

PHY 2030L: Modern Physics Laboratory

FALL 2018

Location: Couch 129

Time: Tue 7:40–9:40am

Lab Instructor: Dr. Jarrett L. Lancaster

Email: jlancas2@highpoint.edu

Office Hours: MWF 9:00–10:00, Tue/Thu 10:00–11:00 and by appt

Office: Couch 360

Phone: (336) 841–9852

Text: None

Prerequisites: PHY 2020

Corequisites: You must be registered for both the lab PHY 2030L and lecture PHY 2030.

Course Description and Policies

An introduction to space-time physics and quantum physics with applications in astronomy, cosmology, solid-state physics, nuclear physics, and particle physics. Four credits.

General PHY 2030 course policies are outlined in Dr. Barlow’s course syllabus:

<http://physics.highpoint.edu/~bbarlow/courses/phy2030/phy2030.html>

There are **eight** planned experiments this semester. Several lab periods have been set aside for assessments, and these lab periods will be led by Dr. Barlow. The tentative lab schedule is provided at the end of this document.

Attendance

Attendance in all utilized lab periods is crucial, as there will only be time to conduct a single experiment during each lab period. There are no makeup labs, and any exceptional and unavoidable circumstances (involving court, a death in the family, severe illness, etc.) should be discussed with the lab instructor as soon as reasonably possible, ideally before any lab period is missed. You should consult Dr. Barlow regarding lab periods for which he is leading. Lab period listed on the schedule as “open/no lab” are reserved for additional time for lecture material, if needed. **Travel arrangements related to breaks should be made with the understanding that you are expected to be present on all scheduled class meetings and adhere to all due dates. Booking a flight that requires you to miss class is *not* a valid excuse for such an absence.**

Evaluation

Lab Reports

Throughout the semester, we will conduct numerous experiments. **Three** of these experiments will require a formal lab report to be produced. For experiments not requiring full lab reports, you will be asked to answer questions and perform some data analysis. Your results should be turned in no later than **one week after each experiment**. When assigned, **full lab reports must be turned in within two weeks of completing the experiment**. You will be given guidelines for writing a formal lab report, keeping a laboratory notebook and performing uncertainty analysis.

Grading

Your work in lab contributes to your overall grade for PHY 2030 as outlined in Dr. Barlow's lecture syllabus. Standards-based grading (SBG) will be employed for work completed in lab in a manner consistent with Dr. Barlow's scheme for lecture material.

I will assess the following standards for each experiment:

1. **LApp** – I can use a lab apparatus with appropriate technique to make measurements accurately and precisely.
2. **LData** – I can properly obtain, reduce and analyze data, and I can calculate and use the uncertainties associated with measurements to remark on the validity of my results.
3. **LNote** – I can keep and maintain a laboratory notebook using appropriate record keeping techniques in science.

The following standards will be assessed on formal lab reports:

1. **LRForm** – I can write a lab report in $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$ following the structure and guidelines presented to me by my lab instructor.
2. **LRClarity** – I can write clear and concise text in a lab report that describes an experiment, measurements and conclusions.
3. **LRData** – I can use tables, plots and other figures in a lab report to present data and results in a clear, effective, and aesthetically pleasing way.

Additional Policies

Academic Integrity

HPU has strict policies against cheating and plagiarism, which will be enforced in this class. The Honor Code asserts the following:

- every student is honor-bound to refrain from conduct which is unbecoming of a High Point University student and which brings discredit to the student and/or to the University;
- every student is honor-bound to refrain from collusion;
- every student is honor-bound to refrain from plagiarism;
- every student is honor-bound to confront a violation of the University Honor Code;
- every student is encouraged to report a violation of the University Honor Code.

The lab experiments are necessarily a collaborative activity. On most days, you and your partner/group will conduct experiments and obtain data. Generally, you and your group will analyze this data to deduce physical quantities of interest and the associated uncertainties in these values.

Late Work Policy

Late work is **not** accepted. Truly exceptional and unavoidable circumstances (involving court, a death in the family, severe illness, etc.) will be dealt with in a case-by-case basis. Contact the instructor as soon as possible, ideally in advance of any missed deadline.

Writing Center

The Writing Center provides writing assistance for students at any level of study—from freshman to graduate—at any stage in the writing process, from invention through revision. The Writing Center staff will be available in a variety of locations around campus during various hours throughout the day, Monday through Friday. Go to <https://highpoint.mywconline.com/> to make an appointment. Appointments can only be made through the online portal. Appointments will be available starting August 27, 2018 for the Fall 2018 semester.

Writing Center tutors do not proofread or edit students' papers for them, but they do work with students to help them develop strategies for improving their writing in light of their respective assignments, instructors, and writing styles. For more information, contact Writing Center Director, Dr. Leah Schweitzer at lschweit@highpoint.edu or (336) 841-9106.

Accessibility Resources

Students who require classroom accommodations due to a diagnosed disability must submit the appropriate documentation to the Office of Accessibility Resources and Services (OARS), 4th Floor Smith Library. Requests for accommodations should be made at the beginning of a course. Accommodations are not retroactive. Contact OARS at <http://www.highpoint.edu/oars/contacts/>, or call Ms. Dana Bright, Director of OARS, at (336) 841-9361, for additional information.