Course Syllabus

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EECS 510: Introduction to the Theory of Computing

> Mathematics, rightly viewed, possesses not only truth, but supreme beauty—a beauty cold and austere, like that of sculpture, …. —Bertrand Russell
>
> The universe stands continually open to our gaze, but it cannot be understood unless one first learns to comprehend the language … in which it is written. It is written in the language of mathematics …. —Galileo

Pertinent Information

Course and Instructor Information

Course	Information	Instructor	Information
Course	EECS 510	Name	Andrew Cousino
Section	13062	Email	acousino@ku.edu (mailto:acousino@ku.edu)
Semester	Fall 2022	Office	Eaton 2005B
Time	TU 8:00—9:15 AM	Office Hours	TU 9:30—11:00 AM
Room	LEEP2 G411		

Textbook (Optional)

- Hopcroft, Motwani, Ullman. *Introduction to Automata Theory, Languages, and Computation 3rd ed.* ISBN: 0-321-45536-3

Important Dates

- August 26th: Last day for 100% refund
- September 12th: Last day to drop without a ‘W’
- November 16th: Last day to withdraw
- December 15th, 7:30—10:00 AM: Final exam

Grading

The grade for this class will be split between homework, two mid-term exams, and one final exam. The weights of these categories as well as the letter grade cutoffs are listed in the following tables.

Homework and exams will be graded upon correctness.

Grade Information

Grade	Cutoffs	Category	Weights
A	90—100%	Homework	25%
B	80—89%	Exam 1	25%
C	70—79%	Exam 2	25%
D	60—69%	Final exam	25%
F	0—59%		

Attendance

It is important that you attend class regularly to do your best in the class. If you miss class, ask your fellow classmates for the lecture notes, and then see me for any questions you have.

Homework

Homework will be handwritten, photographed, and submitted online. This is an unfortunate reality. It is unfortunate because online systems aren't the easiest to use. Work that you submit might be presented out of order or shown upside down. If you paste your work into a Word document, you can ensure that it is presented in the right order with the correct orientation. Otherwise, we will have to take off points if your work is out of order or rotated in a weird way. This is the reality of being relatively large class. Fortunately, online homework systems allow you to get quicker feedback from your work, rather than waiting weeks for me to hand back papers. Your lowest two homework scores will be dropped from your grade. We all have bad days.

Collaboration is encouraged on homework, but submit your own work individually as homework is a chance to build your knowledge and skills.

Exams

There will be two mid-term exams as well as a cumulative final exam. These will be in-person and handwritten. Much of the grade is based upon exams. I justify this with exam reviews which occur in class prior to exam day, writing exams which are fair in that they are like homework questions and dropping the lowest mid-term (not final) exam score. My exam reviews occur the prior class where I tell you what types of questions will be on the exam and which homework problems would be most useful in studying for each question.

Exams will not be a collaborative effort, as they are a means for me to evaluate your knowledge and skills.

Course Specific Information

Course Description

Finite state automata and regular expressions, context-free grammars and pushdown automata, and Turing machines. Models of computable functions and undecidable problems. The course emphasis is on the theory of computability, especially on showing limits of computation.

Prerequisites

EECS 210 Discrete Structures

Objectives

- Finite state automata, regular expressions, their equivalence, and corresponding pumping lemma
- Pushdown automata, context-free grammars, their equivalence, and corresponding pumping lemma
- Turing machines, computable functions, and the limits of computability.

Boilerplate

Electronic Devices

Electronic devices should be silenced during class time. This is out of respect for your fellow classmates who, like you, want an distraction-free environment that promotes learning. If you must have a device be off silent mode, please let me know ahead of time such as before class starts.

Special Needs

The Student Access Center (SAC) coordinates academic accommodations and services for all eligible KU students with disabilities. If you have a disability for which you wish to request accommodations and have not contacted SAC, please do so as soon as possible. They are located in 22 Strong Hall and can be reached at 785-864-4064 (V/TTY). Information about their services can be found at **access.ku.edu** **(https://access.ku.edu/)** . Please contact me privately in regard to your needs in this course.

Academic Honor Code

In order to have a successful classroom environment, you are expected to be conscientious, civil, and honest. Being conscientious means that you finish work on time and show up to class prepared. Being civil means listening to one another, speaking when appropriate, and allowing others to

participate. Being honest means that you complete your own work and are truthful with each other in all matters.

Religious Observances

Any student with a religious holiday which conflicts with the course schedule or its requirements should contact me as soon as possible to discuss alternative accommodations.

Course Summary:

Date	Details	Due