Walters State Community College
Course Syllabus for PHYS 20, “General Physics II”
Spring 2012

Instructor: Dr. Sean M. Cordry, Associate Professor of Physics
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Office Hrs: Posted outside instructor’s door
Dpt. Contact: (423) 585-6865 (Mrs. Sherry Woody), FAX: (423) 585-2762


Catalog Course Description: Thermodynamics, electricity and magnetism, optics, atomic and nuclear physics. (Prerequisite: PHYS 2010; co-req: PHYS 2021) 3 hours lecture, 4 credits

This four-credit course continues students’ introduction to physics as an academic discipline, contributing towards degree programs and the Natural Science General Education Core Requirements. The class will be divided into three sections: Wave Mechanics – describing the propagation of oscillatory motion; 20th-Century Physics – introducing quantum mechanics, and atomic and nuclear physics; and finally, Electromagnetism – the movement and flow of electrons.

Student Learning Outcomes
Here are the student learning outcomes; in other words, these are the things students should know how to do at the end of the semester.

1. Wave Mechanics
   a. Explain the basic qualitative and quantitative aspects of wave behavior.
   b. Calculate wavelengths, frequencies and Doppler shifts as appropriate to the generally accepted level of this course.
   c. Describe the phenomena of diffraction and refraction, as well as solve a variety of computational problems involving those concepts.
   d. Explain the effects and causes of standing waves; make appropriate calculations of such waves.

2. 20th-Century Physics
   a. Explain the concept of energy quantization and how it pertains to light and electron orbitals.
   b. Describe matter waves and explain the Uncertainty Principle.
   c. Describe the basic make-up of nuclei, and the types and origins of nuclear radiation; utilize the concept of half-life.
   d. Explain the “standard model” of particle physics.

3. Electromagnetism
   a. Describe how currents can lead to magnetic fields; calculate magnetic fields based on a limited number of simple current geometries.
   b. Explain the concept of flux in the context of Lenz’s law.
   c. Explain the fundamental cause of electromagnetic waves.
   d. Describe the origins of charge; utilize Coulomb’s law to calculate forces between charges.
   e. Explain the concept of electric field and its relationship to charges.
   f. Explain the notion of electric potential and how it can be used to calculate potential energy changes.
Performance Indicators and Expectations
In order to evaluate student progress towards the learning outcomes, several performance indicators will be used: pre-class quizzes, tests, homework, a journal, and a final exam.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>%</th>
<th>Details</th>
<th>If missed (excused)…</th>
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<tbody>
<tr>
<td>Tests</td>
<td>60</td>
<td>Covers conceptual and definitive aspects of recent material. Tests are not cumulative. All tests must be taken to pass the course.</td>
<td>Missed tests are handled on a case-by-case basis. Students should provide notice at least a week in advance; generally, tests will be made-up within a week of the original test date.</td>
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<tr>
<td>Practice Homework</td>
<td>0</td>
<td>A few practice problems will be assigned from the textbook and other sources. Solutions will be presented, and these problems may appear on tests.</td>
<td>Not applicable.</td>
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<tr>
<td>Homework Journal</td>
<td>7.5</td>
<td>One to three problems will be given each day. Solutions should be entered into your Journal, which will be turned-in at the time of the exam and given a score of 0-5, based on completion of assignments</td>
<td>Not applicable.</td>
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<tr>
<td>Pre-class Quizzes</td>
<td>7.5</td>
<td>Before each class, students should complete the online quiz over material they should know before coming to class. Grades will be assigned on completion of quizzes.</td>
<td>Not applicable.</td>
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<tr>
<td>Final Exam</td>
<td>25</td>
<td>Comprehensive exam broadly covering all topics of course content.</td>
<td>Consultation with the department chair and the division dean will be required. Notice must be given two weeks in advance.</td>
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Excused absences include documented illness, unexpected family situations or emergencies, and student representation of WSCC at various activities. Assignments missed due to unexcused absence must receive a grade of zero. **Please keep open contact with your instructor if you must miss class.**

The following performance levels will be used for issuing grades.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Minimum Percent</th>
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<tbody>
<tr>
<td>A</td>
<td>≥90</td>
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<tr>
<td>B</td>
<td>80</td>
</tr>
<tr>
<td>C</td>
<td>70</td>
</tr>
<tr>
<td>D</td>
<td>60</td>
</tr>
<tr>
<td>F</td>
<td>&lt;60</td>
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If the student identifies a grading error in an individual test or assignment, the student should notify the instructor within a week of the test or assignment being returned. Grading errors will receive serious attention from the instructor and appropriate corrections will be made if necessary. In the event that credit is over-awarded, the student should notify the instructor as a courtesy; the student may consider the over-award a fortuitous gift of Chance, as the student’s score will not be reduced. After one week of being returned, all assigned scores are “locked-in” and will not be changed.

In-class expectations:
1. **The instructor will arrive well-prepared.** The student should too by reading the sections before class.
2. **The instructor will not sleep through class.** Students should get plenty of rest.
3. **The instructor may have something to drink – and sometimes a snack but will always take care of the trash and leave the room clean.** If a student brings a snack or drink, that is fine; however, the student should take care that the next person to sit at that desk has a clean, trash-free area.
4. **The instructor will not talk negatively about individual students to others.** If the student is uncomfortable discussing an issue with the instructor, the student should talk to the department chair (Dr. Sean Cordry) or the division dean (Dr. Jeffery Horner) instead; they will accurately relay the student’s concern to the instructor, while sensitively honoring student confidentiality.

*This syllabus last modified on Friday, January 13, 2012 by Physics Department chair, Dr. Sean M. Cordry.*
Additional Important Information

- Students should attend the first day of class or contact the instructor prior to the first class. Failure to do this may result in being dropped from the class.
- Plagiarism, cheating, and other forms of academic dishonesty are prohibited.
- Students with disabilities must register with Student Support Services (CCEN), Room 262 (phone 423-585-6892) if they need any special facilities, services, or consideration.
- Students in need of tutoring assistance are encouraged to contact the Office of Student Tutoring located in the College Center (CCEN), Room 261. The phone number is 423-585-6920.
- Students receiving any type of financial aid or scholarship should contact the Financial Aid Office before making any changes to their schedule. Schedule changes without prior approval may result in loss of award for the current term and future terms.
- Students who have not paid fees on time and/or are not correctly registered for this class and whose names do not appear on official class rolls generated by the Admissions and Records Office will not be allowed to remain in class or receive credit for this course.
- Cellular phone use during classroom interaction is prohibited. Cellular phones must be turned to the non-audible mode until after class, at which time calls can be received or checked. (See the Walters State Catalog/Handbook)
- For information related to the cancellation of classes due to inclement weather, please check the college’s Web site at www.ws.edu or call the college’s student information line, 1-800-225-4770, option 1; InfoConnect, (423) 581-1233, option 1045; the Sevier County Campus, (865) 774-5800, option 7; or the Greeneville/Greene County Center for Higher Education, (423) 798-7940, option 4. Also, please monitor local TV and radio stations for weather-related announcements. For additional information on this policy see the college catalog.
- In the event of a pandemic or other college declared critical event that impacts the college’s ability to proceed with academic course activities as planned, the college reserves the right to alter this course plan. In the event of a pandemic or other event, please refer to the college’s home web page, www.ws.edu or call InfoConnect, (423) 581-1233 for further information.
- Regular class attendance is a student’s obligation. (See the Walters State Catalog/Student Handbook) If for some reason a student misses class, it is his or her responsibility to see the instructor regarding missed assignments and/or activities and to be prepared for the next class. Excessive absences may substantially lower the semester grade. The college requires the instructor to keep accurate records and to report when students are not attending class.
- The wearing of hats and caps in class is not allowed! Students will be asked to remove their hats and caps.

WSCC Catalog Notification Statement:
All students attending Walters State Community College, regardless of the time and location of the class, must abide by the rules and regulations outlined in the current Walters State Catalog/Student Handbook and the current “Walters State Timetable of Classes.” A copy of the Catalog/Handbook and the “Timetable of Classes” may be obtained from the Admissions Office on the Main campus or at any of our off-campus sites. You may also access the Catalog/Handbook on-line at the following web address: http://www.ws.edu/catalog.

Alternative Teaching Plan
In the event of a pandemic or other college declared critical event, the lead faculty member for this course will use eLearn to communicate with the students. If the lead faculty member is affected by this event, another member from the teaching team will assume instruction for the course. The course will continue utilizing an online format of instruction and testing.

ATTENTION: The Natural Science faculty members are concerned with proper academic advising of students in ALL Pre-Professional programs. It is our explicit desire to help you with any advising problems you may encounter.