

## Announcements

1. Office hours for TFs: posted below and link to Google Calendar [here](#).
  2. **Eli's office hours:** please feel free to email me at any time. Monday and Wednesday, 1–2 pm, 24 Oxford, 4th floor, room 456, **unless otherwise noted here**. May 8, Wednesday: zoom office hours 9:00-10:00 am:  
<https://harvard.zoom.us/j/94205732518?pwd=S3hkU3p6cEZNSEwzekZlaXlJaDJvOT09>
  3. Google form for finding HW Collaborators: [link](#)
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**Instructor:** Eli Tziperman <eli@eps.harvard.edu>

## TFs: contact information and office hours:

- **Eli:** Please see above under course announcements (Python & MatLab)
- Head TF: Andrea Salazar <andreasalazar@g.harvard.edu> (Python)
  - Friday, 2-4p, GEO 413
- Arjun Nageswaran <anageswaran@college.harvard.edu> (Python)
  - Monday 8-10 PM, Quincy D Hall
- Justin Xu <justinxu@college.harvard.edu> (MatLab)
  - Sunday, 8-10 PM, Lowell D Hall
    - 4/28 only: moved to 4/29 9-11pm in Lowell D Hall
- John Deneen <johndeneen@college.harvard.edu> (Python & MatLab)
  - Saturdays 3-5PM in Kirkland JCR
- Emma Salafsky <esalafsky@college.harvard.edu> (MatLab)
  - Wednesday 3:00 pm - 5:00 pm, Winthrop dining hall
- Susannah Su <susannah\_su@college.harvard.edu> (Python & MatLab)
  - Wednesday 6p-8p, Kirkland JCR
  - Apr 24 OH moved to Apr 26 on zoom
- Matthew Andrews <matthew\_andrews@college.harvard.edu> (Python)
  - **Not 4/27**
  - Thursday 2 May 5-7pm in Emerson 108
  - Tuesday 7 May 3:30pm-5:30pm
- Eva Mammen <emammen@college.harvard.edu> (Python)
  - Only 3/1: Friday, 12am - 2pm, Dunster Dhall/the room right before the dhall
  - Usually: Thursday, 3-5pm, Dunster Dhall
- Cyrus Asgari <cyrusasgari@college.harvard.edu> (Python)
  - Thursday, 8:00-10:00pm, Kirkland D Hall
- Kristin Otervik <ksotervik@college.harvard.edu> (Python)
  - Tuesday, 9am - 11am, Mather Dhall
  - 4/30, 8am-9:45am, Mather Dhall
- Raihana Rahman <rrahman@college.harvard.edu> (Python)
  - Thursdays, 11am-1pm, Adams Dining Hall/Inn near the portrait of Abigail Adams.
- Sam Bjarnason <sbjarnason@college.harvard.edu> (Python)
  - Sunday, 8:30-10:30 am, Mather Dining Hall
- Marianne Mihas <marianne-mihas@college.harvard.edu> (Python)
  - Sunday, 3-5pm, Winthrop Dining Hall (NOT 4/7 due to Yardfest)
  - **4/10 ONLY: 7-9pm Currier Dining Hall**
- Shelly Liu <shelly\_liu@college.harvard.edu> (Python)
  - **3/31 only: 12pm-2pm, Leverett D-Hall**
  - Saturday, 1-3pm, Leverett D-Hall

- Margaret Woo <margaretwoo@college.harvard.edu> (MatLab)
  - Sunday, 7:30-9:30 PM, tables just outside of Dunster Dining Hall / Kaplan Family Seminar room (also just outside of Dining Hall)
  - Thursday, 4/18 ONLY: 5:45-7:45, Northwest Basement (Sunday, 4/21 office hours moved)

**Monday Homework Help Session: 5:00–7:00 pm, faculty lounge of Hoffman Lab (4th Floor of the Hoffman building, 20 Oxford St)**

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### Day, time & location:

Tue, Thu 1:30–2:45, Emerson 105.

### Course resources:

- (1) The **course notes** ([Dropbox link](#), password is mynewnotes, continuously updated and downloading disabled).
- (2) The **supplementary materials**: all Matlab/ python demos used in class/ needed for HW. Two options:
  - A) [DropBox link](#)
  - B) [Harvard site link](#): Requires VPN from the [FAS download site](#) to access from outside campus & from the Harvard wireless network.
- (3) FAQ/advice: [here](#)
- (4) The [detailed syllabus](#) lists the material used for each lecture.

Course materials are the property of the instructors or other copyright holders, are provided for your personal use, and may not be distributed or posted on any websites.

### Prerequisites:

Applied Mathematics 21a and 21b, or equivalent; some programming experience: CS50, APM10, or equivalent.

### Computer Skills:

Programming experience is expected, and course homework assignments involve significant code writing. You may use either language.

**Using Matlab:** install from [FAS software downloads](#).

**Using python:** Install [Anaconda](#) for python 3.11. Course demos have been tested from a terminal (\$ python script.py). Python is a great way to go and is fully supported in APM120, yet some of its packages are a bit more complicated to install, and require some Googling and a hacker spirit... :-)

**Sections/ weekly HW help sessions:** Monday 5–7 pm, or as advertised, the EPS faculty lounge on the 4th floor of Hoffman, 20 Oxford St. Please come to work on the homework assignments, ask questions, and to offer help to others.

**In-class mini-quizzes:** Login to polleverywhere.com using your Canvas email and set up a new password. Respond to in-class polls at pollev.com/apm120 or using their app.

### Homework

will be assigned every Tuesday, available under Files on the Canvas menu, and due on Gradescope (via electronic submission, see the Canvas menu and more below) the following Tuesday at 1 pm EST, unless otherwise noted. Continuously practicing the lecture material on a weekly basis via HW assignments is the only way to become comfortable with the subjects covered in the course.

^ **Course forum:** Please post questions regarding HW/ quizzes to the course forums (Ed discussions, see the Canvas menu), rather than emailing the teaching staff. You are very welcome to respond to other student's questions on the forum.

^ **Electronic homework submission via Gradescope:** Your submission, including code and figures, should not exceed 20 Mb or 30 pages in total length. It may be typeset or scanned but must be clear,

easily legible, and correctly rotated. A scan using a phone app (e.g., [this](#)) may be acceptable if done carefully. Upload different files for the different questions, or upload a single pdf and mark which pages contain answers to which question; see the [tutorial video](#). Unacceptable scans could lead to a rejection of the submission or to a grade reduction of 15%. **Late policy:** each student is allowed a 48-hour late submission twice in the semester in addition to the drop HW implied by the grading scheme below. A reduction of 2% per minute after the due time will be applied for other submissions or beyond the 48-hours.

### Quizzes, final, in-class mini-quizzes, grading:

Two evening quizzes (please contact Eli when these are announced about 10 days before the following dates if you have any conflicts),

1. Wednesday, Feb 28, 2024, 6:30–9 pm EST.
2. Wednesday, April 3, 2024, 6:30–9 pm EST

The homework assignments, the two quizzes, and the final contain extra credit problems that can bring the grade to 110 out of 100. Mini-quizzes during most classes will involve responding to multiple-choice questions via the Poll-Everywhere app, after a group discussion among the students, with repeated opportunities to vote; the credit for mini-quizzes requires answering 75% correctly and is split between the periods before and after spring break. Homework and quiz grades are posted to canvas, you need to check the posted grades and come to Eli's office hours **within 7 days from the release of grades if you see a problem**. Please approach (visit) Eli rather than the TFs with any issue related to grading. Grading:

HW =  $\min(100, \text{mean}\{\text{HW assignments, ignoring lowest grade}\})$

mini-quizzes = 50 if answered 75% of in-class mini-quizzes until spring break, 0 otherwise; 50 more for classes after spring break.

Course grade =  $\min(100, 0.35\tilde{\text{HW}} + 0.15\tilde{\text{min}}(100, \text{quiz1}) + 0.15\tilde{\text{min}}(100, \text{quiz2}) + 0.30\tilde{\text{min}}(100, \text{final}) + 0.1\tilde{\text{mini-quizzes}})$

The total maximum # of points is 105, and the maximum course grade is 100. Then, A: ≥94, A+: ≥89, B+: ≥83, B: ≥75... The course may be taken pass/fail only in unusual circumstances and with instructor approval during the first week of classes.

### Collaboration policy:

We strongly encourage you to discuss and work on homework problems with other students and with the teaching staff. However, after discussions with peers, you need to work through the problems yourself and ensure that any answers you submit for evaluation are the result of your own efforts, reflect your own understanding, and are written in your own words. In the case of assignments requiring programming, you need to write and use your own code, code sharing is not allowed. You must cite any books, articles, websites, lectures, etc. used, including chatGPT or similar, and explain how and why you used each such source.