

INTRODUCTORY PHYSICS LAB 2
COURSE 21:750:206 Sections 1-2
Spring 2020

Instructor:

Joshua Rutberg
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Office Hours (Smith Hall B27):

Wednesdays: 10 – 11:30 AM
Fridays: 10 – 12 AM

Time & Location:

Smith Hall 104

Section 01: Tue 11:00 – 12:50
Section 02: Tue 1:00 – 2:50

Recommended Materials:

Laptop. Notebook. Calculator.

Physics Learning Resources:

1. Physics Help Room (Room TBD): Monday 11:30-12:50 & Wednesday 2:30- 3:50
2. Physics Tutoring (Rutgers Learning Center): By appointment (search "Rutgers Newark Tutortrac" on Google & log in with NetID.)
3. Free online textbook: <https://openstax.org/details/college-physics>
4. Online resource: <http://www.physicsclassroom.com/class>

Course Description:

This lab course complements the course of study in General Physics (204) and University Physics (214). Experiments are designed to reflect the process through which practicing scientists generate new knowledge, allowing you the opportunity to develop scientific and experimental skills as you construct new physics knowledge and test the theories introduced in your lectures and recitations.

Course Goals:

1. Develop skills in science practices and an understanding of how physics knowledge is constructed. This learning goal aligns with General Education learning outcome #5: understand and use methods and forms of inquiry specific to the natural sciences.
2. Build conceptual and tactile understandings of physical phenomena.
3. Gain facility representing physical phenomenon in multiple ways including graphs, diagrams, mathematical expressions, and sketches.

Attendance:

You must be present to perform and earn a grade for each lab. If you must miss a lab, please report your absence using the Self-Reporting Absence Application (<https://sims.rutgers.edu/ssra>). You will be expected to attend a different lab section to make up the lab. There will be an emergency lab session held on Fridays at 12 PM. You can do this **once** a semester.

Curriculum:

Lab handouts will be posted to Canvas the week before they are held. Please print the lab handout and bring it to class with you each week.

Calendar:

Week of	Topics Covered	Homework Due
1/21	Energy Analysis	Lab 1 Report
1/27	Specific Heat	Lab 2 Report
2/3	Electric Charge	Lab 3 Report
2/10	Electric Force	Lab 4 Report
2/17	Electric Field	Lab 5 Report
2/24	Electric Potential	
3/2	DC Circuits	Lab 7 Report
3/9	Kirchoff's Rules	Lab 8 Report
3/16	Spring Break	
3/23	Magnetic Force	Lab 9 Report
3/30	Electromagnetic Induction	Lab 10 Report
4/6	No Lab (Exam 2)	
4/13	Reflection & Refraction	Lab 11 Report
4/20	Lenses	Lab 12 Report
4/27	Wave Optics	Lab 13 Report, EoS Survey

Grading:

Your grade in this course will be determined based on the total number of points you earn this semester. There will be 450 total points available in total. Points will be awarded for three types of assignments: Engagement, Reports, and the End of Semester Survey. Final grades will be calculated as follows:

Letter Grade	Total Points
A	405 – 450
B+	390 – 404
B	360 – 389
C+	345 – 359
C	315 – 344
D	270 – 314
F	< 269

Engagement (20 pts per lab):

Students are expected to attend every lab. Each week you will get your engagement points for actively and productively working for the entire lab. Your instructor or LAs must check off that they observed you making a **significant contribution** to your group or a class discussion in order to receive these points. You **will not** earn engagement points if you are absent from lab or if you do not submit your lab report. Some examples of significant contributions include:

- Taking charge of your group's whiteboard for an experiment.
- Answering questions posed by your instructors.
- Posing a question which leads to further discussion of the topic.
- Presenting your group's whiteboard to the class.

Lab Reports (15 pts per report):

Each week you will be responsible for writing a report for one of the experiments conducted that week. These reports are to be written individually and must be submitted as a Google doc. If you are absent the day a lab is conducted, you will not be allowed to submit a report for that lab. Lab reports are due **three days after the lab** is conducted so that we will be able to give you feedback before to the next lab. You get to decide what format makes the most sense for the report but here's the most important thing: Imagine you have an additional lab partner that had to miss lab this week. They need to be able to read through your report and understand what you did as well as all the reasoning that went into it. In other words, be clear and complete in your writing. Lab report must be complete, not long.

Lab reports will be scored using the same Scientific Abilities Rubrics which you should use to self-assess and guide yourself in preparing your in-class whiteboards. Five abilities will be scored for each lab as identified in each lab handout.

Resubmission:

You will be allowed to resubmit any of your lab reports to improve your grade. Any changes to the report should be added in a different color so that any changes made are easy to identify. This resubmission must be submitted **within one week** of receiving feedback on the original report. The grade you receive on the resubmission will completely replace the grade you received for the original report.

Course Surveys (10 pts):

In order to improve this course in the future and measure whether we are meeting our goals as instructors, all students will be expected to complete surveys at the beginning and end of the semester. These surveys will be administered online outside of class, and will be graded for completion, not correctness. **Surveys submitted without appropriate identifying information will not receive credit.**

Logger Pro:

We will be using software called Logger Pro to collect and analyze data in class. While all computers in the lab room come with this software installed, it may be helpful for you to install this software on your own computer at home in case you need to view or analyze data outside of class. Below are the links you need to download this software for yourself:

Windows: <https://tinyurl.com/w289rkc>

Apple: <https://tinyurl.com/ut4cn84>

Academic Integrity Policy:

Students are expected to be aware of Rutgers University's Academic Integrity Policy available at <http://academicintegrity.rutgers.edu/integrity.shtml>. *Breaches of academic integrity can result in consequences ranging from reprimand to expulsion.*

Do not use cellphones in class or disrupt class in any way. If you do so, you will be asked to leave and will not be welcome back for the rest of the class period. You will receive a zero for any assignments that you miss as a result.

Rutgers Inclusion Resources:

Rutgers University Newark (RU-N) is committed to the creation of an inclusive and safe learning environment for all students. RU-N has identified the following resources to further the mission of access and support:

Students with Disabilities: Rutgers University welcomes students with disabilities into all University educational programs. The Office of Disability Services (ODS) is responsible for the determination of appropriate accommodations for students who encounter barriers due to disability. In order to receive consideration for reasonable accommodations, a student with a disability must contact ODS, register, have an initial appointment, and provide documentation. Once a student has completed the ODS process (registration, initial appointment, and documentation submitted) and reasonable accommodations are determined to be necessary and appropriate, a Letter of Accommodation (LOA) will be provided to the student. The student must give the LOA to each course instructor, followed by a discussion with the instructor. This should be completed as early in the semester as possible as accommodations are not retroactive. More information can be found at ods.rutgers.edu. Contact ODS: (973) 353-5375 or ods@newark.rutgers.edu.

Religious Holiday Policy and Accommodations: Students are advised to provide timely notification to instructors about necessary absences for religious observances and are responsible for making up the work or exams according to an agreed-upon schedule. The Division of Student Affairs is available to verify absences for religious observance, as needed: (973) 353-5063 or DeanofStudents@newark.rutgers.edu.

Counseling Services: Counseling Center Room 101, Blumenthal Hall, (973) 353-5805 or <http://counseling.newark.rutgers.edu/>.

Students with Temporary Conditions/Injuries: Students experiencing a temporary condition or injury that is adversely affecting their ability to fully participate in their courses should submit a request for assistance at:
<https://temporaryconditions.rutgers.edu>.

Students Who are Pregnant: The Office of Title IX and ADA Compliance is available to assist students with any concerns or potential accommodations related to pregnancy: (973) 353-1906 or TitleIX@newark.rutgers.edu.

Gender or Sex-Based Discrimination or Harassment: Students experiencing any form of gender or sex-based discrimination or harassment, including sexual assault, sexual harassment, relationship violence, or stalking, should know that help and support are available. To report an incident, contact the Office of Title IX and ADA Compliance: (973) 353-1906 or TitleIX@newark.rutgers.edu. To submit an incident report: tinyurl.com/RUNReportingForm. To speak with a staff member who is confidential and does NOT have a reporting responsibility, contact the Office for Violence Prevention and Victim Assistance: (973) 353-1918 or run.vpva@rutgers.edu.