

Physics for the Health Sciences (PHYS 202) Course Policy and Syllabus

Instructor:

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(Other times by appointment)

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Wed 14:00 - 15:30

Lab Instructor:

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Meeting Times:

Lecture:	M W F	13:00 - 13:50	SM 326
Recitation/Lab:	T (section 001)	09:00 - 11:50	SM 400 (Yong)
	W (section 002)	09:30 - 12:20	SM 400 (Yong)
	R (section 003)	09:00 - 11:50	SM 400 (Yan)

Texts and Course Materials:

- Required:**
1. Paul Peter Urone, Brooks/Cole, College Physics, 2nd Edition, ISBN 0-534-37688-6.
 2. CPS RF student response pad “clicker”, <http://einstruction.com>.
 3. Laboratory Manual for PHYS 202, by Grace Jean Yong.

- Optional:**
1. Student Study Guide for *College Physics*.
 2. Wilson, Buffa, and Lou, *College Physics, Seventh ed.* (Pearson Prentice Hall, Upper Saddle River, 2010). Website: <http://www.prenhall.com/wilson>
 3. Free interactive science simulations: <http://phet.colorado.edu/>

Students should bring to **all** lectures and labs, the textbook *College Physics*, CPS clicker, a calculator, straightedge, graph paper, etc.

CPS Clickers: The student response pads, or clickers, from eInstruction are required items for this course. This technology will facilitate the use of active learning in the classroom. Physics education research has shown that active learning techniques provide a more effective and enjoyable classroom environment. The clickers are for sale in the bookstore at the customer service counter. Register clickers through CPSOnline at the eInstruction website using the following information:

Class Name: **2013FallPHYS202** Class Key: **N75082H475**

When registering please be sure to include your **full name** and **student ID**. Additional information for registering the units will be provided in class and on Blackboard.

Course Description:

PHYS 202 Physics for the Health Sciences (non-calc based) is a one-semester General Physics course oriented particularly toward majors in Kinesiology, Occupational Therapy, and Physical Education. Thus, there is no attempt to present the full range of topics usually covered in a general physics course. We will discuss some of the principal ideas of physics and formulate mathematical models which can be used to solve problems. Much effort will be made to develop an intuitive understanding of these ideas and the equations used to describe them. A good standing in high school algebra and trigonometry and proficiency in basic algebra, geometry, and trigonometry is required. Knowledge of algebra and trigonometry will be used extensively throughout this course. Physics 202 develops the concepts of kinematics (motion), dynamics (force, energy, and momentum), gravity, and fluid statics & dynamics (if time permits). The course will cover approximately chapters 1-9 of *College Physics* and any supplemental information provided in class. Given that the class spans 15 weeks, this amounts to approximately one chapter per two weeks. A tentative breakdown per class is attached to the end of the syllabus.

Course Objective:

Upon successful completion of this course, students will be expected to develop:

- A good conceptual understanding of physics;
- Advanced problem-solving skills;
- Basic laboratory and technology skills;
- Attitude that is favorable for learning physics with deep understanding.

Grading:

The course grade will be determined from homework, quizzes, labs, in-class exams, and final exam with the following breakdown per assignment. The following guidelines guarantee at least a final letter grade as indicated in the table.

<u>Assignment</u>	<u>Weight (%)</u>	<u>Grade</u>	<u>Score (%)</u>
Homework	12.5	A	92-100
Quiz	5.0	A-	89-91
Labs	25.0	B+	86-88
Exam 1	12.5	B	81-85
Exam 2	12.5	B-	78-80
Exam 3	12.5	C+	75-77
Final Exam	20.0	C	64-75
		D+	61-63
		D	50-60
		F	<50

Note that class participation and attendance are highly encouraged. Additionally, the statistical performance of the entire class will also be taken into consideration in determining the final letter grades.

Laboratory:

Attendance in laboratory is **mandatory**. The laboratory manual details necessary background for each lab. How to use the lab manual will be determined by the lab instructor. Additional worksheets may be provided. More than two missing lab reports will result in failure of the **entire** course. Department policy requires students to meet the requirements of lecture and lab concurrently, i.e., in the same semester.

Homework / Quizzes:

Homework will be assigned approximately once per week. **Late assignment will NOT be accepted unless excused.** Homework & quizzes prove invaluable in learning the material and preparing for exams. The only way to achieve mastery of the subject and problem solving skills is through practicing working problems. Physics problems are often best solved through discussions with others. Students are thus encouraged to work in groups. However, merely copying the work of other students is cheating and will not be tolerated (see the section on academic integrity below). Additionally, reading will be assigned to be completed **before** the material is covered in class. In-class quizzes will be given throughout the course. If students are not keeping up with the assigned material, unannounced quizzes may be given.

Exams:

There will be three in-class examinations during regular class hours and one cumulative final exam. All are closed-book, closed-note exams. The formula sheet will be provided. Calculators may be used, but will not be required. Reasoning and accompanying work will count more than the final numerical answer. Once you have received an exam, you are not allowed to leave the room for any reason until you have completed the exam. The use of other portable electronic devices, including cell-phones, is prohibited during exams. If a cellular phone or any other personal electronic device is seen or heard during an exam, you will be escorted out of the examination. In order to receive full credit, you must show in detail all of your work for each exam problem. Exams will allow you to demonstrate both conceptual understanding and problem solving skills.

Final Exam: You must take the final exam. The final exam will be comprehensive.

Seating and Cell-phone Policy:

The lecture room SM326 is a big room. To greatly enhance your learning process and discussions during the class time, students are **NOT** allowed to sit in the back **8** rows. Classes won't start unless everyone sits in the seats as close to the front row as possible. In addition, cell phone **must** be turned off. No Facebook chatting/twittering during the lecture time.

Attendance Policy:

Attendance in lecture is **strongly recommended**. Students are responsible for all information, announcements, materials, and assignments covered during lectures. Attendance and class participation will be recorded electronically with the CPS clickers. Each student is required to take notes and follow the examples presented in the class.

Make-up Policy:

Missing an exam, quiz, or in-class exercise without prior approval is unacceptable except under an extreme documentable circumstance (e.g., serious illness). Reasons for absence from an exam must be in accordance with university policy and copies of required documentation submitted: *Students requesting an excused absence must provide documentation to the instructor two weeks prior to the scheduled absence when known in advance, and as soon as possible when not known in advance.* **In order to be eligible for a make-up assignment, you must contact me before the absence if you feel that you have a valid circumstance. Failure to attend a scheduled event without prior approval will result in a grade of zero for that assignment.**

Inclement Weather and Emergency Closings:

In emergency situations, e.g., extreme weather conditions, the campus may close or open late. Announcements will be posted on the campus voice mail system (410-704-2000) and the main web site (www.towson.edu). Additionally, an "all campus" email will be sent and students may wish to enroll in text message alerts, <http://www.towson.edu/textalerts>. In the event class or lab cancellation, all assignments will be postponed until the class following reopening of the university. Additional reading, exercises, etc. may be assigned to compensate for lost instructional time.

Academic Integrity

Towson University treats academic dishonesty as a serious offense. Students are responsible for reading and understanding the Towson University "Student Academic Integrity Policy." Sanctions for cheating include a grade of **F** on an assignment/exam or a grade of **F** for the entire course, and in cases of repeat offenses, may include expulsion from the university.

Diversity Mission Statement

The Department of Physics, Astronomy and Geosciences (PAGS), in accordance with the Fisher College of Science and Mathematics (FCSM) and with the Towson University Strategic Plan, support initiatives that promote diversity among FCSM faculty, staff and students. We are committed to increasing the quality and diversity of our students, faculty and staff while increasing retention and curriculum initiatives. To obtain further information related to diversity initiatives, please visit:

<http://wwwnew.towson.edu/fcsm/diversity/>

http://wwwnew.towson.edu/physics/Diversity_Plan.asp

Students with Disabilities

Under the provisions of Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, the university may not discriminate in the recruitment, admission, educational process, or treatment of students. Students who have self-identified, provided documentation of their disability, and requested reasonable accommodations are entitled to receive approved modification of programs, appropriate academic adjustments or auxiliary aids that enable them to participate in and benefit from all educational programs and activities. Any student requiring accommodation(s) due to a disability please make an appointment with the instructor and provide a memo from Disability Support Services authorizing the required accommodation(s).

Office of Disability Support Services: Admin. 232, 410-704-2638, <http://www.towson.edu/dss/index.asp>

General Guidelines:

1. **Read the book!** Especially important to read the material **before** the lectures. While reading, make notes of the important concepts by trying to rephrase them in your own words. Also, formulate a list of questions

- that you would like to ask in class.
2. **Do the homework!** Solving homework problems is one of the best ways to learn the material. Perhaps the most important skill you should learn from this course is the ability to solve quantitative problems. I cannot stress enough the importance of “struggling” with and “mastering” the homework problems. Physics is like any other learned skill; the only way to improve is to practice continually.
 3. **Ask questions in class.** Don’t be afraid to ask questions ... likely other students have similar questions and will benefit from the answer.
 4. **Re-work on examples!** The examples presented in class as well as related examples given in the textbook are starting points for you to develop the problem-solving skills. This process of reworking examples should prepare you for completing the homework assignments.
 5. **Seek help** from the instructor and other resources (see below) as soon as possible.
 6. **Personal Electronics.** As a courtesy to your fellow students and myself, cellular phones should be turned off.

Note: Always keep in mind that Dr. Yan is willing to help every student in the class! Feel free to visit me during my office hours!

Additional Resources for Assistance:

- Tutoring in Smith Hall (SM) 538.
- Learning assistants (LAs) will be assisting with homework grading, problem solving, lecture, and tutoring. The science, technology, engineering, and mathematics teaching community (STEM-TC) project at Towson is providing resources to improve student learning in STEM courses. Resources include undergraduate majors serving as learning assistants. General information on the STEM-TC project is available here: http://www.towson.edu/fcsm/community_engagement/STEM-TC/index.asp.
- Students interested in refreshing their mathematics skills, particularly algebra and trigonometry, may find these online math resource sites useful.
Purple Math: <http://www.purplemath.com/>
S.O.S. Mathematics: <http://www.sosmath.com/index.html>

Important Dates

28-Aug (Wed)	First day of class.
02-Sep (Mon)	Labor Day – no classes.
06-Sep (Fri)	Change of Schedule period ends for full term; Last day to drop a course with no grade posted to academic record; Last day to add a course.
27-Sep (Fri)	Exam I (tentative date).
25-Oct (Fri)	Exam II (tentative date).
06-Nov (Wed)	Last day to withdraw from a semester course with a grade of “W.” Last day to change to Pass or Audit grading options.
22-Nov (Fri)	Exam III (tentative date).
27 Nov to 1-Dec	Thanksgiving Break.
11-Dec (Wed)	Last day of classes.
18-Dec (Wed)	Final Exam SM 326, 08:00 - 10:00.

Tentative Schedule of PHYS 202

WEEK	DATE	PRE-READING	CHAPTER / TOPIC	IN-CLASS ACTIVITY	REC/LAB
1	W 08/28	Sect. 1.1, 1.4-1.8	Introduction & Math Review		No Lab
	F 08/30	Sect. 1.2 - 1.3	Chapter 1 <i>Units & Measurement</i>		
M 09/02 <i>No class because of Labor Day</i>					
2	W 09/04	Sect. 1.2 - 1.3	Chapter 1 <i>Units & Measurement</i>		1. Measurement: Height and foot length
	F 09/06	Sect. 2.1 - 2.6	Chapter 2 <i>Kinematics</i>		
3	M 09/09		cont. Chapter 2		2. Freefall: Human reaction time
	W 09/11		cont. Chapter 2		
	F 09/13	Sect. 3.1 - 3.5	Chapter 3 <i>2D Kinematics</i>		
4	M 09/16		cont. Chapter 3		5. Vectors & Static Equilibrium
	W 09/18	Sect. 4.1 - 4.7	Chapter 4 <i>Dynamics: Newton's Laws of Motion</i>		
	F 09/20		cont. Chapter 4		
5	M 09/23		cont. Chapter 4		Problem-Solving
	W 09/25		cont. Chapter 4		
	F 09/27		Exam 1 (Ch 1-3)		
6	M 09/30	Sect. 5.1 - 5.8	Chapter 5 <i>Statics, Torques, and Elasticity</i>		7. Force and Friction
	W 10/02		cont. Chapter 5		
	F 10/04		cont. Chapter 5		
7	M 10/07		cont. Chapter 5		9. Torque & Rotational Equilibrium
	W 10/09		cont. Chapter 5		
	F 10/11		cont. Chapter 5		
8	M 10/14	Sect. 6.1 - 6.7	Chapter 6 <i>Work, Energy, and Power</i>		10. Conservation of energy
	W 10/16		cont. Chapter 6		
	F 10/18		cont. Chapter 6		
9	M 10/21		cont. Chapter 6		Problem-Solving
	W 10/23		cont. Chapter 6		
	F 10/25		EXAM #2 (Ch 4-5)		
10	M 10/28	Sect. 7.1 - 7.6	Chapter 7 <i>Linear Momentums</i>		13. Impulse & Momentum
	W 10/30		cont. Chapter 7		
	F 11/01		cont. Chapter 7		
11	M 11/04		cont. Chapter 7		12. Momentum conservation
	W 11/06		cont. Chapter 7	<i>Last day to withdraw</i>	
	F 11/08		cont. Chapter 7		
12	M 11/11	Sect. 8.1 - 8.6	Chapter 8 <i>Uniform Circular Motion and Gravitation</i>		14. Centripetal force
	W 11/13		cont. Chapter 8		
	F 11/15		cont. Chapter 8		
13	M 11/18		cont. Chapter 8		Problem-Solving
	W 11/20		cont. Chapter 8		
	F 11/22		Exam 3 (Ch 6-8)		
14	M 11/25		cont. Chapter 8		
Thanksgiving Holidays (11/27-12/1)					
15	M 12/02	Sect. 9.1-9.5	Chapter 9 Rotational motion and angular momentum		TBA
	W 12/04		cont. Chapter 9		
	F 12/06		cont. Chapter 9		
16	M 12/09		cont. Chapter 9		Problem-Solving
	W 12/11		cont. Chapter 9	LAST DAY OF CLASS	
17	F 12/18		FINAL EXAM (Ch 1-9)		