

ECS20

Professor: Patrice Koehl
Office: 3059 Kemper Hall
E-mail: koehl@cs.ucdavis.edu
Office hours: Monday, 10:00 am -12:00 pm and Wednesday: 10:00 am – 12:00 pm

TAs: Arnav Achayya (aacharyya@ucdavis.edu)
Kathleen Blanck (keblanck@ucdavis.edu)
Ayushi Bansal (ayubansal@ucdavis.edu)

TAs office hours: Arnav: TBA
Kathleen TBA
Mingyang: TBA

Class Web page: <http://www.cs.ucdavis.edu/~koehl/Teaching/ECS20/index.html>

Check here for reading assignments, information about past and future lectures, problem sets, news,...

Textbook: no textbook required. You can check: *Discrete Mathematics and its Applications*, Rosen (any editions)

Lectures:

You are expected to attend lecture, but I will not keep track of presence. You are responsible for the material discussed in class, and any announcements made in class.

There is no eating allowed during lectures.

Homework:

There will be homework almost every week, usually due on **Tuesday evening at 4 pm.**

Collaboration is allowed. Keep in mind however that your goal in doing the homework problems is to learn how to do them yourself. Write up the homework solution by YOURSELF. This means that after reading, talking, and thinking, you write down the solution with your own word/style. Your goal is to demonstrate that you understand how to do the problem. PLEASE WRITE LEGIBLY!

Please hand the homework either **on canvas (highly preferred)** or in **the box in Kemper Hall (2131)**. Homework will not be accepted in class or delivered by e-mail.

Late homework will be accepted, but with a penalty (50% the first 24 hours, 75% between 24 and 48 hours, and 0 credit after 48 hours). Your lowest homework grade will be dropped, however, to cover one emergency that may come.

We may grade only a selection of the homework problems. If there are questions that are not graded, they will not be announced in advance.

Midterms/ Exams:

There will be 2 midterms, which will be announced ahead of time.

There will be a final. The midterms and final will be open books, and open notes. You must attend the exams at the specified dates; there will be no make-up exams.

All exams are open-book, open notes.

Re-grades: We will not consider re-grading any homework, quiz or exam unless you bring the potential grading error to our attention within ONE week after the work has been returned to you.

Grading: 20% homework, 20% midterm 1, 25% midterm 2, 35% final

Questions: try to ask questions in person in lecture, discussion sessions or office hours. I have a tendency to procrastinate when it comes to answering e-mails....

Syllabus

Logic (4 lectures)

Propositions; compound propositions; methods of proof; mistakes in proof; predicate and quantifiers

Functions and algorithms (4 lectures)

*Set theory; functions: injection, surjection, bijection; growth of functions;
Algorithm: definition; pseudo codes*

Number theory (6 lectures)

Fundamental theorem of arithmetics; GCD, LCM, Bezout theorem. Division. Fermat's little theorem.

Recursions (4 lectures)

*Sequences.
Proof by induction; recursion*

Counting (6 lectures)

*Product rule; sum rule. Pigeonhole principle. Arrangements; combinations.
Probabilities.*