Instructor

Philip Ponce de Leon

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Office: 726 Broadway, Room 1035

Office Hours: Friday, 3:00-5:00pm
In-person and remote via appointment

Meeting Times & Places

Lecture (PHYS-UA-72-001)  Monday, 2:00-3:15pm  Meyer 122
Lab (PHYS-UA-72-002)  Tuesday, 9:15am-12:15pm  Meyer 223
Lab (PHYS-UA-72-003)  Tuesday, 3:30-6:30pm  Meyer 223

Course Description

The second of two introductory-level laboratory courses. The objectives of these courses are to introduce essential experimental techniques including set-up and operation of basic laboratory equipment, elementary experimental design, statistics and inference, and computational data analysis. Experimental techniques are introduced in the context of classic physics experiments.

Texts

Two texts are required:


2. Python Primer by D. J. Pine, available via the NYU Physics Lab Main Page at:

   https://physics.nyu.edu/~physlab/Lab_Main/PythonMan.pdf

We will use the open-source, individual-edition of the Anaconda distribution platform for Python available for download at www.anaconda.com.

NYU Brightspace

Homework assignments, homework solutions, lecture notes, and programming examples will be posted on Brightspace. If you have any difficulty accessing course materials, report this as soon as possible. Last minute technical difficulties are not valid excuses for missed assignments. Important announcements will be sent out to your NYU emails via Brightspace, so please check these regularly.

Laboratory

You will do 9 laboratory experiments. While experiments will be conducted with a partner, everyone turns in their own lab report, due at the start of the next lab session. Your submission must be printed and should follow the guidelines on the course Brightspace page under Writing a Lab Report. Submissions up to one week late will receive half-credit after which point they will no longer be accepted. You are required to carefully read the laboratory instructions before you attend the lab. To encourage you to do this, a short quiz will be given at the beginning of the lab period. Your performance on the quiz will be factored into the grade on your lab report.

You are required to keep a lab notebook in which you record all of your raw data for each experiment. It can be written or digital and should include all measured quantities, procedural comments, etc. At the end of each session, before leaving the lab, you will send a copy of your raw data (files, photos, graphs) to introlab2.spring2022.rawdata@gmail.com and CC yourself and lab partner.
Lecture

The material covered in lecture will complement the labs, and the homework and exams will primarily test your understanding of this material. Please ask questions during lectures. If there is something you don’t understand, many other students are likely having the same trouble. If there is some aspect of the pace, content, or structure of the course you don’t like, please give feedback as soon as possible. (Note: there will be no lecture on 2/21 and 3/14.)

Homework

Reading and practice exercises will be assigned about once a week and will include error analysis problems or simple programming tasks. We will use scientific python libraries (like numpy and matplotlib) to analyze data and demonstrate statistical concepts.

Exams & Projects

There will be a midterm exam given one week in March during the normal lecture meeting time. There will also be either a final exam or final project that will count as a significant portion of your course grade. More details will be provided as the semester progresses.

Grading (approximate guidelines)

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<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Lab Reports</td>
<td>45%</td>
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<tr>
<td>Lab Quizzes</td>
<td>5%</td>
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<tr>
<td>Homework</td>
<td>20%</td>
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<tr>
<td>Midterm Exam</td>
<td>10%</td>
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<tr>
<td>Final</td>
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COVID-19 Protocol

If you do not pass the NYU Daily Screener for whatever reason (confirmed positive test result, suspicious symptoms, etc), you are required to comply with all subsequent guidance from the university and to forward NYU’s COVID-response email to ppd212@nyu.edu as soon as possible. Students with a valid excuse for missing lecture will be given access to supplementary material, but there is no substitute for attending in-person if you are able to. COVID-related absences from lab will be excused, but, if you complete fewer than 7 labs, you cannot receive credit for the course! If serious circumstances require longer-term absence beyond a week or two, please contact the instructor to determine the best course of action.