MATH 22AL:
Computer Lab For Linear Algebra

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Course Description:
MATH 22AL is an online course, with one In-Person meeting at the beginning of the quarter which is announced in campus class schedule. Due the COVID-19 pandemic this In-Person session is Recorded in several videos and is available on Canvas to enrolled student. So you can view the videos, if still need to attend the in-person session you can go to the meeting. You can do the LABS on your computer by following the instructions on each lab.

You do not have to attend any other meetings for this lab, however room 2118 in MSB is reserved for your use if you prefer do your work there in your scheduled time.

Required work:
There are 9 assignments, each due 5:00 PM on due date of the Labs. Please check the due dates on course website.

Grading:

To receive a pass you need to complete, submit and pass at least 8 labs.
Also, having 7 Pass and 2 Barley Pass will give you a passing grade for the course.
There are no midterms or final.
Each lab needs about two hours of work, this time might vary depending on how fast you work on computer and how prepared you are in terms of Linear Algebra concepts covered in your MATH 22A.
No late assignment will be accepted.

Submitted LABS will not be graded and will not pass in the following cases.

- If the name of the file is different. Our system is case sensitive. (For example LAB1.text must be exactly the file name.)

- If the submission is sent from a different account than your math 22al account. (your username should look like m22al*-**)where * is your specific number.

- If the submitted lab is not edited and cleaned from the errors and extra typing.

- If the content is not in the same order as LAB organized.

- If the variable's name is different from the suggested names in the LAB. Remember our system is case sensitive.

- If the commands are copy pasted instead of typing.

- If the submission is late.

Prerequisite:

- Have taken Linear Algebra or taking it concurrently.

- Having Basic knowledge about working with computers.⋆

⋆ A little of basic knowledge about working with computers is helpful. You need to know how to log in a Unix machine and use an editor (vi, pico, ...). If you have a Campus Computer Account and check your e-mail, you are probably using a Unix machine. The labs are designed to use MATLAB. No familiarity with MATLAB is required. MATLAB commands will be introduced gradually.

Registration and Enrollment: You must

1. Be enrolled in a section of MAT 22A (concurrently this quarter) and in a section of MAT22AL via SISWEB.

2. Registered on line by visiting the following web page to obtain your username and Password for Math Dept Computers.
   http://www.math.ucdavis.edu/comp/class-accts

3. Write and save your user name and your password in a safe place and have it with you when you go to LAB.

Where to get help:

- Your MATH 22AL TA will be holding office hours in 2118 MSB (LAB) on Tuesday and Thursday   to answer your questions. These office hours posted on the course website and at this moment supposed to be in person in room 2118 MSB. But depending on health advise of campus, it might change to an online (Zoom) office hours.

- You may attend TA office hours in 2118 MSB or using Zoom, as it may be announced it by e-mail or on course website.

- You may also use e-mail your TA ask your questions.

- There a few Videos of different steps of using computer from first session, which are available in course website.Click on Late enrollment. Scroll down to the end of the page.

Report the following Problems to help@math.ucdavis.edu:

- Any difficulties on obtaining Username and password.

- Any difficulties in login to your account.

- Whenever MATLAB is not available.

- Whenever your password is not working, first visit the following web page: http://www.math.ucdavis.edu/comp/class-accts to get a new password. If the new one is not working , send an e-mail to help@math.ucdavis.edu.

- If you have any question regarding this course, materials covered or questions about MATLAB and assigned LABS please contact your TA and/or me.

Where to Work:

- Math **22AL** is an online course. Your may use your own computer to do the work. To do this, you need to connect to Math Dept computers Using a terminal window to do the work (Explained later).

- You may also go to Room 2118 MSB (Open 8-5 week days. Some times this room is used for other courses as a classroom.) On Tuesdays and Thursdays it has been reserved for Math **22AL**.
  If the lab is not open, please go to the main office 1130 MSB ask for help.

- From the health and safety point of view, it is a good idea to use your own computer for the most of the time. Sometimes in the past, this room was too crowded, not safe with in the Corona Era. So, you decide and stay safe.

- You may use any computer lab on campus, using a terminal window to connect to Math Department computer.

- Note LAB 3 needs to be done in MATLAB downloaded on your computer, then the diary file must be transferred (copy and paste) into MATH department computer. Or be done in room 2118.
  Other LABS MUST be done using terminal window in MATH department computers.

How to Start Your Work:

Each lab assignment has a clear direction and information on what needs to be submitted and how to submit it. The following General guideline applies to all labs.

- Read and carefully follow the directions of each lab, then submit the required files.

- Study and learn the prerequisites for each lab, before starting the lab. These prerequisites are materials covered in your linear algebra course. For some labs, you may need to read ahead a section or two of your textbook.

How to Start:

1. Open a terminal window.

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 % First Name: first name press enter
   - Type % Last Name: your Last name press enter
   - Type % 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:

During your work on the lab, it is possible that you enter something wrong or mistype, your typing and MATLAB's response will be copied on the file LAB1.text. You can not go back and fix the error in MATLAB session, you need to reenter the command and continue. After you done with the lab, you can open the file LAB1.text using an editor like **pico** and remove your mistakes. This process is called editing LAB1.text. To edit your work

- You must use a terminal widow with $ prompt.

- You need to type **pico LAB1.text** . If you type this in Matlab command line, it will give you an error message.

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

- When pico opens the file LAB1.text, you can use up/down arrows to navigate in the file and cut your errors.

- Do not remove the errors that lab instructions asked you to do to show you a point.

- When done with editing, use **Ctrl + O** to save your changes.

- Use **Ctrl+X** to exit pico.

How to Submit Your Work:

After you are done with lab and after editing it using pico you can submit your lab using a terminal window . To submit your work

- You must use a terminal widow with $ prompt.

- You need to type **submitm22al LAB1.text** . If you type this in Matlab command line, it will give you an error message.

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

- You will receive a verification note saying that Sending LAB1.text to MATH 22AL TA

- This is your confirmation, take a picture of it 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 :**
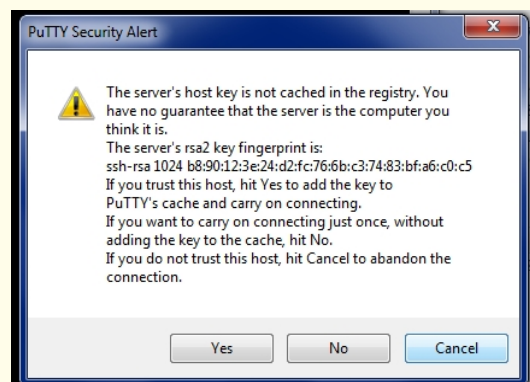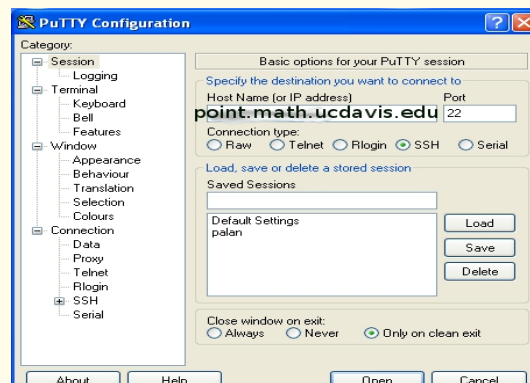
    point.math.ucdavis.edu
    round.math.ucdavis.edu

- **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,