Objectives
Understand and be able to apply the basic concepts of thermodynamics.
Be able to apply Newtonian mechanics to a vibrating system.
Know the properties of waves and be able to apply them to sound and light.
Know and be able to apply the basic concepts of geometric optics to mirrors and lenses.

Lectures
mwr 1:00–1:50 PM; 100 Willamette Hall
Best use can be made of the text and lectures by reading the text before coming to lecture.
Lecture notes will be available on Canvas by 10:00 AM the day of the lecture.

Tutorials
11:00 AM –12:20 PM; 101 Living Learning Center.
10% of your grade will be based on tutorial attendance as follows: miss none or one = 10%, miss two = 8%, miss three = 5%, miss four or more = 0%. Tutorials cannot be made up.

Instructors
Lectures: Tim Jenkins, Senior Instructor—Physics, 346-5649; tjenkins@uoregon.edu
143 Willamette Hall; 2:00–3:00 PM, mwr; or by appointment.

Tutorials: Matthew Ball, 217 Willamette Hall, mball2@uoregon.edu
Nicholas Luongo, 215 Willamette Hall, nluongo@uoregon.edu
JD Merritt, 219 Willamette Hall, j Merritt@uoregon.edu
Jeremy Metzner, 217 Willamette Hall, jmetzner@uoregon.edu

Canvas https://canvas.uoregon.edu
You should check Canvas frequently for announcements, course materials, grades, etc. If a class is canceled due to inclement weather or illness it will be announced on Canvas.

Texts
College Physics, A Strategic Approach, 4th. edition, Knight, Jones, and Field (Pearson, 2019)

This is the same text used in PHYS 201, Fall 2018. If you don’t already have the text you can purchase it and the access code for Modified Mastering Physics from the Duck Store.

Homework
We will be using the online homework system Modified MasteringPhysics (www.pearsonmylabandmastering.com). If you took PHYS 201 in Fall, 2018, the same access code will work for PHYS 202 (and PHYS 203). You will still need to register for the new course.
The course ID is jenkins37376. (If you took PHYS 201 before Fall, 2018, contact Dr. Jenkins.)

If you have not used MasteringPhysics before, you should complete the Introduction to MasteringPhysics assignment before starting the first homework assignment.

You will submit your homework answers via computer. This is to give quick feedback to homework questions. You will be allowed six attempts to submit a correct answer. (Saving homework does not count as a submission.) Late homework will be accepted for 50% credit through Friday, March 22.

Notes: The numbers in most problems 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 own values.
Dynamic Study Modules
Also on MasteringPhysics are Dynamic Study Modules which are designed to cover key concepts from each chapter of the textbook. They are based on the science of how we learn and adapt to how students answer questions, personizing learning for each student. They are not for credit, but you are strongly encouraged to complete them. They are always available, and your work is automatically saved. You should complete the How Dynamic Study Modules Work module before starting any of the content-based modules.

Pre-Lecture Items
Starting Wednesday, January 9, there will be a reading assignment for each lecture on MasteringPhysics, due before the lecture. Also, for most lectures there will be a pre-lecture video on MasteringPhysics, due before the lecture. In addition to the questions in the videos, you must answer the question under the video. For both the reading questions and the videos, you have unlimited attempts to get the correct answer, but they must be submitted before the deadline to get credit.

i>clicker Questions
Starting with Lecture 2, each lecture will include several i>clicker questions. You will get ten points of participation credit for answering at least 75% of the questions, whether your answers are correct or not. i>clicker questions cannot be made up, but four lectures can be missed without penalty. Any model i>clicker may be used. i>clickers are available at the Duck Store. A limited number of i>clickers will be available for term loan. Register your i>clicker on Canvas.

If you forget your i>clicker you may borrow one to use for that lecture. See Dr. Jenkins before class to sign one out.

Exams
The first midterm exam is 11:00 AM –12:20 PM, Friday, February 1, in 101 Living Learning Center. It will cover Chapters 10 through 12, Lectures 1 through 8, Tutorials 1 through 3, and Homework 1 through 3.

The second midterm exam is 11:00 AM –12:20 PM, Friday, March 1, in 101 Living Learning Center. It will cover Chapters 13 through 16, Lectures 9 through 18, Tutorials 4 through 6, and Homework 4 through 6.

The final exam is 2:45–4:15 PM, Wednesday, March 20, in 100 Willamette Hall. It will cover Chapters 17 through 19, Lectures 19 through 26, Tutorials 7 and 8, and Homework 7 and 8.

Exams are closed book and notes. Equations sheets will be provided for the exams. You may use a calculator (any type but not an app). If English is not your first language you may use a translation dictionary (printed or electronic but not an app). All other electronic devices must be turned off during the exams.

Makeup exams will only be given in extraordinary cases with a documented excuse (doctors note, etc.). If you know in advance you will miss an exam, it may be possible to take it early.
Grading

- Pre-lecture Items: 10%
- i>clicker Questions: 10%
- Tutorial Attendance: 10%
- Homework: 20%
- Exams: 50%
- Total: 100%

Scores will be weighted as shown above and added to determine a course score. Grades will be based on the course scores. The grade cutoffs won’t be determined until after the final exam. However, a course score of 90% will be at least an A–, a score of 75% at least a B–, and a course score of 60% at least a C–.

Physics Help Center

Free, drop-in help is available in room B010 of the Science Library starting the second week of classes. The schedule will be available on Canvas.

Academic Integrity

You are expected to do your own work for the course.

For the i>clicker questions you are expected to consult with your neighbor(s) but you make the final decision about the correct answer. Using another student’s i>clicker is not allowed and will result in both you and the other student getting zero credit for that lecture’s clicker questions.

You are encouraged to work in groups on the homework, but this means collaborating with the members of the group, not copying the work of one or more of the members. You may be able to find solutions to the homework problems online. Note that a recent study showed that students who did not use online homework solutions averaged about the same on homework but about ten points higher on exams than students who used the solutions.

On exams, you must do your own work.

Academic dishonesty will result in penalties, up to and including failure of the course.

Class Courtesy

Please arrive in class on time. Late arrivals distract the instructor and the other students. Please turn off cell phones during the class meeting times. Use your laptop or tablet only for class activities. Do not leave class early unless you have cleared it with the instructor in advance. Ask questions if you did not hear or understand something.

Open inquiry, freedom of expression, and respect for difference are fundamental to a comprehensive and dynamic education. We are committed to upholding these ideals by encouraging the exploration, engagement, and expression of divergent perspectives and diverse identities. Classroom courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, culture, religion, politics, sexual orientation, gender, gender variance, and nationalities. Our classroom is a learning environment, and as such should be a safe, inclusive and respectful place. Being respectful also includes using preferred pronouns for your classmates. Disrespecting fellow students as well as combative approaches, tones and/or actions are not acceptable. Please make me aware if there are classroom dynamics that impede your (or someone else’s) full engagement.
**Schedule** (Tentative)

<table>
<thead>
<tr>
<th>Week of</th>
<th>Chapters</th>
<th>Lecture Topics</th>
<th>Homework</th>
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<tbody>
<tr>
<td>Jan. 7</td>
<td>10 (review), 11</td>
<td>The basic energy model, Thermal energy, Efficiency, Temperature, Heat, Equilibrium, Zeroth and first laws of thermodynamics</td>
<td>HW 1 Due 11 PM, Jan. 13</td>
</tr>
<tr>
<td>Jan. 14</td>
<td>11, 12</td>
<td>Heat engines and heat pumps, Entropy, Second and third laws of thermodynamics, Atomic model of matter, Ideal gases</td>
<td>HW 2 Due 11 PM, Jan. 20</td>
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<tr>
<td>Jan. 21</td>
<td>12</td>
<td>Thermal expansion, Specific heat, Phase changes, Calorimetry, No class Monday</td>
<td>HW 3 Due 11 PM, Jan. 27</td>
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<tr>
<td>Jan. 28</td>
<td>13</td>
<td>Fluids, Density, Pressure, Buoyancy, Archimedes’ principle; <strong>Midterm Exam I, Friday, February 1 11:00 AM–12:20 PM, 101 Living Learning Center</strong></td>
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<tr>
<td>Feb. 4</td>
<td>14, 15</td>
<td>Oscillations, Simple harmonic motion, The pendulum, Resonance, Waves</td>
<td>HW 4 Due 11 PM, Feb. 10</td>
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<tr>
<td>Feb. 11</td>
<td>15, 16</td>
<td>Sound and light waves, Intensity, Sound intensity level, The Doppler effect, Interference</td>
<td>HW 5 Due 11 PM, Feb. 17</td>
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<tr>
<td>Feb. 18</td>
<td>16</td>
<td>Standing waves, Speech, hearing, and music</td>
<td>HW 6 Due 11 PM, Feb. 24</td>
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<tr>
<td>Feb. 25</td>
<td>17</td>
<td>Wave optics, Diffraction, Thin-film interference; <strong>Midterm Exam II, Friday, March 1 11:00 AM–12:20 PM, 101 Living Learning Center</strong></td>
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<tr>
<td>Mar. 4</td>
<td>18</td>
<td>Ray optic, Reflection, Refraction, Mirrors, Thin lenses, The mirror/thin-lens equation</td>
<td>HW 7 Due 11 PM, Mar. 10</td>
</tr>
<tr>
<td>Mar. 11</td>
<td>19</td>
<td>Optical instruments: camera, eye, magnifier, microscope, telescope, Dispersion</td>
<td>HW 8 Due 11 PM, Mar. 17</td>
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<td>Mar. 18</td>
<td></td>
<td><strong>Final Exam, Wednesday, March 20 2:45–4:15 PM, 100 Willamette Hall</strong></td>
<td>HW 9 (Extra credit) Due 11 PM, Mar. 22</td>
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