Walters State Community College
Course Syllabus for PHYS 20, “General Physics I”

Fall 2014

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 (Division Assistant), FAX: (423) 585-2762

Required Text: OpenStax College Physics (http://openstaxcollege.org/textbooks/college-physics), subscription to Sapling Learning

Catalog Course Description: An introductory pre-calculus survey course in general physics including: mechanics, work and energy, rotation and vibration, wave motion, fluids and sound.
(Prerequisite: MATH 1720) 3 hours lecture, 4 credits

This four-credit course introduces students to physics as an academic discipline, contributing towards degree programs and the Natural Science General Education Core Requirements. The class will be divided into four sections: Kinematics and Forces – describing motion and what causes it to change, Newton’s Ideas in Action – expanding kinematic and Newtonian principles to a variety of contexts, Conservation Laws – limits on what can happen and how quickly, and finally, Thermodynamics – how energy flows and is exchanged on a microscopic scale.

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. Kinematics and Forces (Units, Physical Quantities, Vectors, Linear Motion, 2D & 3D Motion, Newton’s Laws of Motion, Gravitation)
   a. Distinguish the different characteristics of both uniform and accelerated motion for linear, circular and parabolic trajectories in terms of speed, velocity and acceleration.
   b. Use vectors appropriately for displacement, velocity, acceleration, and force situations.
   c. Correctly apply the kinematics equations to a variety of real-world scenarios involving linear, circular and parabolic behavior.
   d. Apply a formal problem-solving and estimation techniques to a variety of different problems and situations.
   e. Describe the role of forces in static and dynamic situations.
   f. Apply knowledge of forces to solve a variety of acceleration scenarios.
   g. Calculate times-of-flight and other characteristics of projectile motion for a variety of situations.
2. Newton’s Ideas in Action (Friction, Interacting Systems, Orbits, Gravitation, Rotation, Torque)
   a. Describe the origins of friction, explaining the different types of friction, and solve appropriate force and kinematics problems involving friction.
   b. Explain the differences between tangential and centripetal acceleration, utilizing these concepts in appropriate kinematic situations.
   c. Use the concept of equilibrium to compute torques and forces in appropriate situations.
   d. Define Hooke’s Law and use it calculate forces involving linear springs.
   a. Explain how momentum and energy are transferred in elastic and inelastic collisions.
   b. Use conservation of energy and conservation of momentum to solve a variety of real-world problems.
   c. Explain the relationship between “work”, energy and power.
   d. Describe how energy can be used to set limits on events or actions.
   a. Be able to solve a variety of problems involving state variables for an ideal gas, as well as calculating work done through various cycles.
   b. Compute temperature changes and phase changes based on heat input or output in an object; or, to do the same regarding internal energy or work changes for a system.
   c. Explain the first two laws of thermodynamics.
   d. Describe the basic ideas of entropy and characteristics of non-linear, chaotic systems.

**Performance Indicators and Expectations**

In order to evaluate student progress towards the learning outcomes, several performance indicators will be used: reading quizzes, tests, homework, a laboratory grade, and a final exam. The table below shows how the various indicators will be incorporated into your final grade.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>%</th>
<th>Details</th>
<th>If missed (excused)…</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tests</td>
<td>30</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 48 hours in advance; generally, tests will be made-up within a week of the original test date.</td>
</tr>
<tr>
<td>Pre-Class Quizzes</td>
<td>20</td>
<td>Online material to be completed prior to corresponding lecture.</td>
<td>See instructor.</td>
</tr>
<tr>
<td>Homework</td>
<td>30</td>
<td>Homework will be completed online using Sapling Physics. You should obtain a dedicated notebook for doing your homework; you will be able to use this notebook for part of each Test.</td>
<td>Consultation with the department chair and the division dean will be required. Notice must be given two weeks in advance.</td>
</tr>
<tr>
<td>Final Exam</td>
<td>20</td>
<td>Comprehensive exam broadly covering all topics of course content.</td>
<td></td>
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Excused absences include documented illness, unexpected family situations or emergencies, and student representation of WSCC at various activities.

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>
</tr>
<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>
</tr>
</tbody>
</table>

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.

The traditional rule-of-thumb for time spent on any one particular course is this: for every credit-hour of class, a student should spend two hours outside of class. Tests and assignments have been constructed with this rule-of-thumb in mind; the chart at right estimates the student’s out-of-class time requirements. Naturally, these are approximate; some students require more time, and others less.

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Quant (approx)</th>
<th>Time per (hrs)</th>
<th>Total Time (hrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tests</td>
<td>4</td>
<td>3 - 5</td>
<td>12 – 20</td>
</tr>
<tr>
<td>PCQ’s</td>
<td>30</td>
<td>1</td>
<td>30</td>
</tr>
<tr>
<td>Homework</td>
<td>30</td>
<td>2.5 – 4</td>
<td>75 – 120</td>
</tr>
<tr>
<td>General Study</td>
<td>230</td>
<td>.5</td>
<td>15</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>132 – 185</td>
</tr>
<tr>
<td>Weekly Average</td>
<td></td>
<td>8 – 12 hrs/wk</td>
<td></td>
</tr>
</tbody>
</table>
In-class expectations for the student are no different than expectations for attending a concert, performance or movie: arrive on-time; get a good seat; pay close attention so as not to miss anything, and allow others to enjoy the event. The expectations are parallel to what the instructor expects from him- or herself:

1. **The instructor will arrive well-prepared.** The student should too by reading the sections before class. The instructor will not be a textbook with lips, so students need to keep up with the reading; this will both broaden and deepen the student’s learning experience. Students should **always** start reading by looking at the pictures first and then reading the summary; this provides the brain with a mental map of the information that is coming in – much like labeling a filing cabinet prior to filling it with folders.

2. **The instructor will not sleep through class.** Students should get plenty of rest. Studies show that a lack of sleep leads to memory retention problems and a decrease in analytical thinking ability.

3. **I will give you my full attention.** Please give me yours. “Texting” or “surfing the web” during class is rude and unacceptable. You have chosen to come to class. I will make it worth your time; you should too.

4. 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.

5. **The instructor will not talk negatively about individual students to others.** If the instructor should do or say something that seems strange or out-of-line, please talk to the instructor about it as soon as possible. Many conflicts are simply the result of miscommunication, and quick resolution can restore trust and a positive experience for all parties. 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 privacy.

6. **Tobacco products are not allowed in class.**
Course Ground Rules

All students attending Walters State Community College, regardless of the time, location, or format 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. The Catalog/Student Handbook and the Timetable of Classes are online at: http://ws.edu

Students must attend the first day of on-ground class or contact the instructor prior to the first class. Failure to do this may result in being dropped from the class. Excessive absences may substantially lower the course grade.

Students enrolled in web courses must follow the course attendance policy defined for online attendance during the first week of class and throughout the term. Failure to do this may result in being dropped from the class during week one OR may result in the accrual of absences which may negatively impact the student’s grade in the course.

Plagiarism, cheating, and other forms of academic dishonesty are prohibited. The minimum penalty for cheating is a “0” (zero) on the examination or assignment. Academic dishonesty may result in an “F” for the course. Additional information can be found in the WSCC Catalog/Student Handbook at: http://ws.edu.

Students with disabilities must register with Student Support Services each semester in the Student Services Building, Room U134 (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 as follows:
- Morristown Campus - Student Services Building Room L107 – (423) 585-6920
- Greeneville Campus – Room 420 - (423) 798-7982
- Sevierville Campus - Marshall-Maples Hall Room 118 – (865) 286-2787
- Claiborne Campus – Room 123A (423) 851-4761

Specific tutoring assistance in mathematics and writing is available in-person and online as follows:
- Morristown Campus – English Learning Lab – HUM 120 – (423) 585-6970
  o https://www.ws.edu/academics/humanities/writing-lab
- Morristown Campus – Mathematics Lab – MBSS 222 - (423) 585-6872
  o http://ws.edu/academics/mathematics/learning-lab

Students who need assistance with computing and technology issues should contact the IET Helpdesk by phone at Morristown: 423-318-2742 Greeneville: 423-798-8186 or Sevierville: 865-286-2789 or on-line access at: http://helpdesk.ws.edu/.

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 Walters State student information system (StarNET) will not be allowed to remain in class or receive credit for this course.

Electronic devices must not disrupt the instructional process or college-sponsored academic activity. Use of electronic devices is prohibited unless use of the device is relevant to the activity and use is sanctioned by the faculty member in charge. Electronic devices that are not relevant to the activity or sanctioned by the faculty member in charge should be set so that they will not produce an audible sound during classroom instruction or other college-sponsored academic activity.

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 Campus (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 at: http://ws.edu

Dual Enrollment students attending on a high school campus should refer to the high school inclement weather cancellations.

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 for any course regardless of format. (See the Walters State Catalog/Student Handbook) If a student misses class, it is his or her responsibility to contact the instructor regarding missed assignments and/or activities and to be prepared for the next class assignment.

All forms of student Financial Aid may be jeopardized or lost due to the lack of Satisfactory Academic Progress in one or multiple courses. Lack of Satisfactory Academic Progress may negatively impact a student’s degree/certificate completion pace and further jeopardize Financial Aid eligibility.

WSCC Catalog Notification Statement:
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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.

General Education Core Competency (CC) courses – ENGL 1010, SPCH 2010, MATH 1530 or 1630 or 1710, and CPSC 1100 or MGMT 1100 – must be completed by the time the student completes 30 hours of college credit towards a degree at Walters State Community College. Completion of the courses with a passing grade is the primary form of documentation of competency. Alternate methods of documentation are described in the College Catalog (“General Education Competency Requirements”).

Drop Dates for Current Term
The last day to drop a course or withdraw from the college-full term for Fall 2014 term is November 5, 2014.

The last day to drop a course or withdraw from the college-full term for Spring 2015 term is April 2, 2015.

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.