

Syllabus

Physics 4B: Physics for Scientists and Engineers Reedley College – Spring 2023

Schedule #51077

Lecture: Tuesdays 9:00 – 11:50 AM in PHY 70

Lab: Thursdays 9:00 – 11:50 AM in PHY 70

Contact Information:

Instructor Name: Kurt Shults

Email: kurt.shults@reedleycollege.edu

Office Telephone: (559) 494 - 3000 ext. 3664

Office Hours:

Tuesdays 1:00 – 3:00pm in PHY 71

Thursdays 1:00 – 3:00pm in PHY 71

Fridays 9:00 – 10:00am via Zoom <https://scccd.zoom.us/j/86599414811>

Required Course Materials:

- TEXTBOOK: Giancoli, Douglas C., Physics for Scientists & Engineers Volumes 1-3 (4th Edition) ISBN-13: 978-0131495081
 - **THIS TEXTBOOK IS AVAILABLE TO RENT FROM THE LIBRARY!**
- Calculator (graphing or non-graphing)

Course Description:

This physics course covers mechanical waves, thermodynamics, electricity, and magnetism.

Prerequisites: Physics 4A

Corequisites: Mathematics 6

Advisories: English 1A or 1AH

Student Learning Outcomes:

In this course, students will -

- Apply algebra, trigonometry, and calculus to solve physical problems related to
 - Electricity and magnetism
 - Temperature and kinetic molecular theory
 - Thermodynamics
 - Electric potential of various charge configurations
 - Capacitance of various electrical systems
 - Heat transfer
 - Electric field
 - Thermal expansion
- Apply dimensional analysis to determine the units for an unknown quantity or to check the validity of equations
- Identify the complementary roles of experimental investigation and theoretical explanation in science

Calendar:

- January 16th – Martin Luther King, Jr. Day, no classes held
- January 20th - Last day to drop a Fall 2022 full-term class for full refund
- January 27th - Last day to drop a Fall 2022 full-term class in person to avoid a "W"
- February 17th – Lincoln Day, no classes held
- February 20th – Washington Day
- March 10th – Last day to drop a full-term class
- April 3rd – 7th – Spring recess, no classes held
- May 15th - 19th – Finals week

Exams:

There will be three midterm exams (each worth 10% of the overall grade) and one final exam (worth 20% of the overall grade). The exams will be held during lab hours. The exams contribute **50%** of your semester grade, they are very important to prepare for.

Makeup exams will be given with preapproval only. Further details will be given during the semester.

Homework:

Homework is **20%** of your semester grade. Homework assignments with due dates will be handed out during lecture and posted on Canvas, completed assignments will be turned in at the end of lab on their due dates.

Late homework will be accepted with a 30% reduction in score.

Laboratory:

This class has a lab that is **mandatory**. The lab scores make up **20%** of your grade.

If you miss more than three labs, you will automatically fail the course!

I will drop your lowest lab score. There will also be one online make-up lab available at the end of the semester.

Students must arrive to lab within the first 15 minutes of the beginning of lab, if a student arrives later than 15 minutes after the start of lab, they will not be allowed to participate in the lab and will receive a zero for that lab.

Make plans to attend every lab session on time!

Participation/Quizzes:

There will be weekly quizzes given at the start of each lab related to topics covered in the previous week. Quizzes make up **10%** of your grade.

Grading Policy:

% Grade for the Class	Letter Grade for the Class
90.0% -100%	A
80.0%-89.9%	B
70.0%-79.9%	C
60.0%-69.9%	D
0%-59.9%	F

Category of Classwork	% of Class Grade
Midterm Exams	30% (10% each)
Homework	20%
Labs	20%
Participation/Quizzes	10%
Final Exam	20%

STUDENT SUCCESS:

- Technology Support: <https://www.reedleycollege.edu/campus-life/technology-help.html>
- Tutoring Services: <https://www.reedleycollege.edu/academics/tutoring-services/index.html>

- COVID-19 information is uploaded to the Reedley College site:
<https://www.reedleycollege.edu/covid-19/index.html>
- DSPS contact information:
 - Hours: Monday – Friday 8:00 am – 5:00 pm
 - Phone: 559-638-0332
 - See more DSPS information here: <https://www.reedleycollege.edu/student-services/disabled-student-programs-and-services/index.html>

Academic Dishonesty

Students at Reedley College are entitled to the best education that the college can make available to them, and they, their instructors, and their fellow students share the responsibility to ensure that this education is honestly attained. Because cheating, plagiarism, and collusion in dishonest activities erode the integrity of the college, each student is expected to exert an entirely honest effort in all academic endeavors. Academic dishonesty in any form is a very serious offense and will incur serious consequences.

CHEATING

Cheating is the act or attempted act of taking an examination or performing an assigned, evaluated task in a fraudulent or deceptive manner, such as having improper access to answers, in an attempt to gain an unearned academic advantage. Cheating may include, but is not limited to, copying from another's work, supplying one's work to another, giving or receiving copies of examinations without an instructor's permission, using or displaying notes or devices inappropriate to the conditions of the examination, allowing someone other than the officially enrolled student to represent the student, or failing to disclose research results completely. 48 Administrative Policies 2022-2023 Reedley College Catalog

PLAGIARISM

Plagiarism is a specific form of cheating: the use of another's words or ideas without identifying them as such or giving credit to the source. Plagiarism may include, but is not limited to, failing to provide complete citations and references for all work that draws on the ideas, words, or work of others, failing to identify the contributors to work done in collaboration, submitting duplicate work to be evaluated in different courses without the knowledge and consent of the instructors involved, or failing to observe computer security systems and software copyrights. Incidents of cheating and plagiarism may result in any of a variety of sanctions and penalties, which may range from a failing grade on the particular examination, paper, project, or assignment in question to a failing grade in the course, at the discretion of the instructor and depending on the severity and frequency of the incidents

Important Notes:

- **All first week assignments need to be completed and submitted by the due date to avoid possibly being dropped from the class.**
- Students who may need accommodations for this class are encouraged to notify the instructor and contact DSPS early in the semester so that reasonable accommodations may be implemented as soon as possible. All information will remain confidential.

Course Schedule:

Spring 2023 PHYS 4B Schedule				
	Dates	Lecture - Tuesdays (9:00 - 11:50 AM)	Lab - Thursdays (9:00 - 11:50 AM)	Important Dates
Week 1	1/9 - 1/15	Chapter 14 - Oscillations	No lab	
Week 2	1/16 - 1/22	Chapter 15 - Wave Motion	Lab 1 - Measurements	1/16 - Monday Holiday (Martin Luther King, Jr. Day)
Week 3	1/23 - 1/29	Chapter 16 - Sound	Lab 2 - Simple Harmonic Motion	
Week 4	1/30 - 2/5	Chapter 17 - Temperature, Thermal Expansion, and the Ideal Gas law	Lab 3 - Standing Waves and Resonance	
Week 5	2/6 - 2/12	Chapter 18 - Kinetic Theory of Gas	Homework Session; Homework Set #1 Due	2/9 - Homework Set #1 Due (HWs #1, #2, #3, #4)
Week 6	2/13 - 2/19	Midterm Exam #1 Review	Exam #1 (Ch. 14-17)	2/17 - Friday Holiday (Lincoln's Day)
Week 7	2/20 - 2/26	Chapter 19 - Heat and the First Law of Thermodynamics	Lab 4 - Kinetic Theory Lab (Online)	2/20 - Monday Holiday (Washington's Day)
Week 8	2/27 - 3/5	Chapter 20 - Second Law of Thermodynamics	Lab 5 - Calorimetry	
Week 9	3/6 - 3/12	Chapter 21 - Electric Charge and Electric Field	Lab 6 - Entropy Checkers	
Week 10	3/13 - 3/19	Chapter 22 - Gauss's Law	Lab 7 - Electrostatic Field Mapping	
Week 11	3/20 - 3/26	Chapter 23 - Electric Potential	Homework Session; Homework Set #2 Due	3/23 - Homework Set #2 Due (HWs #5, #6, #7, #8, #9)
Week 12	3/27 - 4/2	Midterm Exam #2 Review	Exam #2 (Ch. 18-22)	
Spring Recess	4/3 - 4/9	No Class	No Class	
Week 13	4/10 - 4/16	Chapter 24 - Capacitance, Dielectrics, Electric Energy Storage	Lab 8 - Resistive Circuits	
Week 14	4/17 - 4/23	Chapter 25 - Electric Currents and Resistance	Lab 9 - Capacitance (Online)	
Week 15	4/24 - 4/30	Chapter 26 - DC Circuits	Homework Session; Homework Set #3 Due	4/27 - Homework Set #3 Due (HWs #10, #11, #12, #13)
Week 16	5/1 - 5/7	Midterm Exam #3 Review	Exam #3 (Ch. 23-26)	
Week 17	5/8 - 5/14	Chapter 27 - Magnetism	Final Exam Review	
Week 18	5/15 - 5/19	Final Exam will be held on Tuesday, May 16 at 9:00 AM in PHY 70		