MATH 22AL:

Computer Lab For Linear Algebra

Dr. Daddel **aadaddel@ucdavis.edu**

Course Description: MATH 22AL is an online course:

There are four introductory videos available on Canvas (see the first module under the Home link). Please watch these videos carefully and follow the instructions provided.

TA office hours are held on Tuesdays and Thursdays. You can find the exact times and locations on the course website. Feel free to attend if you have any questions or need additional support.

The labs for this course can be completed on your computer by following the provided instructions for each lab. While attendance at additional meetings is not mandatory, room 1118 in MSB is reserved for your use if you prefer to work there during your scheduled time."

Required work:

There are a total of 9 assignments, each with a due time of 5:00 PM on the designated lab due date. Please review the specific due dates on the course website.

Grading:

To earn a passing grade, you must successfully complete and submit a minimum of 8 labs. Additionally, having 7 passes and 2 barely passes will also result in a passing grade for the course. Notably, there are no midterms or final exams.
Each lab typically requires approximately two hours of work. Please note that this timeframe may vary based on your efficiency in working on a computer and your level of preparation in terms of the Linear Algebra concepts covered in MATH 22A

Late submissions for assignments will not be accepted, and only the initial submission will be graded.

Labs submitted under the following conditions will not be graded and will not be considered as passed:

- If the file name is different; our system is case-sensitive (e.g., LAB1.txt must precisely match the file name).
- If the submission is sent from an account other than your math 22al account (your username should follow the format m22al*-**, where * represents your specific number).
- If the submitted lab is not edited and cleaned from errors and extra typing.
- If the content is not organized in the same order as outlined in the lab.
- If variable names differ from the suggested names in the lab; please note that our system is case-sensitive.
- If commands are copied and pasted instead of manually typed.
- If the submission is late.

Prerequisite:

- Completion of or concurrent enrollment in Linear Algebra.
- Basic knowledge of working with computers⋆.

⋆ A basic understanding of working with computers is helpful. Familiarity with logging in to a Unix machine and using an editor (vi, pico, ...) is expected. If you have a Campus Computer Account and check your email, you are likely using a Unix machine. The labs are designed to use MATLAB, and no prior familiarity with MATLAB is required. MATLAB commands will be introduced gradually.

Registration and Enrollment Guidelines: You must

1. **Enroll concurrently in a section of MAT 22A and in a section of MAT22AL through SISWEB.**
2. **Register online by visiting the following webpage to obtain your username and password for Math Department computers: http://www.math.ucdavis.edu/comp/class-accts**
3. **Write down and save your username and password in a secure location. Ensure you have it with you when you attend the lab.**

Where to Seek Assistance:

- **Your MATH 22AL TA will be available for office hours in 1118 MSB (LAB) on Tuesdays and Thursdays to address your queries. These office hours are posted on the course website and are currently planned to be in person in room 1118 MSB.**
- **You have the option to attend TA office hours in 1118 MSB, as announced on the course website.**
- **Utilize email to contact your TA and pose your questions.**
- **Additional resources include videos illustrating various steps of computer usage from the first session, accessible on the Canvas course website.**

Please reach out help@math.ucdavis.edu if you encounter any of the following issues:

- **Difficulties in obtaining your username and password.**
- **Challenges with logging into your account.**
- **Instances when MATLAB is unavailable.**
- **If your password is not functioning, initially visit the following webpage: http://www.math.ucdavis.edu/comp/class-accts to obtain a new password. If the new password is still not working, send an email to help@math.ucdavis.edu.**
- **For any questions related to the course, covered materials, or inquiries about MATLAB and assigned labs, feel free to contact your TA and/or me.**

Where to Work:

- **Math 22AL is an online course, and you have the flexibility to use your personal computer for your coursework. To connect to the Math Department computers for your assignments (detailed instructions provided later), follow these options:**
- **Utilize your own computer for most tasks.**
- **Visit Room 1118 MSB, which is open from 8 AM to 5 PM on weekdays (Note: Sometimes, it serves as a classroom for other courses). It's specifically reserved for Math 22AL on Tuesdays and Thursdays. If the lab is closed, seek assistance at the main office, 1130 MSB.**
- **For health and safety considerations, favor using your personal computer whenever possible. In the past, the room could be crowded, posing safety concerns during the current era of the pandemic. Choose what suits you best and ensures your safety.**
- **Access any computer lab on campus by using a terminal window to connect to the Math Department computer.**
- **Please note that LAB 3 requires you to do the LAB in the computer room (Room 1118 MSB). All other labs can be completed using a terminal window logged in to Math Department computers.**

How to Start Your Work:

Each lab assignment provides explicit instructions on what is required and how to submit your work. The following general guidelines are applicable to all labs:

- **Read and meticulously follow the directions outlined in each lab, ensuring that you submit the necessary files as specified.**

- **Familiarize yourself with the prerequisites for each lab before commencing the assignment. These prerequisites consist of materials covered in your linear algebra course. For some labs, it might be beneficial to read ahead by a section or two in your textbook.**

How to Start:

1. **Open a terminal window and login to your account.**
2. **Type textmatlab**
3. **When MATLAB session starts Type diary LAB1.text**
4. **Then type the following and press enter after each line: (Make sure to have % sign before you type your information.)**
   - **Type % your own first name press enter**
   - **Type % your own last Name: your Last name press enter**
   - **Type % your Username: press enter**
   - **Type date press enter**
5. **Follow the instructions on the LAB.**

How to finish your work:

At the end do the following:

- **Type save press enter,**
- **Type diary off press enter,**
- **Type exit press enter,**

How to Edit Your Work:

While working on the lab, it's possible to make errors or mistype commands in MATLAB. The commands you enter and MATLAB's responses will be recorded in the file LAB1.text. Unfortunately, you can't correct errors within the MATLAB session; instead, you must reenter the command and proceed. Once you've completed the lab, you can open the LAB1.text file using an editor such as pico to rectify mistakes. This process is known as editing LAB1.text. To edit your work

- Open a terminal window with a $ prompt.
- Type pico LAB1.text. If you enter this command in the MATLAB command line, it will result in an error. Ensure correct usage as follows:

$ pico LAB1.text	Correct
>>pico LAB1.text	Incorrect

- Once pico opens the LAB1.text file, use the up/down arrows to navigate through the file and correct errors.
- Do not remove errors that the lab instructions specifically asked you to include.
- After editing, save your changes using Ctrl + O.
- Exit pico using Ctrl + X.

How to Submit Your Work:

After completing and editing your lab using pico, follow these steps to submit your work through a terminal window. To submit your work:

- **Use a terminal window with a $ prompt.**
- **Type submitm22al LAB1.text. If entered in the MATLAB command line, it will result in an error.**

$ submitm22al LAB1.text	**Correct**
>> submitm22al LAB1.text	**Wrong**

- **Receive a verification note confirming the submission of LAB1.text to the MATH 22AL TA.**
- **Capture a picture of the confirmation note and keep it until grades are posted.**

Using Windows operating system:

a.) Using Windows Terminal: See a tutorial at
https://www.youtube.com/watch?app=desktop&v=jO4dbUnfRlU
b.) Using Putty
If you are using Windows Operating system,

- **Download Putty**
- **point.math.ucdavis.edu or round.math.ucdavis.edu**
- **Double click to run it.**
- **Then for the host name enter one of these computers :**

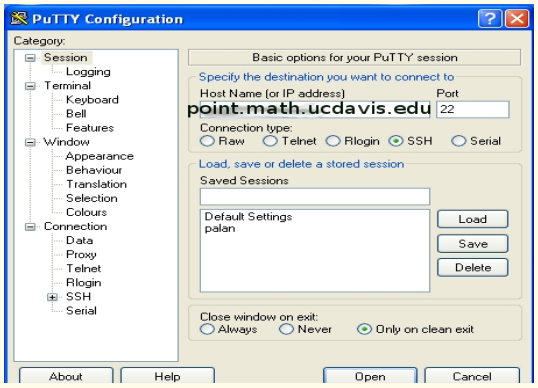
  point.math.ucdavis.edu
  round.math.ucdavis.edu

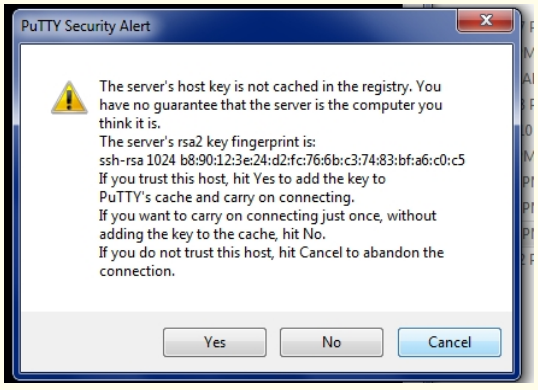
- **When terminal opens it will ask you to enter your Username, enter it and press enter.**
- **Then it will ask you for your password. Type it and press enter.**

NOTE:

When entering your password, the cursor will not move nothing will appears on the command line. It seems that it is not working. Actually, It is working, that is how it is setup. Make sure to type your password correctly.

- **Whenever in this process it may ask you " Do you trust this computer?" Type yes**





Using Windows Terminal

If you are using Windows Operating System and wanted to use Windows Terminal please see the following tutorial
https://www.youtube.com/watch?app=desktop&v=jO4dbUnfRlU

- **Double Click on terminal**
- **On the terminal window Type : ssh "your username"@point.math.ucdavis.edu", then press enter.**
- **Then it will ask your your password enter it and then press enter.**

  NOTE:

  When entering your password, the cursor will not move nothing will appears on the command line. It seems that it is not working. Actually, It is working, that is how it is setup. Make sure to type your password correctly.

- **Whenever in this process it may ask you " Do you trust this computer?" Type yes**

Using MAC Operating System:

If you are using MAC Operating System,

- **Go to application folder.**
- **Go to Utility folder.**
- **Double Click on terminal**
- **On the terminal window Type : ssh "your username"@point.math.ucdavis.edu", then press enter.**
- **Then it will ask your your password enter it and then press enter.**

  NOTE:

  When entering your password, the cursor will not move nothing will appears on the command line. It seems that it is not working. Actually, It is working, that is how it is setup. Make sure to type your password correctly.

- **Whenever in this process it may ask you " Do you trust this computer?" Type yes**

How to Stop in middle of the LAB and return back to continue your work later :

If you have to stop and comeback later to continue your work, follow the following instructions:

- **Make a note of place in the LAB that you are stopping, so you will remember where to start when you are back.**
- **Type save press enter,**
- **Type diary off press enter,**
- **Type exit press enter,**

NOTE:

Whenever you type save, Matlab will save your active variables in binary format in a file called matlab.mat and it will overwrite this file each time you enter this command. This is only for your own use and has nothing to do with LAB1.text file that you need to send it to the TA

NOTE:

Whenever you type diary off, Matlab will do the following:

- **Stop copying what you type on the file LAB1.text**
- **Save the file LAB1.text**
- **Close the file LAB1.text**

LAB1.text is the file that you need to save and later send it to the TA using submitm22al command.

When you are ready to continue your work, do the following:

- **Start a terminal window**
- **Type textmatlab press enter.**
  When Matlab session starts,
- **Type diary LAB1.text press enter.**

NOTE:

This time Matlab will open the file LAB1.text and add whatever you type to the end of the file, it will append to it. If you mistype the name of the file, Matlab will create a new file, so be very careful in typing the name of the file correctly.

- **Type who press enter. You will see nothing in respond.**
- **Type load press enter. To load your variables from the file called matlab.mat.**
- **Type who press enter. Now you can see your variables from the previous session.**
- **Continue working on your LAB. Continue your work. when you are finished type the following**
- **Type save press enter,**
- **Type diary off press enter,**
- **Type exit press enter,**