SYLLABUS FOR PHYSICS 4A REEDLEY COLLEGE

Physics 4A-51878
Mr. Timothy Evans
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Physics for Scientists & Engineers I
Semester: Spring 2019
Meeting Room: PHY 70
Time: 5:00pm – 7:50 pm (Tu, Lecture)
5:00pm –5:50pm (Th, Lecture) 6:00pm-8:50pm (Th, Lab)

COURSE DESCRIPTION: This course will deal with many physical concepts consistent with a first course in physics including: dimensional analysis, motion in multiple dimensions, kinematics, forces, Newton's Laws, Energy and Momentum conservation, rotational motion, equilibrium, fluid dynamics, and oscillations.

Basic Skills Advisories: **ENGL 1A**

Subject Prerequisites: MATH-5B - Math Analysis II (May be taken concurrently)

REQUIRED TEXT: Douglas C. Giancoli, Physics for Scientists & Engineers, Pearson Education Publishing, 4th Edition, 2009.

REQUIRED MATERIALS: You should bring a scientific calculator (or graphing), pencils, and paper or iPad (for notes) with you every class session.

ATTENDANCE: Students are expected to attend all class meetings, be on time, and be in class the entire class session. Calling me to tell me you will be absent **does not** excuse you. **STUDENTS LEAVING CLASS BEFORE THE END OF CLASS WILL BE COUNTED AS BEING ABSENT! Six (6) absences total or three (3) absences in the first three weeks of class** may result in a drop from the course. However, if you decide to drop the course, it is **your** responsibility to make the drop official in the Administrations and Records office or else possibly receive a grade of **F.**

Behavioral Standards: Your classmates and I would greatly appreciate that students in the class take care of any personal needs (i.e., using the restroom, getting a drink, sharpening a pencil) before class begins. Please turn your phone off when entering the class. You may not use your phone as a calculator. Do not bring guests to class.

TARDIES: Students are expected to be on time. It is distracting, rude and unfair to fellow classmates and to the instructor when a student is late. It is your responsibility to notify the instructor (on a break or after class) that you are present if you arrive after roll has been taken.

HOMEWORK: All homework assignments must be turned in to me in-class on the specified due date. Homework problems will be assigned out of the textbook and your solutions should be **neatly** written on paper. If you are proficient in using the equation editor on Microsoft Word, LaTeX, or other document software, you may type your solutions.

Please use scratch paper to work on the problems but only turn in the solutions to me. Turning in a homework set **without showing work** is not worth any credit! You do not need to re-write the entire problem, but write out the given variables, draw pictures/figures, and list what you're finding to help your thought process. Collaboration on homework sets is fine, but you must turn in your own solutions. Homework will be worth **12%** of your grade and I will drop your lowest homework score.

LAB REPORTS: This class has a laboratory section that is mandatory. I will provide all lab reports for you and they will be due at the end of the lab session on the same day assigned (unless extra time is necessary.) Lab reports will be worth **10%** of your grade. Some lab sessions will be solely dedicated to in-class problem solving. There will not be any opportunities to make up a lab, so I will drop your lowest lab grade.

TWO FOR REVIEW: Every class will begin with 15-20 minutes of warm-up problems which I will call the "Two for Review"; you will work with your classmates on these. We will go over the problems afterwards. I will encourage students to come up to the board to explain the solutions which could potentially yield bonus points. Two for Reviews will be graded on a strictly participation basis (90% credit for turning something in, 100% credit for turning in the correct answers.)

I will drop the two lowest of these scores at the end of the semester and these will be worth **7%** of your grade.

IN-CLASS PROBLEM SOLVING: Similarly, there will in class problem-solving sessions for many class sessions, including some lab sections. The problems will be provided for you as worksheets in class or we will work on homework problems. You will be graded on what is observed while you are in class. The problem-solving sessions will be worth **3%** of your grade, with no drops.

EXAMS: There will be 3 mandatory midterm exams during the semester. There are no makeup exams for missed tests. NO EXCEPTIONS! You may use a 3" x 5" note card (both sides) for your own formula sheet on midterm exams and the final (you may write ANYTHING on here, formulas, practice problems, whatever helps you the most!) Exams will consist of 8-10 multiple choice problems (no scantron) and 1-3 free response questions. Only scientific calculators may be used. The exams should only take 90 minutes to complete but I will give you 2 hours and 50 minutes. The midterm exams are worth **48%** (equally weighted, 16% each) of your grade.

FINAL EXAM: The final exam should only take 90 minutes to complete but I will give you 2 hours and 50 minutes. This exam will be comprehensive, but most of the material will be from the final unit of the class. The final will be worth **20%** of your grade. The final exam can be used to replace your lowest midterm score (except for a "0" due to an absence.)

Date and Time of Final Exam: Tuesday, May 21st 500PM – 750PM, Room: PHY 70

GRADING:

- *HOMEWORK (12%)*: There will be approximately 16 homework problem sets throughout the semester. Lowest score is dropped.
- *TWO FOR REVIEWS (7%)*: There will be a "Two for Review" every day of class except for exam dates and the first day of class. Your two lowest scores will be dropped.
- *IN-CLASS PROBLEM SOLVING* (3%): We will do at least 5 in-class problem solving sessions. No drops.
- *EXAMS (16% each exam, 48% total)*: The midterm exams will take place on Tuesdays and should only take 90 minutes to complete, but I will give you 2 hours and 50 minutes to complete them.
- *LAB REPORTS (10%)*: We will do approximately 8-10 lab reports throughout the semester. Lowest lab report score will be dropped.
- *FINAL EXAM (20%)*: The final exam is comprehensive (20% from previous exams, 80% new content.) If you score higher than your lowest midterm on the final exam, it will **replace** your lowest exam score! (Unless your lowest midterm grade is a "0" due to absence.)

Example Student: Example student has the following grades:

- Homework: 75%
- Midterm Average: 85%
- Two for Review: 100%
- In-Class Problem solving: 100%
- Lab Reports: 95%
- Final Exam: 80%

Their grade is calculated as follows: (Canvas will do this automatically, including drops)

(.15) (75) + (.48) (85) + (.07) (100) + (.03) (100) + (.1)(95) + (.25) (80) = 85.3%

Percent of Total Points	Grade
89-100	A
78-88.99	B
65-77.99	C
55-64.99	D
0-54.99	F

Grades will not be "rounded" by percentage points.

WHERE TO FIND YOUR GRADE:
I will put your grades on Canvas. You can also calculate it yourself at any time using the method above.

SPECIAL NEEDS REQUESTS: If you have a verified need for an academic accommodation or materials in alternate media (i.e., Braille, large print, electronic text, etc.) per the Americans with Disabilities Act (ADA) or Section 504 of the Rehabilitation Act, please contact me as soon as possible.

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 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, 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 is playing 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.

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 a 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.

Class Cancellation Notification
If I must cancel class for reasons beyond my control, I will inform the Dean's office as soon as possible and there will be an official notification posted on the door. You can also check on the Reedley College website where the administration updates what classes are cancelled. Finally, Canvas will be used to inform you of a class cancellation, which you can check online or on your cell phone if you download the app for your mobile phone. Please note that it is unlikely that I will be cancelling any classes, we have too much to do! If it has been a few minutes and I have not shown up, please do not leave as if I am running late I will inform the prior instructor and they will

let you know where I am and how long I will be. Please note again that I will probably not be late either, but this is just in case!

Course Objectives

This course covers the topics of classical mechanics, properties of matter, gravitation, fluid mechanics, oscillatory motion and mechanical waves.
Students will gain skills in understand the complementary roles of experimental investigation and theoretical explanation in science, apply dimensional analysis to determine the units for an unknown quantity or to check the validity of equations, correctly report the units of an observable when it is measured or calculated and distinguish between important physical observables, such as velocity, acceleration and force.
In the process of completing this course, students will:

- Experience the interaction between theory and experiment in scientific investigation.
- Learn fundamental laboratory techniques.
- Learn to solve problems in oscillatory motion.
- Study the laws of fluid mechanics.
- Learn the basic concepts of mechanical waves.
- Learn to solve basic problems in classical mechanics.
- Study important properties of matter.
- Improve mathematical skills through the process of applying mathematics to the physical world.

Course Outcomes

Upon completion of this course, students will be able to:

- Apply algebra, trigonometry, and first-year calculus to solve physical problems such as: 1. Kinematic equations 2. Vector quantities 3. Newton's Laws 4. Conservation of energy and momentum 5. Rotating bodies 6. Gravity 7. Oscillatory motion 8. Mechanical waves
- Apply dimensional analysis to determine the units for an unknown quantity or to check the validity of equations.
- Correctly report the units of an observable when it is measured or calculated.
- Distinguish between important physical observables, such as mass and weight or speed and velocity.
- Identify the complementary roles of experimental investigation and theoretical explanation in science.

IMPORTANT DATES:

- The deadline to drop for a refund is **January 25th**
- The deadline to add a class is **February 1st**
- The deadline to drop a class to **avoid** a "W" is **February 8th**
- The final deadline to drop with a "W" is **March 8th**
- **Spring Recess: April 15th — 19th**
- EXAM 1 — Thursday, February 21st (6:00PM – 8:50PM in PHY 70)
- EXAM 2 — Thursday, March 21st (6:00PM – 8:50PM in PHY 70)
- EXAM 3 — Thursday, April 25th (6:00PM – 8:50PM in PHY 70)
- FINAL EXAM — Tuesday, May 21st (5:00PM – 7:50PM in PHY 70)