

CS 301 Course Information

Prof. Robert H. Sloan

Handout 1

Class Lecture: Tuesday-Thursday, 11:00–12:15, LC C1

Class Problem Session: Friday, 3:00–3:50 p.m., LC C1

Instructor: Instructor: Prof. Robert H. Sloan, 1132 SEO. Phone: 6-2369.

Email: Prof's last name at host cs.uic.edu.

Professor's office hours: Tuesdays, 1:30–3:30, Wednesdays, 9:45–11:00, and by appointment.

TA: James McGirr, Email: jmcgirr@cs.uic.edu.

TA Office hours: to be announced. (probably on Blackboard site)

Friday Problem Section will not meet the first week of classes; first meeting is Friday of the second week.

(Asking you to go to a 3:00 to 3:50 on the Friday afternoon of Labor Day Weekend seemed too cruel even for me.)

This course will have a UIC Blackboard page. We will definitely use it for its grade book, and perhaps that is where we will post assignments, etc. As of this writing, the Blackboard people are threatening that the site may be unavailable until late in the second week of classes, however.

You can log in the URL <http://blackboard.uic.edu> (or get to Blackboard from a quick link from the university homepage).

1 Course Topics

— Subject to change without notice —

- Introduction.
 - What is the subject matter of this course?
 - Alphabets, strings, languages.
 - A bit about different notions of infinity: countable and uncountable.
- Finite Automata.
 - Deterministic Finite Automata.
 - Nondeterministic Finite Automata.
 - Regular expressions.
 - Showing that a language is *not* regular.
- Context-Free Languages.
 - Context-Free Grammars.
 - Pushdown Automata.
 - Parsing (not in text).
- Turing machines and computability theory.
 - Turing machines.
 - Basic undecidability (halting problem).
 - More undecidability: Reductions.
 - Rice's Theorem (not in text).
 - The recursion theorem with an application to computer viruses.
- As time allows: Introduction to complexity theory: P and NP.

2 Textbook

The required textbook for the course is *Introduction to the Theory of Computation* by Michael Sipser, PWS, 1997.

3 Prerequisite

CS 202 is a corequisite (i.e., you must either have already taken it, or be taking it this semester).

4 Grading

This policy is subject to change at any time for any reason.

There will be one or two midterms.

The final exam will be comprehensive.

I may give an occasional announced quiz; if so, they will take only twenty minutes or so and count the same as one problem set.

Problems sets: 15%.

Hour exams: 30–40%.

Final: 45–55

You must pass the final in order to pass the course.

If you do not work on almost all the problem sets, then do not expect to pass the course.

Homework will generally be given each week and will generally be due at the Friday discussion section. Late homework will *not* be accepted, because homework will generally be due at the problems session, and solutions will normally be given then and there.

Late homework will receive a grade of 0. (Of course, a missing homework may be *excused* altogether if, for example, you are seriously ill.)

5 Rules and regulations

Incompletes

The *UIC Undergraduate catalog* states that in addition to needing excellent justification for an incomplete, a student must *also* have been “making satisfactory progress in the course.”

Therefore, no matter how good your excuse, I will not grant you an incomplete if you have less than a C average at the time you ask for an incomplete.

Academic Integrity

You may discuss the homework problems with other students—in fact, I encourage you to do so—but you are expected to write up your solutions by yourself. *If you do work on the problem sets with other students, please put the names of your group at the top of your problem set. If you consult any web page while working on an assignment, put the URL for the page on the homework.*

If your homework is highly similar to another students' homework or to a web page and you have not put that name or URL on your paper, then we will consider you to be guilty of cheating.

The minimum penalty for any cheating will be an E for the course (not just the exam or homework in question!), and the maximum penalty is expulsion from the University.

6 First reading assignment

Review reading: Text Chapter 0.2–0.4. (You should know this discrete math material from CS 201; we will *not* be going over it.)

Reading of new material: Text, Chapter 0.1, Strings and Languages on pp. 13–14, Chapter 1.1.

7 JFLAP

We will use the simulation and visualization tool JFLAP available from <http://www.cs.duke.edu/~rodger/tools/jflap/> when we work with DFA's, and perhaps a bit later on as well.

It runs best as a Java application; the easiest thing for most people will be to download a copy and run it on your own machine (Linux, Mac, or PC).

I will make it available on the department Unix machines for you to use there as well. I will *not* help people with problems installing or running JFLAP on Windows; I don't especially expect problems, but, while I hack, cook, clean, and take care of small children, *I don't do Windows!*