

Physics 19B, Summer 2026

Contact Details

Instructor: Professor Gabriella Sciolla

Email: sciolla@brandeis.edu

Meeting Times

Classes and Labs

Tue and Thu 1-5 PM (we will need about 1.5-2.0 hours on the days when we have intro classes and about 3 hours on the days when we have actual hands-on labs)

Lectures will be held in person or on zoom (synchronous!), depending on the weeks.

All labs will be held in-person.

Labs

Labs will meet in Gzang 120H.

Office Hours

Prof Sciolla is available for office hours immediately after class on upon request (mornings only, unless otherwise announced).

Course Description

Learning Goals:

19b is a laboratory course focusing on experiments in electricity and magnetism. The experiments are chosen to complement the theoretical introduction to classical mechanics that is covered in Phys11b/15b. 19b is organized similar to 19a. The lectures and “lab manuals” will guide you through each experiment. You will perform each experiment in a 3-h Lab Section.

You will need to be ready for your lab before your lab starts. To make sure this will happen, the lab reports are split into two parts:

- A) **Pre-lab reports**, with conceptual questions due before your lab starts – account for 10% of the final grade;
- B) **Post-lab reports**, with more quantitative questions and data analysis due exactly 7 days after your lab starts – account for 40% of the final grade.

During the lab section you will take data, start analyzing it, and maybe start writing the lab report if time allows. Take advantage of this opportunity: an instructor will be in the room so you will have plenty of time to ask questions.

NB:

- In this class some emphasis will be given to learning data taking, data analysis, how to perform a measurement, and how to assign the appropriate error. Statistics concepts learned in 19a will be helpful. **If you did not take 19a because you are a mid-year student**, please contact the instructor who will give you access to the necessary material.
- **Attending your Labs and performing all experiments is mandatory.** If for some documented reason you cannot attend one of them, make arrangements with your instructor to schedule a make-up as soon as possible.
- **Turning in all pre- and post-lab assignments is mandatory.**
- **Attending the in-class exam is mandatory.**

Schedule of 19B lab lectures and exams

Lab	Date	(Some of the) Learning goals
Introduction and Lab 1: Electrostatics	July 7 and 9	Get familiar with how class is structured. Lab 1 lecture: How do you charge an object? Understand electric field and forces. Intro lecture is on Tue and Lab is on Thu.
Lab 2: DC circuits	July 14 and 16	Simulation + build and operate a circuit; Ohm's law. Intro lecture is on Tue and Lab is on Thu.
Lab 3: RC circuits	July 21 and 23	Simulation + build and operate a circuit; AC currents, learn how to use an oscilloscope. Intro lecture is on Tue and Lab is on Thu.
Lab 4: Ampere's law	July 28 and 30	Verify Ampere's law in the lab. Intro lecture is on Tue and Lab is on Thu.
Review and Exam	Aug 4 and Aug 6	Review on Tue and Exam on Thu (3 hours)

Prerequisites/Corequisites

Physics 11b or Physics 15b and their calculus pre/co-reqs.

Expected Level of Effort:

Lectures: 1.5-2 h/week

Labs: up to 3h/week

Pre-Lab reports: 2h * 4 labs

Post-Lab reports: 4h* 4 labs ;

Prep/study time before each lab: 3 h/week on average

Prep/review for exam: 8h (2-3 h in class, 5 h of individual study)

Course Requirements

Assignments

You will have 5 labs this semester. **The pre-lab reports are due 1 hour before your lab section starts; post-lab reports are due 4 days after your lab.**

Late lab report will be accepted but they will receive less credit (same as last semester).

Policy for late assignments:

- On time: 100% of the credit you deserve
- Up to 24 h late: 90% of the credit
- Up to 48 h late: 80% of the credit
- Up to 4 days late: 70% of the credit
- 4-7 days late, 50%
- Over 7 days: no credit but the report is still due to pass the class (contact your TA when you submit).

NB: No Lab report will be accepted after Aug 5.

Pre-lab reports will be short, conceptual questions that you will be able to answer if you read the lab manual and attended the Mon class. Post-lab reports will guide you through the key concepts of the lab and help you through data analysis. I will post the Lab Report Templates ahead of time for your convenience (similar to what we did last semester).

Failure to submit lab reports is an automatic failure of this class: PLEASE don't forget! Due to the policy for late assignments, often you will get more points submitting an incomplete lab report than a perfect one after the deadline.

Exams/Quizzes

We will have one in-class final exam on Thu Aug 6.

Labs

You must have turned in your pre-lab report to be admitted to the lab section. No pre-lab posted, no seat for you in the lab. NB: this is for your own good!!

Participation

It is essential that you attend the Tue classes and actively participate in them. That's your chance to ask questions about the conceptual part of the labs!

You are required to attend all lab sections. Contact your instructor in advance if you know you will miss one.

You are invited to attend office hours and ask questions or just listen to the Professor/TAs answer questions that other people will ask.

Evaluation

Class Element	Grade Percentage
Pre-Lab reports	10%
Post-Lab reports	40%
Exam	50%

Course Materials

No textbook is required for this class. Reading material will be provided on the Course web page before each lab.

Required Readings

Students are required to read all material posted on Latte before each lab lecture and lab section. The instructor will send reminders a few days before the readings are due.

Apps or Tools/Equipment

This class will require the following material:

- A computer (laptop/desktop, no tablet) for data analysis (basic computers are OK)
- A simple calculator for exams (only 4 operations and square roots, NO stat functions, no programmable calculators, etc.). **If in doubt, ask the instructors**

Accommodations

Brandeis seeks to welcome and include all students. If you are a student who needs accommodations as outlined in an accommodations letter, I want to support you. In order to provide test accommodations, I need the letter more than 48 hours in advance. Questions? Contact Student Accessibility Support (SAS <https://www.brandeis.edu/accessibility/>) at 781.736.3470 or access@brandeis.edu.

Academic Integrity

Every member of the University community is expected to maintain the highest standards of academic integrity. A student shall not submit work that is falsified or is not the result of the student's own effort. Infringement of academic honesty by a student subjects that student to serious penalties, which may include failure on the assignment, failure in the course, suspension from the University or other sanctions (see section 20 of R&R). Please consult Brandeis University Rights and Responsibilities for all policies and procedures related to academic integrity. Students may be required to submit work to TurnItIn.com software to verify originality. A student who is in doubt regarding standards of academic honesty as they apply to a specific course or assignment should consult the faculty member responsible for that course or assignment before submitting the work. Allegations of alleged academic dishonesty will be forwarded to the Department of Student Rights and Community Standards. Citation and research assistance can be found at

[Brandeis Library Guides - Citing Sources](https://guides.library.brandeis.edu/c.php?g=301723) (<https://guides.library.brandeis.edu/c.php?g=301723>).

Student Support

Brandeis University is committed to supporting all our students so they can thrive. The following resources are available to help with the many academic and non-academic factors that contribute to student success (finances, health, food supply, housing, mental health counseling, academic advising, physical and social activities, etc.). Please explore the many links on this Support at Brandeis page (<https://www.brandeis.edu/support/undergraduate-students/browse.html>) to find out more about the resources that Brandeis provides to help you and your classmates to achieve success.