CS 313H
Syllabus

Course: CS 313H: Logic, Sets, and Functions - Honors Section
Time: Tu-Th 9:30-11

Instructor: A. K. Cline
Office: ACES 2.442
Office Hours: T 11-12, F 1-3, and by appointment
Web Site: http://userweb.cs.utexas.edu/users/cline/313H/
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Assistant: Muqeet Ali
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Prerequisite: consent of the instructor

Purpose: To teach students the fundamentals of logical arguments and discrete mathematics.

Text: none

Topics:

1. Propositional Logic:
- 1.1 Axioms
- 1.2 Operators
- 1.3 Truth tables
- 1.4 Equivalences
- 1.5 Propositional logic proofs

2. Predicate Logic:
- 2.1 Quantifiers
- 2.2 Generalization and instantiation
- 2.3 Predicate logic proofs

3. Other Forms of Proof:
- 3.1 Proof by resolution
- 3.2 Inductive proofs

4. Set Theory:
- 4.1 Sets & Elements
- 4.2 Operations on Sets
- 4.3 Multiple Unions & Intersections
- 4.4 Cross Products

5. Relations and Functions:
- 5.1 Relations
- 5.2 Properties of Relations
- 5.3 Functions
- 5.2 Properties of Relations

Grading:
Exam 1: 20%
Exam 2: 20%
Final Exam: 40%
Homework: 20%

Comments:

1. Good homework cannot make up for poor exams nor good exams for poor homework. To do well in the course grade, students must have good homework and exams.

2. There will be approximately three homework problems assigned at every class. These will be due at the beginning of the following class. Solutions for each problem set will be distributed.

3. It is expected that every student will contribute to the class.

4. An excellent summary of expectations is found at
http://www.cs.utexas.edu/users/ear/CodeOfConduct.html

Homework Specifications

1. Your solutions must be legible. If your writing is not legible, use a word processor.

2. Do not employ any pictures. Pictures can have value for presenting overall ideas about proofs - they cannot substitute for the text of the proof.

3. Every sentence - even those using mathematical notation - must be readable. There must be clear subjects and verbs - not just random phrases.

4. Every claim you make must follow from the hypothesis or from the previous claims. When you believe you have completed a solution, test yourself by reading it and ensuring that it is clear how the claims follow one another one-by-one.

5. Criticize your own solutions. You should be learning not only how to create solutions but how to recognize correct ones. If you wonder about having too much or too little detail, err always on the side of too much detail.

6. If you realize that your logic has gaps, admit that. Put comments about such omissions or possible errors in boxes.