Physics 311: Thermal Physics  
Fall 2017

Dr. Thomas E. Oberst  
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Office Hours: W 2 - 4 p.m.

Meeting Times and Location: TR, 2 – 3:30 p.m., HSC 118

Text: An Introduction to Thermal Physics by Schroeder

Objectives:
1. To teach the basics of thermodynamics and statistical mechanics as needed for: (a) further advanced study in undergraduate physics, (b) the Physics GRE, (c) graduate coursework, (d) teaching high school physics, or (e) an entry-level physics job in industry or government.
2. To develop and improve public presentation skills of technical material in a peer-review setting. (Such skills are crucial in most science-based careers.)
3. To find joy and amazement in learning how the universe works!

Grade Assessment & Allocation:
Pre-class (“warm-up”) problems 10 %
In-class (“group”) problems 10
Post-class (“homework”) problems 30
Exams 50

Pre-class (“warm-up”) problems
For each chapter you will be assigned a set of “warm-up” problems. The problems are designed so that you arrive at lecture already somewhat familiar with the material, so as to enhance your learning and participation during lecture. Grading will be performed using a modified pass-fail system: each problem will be graded as either 1 point (mostly correct), ½ points (partially correct), or 0 points (mostly incorrect). Your answers are due by midnight on the night before the first lecture on each chapter.

In-class (“interactive”) problems
You learn best by doing, not by listening. You also learn better from your peers than from me. Therefore, we will take periodic breaks during lecture to solve in-class group problems. You will be graded for participation only, not for the correct answer.

Post-class (“homework”) problems
For each chapter you will be assigned a set of homework problems from the text. Written solutions will not be collected. Rather, students will be called upon to present their homework solutions to the class during lecture. This unique format has the following objectives:
Emphasizes understanding of problems, rather than just completeness
Encourages group work, since individual written solutions are not graded
Trains presentation and public speaking skills, often omitted from science curricula
Provides an opportunity for immediate instructor feedback and group discussion
Simulates seminar and peer review forums, commonplace in most science careers

For each assignment, most of the problems assigned will be presented, and student presenters will be (quasi-)randomly chosen. Presentations should typically last 5 – 10 minutes, including a few minutes for questions, feedback, and group discussion as necessary. Times may vary slightly depending on the number and nature of problems assigned.

Your homework presentation grade will be based on demonstrated understanding of the solution to the problem (75%), presentation effectiveness (20%), and participation in group discussion following presentations by your peers (5%). Presentation skills will be discussed before the first homework presentation and reviewed periodically throughout the semester, as needed. Students should view this as a friendly environment to practice presentation and speaking skills that they will need later in their careers.

Exams
You will be given several in-class “unit” exams and one cumulative final exam. The unit exams will each cover roughly two or three chapters of the text and be spaced roughly evenly over the semester. The cumulative exam will be given at the time designated by the Registrar.

Letter Grade Assignments:
A  93 – 100 %  C+  77 – 80
A-  90 – 93   C  73 – 77
B+  87 – 90   C-  70 – 73
B  83 – 87   D  60 – 70
B-  80 – 83   F  0 – 60

Missed or late components will be graded as zero percent, except in cases where a College-approved excuse is provided by the student in advance.

Policies and Procedures:
This course will follow the policies and procedures of the College as defined in the Westminster College Student Handbook. On-time attendance is expected. I am committed to helping students overcome any curricular barriers that may exist; the Westminster Office of Disability Resources may also be of help.