Course Syllabus
PHYS 202 General Physics

Thermodynamics, Waves, and Optics

Lecture: CRN 25011
Class: 11:00am – 11:50am, MWR, Location: 110 WIL

Tutorial: CRN 25012
Class: 11:00am – 11:50am, F, Location: 101 LLCS

Prerequisite: MATH 111, PHYS 201

Instructor: Bijan Shahir
Office: Anstett Hall / Lillis Business Complex, Room # 198B
Hours: Mon, Wed, Fri: 12pm–1pm(Anstett); Thu: 9am–10am (Willamette), or by appointment
Phone: 541-346-0538
Email: bijan@uoregon.edu

Tutorials: Andrea Yocom, ayocom@uoregon.edu, Willamette Hall 218; OH: Mon: 10am–11am
Bill McCann, wmccann@uoregon.edu, Willamette Hall 220; OH: Fri: 2pm–3pm

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.

Course Content:
PHYS 202 is the second in a series introducing general physics, and covering the major
principles of classical and modern physics. This course presents wave motion through the
concepts of harmonic motion, vibrations and resonance. Heat transfer and the laws of
thermodynamics follow the physics and applications of sounds waves. Practical systems such
as heat engines, refrigerators and air conditioners are explained. Finally the basic properties of
light waves are presented along with optical instruments that make use of these properties,
including microscopes, telescopes and cameras. An associated laboratory, PHYS 205, is
available, though not required.

Tutorials:
Tutorials give you the opportunity to discuss the physics you have experienced in lectures with
your classmates, and the teaching assistants. With our support, you will work collaboratively
with your classmates to solve a set of tutorial problems. Tutorial problems are designed to help
you with your homework by developing and practicing your problem solving skills. These
problems are not marked but attendance will be taken through the use of the iClickers.
Tutorials will begin Friday January 13 and an iClicker is required for the tutorial sessions. 10%
of your grade will be devoted to the tutorial attendance/questions. The lowest score of the
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tutorial will be dropped, and if you miss a tutorial session, you will get a zero — there will be no make up tutorials.

Required Text:
PHYSICS Principles with Applications, Douglas Giancoli (Prentice Hall, 2005) Custom edition for The University of Oregon, edited by Richard Taylor and Stanley Micklavzina. In collaboration with Prentice Hall, a reduced-cost customized version of this book that includes a MasteringPhysics homework system access code is available at the Duck Store at a cost of $132.00. The Customized Edition versions of the book have identical content to a standard Giancoli 6th Edition, but the order and organization of the material is different, so it is highly suggested you purchase the customized textbook. We will be using MasteringPhysics in all sections of PHYS 202. If you are sharing a book, or choose to use a book at the library, a separate MasteringPhysics code will cost $50.00 and can be purchased online or at the information kiosk on the second floor of the Duck Store if you are unable to purchase materials online.

Homework:
We will be using a web based homework system called MasteringPhysics. 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 TUESDAYS, AND 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 – 15 minute quiz on Thursdays with the exception of mid-term weeks. Your lowest quiz grade will be dropped.

Exams:
1) Midterm Exam 1: Wednesday, February 1st (Week 4)
2) Midterm Exam 2: Wednesday, February 22nd (Week 7)
3) Final Exam (Comprehensive): Thursday, 10:15am, March 22nd (Week 11)

Exams continued:
A 5X7 inch index card with formulae on it will be allowed in quizzes and exams.
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No late homework, make-up exams, make-up tutorials will be allowed. Only for extreme circumstances with documented excuse i.e. doctor’s note will exceptions be made.

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

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<thead>
<tr>
<th>Final Course</th>
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<tbody>
<tr>
<td>97% or above</td>
<td>A+</td>
<td>83% to 86.9%</td>
<td>B</td>
<td>70% to 72.9%</td>
<td>C-</td>
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<tr>
<td>93% to 96.9%</td>
<td>A</td>
<td>80% to 82.9%</td>
<td>B-</td>
<td>63% to 69.9%</td>
<td>D</td>
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<tr>
<td>90% to 92.9%</td>
<td>A-</td>
<td>77% to 79.9%</td>
<td>C+</td>
<td>60% to 62.9%</td>
<td>D-</td>
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<tr>
<td>87% to 89.9%</td>
<td>B+</td>
<td>73% to 76.9%</td>
<td>C</td>
<td>Lower than 60%</td>
<td>F</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
- Using any materials except those explicitly approved during a test-taking situation
- Resubmitting graded work that was altered after being returned

For a list of other descriptions of cheating, see the Student Conduct Code.

Special Accommodations:
If you are currently registered with Disability Services 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 DS, you should contact them as soon as possible. It is much more likely that measures can be taken to provide adequate special accommodation if the organization is done through DS.
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Suggestions for Successful Study:
1. Don't get behind on readings or homework. Math and Physics are 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 (GTFs).
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 homework assignments, midterms, and quizzes. You'll find them useful when you're studying for future tests.
5. University courses, in general, require at least 2 hours/week of work outside the course for each hour spent in class.
6. This means you should devote at least 8 hours/week working outside class to do well in this course!
7. By devoting adequate time, managing your time effectively, and practicing good study/problem solving skills you should succeed in this course.
8. BIG HINT FOR SOLVING PHYSICS PROBLEMS: LEARN THE PHYSICS!!! Do not just look for equations to plug in. Know the Physics behind each equation. It will make things so much easier. READ THE BOOK!

Successful Problem solving:
1. Draw a clear diagram(s) indicating the situation
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. State any appropriate equations
5. Write down numbered steps indicating the logical progression of your reasoning
6. Clearly mark your answer (underlined or in a box)
7. Don't forget units! Check your significant figures.
8. Check your answer to see if it is reasonable i.e. perform an "orders of magnitude" estimate

Help Sessions:
Drop-in Help Sessions are available at Willamette Room 147. Please make sure pick up a schedule in the Physics Office.
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*Winter 2012*

*Thermodynamics, Waves, and Optics*

## Weekly Schedule:
The given schedule is tentative, changes will be discussed in class and posted online.

<table>
<thead>
<tr>
<th>Week of</th>
<th>Chapters</th>
<th>Lecture Topics</th>
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<tbody>
<tr>
<td>W4: Jan. 30</td>
<td>13.4-13.12</td>
<td>Second and Third Laws of Thermodynamics, Heat Engines, Refrigerators, Entropy MIDTERM EXAM I (Chapters 11, 12, 13.1-13.3), Wednesday, Feb. 1</td>
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<tr>
<td>W7: Feb. 20</td>
<td>15.5-15.8, 16.1-16.5</td>
<td>Beats, The Doppler Effect, The Nature of Light, MIDTERM EXAM II (Chapters 13.4-13.12, 14, 15.1-15.4) Wednesday, Feb. 22</td>
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<tr>
<td>W8: Feb. 28</td>
<td>17.1-17.6</td>
<td>Reflection, Mirrors, Refraction</td>
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<td>W9: Mar. 5</td>
<td>17.7-17.8, 18.1-18.7</td>
<td>Lenses, Huygens’ Principle, Interference, Dispersion, Diffraction</td>
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<tr>
<td>W10: Mar. 12</td>
<td>18.8-18.9</td>
<td>Thin Film Interference, Polarization, Review</td>
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<td>W11: Mar. 19</td>
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<td>FINAL EXAM Comprehensive Thursday, March 22nd 10:15am</td>
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## Important Dates *(http://registrar.uoregon.edu/calendars/academic):*
- Monday of 2nd week (Jan 16) Last day to drop without a "W"
- Wednesday of 2nd week (Jan 18) Last day to add a class
- Sunday of 7th week (Feb 26) Last day to withdraw (drop with a "W") or change to P/NP

## Showing Work:
While doing your MasteringPhysics homework, I highly recommend having scratch paper at hand. Even though MasteringPhysics 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.
Labs
There is a laboratory course, PHYS 205—Introductory Physics Laboratory, designed to accompany General Physics. Labs begin first week. For more information on this course contact Prof. Dean Livelybrooks: 225 Willamette Hall, dlivelyb@uoregon.edu. Website: http://physics.uoregon.edu/~dlivelyb/uo_ipl/index.html