

Course

Information

Physics 2218 Fall 2019

Waves and Thermal Physics

Instructor: Brad Ramshaw

Office hours: Weds 5-6 pm. [Zoom \(Links to an external site.\)](#)

531 Clark Hall Thurs 4-5 pm in Study Hall. [Zoom \(Links to an external site.\)](#)

bjr228@cornell.edu (include 2218 in subject line)

Section TA:

Maciej Olszewski

Office hours: Friday 4-6 pm in Study Hall. [Zoom \(Links to an external site.\)](#)

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Lab TA:

Peter Rau

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Grader:

Vaibhav Sharma

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UTAs:

Christopher M. Donohue

Office hours: Thursday 2-3 pm and Friday 2-3 pm in Study Hall. [Zoom \(Links to an external site.\)](#)

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Erik Szakiel

Office hours: Friday 3-5 pm in Study Hall. [Zoom \(Links to an external site.\)](#)

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Course Structure:

Lectures (Online)

MWF, 9:10a – 10:00a

Discussion (Online)

T, 1:50p – 2:40p; W, 7:30p – 8:20p

Labs (Online)

W, 4:15p – 6:10p; R, 12:40p – 2:35p

Course website: The website for this course is available on Canvas at <https://canvas.cornell.edu>. Announcements, class policies, and schedule changes will be posted at this site. Please ensure that you check Canvas regularly, as all announcements will be posted here.

Discussion forums: Discussion forums can be found by following the “Piazza” link on the Canvas site. The instructor and TAs will be monitoring these forums and answering questions as promptly as possible. Students are also encouraged to answer questions posted by other students.

Study Hall: A recurring Zoom meeting has been scheduled from 3 to 6 pm on Thursdays and Fridays. The TA and grader will hold their office hours in the study hall. I encourage

all of you to come to study hall and discuss the problem sets once you have attempted them on your own.

Textbooks: The first 2/3 of the course will use the 2nd edition of “Fundamentals of Wave Phenomena” by A. Hirose and K.E. Lonngren. The text is available for free online through the Cornell library, as well as on the Canvas site.

A few lectures will use H. Georgi’s “The Physics of Waves”, and several supplementary readings from Georgi are also suggested. This text covers some topics in greater depth and is available online at <http://www.people.fas.harvard.edu/~hgeorgi/onenew.pdf> ([Links to an external site.](#)) The second 1/3 of the course will use “An Introduction to Thermal Physics” by D.V. Schroeder.

Readings: Reading assignments that correspond to each lecture can be found in the syllabus.

Problem sets: Problem sets will be posted on Canvas at the end of class on Friday and **will be due the following Friday by 11:59 pm**. Solutions will be posted on Canvas in the evening after the problem sets are collected. No problem sets will be assigned during prelim weeks. **Your lowest problem set score will be dropped.**

We will use Gradescope, which greatly streamlines the grading and re-grading process, making things easier for both you and the graders. You should receive an email inviting you to make a Gradescope account.

Uploading homework to Gradescope will be your responsibility. Please read [this linked page for info on how to submit your assignment \(Links to an external site.\)](#), and [this page for info on how to scan your assignment with a mobile device \(Links to an external site.\)](#). The document you upload should be a high-quality scan. Either use a scanner or take a picture with one of your devices using one of the recommended apps.

Gradescope Homework Submission Checklist:

- Easy to read: you should make a high quality, high contrast scan. Use a scanning app.
- Only the homework: if you take a picture, use a scanning app to crop it so the scan only contains the page. If you did your homework in a spiral notebook, rip the page out of the notebook before taking a picture.
- Right order: make sure your pages are in the right order. When you upload your work to Gradescope, you can reorder the pages there.
- Right orientation: make sure your scans are not upside down or tilted. You can rotate the scans in Gradescope after you upload them.

Take a look at the [Homework Submission Video \(Links to an external site.\)](#)

Discussion and collaboration on the problem sets is encouraged, but you should attempt to solve the problems on your own and your writeup must be your own.

Study Hall hours are designed for students to gather on Zoom to work on problems and to meet with the TAs and instructors; however, you must have worked on the problems on your own before coming to the study hall. Keep in mind that each student in this course is expected to abide by the [Cornell University Code of Academic Integrity](#).

Discussion sections: Weekly discussion sections will involve activities created by the TA. These activities are designed to further conceptual understanding of the material and to prepare you for the types of questions that will appear on the exams. Completion of these activities will be worth course credit.

Laboratory: You will have all semester to complete a group project from conception to presentation. You will formulate your own research question, submit a proposal, design and conduct your experiment, generate figures, and present it to a public audience at the end of the semester.

This is an opportunity to pull-together all the skills you've learned throughout Phys 1116 and 2217 labs and apply them to an investigation that extends previous investigations in ways that interest you! The aim is for you to take control of designing your own experiment, while collaborating with a larger team, pursuing a more ambitious experiment, and managing limits on equipment and time.

The culmination of Project Lab is a presentation that department faculty, graduate students, and other people associated with the department are invited to attend. This is an opportunity to share your process and to make connections within the department.

More info about the logistics of the labs can be found under "Home->Lab materials"

All pre-lab assignments and their due dates, as well as the in-class lab materials, can be found on Gradescope. Click the "Gradescope" link on the left.

Exams:

Prelim 1:	Sunday, October 11th, 7:30 pm (online)
Prelim 2:	Thursday, November 5th, 7:30 pm (online)
Final:	Saturday, December 19th, 9:30 am (online)

Grade Distribution (still subject to change):

<i>Prelim 1:</i>	<i>20%</i>
<i>Prelim 2:</i>	<i>20%</i>

<i>Final Exam:</i>	25%
<i>Homework:</i>	15%
<i>Labs:</i>	15%
<i>Discussion activities:</i>	5%
<i>Pre/post surveys:</i>	1% bonus

Physics Department's Mission on Inclusiveness: To ensure all members of the Department of Physics are treated with Dignity, Equality and Respect.

Resources:

- <http://physics.cornell.edu/inclusiveness>.
- Office of Academic Diversity Initiatives- <https://oadi.cornell.edu/about.html>.
- Bias Reporting - To report a non-emergency harassment, discrimination or bias incident, please email report_bias@cornell.edu, or fill out an online incident report at https://cm.maxient.com/reportingform.php?CornellUniv&layout_id=6
- [\(Links to an external site.\)](#)
- .
- <http://physics.cornell.edu/general-resources#diversity-and-inclusion>.