2.0;	At/Above 317 pts. (> 66%)	for a 1.0;
<=66%	for a 0.0		

This course will utilize the plus/minus grading system for final grades. Note that a plus or minus grade doesn't effect GPA (e.g., a B- is counted in GPA the same as a B or B+).

Exams: There will be two mid-term examinations, each worth 100 points. These exams are scheduled for **Monday, Sept. 26** and **Wednesday, Oct. 26**. The 125 point comprehensive final is **Wednesday, Dec. 14**, from 11:30am to 2:00 pm. Tests will cover lectures, assigned readings, homework, and programming assignments. Documented crisis or one week's prior notice required for *consideration* of exam make-up.

Programming Assignments: There will be 2 programming assignments in this course. One of them is currently scheduled to be due within the last two weeks of the course. All assignments are to be INDIVIDUAL work. For help, questions can be directed to a CS PC Lab assistant or to the instructor. All programs need to compile and run using the Visual C/C++ compiler in the CS PC lab. Programs are always due at the *start* of class on the due date.

Notes on Programming Assignments: Remember to save your program on your own disk or to your linux home directory at the end of every lab visit. Both hardcopy (printout) and softcopy (electronic) versions of your source code will be submitted. More details on the softcopy requirements will be provided later.

All programs are expected to contain a reasonable amount of documentation.

No due date extensions can be granted. Programs are due at the **start** of the class period. Late programs will receive a 15% penalty if they are up to one day (0-24 hours) late. No programs more than 24 hours late will be accepted. Please do not delay starting the assignments. Malfunctioning or unavailable equipment, etc., are not reasons that justify lateness.

Homeworks and Quizzes: Regular homeworks will be assigned throughout the term. At least one, and possibly two, homeworks will be due in the last two weeks of class. A total of 9 homework assignments will be made. Homeworks are due at the start of class on the due date.

If there are any quizzes, they will cover lecture, the readings, and the homeworks. The quizzes won't be pre-announced, but they can be given on any date a homework is due, including a date within the last two weeks of the class. The quiz questions will mostly be questions from the homework exercises. On days that there is a quiz, the homework for that day will not be graded; the quiz score will be in lieu of the homework.

Each graded quiz or homework is worth 10 points. The lowest quiz/homework score will be dropped; the best 8 scores will be recorded. Missed quizzes/homeworks cannot be made up.

Turn-in Policy: Turn in all work to the instructor, preferably at the start of class, otherwise during office hours. If you need to turn in your assignment at a different time during the day, you may turn it in to one of the department secretaries during regular working hours (be sure to ask the secretary to time stamp the assignment and to give the assignment to Professor Newman). It is your responsibility to ensure that the secretary time stamps the assignment and receives clear direction to give the assignment to the instructor. **Do not turn any work in to a lab TA!**

Absence Policy: Class attendance and effective, constructive participation is important to your performance in the course and makes up a portion of the grade. The instructor should be notified in advance of absence. Also note the exam absence policy mentioned earlier.

If you need Help! I have scheduled a liberal amount of office hours and I want to help you learn the material and to succeed in the course. Please seek my assistance if you have any questions or concerns. The lab assistants are also ready to help you with any difficulties you have on the assignments.

Academic Honesty: The University policy on academic honesty, discussed in the code of Student Conduct, is strict. The instructor's academic honesty policy is very strict; instances of academic dishonesty will be penalized, at least by failure on the item and usually by failure of the course (in addition to any University penalties). **Unless otherwise stated, all work is to be individual work.** Violations of the individual work policy will be regarded as instances of academic dishonesty.

Copying homework solutions or code (or a portion of either) or including in your code an approach similar to what you observed someone else to use will be considered to be academic dishonesty in this class, unless you received instructor approval before even looking.

Stick with it!: Some of the things we study in 214 may be very new and require expansion of your way of thinking about computing. Don't be discouraged if that happens, even if it seems somewhat painful at times—any pains are just “growing pains.” :-) If you stick with it, you'll find out in later courses that 214 gave you a good foundation.

Class Policies Note: Please also see the Department's Course Policy Sheet.

Fall 2005 CS 214(01) Tentative Schedule

Date	Topic	Reading Assignment	Special Comments
Wed. 8/24	Intro. and Logic Statements and Truth	Ch. 1.1	
Mon. 8/29	Propositional Logic	Ch. 1.2	
Wed. 8/31	Determining Validity	Ch. 1.3	
Mon. 9/5	NO CLASS	Re-read Chapter 1	
Wed. 9/7	Validity and Proof Tech. I	Ch. 1.3 and 2.1	
Mon. 9/12	More Proving, Induction	Ch. 2.1 and 2.2	
Wed. 9/14	Induction and Recursion	Ch. 2.2 and 2.4	
Mon. 9/19	Recurrences	Ch. 2.4	
Wed. 9/21	Recurrences and Sets	Ch. 2.4 and 3.1	
Mon. 9/26	TEST 1	Covers Chaps. 1, 2, 3.1	TEST 1
Wed. 9/28	Sets	Ch. 3.1	
Mon. 10/3	Sets and Counting	Ch. 3.1 and 3.2	
Wed. 10/5	Counting and Inclusion	Ch. 3.2 and 3.3	
Mon. 10/10	Exclusion, Pigeonholing, and Permutations	Ch. 3.3 and 3.4	
Wed. 10/12	Combinations and Probability	Ch. 3.4 and 3.5	
Mon. 10/17	Probability and Relations	Ch. 3.5 and 4.1	
Wed. 10/19	Relations	Ch. 4.1	
Mon. 10/24	Topo. Sorting	Ch. 4.2	
Wed. 10/26	TEST 2	Covers Chaps. 3 and 4	TEST 2
Mon. 10/31	Functions	Ch. 4.4	
Wed. 11/2	Functions and Matrices	Ch. 4.4 and 4.5	
Mon. 11/7	Matrices and Graphs	Ch. 4.5 and 5.1	
Wed. 11/9	Graphs and Trees	Ch. 5.1 and 5.2	
Mon. 11/14	Trees	Ch. 5.2	
Wed. 11/16	Graph Algorithms	Ch. 6.1	
Mon. 11/21	Graph Algorithms and Boolean Algebra	Ch. 6.1 and 7.1	
Wed. 11/23	NO CLASS	Re-read Chapter 6.1	
Mon. 11/28	Boolean Algebra and Algebraic Structures	Ch. 7.1 and 8.1	
Wed. 11/30	Algebraic Structures and FSAs	Ch. 8.1 and 8.2	
Mon. 12/5	FSAs	Ch. 8.2	
Wed. 12/7	Study Day/Weather Day	Re-Read 8.1 and 8.2	
Mon. 12/12	Study Day	Re-read Chaps. 1-8	
Wed. 12/14	FINAL	Covers Chaps. 1-8	FINAL 11:30am-2:00 pm

if time: Section 5.4, Huffman Codes