



Course CS 4384 – 001 Automata Theory
Professor Dr. William J. Pervin
Term Fall 2016
Meetings TR 8:30am-9:45am in ECSN 2.112

Professor's Contact Information

Office Phone 972-883-2719 (e-mail preferred)
Office Location ECSN 4.626
Email Address pervin@utdallas.edu
Office Hours TR 10:00am-11:00am, and many other times by appointment
Other Information I don't read eLearning mail but use it to give information. Send messages to my email address with <CS 4384> in the Subject.

General Course Information

Pre-requisite CS 3305 with grade of C or better.

Course Description Deterministic and nondeterministic finite automata; regular expressions, regular sets, context-free grammars, pushdown automata, context free languages. Selected topics from Turing Machines and undecidability.

ABET Learning Outcomes Students will have the ability to: (1) design finite state automata and regular expressions; (2) convert among DFA, NFA, regular expressions; (3) show that certain languages are not regular; (4) design PDAs and CFGs; (5) convert PDAs to CFGs and vice-versa; (6) show that certain languages are not context free.

Required Texts & Materials (FREE) "Theory of Computation" by Anil Maheshwari & Michiel Smid (Free Download) <http://cglab.ca/~michiel/TheoryOfComputation/TheoryOfComputation.pdf>
"Automata and Formal Languages" by Jarkko Kari of University of Turku (Free Download) <http://users.utu.fi/jkari/automata/fullnotes.pdf>
JFLAP computer program and tutorial (Free Download) [JFLAP](http://www.jflap.org)

Suggested Readings, Texts & Materials Notes will be posted on the web page for this course. Many other *free* resources such as a video course will be made available through eLearning. Note: Other sections may require Sipser (\$241.50) as text but this section does not.

Academic Calendar Subject to change on very short notice!

Class Meetings

01: T 08-23
02: R 08-25
03: T 08-30
04: R 09-01
05: T 09-06 (9-7: Last no "W" drop & Census day)
06: R 09-08
07: T 09-13 Guest Lecture: Examples of PL
08: R 09-15 eLearning Class
09: T 09-20 T.A. Lecture: Review
E1: R 09-22 EXAMINATION 1 (30%)
10: T 09-27
11: R 09-29
NC: T 10-04 No Class
12: R 10-06
13: T 10-11
14: R 10-13 (Mid-semester grades based on Exam 1)
15: T 10-18

Subjects

% Introduction, JFLAP, Review 3305
% Regular Languages
%
% Deterministic Finite Automata
% Non-deterministic Finite Automata
% Regular Expressions
% Pumping Lemma
% Minimization
%
% Context-Free Languages
%
%
% C-F Grammars
% Chomsky Normal Form
% Greibach Normal Form

16: R 10-20		% <i>Push Down Automata</i>
17: T 10-25	(Undergraduate Withdrawal ends)	% <i>Pumping Lemma</i>
18: R 10-27		%
19: T 11-01	Review (Grad Withdrawal ends 11/07)	%
E2: R 11-03	EXAMINATION 2 (30%)	
20: T 11-08		% <i>Turing Machines</i>
21: R 11-10		%
22: T 11-15		% <i>Modifications</i>
		% <i>Decidability</i>
23: R 11-17		% <i>Undecidability</i>
FB: T 11-22	Fall Break	
FB: R 11-24	Fall Break	
24: T 12-01		% <i>Reducibility</i>
25: R 12-03	Review	%

Exam Dates & Times
 Examination 1: 22 September (30%) 8:30am-9:45am in Testing Center
 Examination 2: 3 November (30%) 8:30am-9:45am in Testing Center
 Final Examination: 15 December (40%) 8:00am-10:45am in Testing Center

Course Policies

Grading (credit) Criteria	On each examination, each question will be graded subjectively but as uniformly as possible. The final score will then be analyzed subjectively but on the basis of previous experience and equated to a letter grade. The letter grades for the examinations will then be calculated and a final grade assigned by strict calculation assigning numerical values to the letter grades. Homework will not count but is absolutely essential if one wishes to pass this course. Students should try even more than any suggested problems. If you have any questions about the answers, visit either the Professor or the Teaching Assistant.
Make-up Exams	None given unless excellent verified medical excuse
Extra Credit	None
Late Work	Not accepted without excellent verified medical excuse
Special Assignments	None
Class Attendance	Department policy: Three consecutive absences leads to one letter grade drop. Four consecutive absences leads to an F. In any event, strongly recommended since examinations may include material introduced only in class. Arrive on time! Pay attention!!
Classroom Citizenship	General good behavior with cell phones silenced required. Questions are encouraged! Playing on your computer is discouraged!!
Comet Creed	<i>This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:</i> <i>"As a Comet, I pledge honesty, integrity, and service in all that I do."</i>
UT Dallas Syllabus Policies and Procedures	<i>The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus.</i> <i>Please go to http://go.utdallas.edu/syllabus-policies for these policies.</i>

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