EE120, Spring 2021

Syllabus

Week	Date	Topics	
1	01/20, Wed	Introduction and overview	
2	01/25, Mon	Systems and signals characterization	
	01/27, Wed	Systems described by equations	
3	02/01, Mon	LTI system, Impulse response	
	02/03, Wed	Convolution and correlation	
4	02/08, Mon	Continuous Fourier transform	Quiz #1
	02/10, Wed	Discrete Fourier transform	add/drop deadline
5	02/15, Mon		President's Day
	02/17, Wed	Properties of CFT	
6	02/22, Mon		Midterm #1
	02/24, Wed	Properties of DFT	
7	03/01, Mon	2D FT	
	03/03, Wed	Filtering	
8	03/08, Mon	Modulation	
	03/10, Wed	Sampling	Quiz #2
9	03/15, Mon	Nyquist theorem	
	03/17, Wed	2D sampling	
10	03/22, Mon		Spring recess
	03/24, Wed		Spring recess
11	03/29, Mon		Midterm #2
	03/31, Wed	Interpolation	
12	04/05, Mon	Deconvolution	
	04/07, Wed	Image processing: down/up sampling, filtering	
13	04/12, Mon	Laplace transform	
	04/14, Wed	Transfer functions	Quiz #3
14	04/19, Mon	Bode plots	
	04/21, Wed	Z transform	
15	04/26, Mon	Z transform	
	04/28, Wed		Midterm #3
16		RRR week	

Office Hours

- Prof. Chunlei Liu, Monday, 2–3 pm
- Leyla Kabuli, Tuesday, 11–12 pm
- Jingjia Chen, Wednesday, 3–4 pm
- Naomi Sagan, Thursday, 12–1 pm

Textbook

EE120 is a self-contained course in that the lecture notes, lectures, discussions, and labs contain all of the material you are responsible for knowing.

If you would like additional resources, the following textbooks are recommended

1. Signals and Systems, 2nd Edition

   by Alan Oppenheim (Author), Alan Willsky (Author), with Hamid Nawab (Author)

   ISBN-13: 978-0138147570

   ISBN-10: 0138147574

2. Signals and Systems, Theory and Applications, (Free PDF)

   by Fawwaz T. Ulaby, Andrew E. Yagle

   https://ss2.eecs.umich.edu

Course Policy
Berkeley Honor Code

"As a member of the UC Berkeley community, I act with honesty, integrity, and respect for others."

Communications

- All official course communications will happen via Piazza and bCourses. We will strive to keep this website as up-to-date of a resource as possible, but there may be some delays between official announcements and website updates.
- Direct any administrative concerns that can't be resolved on Piazza to Prof. Chunlei Liu and Jingjia on bCourses to avoid being buried in the emails.

Zoom Policy

- **Never share any class zoom links and passwords with anyone outside of EE120**. We don't want to waste any instruction time dealing with Zoom-bombers. Always look on Piazza for the latest Zoom links.
- We will try our best not to change Zoom links for lectures, discussions, and office hours. If we do, you will be notified via Piazza.
- We would encourage you to turn on your computer camera. We frequently use visual feedback to pace our lessons and check that people are understanding. It is also much more enjoyable for us to teach people instead of an LCD screen :)
- During lectures, please keep your microphone muted unless called upon. During discussions, feel free to interrupt and ask questions.

Exam + Quiz Policy

During exams and quizzes, the following policies will be in place:

- On the day of the exam, we will post a PDF of the questions as well as an answer sheet to BCourses.
    - You are responsible for printing out the answer sheet and filling out the honor code before the exam begins.
    - If printing is non-trivial, you may either use a tablet to fill in the answer sheet OR use loose paper provided that you use roughly the same space as provided on the exam booklet.
- There will be a 15-minute scanning period which you can use for scanning and uploading your exam to bCourses.
    - If you encounter technical issues during scanning or submitting your solutions, you need to alert the head TA before the due time and take pictures of all your solutions to prove that you have finished the quiz or exam on time.
- **Late submission**: if a submission is late by n minutes (n<=5) for a quiz or exam that has a normal duration of N minutes (e.g. N = 30 for quiz and 90 for midterms), a

penalty of 3*n/N will be applied to the score of the particular quiz/exam. Any late submission exceeding 5 minutes will not be graded and a score of zero will be applied automatically. If Gradescope submission fails, email your solution to the head TA. Late submission still applies to emailed solutions.

- Exams will be open-book and open-notes (including digital books and notes). However, no internet (except for course websites of this class) nor software use is permitted unless stated otherwise.
- You may not collaborate in any way with other students on exams. No public piazza post is allowed. If you have questions, please post private questions to all the instructors through piazza.
   o Instructors will not respond to public questions on any thread. We will make a separate Piazza post if something needs to be clarified.å
- DSP students will start exams at the same time as other students, but will be allowed to submit to Gradescope late based on their time accommodation.

Assignments and Exams

Exams

- There will be three in-class midterms, three in-class quizzes and no final exam.
   o Quizzes take place during the last hour of class.
   o Midterms will take the full class period, replacing the lecture for that day.
   o Do not log on to Zoom during quizzes or midterms.
- The quizzes will be on **February 8, March 10, and April 14**.
   o The undergraduate add/drop deadline is February 10. We will almost certainly not have Quiz 1 graded by then. We will, however, do our best to release solutions to the quiz before the deadline so you can gauge how you did.
- The midterms will be on **February 22, March 24, and April 28**.
- DSP exam details will be released closer to each exam.
- **All quizzes and midterms take place during class.**
- Past exams are publicly available on TBP and HKN's sites. We'll also be posting some quizzes and midterms from recent EE 120 offerings on the website closer to the exams.

Homeworks and Labs

- There will be a written homework or Jupyter Notebook lab released roughly every Friday this semester, except during the weeks we have midterms.
- All homework and labs will be submitted via Gradescope.
- Homework should either be printed out and scanned or handwritten using a tablet.
   o If you have access to neither a printer nor a tablet, then you may use notebook paper so long as you make a concerted effort to use an equivalent amount of space as we give.
- You may collaborate with others, but all submitted work **MUST** be your own. State who your collaborators are.

- Assignments will generally be due a week after their release (i.e at 11:59 PM the Friday night after they're released). However, you will have a **two-day** grace period and are allowed to submit homework and lab assignments — without penalty — any time before 11:59 PM Pacific Time on the Sunday of that week. This generous policy comes with two important caveats:
  - o You should not expect any staff help on the assignments after the official due date.
  - o Assignments will not be accepted after 11:59 PM Pacific Time on Sundays **for** any reason.
- Solutions of assignments will be released Sunday midnight when the grace period ends.
- You will have to submit your homework self-grade on Gradescope by next Sunday midnight. If not, you will only get 90% of your grade by reader for that assignment.
- Self-grade form will be released along with solutions.

Weekly Check-ins

- Each week, we will release a Google Form with 5 multiple choice/True-False questions covering the content for the week.
- You are responsible for filling out the check-in form by the end of the weekend.
- These check-in forms will be autograded, and you will receive immediate feedback.
  - o While these **will not** count for course points, they are an important way for course staff to gauge how well the material is being understood, and they give us a chance to catch misconceptions early.

Grade Breakdown

- 25% MT 1
- 25% MT 2
- 25% MT 3
- 10% Quizzes (drop lowest one)
- 10% Homework (drop lowest two)
- 5% Labs (drop lowest one)

Bonus point for attending Prof. Liu's office hours

You will receive one bonus point (on the scale of 100) if you attend at least one of Prof. Liu's office hours. You don't even need to ask any technical questions if you don't have any. If you wish, you can just simply tell Prof. Liu something about yourself and course feedbacks. Regular office hours will be right after Monday's lectures using the same Zoom link as the lectures. If you wish to talk to Prof. Liu privately, please schedule separately.

Zoom (lectures and office hours)

All TAs are assigned as co-hosts for the Zoom link. Lectures, all office hours, discussions will be using the same Zoom link. Zoom links can be found on bCourse.

Chunlei Liu is inviting you to a scheduled Zoom meeting.

NOTE: All participants and hosts are now required to sign into a Zoom account prior to joining meetings hosted by UC Berkeley. See "How to sign into your UC Berkeley Zoom account" (https://berkeley.service-now.com/kb?id=kb_article_view&sysparm_article=KB0013718) for how to sign in.

Participants who are not eligible for a UC Berkeley-provided Zoom account can use a Zoom account provided by their institution, can create a free, consumer Zoom account (at https://zoom.us/freesignup/), or can dial in via the phone.

Topic: EE120
Time: This is a recurring meeting Meet anytime

Join Zoom Meeting
https://berkeley.zoom.us/j/92652613502?pwd=SWVmcHVlaTZyNmtHOFRicFdqSk5jdz09

Meeting ID: 926 5261 3502
Passcode: EE120-SS
One tap mobile
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+16699006833,,92652613502# US (San Jose)

Dial by your location
        +1 669 219 2599 US (San Jose)
        +1 669 900 6833 US (San Jose)
        +1 213 338 8477 US (Los Angeles)
        +1 720 928 9299 US (Denver)
        +1 971 247 1195 US (Portland)
        +1 206 337 9723 US (Seattle)
        +1 253 215 8782 US (Tacoma)
        +1 346 248 7799 US (Houston)
        +1 602 753 0140 US (Phoenix)
        +1 470 381 2552 US (Atlanta)
        +1 646 518 9805 US (New York)
        +1 646 558 8656 US (New York)
        +1 651 372 8299 US (Minnesota)
        +1 786 635 1003 US (Miami)
        +1 267 831 0333 US (Philadelphia)
        +1 301 715 8592 US (Washington D.C)

    +1 312 626 6799 US (Chicago)
    +1 470 250 9358 US (Atlanta)
Meeting ID: 926 5261 3502
Find your local number: https://berkeley.zoom.us/u/apCrnByzw

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Join by H.323
162.255.37.11 (US West)
162.255.36.11 (US East)
221.122.88.195 (China)
115.114.131.7 (India Mumbai)
115.114.115.7 (India Hyderabad)
213.19.144.110 (Amsterdam Netherlands)
213.244.140.110 (Germany)
103.122.166.55 (Australia)
209.9.211.110 (Hong Kong SAR)
149.137.40.110 (Singapore)
64.211.144.160 (Brazil)
69.174.57.160 (Canada)
207.226.132.110 (Japan)
Meeting ID: 926 5261 3502
Passcode: 86043051