

# PHYS 136

Fall 2020

Department of Physics and Astronomy  
University of Tennessee, Knoxville

**Meeting Time and Place:** Tuesday 9:05-11:30 1:10-3:25 Room 510

**Course Credit Hours:** 4

## Graduate Teaching Assistant Contact Information

Alex Aukerman

Office Hours:

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## Course Description/Information:

This class is a continuation of Physics 231. This course covers material concerning oscillations, waves, sound, light, optics, special relativity, quantum mechanics and basic aspects of modern physics (atomic, molecular, solid state, nuclear and particle physics).

## Student Learning Outcomes/Objectives:

The lab and recitation will give hands-on experience with problem solving and with equipment. The lab material will enhance student learning of underlying physics principles. Students should also understand measurements that they take and the confidence in those measurements. Students will also learn to write up their results so that they can clearly communicate them to an outside reader.

## Learning Environment:

Students should come prepared with questions regarding problem solving and be ready to participate in problem solving. They should have read the lab material prior to coming to lab and have done the prelab. They are expected to fully participate in all aspects of lab and write an individual report, as required.

## Course Communications:

Communication is best through email or office hours. If you need to meet outside of office hours, that can be arranged through email. For technical issues, contact the OIT HelpDesk via phone (865) 974-9900 or online at <http://help.utk.edu/>.

## How to Be Successful in This Course:

### Student's Responsibility

- Be prepared for all classes
- Be respectful of others
- Actively contribute to the learning activities in class
- Abide by the UT Honor Code

### Instructor's Responsibility

- Be prepared for all classes
- Evaluate all fairly and equally
- Be respectful of all students
- Create and facilitate meaningful learning activities
- Behave according to University codes of conduct

### Texts/Resources/Materials:

The laboratory manual for Physics 232 is *Contemporary Introductory Physics Experiments, 2<sup>nd</sup> Edition* by James E. Parks, Hayden-McNeil Publishing, ISBN 978-0-7380-6168-9 and is available at the UT Book and Supply Store.

### Course Resources:

Canvas Course Site

<http://www.phys.utk.edu/physlabs/schedules.html>

### Course Requirements, Assessments, and Evaluations:

- The lab schedule can be found at <http://www.phys.utk.edu/physlabs/schedules.html>
- Students should be present at every recitation and lab period. If a student is ill or has a reasonable excuse, they should email their GTA before class starts. They will have to make up the lab at another time, typically that week, or at the end of the semester.
- A prelab will be due at the beginning of each recitation that coincides with the laboratory session for that day.
- There will be two formal lab report write-ups. They will be on the *Refraction/Polarization of Light* lab and the *Poisson Statistics* lab.

### Grading:

- |                       |     |
|-----------------------|-----|
| • Prelab Assignments  | 10% |
| • Lab Participation   | 10% |
| • Short Lab Reports   | 50% |
| • Formal Lab Report 1 | 15% |
| • Formal Lab Report 2 | 15% |

### Short Lab Report Rubrics:

Section	Details	Possible Points
Abstract	Summarized the important physical principle being studied, how it was studied, and the main result.	2

<b>Section</b>	<b>Details</b>	<b>Possible Points</b>
Careful measurement and analysis resulting in high quality data	Includes appropriate graphs with title and x and y axis labeled. Final results with uncertainty displayed prominently.	4
Questions from lab manual	Answer the questions assigned and show your work.	2
Summary and Conclusions	Restate your results. State where sources of error could be. This should be with great thought (Do not say the equipment did not work.). For example, one could state that the measurements for distance were +/- 0.1 m or that friction seemed to be present when mass greater than 200 g were used.	2
<b>Total</b>		<b>10</b>

**Formal Lab Report Rubrics:**

<b>Section</b>	<b>Details</b>	<b>Possible Points</b>
Abstract	Summarized the important physical principle being	2

<b>Section</b>	<b>Details</b>	<b>Possible Points</b>
	studied, how it was studied, and the main result.	
Introduction	Includes the main physical principles studied and the main equations used in the experiment. It is not necessary to derive equations already found in the lab manual.	3
Experimental Procedure	Include a description of what you did and the equipment used. It is not necessary to include every detail, but include enough detail that someone can understand the procedure.	3
Careful measurement and analysis resulting in high quality data	Includes appropriate graphs with title and x and y axis labeled. Final results with uncertainty displayed prominently.	5
Questions from lab manual	Answer the questions assigned and show your work.	2
Summary and Conclusions	Restate your results. State where sources of error could be. This should be with great thought (Do not say the equipment did not work.). For example, one could state that the measurements for distance were $\pm 0.1$ m or that friction seemed to be present when mass greater than 200 g were used.	3
Intelligibility and grammar	Clearly written and uses good grammar.	2
<b>Total</b>		<b>20</b>

**University Policies:****Academic Integrity:**

“Study, preparation, and presentation should involve at all times the student’s own work, unless it has been clearly specified that work is to be a team effort. Academic honesty requires that the student present their own work in all academic projects, including tests, papers, homework, and class presentation. When incorporating the work of other scholars and writers into a project, the student must accurately cite the source of that work.” from <https://hilltopics.utk.edu/academics/>

Honor Statement: “An essential feature of the University of Tennessee, Knoxville is a commitment to maintaining an atmosphere of intellectual integrity and academic honesty. As a student of the university, I pledge that I will neither knowingly give nor receive any inappropriate assistance in academic work, thus affirming my own personal commitment to honor and integrity.” from <https://hilltopics.utk.edu/academics/>

**University Civility Statement:**

Civility is genuine respect and regard for others: politeness, consideration, tact, good manners, graciousness, cordiality, affability, amiability and courteousness. Civility enhances academic freedom and integrity, and is a prerequisite to the free exchange of ideas and knowledge in the learning community. Our community consists of students, faculty, staff, alumni, and campus visitors. Community members affect each other’s well-being and have a shared interest in creating and sustaining an environment where all community members and their points of view are valued and respected. Affirming the value of each member of the university community, the campus asks that all its members adhere to the principles of civility and community adopted by the campus: <http://civility.utk.edu/>.

**Disability Services:**

“Any student who feels s/he may need an accommodation based on the impact of a disability should contact Student Disability Services in Dunford Hall, at 865-974-6087, or by video relay at, 865-622-6566, to coordinate reasonable academic accommodations. <https://sds.utk.edu/>

**Your Role in Improving Teaching and Learning Through Course Assessment:**

At UT, it is our collective responsibility to improve the state of teaching and learning. During the semester, you may be requested to assess aspects of this course either during class or at the completion of the class. You are encouraged to respond to these various forms of assessment as a means of continuing to improve the quality of the UT learning experience.

**Key Campus Resources for Students:**

- [Center for Career Development](#) (Career counseling and resources; HIRE-A-VOL job search system)
- [Course Catalogs](#) (Listing of academic programs, courses, and policies)
- [Hilltopics](#) (Campus and academic policies, procedures and standards of conduct)
- [OIT HelpDesk](#) (865) 974-9900
- [Schedule of Classes/Timetable](#)
- [Student Health Center](#) (visit the site for a list of services)
- [Student Success Center](#) (Academic support resources)
- [Undergraduate Academic Advising](#) (Advising resources, course requirements, and major guides)
- [University Libraries](#) (Access to library resources, databases, course reserves, and services)

*The instructor reserves the right to revise, alter or amend this syllabus as necessary. Students will be notified in writing / email of any such changes.*