

Homework Submission Guidelines

You will be submitting assignments on **Gradescope**. There will be two separate uploads for each homework, one for your code and one for a .pdf of your output:

NEURL-GA 2207 / PSYCH-GA 2211
Fall 2022

DESCRIPTION

Intensive course in basic mathematical techniques for analysis and modeling of behavioral and neural data, including tools from linear systems and statistics.

NAME	STATUS	RELEASED	DUE (EDT)
Sample Code	No Submission	AUG 31 AT 6:00PM	23 hours, 31 minutes left SEP 01 AT 6:00PM
Sample Output	No Submission	AUG 31 AT 6:00PM	23 hours, 31 minutes left SEP 01 AT 6:00PM

CODE: Please use a separate Matlab or Python script for EACH question and save them as 'hw#_Q#_LASTNAME' (e.g. hw1_Q2_Evans). Zip these files together and upload the .zip to the programming assignment link on Gradescope. Code should be submitted in either .m or .py formats only.

OUTPUT: Export each question's script as a .pdf then combine the separate files into ONE .pdf document. Upload this to Gradescope via the output assignment link then follow the instructions, selecting the pages of the .pdf which correspond to each of the questions. (i.e. if your answer for Q1 spans the first four pages of your .pdf then select Q1 and highlight these pages.

You must upload BOTH the code and the .pdf to receive full credit on the homework.

Submit Programming Assignment

Upload all files for your submission

SUBMISSION METHOD

☒ Upload ☐ GitHub ☐ Bitbucket

Drag & Drop

Any file(s) including .zip. Click to browse.

Upload Cancel

Submit Assignment

Submit images for each question, or a single PDF.

Submit images to answer questions individually or a single PDF for all. Don't forget to assign your PDF pages to their corresponding question.

SUBMIT IMAGES

SUBMIT PDF

Submit assignments using the Gradescope mobile app.

Download on the App Store GET IT ON Google Play

Close

Matlab

Write your code in a Matlab Live script (.mlx) which allows for text, equations, code and inline output similar to a Jupyter notebook. Format each question in its own script and make sure you use sections to break up parts of the question (e.g. 1a, 1b, 1c).

To save the live script as a .pdf simply go to the 'Save' drop down menu and select Export to PDF. Make sure you run your code before you export because figures and outputs are only updated when run, not when changes are made to the code. For the code submission portion save each live script as a .m file. Do not upload the .mlx file for the code submission.

Live Editor - /Local/Users/marissa/Documents/TA Mathtools/hw1_Q1_Evans.mlx *

hw1_Q1_Evans.mlx * +

Assignment 1 - Question 1 - Marissa Evans

Question 1a.

Not all questions require code. Use the text option to type out these wordy responses. Sometimes you may want to also share formulas to better explain your reasoning, you can add LaTeX characters by going to the 'Insert' tab and selecting Equation -> LaTeX equation. Those will appear in line like this: $\sum_{n=1}^n u_n v_n$

Question 1b.

Code by itself can be confusing. That's why for this question part I am also writing a brief description of my code here to demonstrate that I understand the underlying concepts. I am storing my favorite numbers into a vector. It's also important to write comments within the code sections as well so it's easy to follow your thought process.

```

1 myFavNums = [7,5,18,4,3,21]; %these are my favorite numbers
2 disp(['My favorite numbers are ' num2str(myFavNums(1:end-1)) ' and ' num2str(myFavNums(end))])

```

My favorite numbers are 7 5 18 4 3 and 21

Make sure you are suppressing interim variables and only printing information integral to the question.

Question 1c.

For this question we will need a plot. For questions involving plots, be sure to provide your interpretation of the plot and what we can learn from it. Be sure to label your axes and include legends.

```

3 figure
4 bar(myFavNums) %creating a bar plot
5 xlabel('Ranking of Favorite Numbers')
6 ylabel('number value')
7 legend('data')
8 set(gca,'Box','off','TickDir','out')

```

Ranking of Favorite Numbers	number value
1	7
2	5
3	18
4	4
5	3
6	21

Python

If you are submitting in Python, please answer each question individually in the form of a separate Python 3.x Jupyter notebook (.ipynb). Please plot all figures in-line and print important variables. Save a copy of the script with outputs at a .pdf, the best way to do this is to go to File -> Print Preview -> File -> Print -> Save as PDF (the .pdf export in Jupyter requires a copy of LaTeX which is a huge download so avoid this). For the code submission portion save each jupyter notebook as a .py file. Do not upload the .ipynb file for the code submission.

jupyter Q1 Last Checkpoint: 22 minutes ago (autosaved) Logout

File Edit View Insert Cell Kernel Widgets Help Notebook saved Trusted PyCharm (end-to-end)

Assignment 1 - Question 1 - Lyndon Duong

In [1]: `# your import statements may differ
from scipy.io import loadmat # this will be useful for loading .mat files we provide
import numpy as np
import matplotlib.pyplot as plt
import seaborn`

1a)

Not all questions require code. This is my wordy answer to question 1a. I am writing my answer in its own cell using markdown.

1b)

Code by itself can be confusing. That's why for this question part, I am also writing a (brief) description of my code here to demonstrate that I understand the underlying concepts. I am storing my top 8 favourite numbers into a vector named my_fav_numbers.

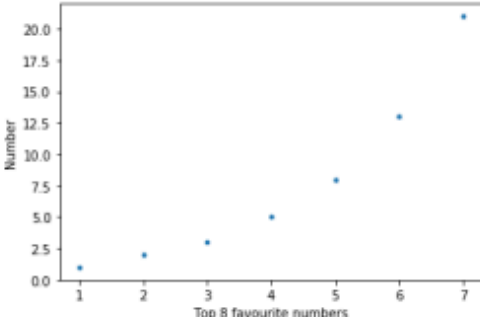
In [2]: `my_fav_numbers = np.array([1,2,3,5,8,13,21]) #in-line comments can also be helpful
print('My fav numbers are:')
print(my_fav_numbers)`

My fav numbers are:
[1 2 3 5 8 13 21]

1c)

I will now plot my_fav_numbers. For questions involving plots, be sure to provide your interpretation of the plot and what we can learn from it. Remember to label your axes!

In [3]: `plt.plot(np.arange(1,8),my_fav_numbers,'.')
plt.ylabel('Number')
plt.xlabel('Top 8 favourite numbers');`



Top 8 favourite numbers	Number
1	1
2	2
3	3
4	5
5	8
6	13
7	21