Course Syllabus PHYS 101

Essentials of Physics

Fall 2013

Lecture: CRN 15518
Class: 3:00pm – 3:50pm: Monday, Wednesday, & Friday; Location: 100 WIL
Prerequisite: High school algebra

Instructor: Bijan Shahir
Office: 198B Anstett Hall and 45 Willamette Hall
Hours: Mon & Tue: 9am–10am (198B ANS); Fri: 1pm–2pm(45 WIL), or by appointment
Phone: 541-346-0538
Email: bijan@uoregon.edu

GTFs:
Maira Amezcua, mamezcua@uoregon.edu, 261 Willamette, Thursday: 11am–12pm
Sudarshan Karki, skarki@uoregon.edu, 231 Willamette, Monday: 12pm–1pm
Ignas Lekavicius, ilekavic@uoregon.edu, 219 Willamette, Wednesday: 4pm–5pm
Mohamad Nourikorabaslo, mnourik2@uoregon.edu, 217 Willamette, Wednesday 11am–12pm

Required Materials:
- WileyPLUS / Student Class URL: http://edugen.wileyplus.com/edugen/class/cls360160/
- i>clicker

Please see below, for the various pricing options on the textbook, at the Duck Store (University of Oregon Bookstore) – you only need to choose one of the options.

1. How Things Work-w/WileyPlus Access Code (main text w/ code) – student price $183.75
3. WileyPlus Access Code w/ How Things Work E-Text (stand alone code with e-text, available at the registers only) – student price $113.00

Course Content:
This course will serve as an introduction to physics, demonstrating how a rich variety of complex natural phenomena can be explained using a framework of fundamental forces and laws that allows us to understand why things happen.
Most of this course focuses on Newtonian mechanics, a subject that is the foundation of all of physics and its manifestations. The first third of the course will be spent investigating the kinematic concepts of force, mass, acceleration, velocity and displacement and the relationships among these. The next third will deal with dynamical phenomena described in terms of momentum, work, and energy. The course concludes by discussing Newtonian gravitation and satellite and planetary motion, certainly the crowning achievement of Newton’s work in this area.
The course is primarily conceptual in nature, using only simple high school algebra to help illuminate the underlying physical phenomena. Simple numerical and conceptual problems will be assigned in homework sets, and use of a calculator will be helpful but not essential.
Blackboard:
At https://blackboard.uoregon.edu you may login and access course documents such as this syllabus. In addition, you may view announcements, course materials, scores on homework and tests at any time.

Log in:
Use your Username i.e. Duck ID without "@uoregon.edu" and Password to login to Blackboard. Be sure to log out when done - use the "Logout" button at the top of most blackboard pages. If you have problems of logging in please contact: blackboard@ithelp.uoregon.edu.

Email:
You must use your Oregon.edu email address when corresponding with the instructor and TAs by email. Please mention PHYS 101 in the subject line.

i>clicker:
There will be several clicker questions in each lecture. You will get credits for being in class and clicking on each question. 10% of your overall grade will be devoted to the clicker questions. The two lowest score of the clicker questions in two lectures will be dropped and if you missed two lectures you will get zeros – there will be no make up for clicker questions.

Register your i>clicker:
You only have to register once, and if you have already registered your i>clicker this term, ignore this part. To register your i>clicker, please do the following:

1) Log in to Blackboard
2) Click on “PHYS 101 (Fall 2013; 15815), Essentials of Physics” course
3) In the upper left corner (green rectangle) of the “Home Page” click on “Course Information”
4) Fill in all fields of “UO i>clicker Registration”
5) Click on the “Registration” button

Homework:
We will be using a web based homework system through WileyPLUS website. You will submit your homework answers via computer. This is to give quick feedback to homework questions. You will be allowed a stated number of attempts to submit a correct assignment (Saving homework does not count as a submission.) THE DUE DATES ARE SET FOR FRIDAYS AT MIDNIGHT. NO LATE HOMEWORK WILL BE GRADED. Note: the numbers for the problems in the web question will be different for each student. If you figure out how to solve the problem as a group, you will still have to calculate your values for your own answer. The lowest homework grade will be dropped.

Group Work:
I highly recommend that you work together, and learn from each other, but all assignments must be submitted individually - based on your own merits.

Quizzes:
We’ll have 10 – minute quiz at 3:40pm on Wednesdays with the exception of mid-term weeks. Your lowest quiz grade will be dropped.
Exams:
1) Midterm Exam 1: Wednesday, October 23rd (Week 4)
2) Midterm Exam 2: Wednesday, November 13th (Week 7)
3) Final Exam (Comprehensive): 3:15pm, Monday December 9th (Week 11)

A 5x7 inch index card with formulae on it will be allowed in quizzes and exams.
No late homework, or make-up quizzes and exams will be allowed. For extreme circumstances, exceptions will be made ONLY for midterm and final exams.

Course grade determined by:
Homework: 20%
i>clicker problems: 10%
Quizzes: 10%
2 midterm exams: 15% + 15%
Final exam (comprehensive): 30%

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<thead>
<tr>
<th>Final Course Grade</th>
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<tbody>
<tr>
<td>97% or above</td>
<td>A+</td>
<td>83% to 86.9%</td>
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<tr>
<td>93% to 96.9%</td>
<td>A</td>
<td>80% to 82.9%</td>
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<tr>
<td>90% to 92.9%</td>
<td>A-</td>
<td>77% to 79.9%</td>
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<tr>
<td>87% to 89.9%</td>
<td>B+</td>
<td>73% to 76.9%</td>
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Curving Grades:
There will be a small adjustment at the end of the term if the course grades on the whole don’t meet my expectations. I will not make this decision until after all the work for the term is done (including the final exam) – the individual assignment will not be graded on a curve.

Student Conduct:
Mutually respect in class is paramount. Violations of the student conduct code result in the incident being included on your student conduct record and can result in a failing grade on any course work related to the violation or a failing grade in the course. The University of Oregon requires all instances of cheating be reported, no matter how small. Cheating includes, but is not limited to:
- Looking at another student’s exam during a test
- Copying the work of another person (student or otherwise) and submitting it as your own
- Copying and pasting from the textbook, Google, Wikipedia, Yahoo, or any external sources
- Using any materials except those explicitly approved during a test-taking situation
- Resubmitting graded work that was altered after being returned

Every effort will be made in this class to deter dishonesty through classroom procedures. Suspected academic dishonesty will be reported.
**For a list of other descriptions of cheating, see the Student Conduct Code.

Special Accommodations:
If you are currently registered with AEC (Accessible Education Center), for a documented disability, please present your paperwork to me as close to the beginning of the term as possible so that we can design a plan for you. If you have a disability but are not registered with AEC, you should contact them as soon as possible (http://aec.uoregon.edu). It is much more likely that measures can be taken to provide adequate special accommodation if the organization is done through AEC.
Suggestions for Successful Study:
1. Don’t get behind on readings or homework. Physics is like a ladder, one step at a time.
2. Participate in class, ask questions, and make use of my office hours and Graduate Teaching Fellows (GT Fs).
3. Read ahead in the book. Even reading the first few pages of each lesson will help the material sink in quicker during lecture and allow you to ask meaningful questions.
4. Keep all your old quizzes, and midterms. You’ll find them useful when you’re studying for future tests.
5. University courses, in general, require at least 3 hours/week of work outside the course for each credit hour. This means you should devote at least 12 hours/week working outside class to do well in this course!
6. By devoting adequate time, managing your time effectively, and practicing good study/problem solving skills you should succeed in this course.
7. BIG HINT FOR DOING PHYSICS PROBLEMS: LEARN THE PHYSICS, UNDERSTAND THE CONCEPTS, PARTICIPATE IN CLASS DISCUSSION, AND READ THE BOOK!!! It will make things so much easier!

Successful Problem solving:
1. Draw a clear diagram(s) indicating the situation – if needed
2. Think about the principles involved. Write them down!
3. Write down the quantities that are known and the quantities you want to know
4. Write down numbered steps indicating the logical progression of your reasoning
5. Clearly mark your answer (underlined or in a box)
6. Don’t forget units! Check your significant figures.
7. Check your answer to see if it is reasonable

Showing Work:
While doing your WileyPLUS homework, I highly recommend having scratch paper at hand. Even though WileyPLUS does not grade you on your process, having a comprehensive thought process is necessary. It will also help you track down mistakes that you made if the first answer you submit is incorrect. Remember: On quizzes and exams showing your work will be extremely important.

Help Sessions:
Drop-in Help Sessions are available at Willamette Room 147, just off the big atrium. Please make sure pick up a schedule in the Physics Office.

Laptops and Cell Phones in Class:
The use of laptop computers and phones in class is not allowed. Why? Several studies show that students using laptops in class spend a great deal of time on non-class related activities (texting, FB, playing games, watching soap operas, etc.) and that these distractions negatively impact both learning and grades. This alone isn’t a reason to ban laptops; you’re responsible for your own performance in class. In addition, however, studies have shown that laptop use distract and impacts the learning of other students nearby. (E.g. Fried, C.B. Computers & Education 50, 960-914 (2008).) Plus, students have complained about the environment created by their classmates’ laptop use. Taking notes by hand, by the way, is more effective in cementing concepts in your mind.
**Weekly Schedule:**
The given schedule is tentative and changes will be discussed in class and posted online.

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<thead>
<tr>
<th>Date</th>
<th>Chapters/Sections</th>
<th>Lecture Topics</th>
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<tbody>
<tr>
<td>Wk1: Sep 30</td>
<td>1.1, 1.2</td>
<td>Introduction, Skating, Falling Balls</td>
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<tr>
<td>Wk2: Oct 7</td>
<td>1.2, 1.3, 2.1</td>
<td>Projectile Motion, Ramps, Seesaws</td>
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<td>Wk3: Oct 14</td>
<td>2.2, 2.3</td>
<td>Wheels, Bumper Cars</td>
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<td>Wk4: Oct 21</td>
<td>3.1, 3.2</td>
<td>Springs Scales, Bouncing; <strong>1st Midterm Exam: Wednesday Oct 23</strong></td>
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<tr>
<td>Wk5: Oct 28</td>
<td>3.2, 3.3, 4.1</td>
<td>Carousels and Roller Coasters, Bicycle</td>
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<td>Wk6: Nov 4</td>
<td>4.1, 4.2, 5.1</td>
<td>Rockets and Space Travel, Balloons</td>
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<td>Wk7: Nov 11</td>
<td>5.1, 5.2</td>
<td>Water Distribution; <strong>2nd Midterm Exam: Wednesday Nov 13</strong></td>
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<td>Wk8: Nov 18</td>
<td>5.2, 6.1</td>
<td>Garden Watering, Air</td>
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<td>Wk9: Nov 25</td>
<td>6.1, 6.2, 6.3</td>
<td>Air, Airplanes</td>
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<td>Wk10: Dec 2</td>
<td>6.3, 15.1, 15.2</td>
<td>Nuclear Weapons, Nuclear Reactors</td>
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<td>Wk 11: Dec 9</td>
<td>Finals Week</td>
<td><strong>FINAL EXAM Comprehensive Monday, 3:15pm</strong></td>
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**Important Dates** ([http://registrar.uoregon.edu/calendars/academic](http://registrar.uoregon.edu/calendars/academic)):

- Monday of 2nd week (Oct 7): Last day to drop without a “W” and only 75% tuition refund
- Wednesday of 2nd week (Oct 9): Last day to add a class
- Sunday after 7th week (Nov 17): Last day to withdraw (drop with a “W”) or change to P/NP
- Thurs/Fri of 9th week (Nov 28, 29): Thanksgiving Holiday (No Classes)

The University of Oregon community is dedicated to the advancement of knowledge and the development of integrity. In order to thrive and excel, this community must preserve the freedom of thought and expression of all its members. The University of Oregon has a long and illustrious history in the area of academic freedom and freedom of speech. A culture of respect that honors the rights, safety, dignity, and worth of every individual is essential to preserve such freedom. We affirm our respect for the rights and well-being of all members.

We further affirm our commitment to:
- Respect the dignity and essential worth of all individuals
- Promote a culture of respect throughout the university community
- Respect the privacy, property, and freedom of others
- Reject bigotry, discrimination, violence, or intimidation of any kind
- Practice personal and academic integrity and expect it from others
- Promote the diversity of opinions, ideas, and backgrounds that is the lifeblood of the university

An equal opportunity, affirmative action institution committed to cultural diversity and compliance with the Americans with Disabilities Act.