PHYS 2425: University Physics I
COURSE SYLLABUS: Fall 2012

Instructor: Dr. Kent Montgomery
Office Location: Science 145
Office Hours: MTWTh 9:00–10:00 or by appointment
Office Phone: 903-468-8650
University Email Address: kent.montgomery@tamuc.edu

Course Location and Time:

Lectures: MWF 11:00 a.m. – 11:50 a.m., Science 127
Labs: Monday 1:00 p.m. – 2:50 p.m., Science 114, Wednesday 1:00 p.m. – 2:50 p.m., Science 107, Thursday 5:00 p.m. – 6:50 p.m., Science 107

Suggested Companion Course (not required):

PHYS 201: Problem Solving in Mechanics, Call #24306, Tuesday 3:30 p.m. – 4:45 p.m., Science 123

COURSE INFORMATION

Materials – Textbooks, Readings, Supplementary Readings:

Textbooks Required:

- Fundamentals of Physics Extended, 9th edition, Halliday, Resnick, and Walker

There are alternate versions of the text that are acceptable; contact me for details.

A lab manual will be required and can be purchased during lab sections for $10.

Course Description:

Physics is the study of the interactions of matter and energy. This course will cover *mechanics*, or the study of how objects move. We will study motion, forces, gravity, and rotation during this semester.

Prerequisites: Math 191 or Math 2413 (Calculus I) or be concurrently taking Calculus I

Student Learning Outcomes:

1. You will be able to describe the motion of objects in up to three dimensions in terms of their position, displacement, velocity, and acceleration.
2. You will be able to describe how forces change an object's motion.
3. You will be able to calculate the motion of an object due to the application of one or more forces.
4. You will be able to describe and calculate various kinds of energy and use energy to calculate the motion of objects.
5. You will be able to describe the rotation of an object and how forces affect rotation.
6. You will be able to combine multiple concepts and apply them to real-world concepts you are likely to see in a career in science, technology, or engineering.

COURSE REQUIREMENTS

Attendance

Attendance at lectures is crucial to your receiving a good grade. There will also be homework assignments that must be turned in regularly and if they are not turned in during class you will receive a zero for that assignment. The most important thing you can do in this class is to never miss a class and pay close attention during class.

Exams:

Three midterm exams will be given during the semester and dates will be announced well in advance. The midterms will focus on material covered since the previous exam. Be aware, though, that topics in mechanics are closely intertwined and build on one another, so concepts from previous exams will show up as necessary parts of problems in later exams. There will also be a cumulative final exam.

For midterms and the non-lab final, you may use a calculator (no cell phone calculators are allowed). No other books, notes, backpacks, computers, iPods, headsets, cell phones, PDAs, tricorders, discussions with neighbors, etc. will be permitted. Using any aids other than your calculator will result in you being removed from the exam and a grade of a zero.

Homework:

In order to really learn the material, you need lots of practice. For that reason, homework will be assigned often. Ungraded assignments will be given often, and graded assignments will be near-weekly occurrence. The homework assignments will have different types of problems, including questions that test your understanding of concepts, exercises that help you learn to use these concepts in straightforward settings, and more complex problems that combine concepts under a "real-world" setting.

Your textbook has the answers to most odd-numbered exercises. However, homework grades will depend completely on how you arrive at the answer. If you do not explain what you are doing when solving homework problems, you will lose points.

The following are considered cheating and will not be tolerated (see section on "Academic Integrity" below): Searching for answers on the internet, obtaining copies of solutions (whether from past students or other sources), directly copying another student's answer, etc. You *may* work with other students to complete assignments, but identical papers are considered copying.

Assignments will be announced in class and due dates will be clearly specified. Your lowest homework score for the semester will be dropped.

Labs:

Labs are mandatory and are part of your grade. ***According to University policy, if you fail the lab section of the class, you will also automatically fail the course.*** Labs will be held in either Science

114 or Science 107. Be sure to have a pencil, a calculator, and your lab manual with you. Labs are usually led by a graduate student assistant. If you have questions about lab, first ask the lab assistant. If the problem is not resolved to your satisfaction, you should then talk to me. More details on labs will be discussed on your first lab date.

Grading

Grading will be done on an absolute scale with no curves. If you all earn A's, you all get A's.

Extra credit may be awarded during the semester at the instructor's discretion. Outside of announced opportunities, there is no extra credit available.

The grading breakdown is as follows:

Homework Assignments	15%
Midterms	45% (15% each)
Final	20%
Labs	20%

The grading scale is:

90% to 100%	A
80% to 89.9%	B
70% to 79.9%	C
60% to 69.9%	D
Below 60%	F

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures:

Classroom behavior: I require you to follow some simple good manners that will make class time much more productive for you and your fellow students.

During lecture and labs,

- Do not be disruptive or disrespectful.
- Turn off your cell phone ringer.
- Do not answer your phone in the classroom.
- Do not send or view texts, tweets, emails, photos, or any other communication.
- Do not use computers during lecture for any purpose (laptops are lousy for taking notes in physics).
- Do not use iPods, MP3 players, Pandora, Sony Walkmen, mouth organs, or any other type of noise-making device.

Academic integrity: A major goal of this and most every university course is for you to learn and appreciate subject material. Academic dishonesty ("cheating") actively prevents you from achieving this goal. Academic dishonesty is taken seriously by the University and by me, and will not be tolerated. (See the TAMU-C Code of Student Conduct and the TAMU-C Procedures A 13.04, 13.12, 13.31, and 13.32.)

This conduct is not only considered wrong in this course and at this University, but also in the real world. Engaging in these activities will get you fired from a job and prevent you from getting another job.

Unethical student conduct includes:

- **Plagiarism**, or copying the words of others with the intent of making it look like your own. Whether you use someone else's phrase word for word, or whether you try and change a few words, or even if you just borrow someone else's original idea and don't give them credit, that's unethical. Use your own words whenever possible, give credit to wherever you got an idea, and put direct quotes inside quotation marks.
- **Cheating** involves trying to trick me or others into thinking you did work that you really didn't do, or into thinking you know what you really don't know. This can include stealing exams, changing your answers on a graded exam or assignment and claiming it was graded wrongly, putting your name on someone else's homework, and so on. Searching the Internet for homework or exam solutions is considered cheating. Borrowing a previous student's homework, exams, or solution sets is considered cheating.
- **Collusion** is working with another person to cheat. This can include copying someone else's answers to an exam or assignment, doing work for another student, buying or otherwise obtaining homework/exam solutions from any source online or off-line, or any other instance of multiple people engaging in some form of cheating or dishonesty. Working with other students on an assignment is fine and encouraged as long as everyone contributes and each student does their own work.
- **Any other activity that, to a reasonable person, looks wrong.** If you have any doubt whatsoever whether a certain action is considered dishonest, please ask me *before* engaging in the activity. There is no need to be embarrassed about asking, and I won't penalize you for asking! In this class, if you follow the maxim "it's easier to beg forgiveness than to ask permission", don't expect forgiveness to be forthcoming.

If you engage in academic dishonesty during any graded activity, you will receive no credit for that activity. More than one instance of dishonesty by a student will result in automatic failure of the course and referral of the student for disciplinary action.

For further information, search the Texas A&M-Commerce website for "academic integrity policy".

University Specific Procedures:

ADA Statement

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services
Texas A&M University-Commerce
Gee Library 132
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148

StudentDisabilityServices@tamu-commerce.edu
Student Disability Resources & Services

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. (See *Code of Student Conduct from Student Guide Handbook).*

COURSE OUTLINE / CALENDAR

The course will cover most of chapters 1–11 in the text and if time permits chapters 12 and 13. How long we spend on each topic will vary and the main topics are listed below.

- Measurements: Mass, Location, and Time
- Motion in One, Two and Three Dimensions
- Vectors and Vector Arithmetic
- Forces: Types and How They Affect Motion
- Energy: Kinetic, Potential, Work and Conservation
- Center of Mass and Linear Momentum
- Rotation, Torque and Angular Momentum

Course Calendar:

- **Labs** begin next week.
- **Phys 201** will start on September 4th.
- **No Class on**
  - Friday, September 14th
  - Friday, October 26th
- **Final exam**: Wednesday, December 12th, 10:30am–12:30pm