CS 375 Logic & Theory of Computing

Syllabus

(Fall 2025)

Required/Elective: required

Prerequisites: MA113, CS215, CS275

Syllabus (Fall 2025)

General Information

Topics Covered

Policies

Course Summary & Program Outcomes

Plagiarism & Cheating

Important Links

Important Dates

General Information

You don't need to wear a red mask to attend this class.

But for your own sake, please do.

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General Information

Location: Mandrell Hall, Rm 143 LEC

Time: TR 2:00 – 3:15pm

Instructor: Dr. Fuhua (Frank) Cheng

OFFICE: DMB 303

OFFICE HOURS: TR 3:30-5:30pm

PHONE: (859) 257-6760

E-MAIL: cheng@cs.uky.edu

General Information

CLASS WEBSITE:

http://www.cs.uky.edu/~cheng/cs375/CS375-HomePage-2025f.htm

Or, go to my personal WEBSITE:
http://www.cs.uky.edu/~cheng/

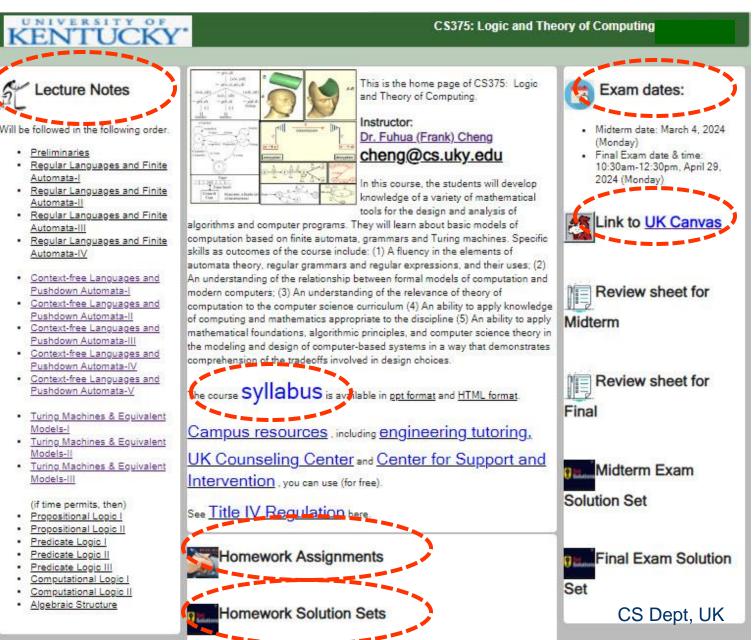Then scroll down to 'Teaching' and click on 'CS375'
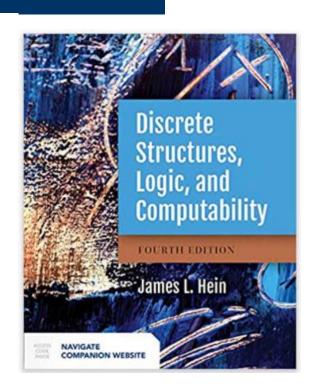
Class website:

General Information

TEXTBOOK: Discrete Structures, Logic and Computability (4th Edition)

by James L Hein

(publisher: Jones & Bartlett Learning)

(ISBN 10: 1284070409 / ISBN 13: 9781284070408)

and my notes (can be downloaded from the class website)

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General Information

GRADERs:

TBA

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List of Topics:

Week 1:

Preliminaries: set algebra, relations, functions

read Chapters 1 - 4

Weeks 2-5:

Regular languages, finite automata

Chapter 11

Week 6-8:

Context-free languages, pushdown automata

Chapter 12

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List of Topics:

Weeks 9-11:

Turing machines – Chapter 13

Week 12:

Propositional logic & predicate logic

Chapters 6-7

Weeks 13:

Computing with logic & algebraic structures

Chapters 9-10

Policies:

8-10 Homework Assignments (posted on class website)

HW should be submitted to Canvas both as a pdf file and a doc file on or before the due date

Late work will not be accepted.

Worst HW grade will be dropped when we compute your final grade for this class.

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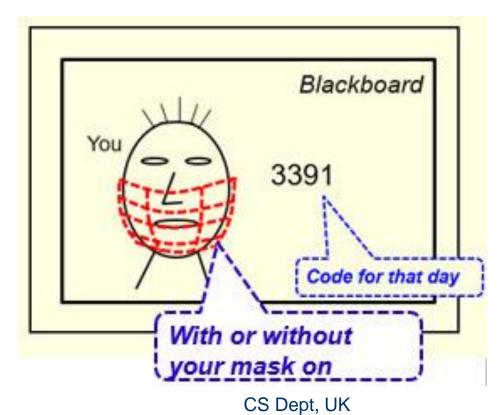# Policies:

All class materials will be available on class website

Send me an email on Friday if you did not receive any emails from me by then.

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Policies:

Homeworks---- 40%

Midterm ----- 30%

Final (not comprehensive) ----- 30%
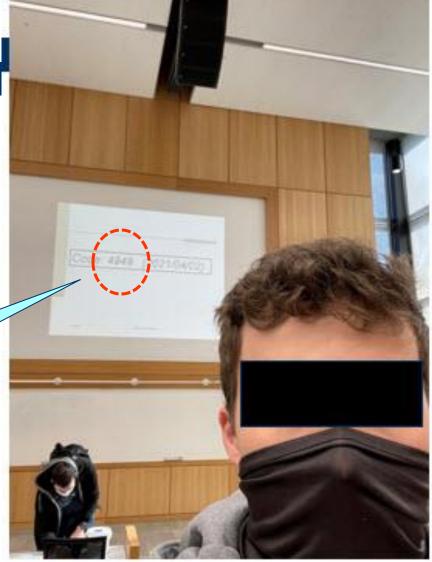
Class attendance (extra credit) ----- 5%

- You get the attendance credit (5 points) if you miss at most two lectures the entire semester

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Attendance checking:

- At the end of each class, a 4-bit special code will be displayed on the board

- Use your cell phone to take a picture of yourself and the code

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Attendance checking:

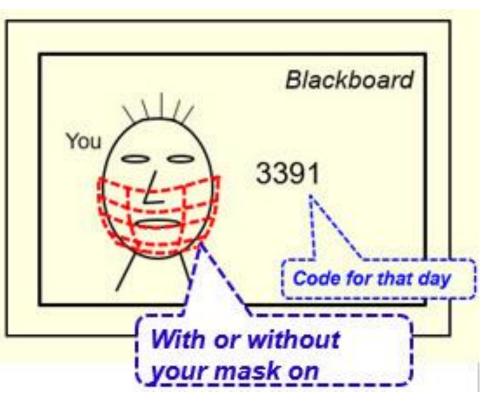- A real example

Code for that day

Attendance checking:

- When you take the picture of the code and yourself, be careful not to include other people in the photo

Don't include other people in your photo
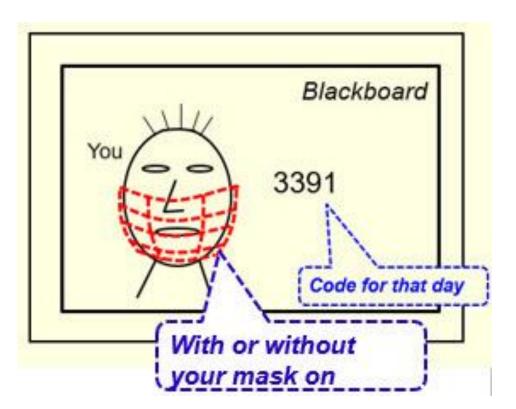
Attendance checking:

- Then submit your photo to Canvas as a proof of your attendance for that day
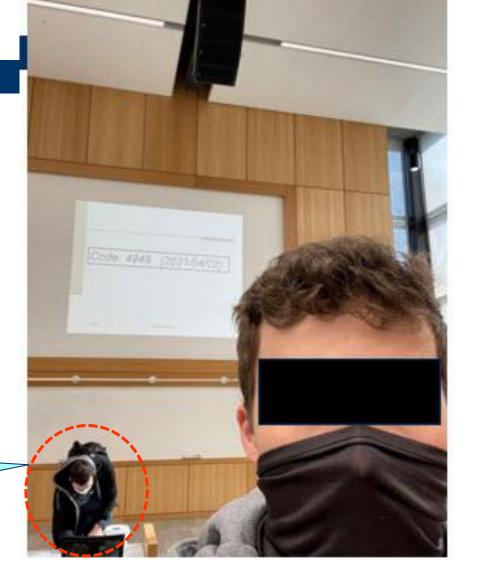- Submit your photo to the 'class attendance' assignment for that day, not a homework assignment

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Attendance checking:

- When you submit your photo, choose the 'small' option for the photo size

- This will scale the size down from 2-3 MB to 20-40 KB only

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Attendance checking:

- Another option is to come to the podium to sign the sign-in sheet if you did not bring your cell phone that day

Sign the sign-in sheet if forget to bring cell phone

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Scale (after rounding):

90 -105 .... A

80 - 89 ..... B

70 - 79 C

60 - 69 ..... D

0 - 59 .... E

Course Summary & Program Outcomes:

Specific skills to be developed in this class:

- A fluency in automata theory, regular grammars and regular expressions and their uses

- An understanding of the relationship between formal models of computation and modern computers

- An understanding of the relevance of logic and theory of computation to the computer science curriculum

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Plagiarism & Cheating:

You are allowed to discuss ideas and to help others by explaining concepts and possible solutions.

However, all work that is submitted must be prepared by yourself.

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Plagiarism & Cheating:

Consult the following links for information on what constitutes an academic offense and on applicable penalties:

http://www.uky.edu/Ombud/

http://www.uky.edu/Ombud/Plagiarism.pdf

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Important Links:

- UK Academic Policy Statement
- UK Resources Available to Students
- Accommodations for Students with Disabilities
- Accommodations for Religious Observances

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Important Dates:

First day of class - 08/26/2025 (Tuesday)

Last day to withdraw without a W or change grading option – 09/12/2025 (Friday)

Midterm - 10/21/2025 (Tuesday)

Fall break - 10/27/2025 - 10/28/2024 (M&T)

Thanksgiving break - 11/26/2025 - 11/29/2025 (W-Sa)

Last day of class - 12/09/2025 (Tuesday)

Final Exam – 12/18/2025 (Thursday 10:30 – 12:30p)

End

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