

Questions for PI & Python Tutorial --- Lab Guide

1 Overview

This week, you will meet your research team for the semester. You will discuss the readings you were assigned last week and as a team come up with a set of questions for our lab meeting next week with the NLR research team. You will also work through your first Google Colab activity.

2 Lab Activities

2.1 Introduction to Research Team – Full Lab Group

- The TAs will share the research team assignments. Most teams will consist of 3 people. These are the team members you will work with for the rest of the semester.

2.2 Group Discussions – Research Team

- Take some time to meet your team. You will be working together throughout the rest of the semester and it is important to take some time to get to know each other.
- Exchange email and/or phone numbers with your teammates, so you can stay in contact as the semester progresses and you decide on your final research project.
- You will also check to make sure everyone has access to your shared Google Drive folder. Go to your Google Drive (logged in with your CU email) and click on “Shared with me” and you should see a file folder named some version of “Section ### Day Time Team X”, where the section number, day, time, and team letter match your section and team. Contact your TA if you don’t have access. In addition to your team members, this folder will also be shared with the course TAs, the course instructor, and the technical staff. No other students will have access to this folder.

2.3 Reading Discussions – Research Team

In preparation for your lab meeting, you read excerpts from scientific papers and considered some questions to help guide your discussion. In your team, create a shared Google Doc in your team Google Drive folder and:

- Use a reasonable naming convention to name the file, see [this link](#) for ideas.
- Add the names of all of your team members to the top of the document.
- Combine your jargon terms and definitions into one list.
- Discuss any questions you might still have about these terms.
- As a group, discuss the following guiding questions:
 - What are the motivating factors behind this research project?
 - What questions do we hope to answer with this research?
 - What is unique about this project that differentiates it from past research?
- Work together to answer any remaining questions or points of confusion you have about the project.
- In your Google Doc, summarize your discussion and make note of any questions your group was unable to answer.

2.4 Reading Discussions — Full Lab Group

Each group will share their discussion summaries and the opportunity to share questions they were unable to answer. This is a great opportunity to help your colleagues by sharing different perspectives and potentially being able to answer one of their questions.

2.5 Develop Questions for NLR — Research Team

The NLR research team will be joining us for lecture for our first research group meeting. In the Google Doc that you created earlier:

- Write down at least 3 questions for the NLR research team. The questions from all of the Research Teams will be given to them prior to their visit. These questions can be about the science of photovoltaics, details about the measurements we will be doing this semester, and overall goals of the project.
- Everyone on your team should save the document as a PDF to submit on Canvas by the due date listed on Canvas. **Each member of your team must submit an identical copy of the PDF.**

2.6 Python/Colab Tutorial — Individual Assignment

Each team member will download the Python/Colab Tutorial, upload it to their own Colab drive (**not the Team one as this is an individual assignment**) and work independently on it. If you have any questions, you can talk with your team members or your TA to get help.

To convert your .ipynb to a PDF, use the [Notebook to PDF](#) online tool.

- After completing the notebook, submit both a .ipynb file and a PDF to Canvas by the due date listed on Canvas.

3 Post-lab Activities

3.1 Python/Colab Tutorial

If needed, you will complete the remainder of your tutorial outside of lab. If you need assistance, please attend one of the help sessions to talk with a TA. The Help Session hours can be found by following the 'Help Sessions' link on the home Canvas page of the course. This is an individual assignment, so while you can reach out to your team with questions, you should work to complete it on your own. Please submit **both a .ipynb file and a PDF** to Canvas by the due date listed on Canvas.

3.2 Reflection

Please complete this week's reflection by the due date listed on Canvas.

3.3 Apparatus Walkthrough

Next week you will begin apparatus training. Complete the **Apparatus Walkthrough** on Canvas before your next lab session: watch the apparatus video and answer the embedded questions.