Course Syllabus for CS 4384

Last Updated: 08-20-2018

Special Message: None at this time.

Course Information

Automata Theory - Fall, 2018

CS 4384.501 TR from 7:00pm - 8:15pm in ECSS 2.305

Professor Contact Information

Prof. Tim Farage

See my UTD homepage at www.utdallas.edu/~tfarage for office hours, etc.

TA Contact Information

TBA
Location: ECSS 2.104A1

Course Pre-requisites, Co-requisites, and/or Other Restrictions

Pre-requisite: CS 3305 with a grade of C or better

Course Description

A review of the abstract notions encountered in machine computation. Topics include finite automata, regular expressions, PDAs, and context-free languages.

Student Learning Objectives/Outcomes

1) Ability to design finite state automata and regular expressions

2) Ability to convert among DFA, NFA, regular expressions

3) Ability to show that a language is not regular

4) Ability to design Push-Down Automata (PDA) and Context-Free Grammars

5) Ability to convert PDAs to context free grammars and vice-versa

6) Ability to show that a language is not context free

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Required Textbooks and Materials

Introduction to Theory of Computation by Anil Maheshwari and Michiel Smid

This is a *free* online book that can be found at:

http://cglab.ca/~michiel/TheoryOfComputation/TheoryOfComputation.pdf

Assignments (These are for practice for the tests and will not be graded).

Read Chapter 1

Be able to tell if an infinite set if countably infinite or uncountably infinite

2.1) Problems 1 to 9: Constructing DFAs

2.2) Problems 1 to 3: Constructing NFAs

2.3) Problems 1 to 3: Constructing NFAs

2.4) Converting an NFA to a DFA

2.5) Converting an NFA to a DFA

2.6) Converting an NFA to a DFA

2.12) Problems 1 to 3: Determining strings that are in a given regular language

2.13) Give regular expressions for the given languages

2.14) Converting regular expressions to NFAs

2.15) Convert a DFA to a regular expression

2.16) Convert a DFA to a regular expression

2.17) Convert a DFA to a regular expression

2.20) The pumping lemma

3.1) #1 to #5 - Constructing context-free grammars

3.8) #1 to #5 - Constructing pushdown automata

An introduction to computability theory will be given.

 Note: Only pencils and blank paper are allowed during tests. No electronic devices of any kind are allowed.

Test Dates

Test 1 - Thursday, September 27
Test 2 - Thursday , November 1
Test 3 - Tuesday, December 4 – this is also the last day of class

   All tests are weighted equally. Each test will contain an extra credit problem. No other extra credit will be given.

Grading Policy

The 3 tests will determine your grade.

Letter grades will be assigned as given below. I reserve the right to make the grading scale easier than given here.

98-100	A+
92-97	A
90-91	A-
88-89	B+
82-87	B
80-81	B-
78-79	C+
72-77	C
70-71	C-
68-69	D+
62-67	D
60-61	D-
Below 60	F

Your grade will be based only on your scores as described above. PLEASE do not ask me to change your score/grade or give you a score/grade for any other reason. I know that some of you will lose scholarships, be deported, etc. if you do not make a certain score/grade; there is nothing I can do about this. Of course, if a mistake was made in scoring, I will correct it. Any requests for changes to scores must be made within 30 days after the day the graded material was returned to the class. Any request for a grade change must be made within 60 days after the day that grades were posted.

Attendance Policy

Make sure you read this.

http://cs.utdallas.edu/education/undergraduate/attendance-policy/

Course & Instructor Policies

All make-up exams are scheduled and given at the discretion of the instructor. Make-up exams are only given to those students who coordinate the missing of an exam prior to the originally scheduled exam date and time, or for an emergency.

Class attendance is recorded. There is a strong, direct correlation between class attendance and class performance. Those students who regularly attend class tend to make significantly higher final grades than those who don't.

Students are expected to be respectful to each other and to the course instructor. Disruptive behavior in the class room is not tolerated.

Each student in the class is encouraged to join/form a study group. Members of each study group are strongly encouraged to assist one another in learning and understanding the course material.

UT Dallas Syllabus Policies and Procedures

For general UTD policies go to the link: http://provost.utdallas.edu/syllabus-policies/

These descriptions and timelines are subject to change at the discretion of the Professor.