

**Physics 100: "Elements of Physical Science"**  
**Spring 2014**  
**TuTh 9:30 a.m. - 10:45 a.m. in Merion 112**

**Course description:** This course deals with fundamental physical principles such as force, motion, light, waves, and energy. These concepts describe how the Universe behaves on scales ranging from the nucleus of an atom to the way galaxies flow through the cosmos. We will touch on a broad range of topics and discuss how they affect our lives, often in ways we take for granted.

**Instructor: Dr. Robert Thornton**

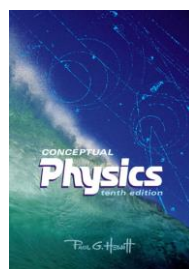
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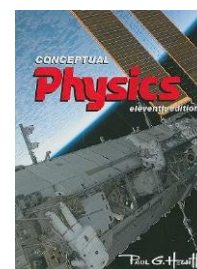
Office hours: MW 10:00-11:30 a.m.; TuTh 1:00-2:00 p.m.; also by appointment

**Course Materials**

- *Textbook: Conceptual Physics (10 or 11<sup>th</sup> ed.)* by Paul G. Hewitt (strongly recommended but not required).
- a scientific calculator



10<sup>th</sup> edition



11<sup>th</sup> edition

- Turning Technologies Course ResponseCard RF LCD ("clicker")



Clicker website: [http://www.wcupa.edu/infoservices/clientservices/clickers\\_students.asp](http://www.wcupa.edu/infoservices/clientservices/clickers_students.asp)

**Course Web page:** Syllabus and related material will be posted on D2L.

**Grading:**

Midterm tests (4): 50% total

Homework: 20%

Final Exam: 20%

Attendance/Class participation: 10 %

Total: 100%

**Attendance and Class participation:** Both are important parts of the class, and will be recorded beginning the second week of class using the Turning Technologies ResponseCard RF LCD clicker system (picture shown above). You can purchase these at the university bookstore; with the rebate, the device costs only about \$24, and is the same device used in many other courses at West Chester. Because of problems with cell phone use in class, you may NOT use the "app" on your cell phone as a substitute for the LCD device. Given that attendance/participation comprises 10% of your final grade, make sure that you bring the clicker to every class, and that you check its battery life periodically. How does the ResponseCard contribute to your grade? I will pose several multiple choice questions to you each lecture period. Half of the 10% goes toward simply showing up and clicking ANY answer to the questions that are posed to the class. The other half of the 10% is reserved for getting the CORRECT answer. I do understand that on occasion something unforeseen will pop up and prevent you from attending class; therefore, at the end of the term I will drop five (5) days of class

participation points. If you miss class due to an excused absence (see definition of an excused absence below), it is YOUR RESPONSIBILITY to meet with me to give you credit for participation points on the day you missed.

In order to earn class participation points with your ResponseCard, YOU must be the one entering responses with it. I have a zero tolerance policy for ANYONE who hands their ResponseCard to a classmate and tells that classmate to use it in class for them. I will periodically do a head count in class and compare it to the number of responses for that class period. If I catch anyone using multiple ResponseCards in a class, this will be construed as cheating, and all involved parties will lose all 10 percentage points for the semester attendance/participation grade.

Excused absences are limited to those due to participation in University-sanctioned events (see policy in the WCU undergraduate catalog) or those accompanied by written confirmation from a doctor, the Dean of Students, etc. If you are sick on a day when attendance was taken, you MUST obtain a doctor's note. Finally, whether your absence is excused or unexcused (or if you are late to class), you will be responsible for any material covered and any announcements that were made in class that day.

**Cell Phone Policy:** I have a zero-tolerance cell phone policy. Cell phones should not be out in class, whether there are being used or not. The first time I see your cell phone, you will be asked to leave the class. Each subsequent time, you will lose 5 percentage points (roughly half a letter grade) off of your final semester grade.

**Homework:** There will approximately then homework assignments throughout the semester. Homework questions are listed under the "Content" section of D2L. Students MUST enter their answers to the homework under the "Quizzes" section of D2L. Because the grading is automatic, all late homework assignments will receive a grade of zero. Homework assignments will not be accepted over email - no exceptions! The lowest percentage homework grade of the semester will be dropped. If you are sick on the day that a homework assignment is due, that homework will be the one that is dropped.

**Reading:** Students are expected to keep up with the reading in the book as the associated material is covered in class. Pop-quizzes may be given to enforce this.

**Disability:** West Chester University is committed to making accommodations for persons with disabilities. Please make your needs known by contacting your instructor and the Office of Students with Disabilities. Sufficient notice is needed in order to make the accommodations possible. The University desires to comply with the ADA of 1990.

**West Chester University General Education Goals:**

This course strives to have students meet the following general education goals:

1. Ability to communicate effectively
2. Ability to employ quantitative concepts and mathematical methods
3. Ability to think critically and analytically

**Mid-Semester exam dates and policy:**

Exam dates are not set at the beginning of the semester because the pace of the course can vary. The dates of each test will be announced in class. An unexcused absence on the day of a test will result of a grade of zero for that test. If you have an excused absence on the day of one of the three tests, the average of your other two tests will be used as a substitute for the exam you missed. No make-ups will be given. You may only miss one exam due to an excused absence. You are encouraged to bring a calculator to the exams, but the calculator cannot be a part of a cell phone, iPod, etc. (i.e., it must be ONLY a calculator)

**Final Exam (Cumulative):**

The final exam is mandatory. Missing the final exam will result in a zero for the exam unless EXTREME circumstances apply. Even in that case, extra questions will be added to the make-up final.

**Conduct:** For questions regarding Academic Dishonesty, the No-Grade Policy, Sexual Harassment, or the Student Code of Conduct, students are encouraged to refer to their major department's handbook, the Undergraduate Course Catalogue, the Rams Eye View, or the University Web Site. Please understand that improper conduct in any of these areas will not be tolerated and may result in immediate ejection from the class.

### Outline of Course Coverage

| <u>Topics</u>                          | <u>Text*</u>   | <u>Homework</u> |
|--|--|-----------------|
| Units & Conversion, 1D motion          | App. A & Ch3   | Homework 1      |
| Newton's Laws and Vectors              | Ch2, Ch4, & Ch5  | Homework 2      |
| Test 1 (on material from HW 1 and 2)   |  |                 |
| Momentum and Energy                    | Ch 6 & Ch7   | Homework 3      |
| Gravity and Projectile Motion          | Ch 9 & Ch10  | Homework 4      |
| Test 2 (on material from HW 3 and 4)   |  |                 |
| Electrostatics & Electrodynamics       | Ch 22 & Ch23   | Homework 5      |
| Magnetism & Electromagnetic Induction  | Ch 24 & Ch25   | Homework 6      |
| Test 3 (on material from HW 5 and 6)   |  |                 |
| Properties of Light                    | Ch 19 (pp 362-367)<br>Ch 26 (pp 496-499)<br>Ch 27 (pp 515-6, 522-6)<br>Ch 16 (pp 312-313)<br>Ch 30 (pp 582-90) | Homework 7      |
| Atomic and Nuclear Physics             | Ch 32 (pp 636-626)<br>Ch 33<br>Ch 34 (fission & fusion)  | Homework 8      |
| Optics                                 | Ch 28 & 29   | Homework 9      |
| Test 4 (on material from HW 7, 8, & 9) |  |                 |

(\*Page numbers according to 10th edition of textbook)

#### **Intellectual Property Statement:**

The instructor for this course utilizes copyrighted materials under the "Freedom and Innovation Revitalizing United States Entrepreneurship Act of 2007" (Fair Use Act). Apart from such copyrighted materials, all other intellectual property associated with this course is owned and copyright protected by the instructor, including, but not limited to, lectures, course discussions, course notes and supplementary materials posted or provided to students authored by the instructor, assessment instruments such as quizzes and exams, and Power Point presentations. No recording, copying, storage in a retrieval system, or dissemination in any form, whether electronic or other format, by any means of the intellectual property of the instructor, either in whole or in part, is permitted without the prior written permission of the instructor. When such permission is granted, it must specify the utilization of the intellectual property and all such permissions and waivers shall terminate on the last day of finals in the semester in which this course is held.

Links and references to on-line resources provided by the instructor may lead to other sites. The instructor does not sponsor, endorse or otherwise approve of any information appearing in those sites, nor is responsible for the availability of, or the content located on or through, external sites. Apart from materials used in accordance with the Fair Use Act, the instructor takes no responsibility for material that is otherwise offered at web sites and makes no warranty that such material does not infringe any third party rights. However, should any of this type of material be present and this fact is brought to the attention of the instructor, they will remove references to it from course materials.

**Public Safety:** All students are encouraged to sign up for the University's free WCU ALERT service, which delivers official WCU emergency text messages directly to your cell phone. For more information and to sign up, visit [www.wcupa.edu/wcualert](http://www.wcupa.edu/wcualert). To report an emergency, call the Department of Public Safety at 610-436-3311.