

**Physics 335—Thermal Physics
Presentation Project**

Presentations: November 23 – December 2, 2026

Proposals Due: *Friday*, November 6, 2026 at 9:30 am

In the last part of the semester, we will have in-class student presentations of problems or topics relevant for this course. These will typically be more extended explorations of textbook problems, though you are welcome to propose another related topic if you are interested.

You will propose a particular problem or topic, and, after approval, prepare a brief class presentation. The presentation can use the computer or blackboard, or any combination thereof. Plan on 15 minutes for each presentation: 10 minutes for the presentation itself, and 5 minutes for questions and discussion. (This is a typical format for contributed talks at many conferences.) Presentations will start the Monday November 20, and run through Wednesday, December 2, 2026.

Please submit your proposal by 9:30 am on Friday, November 6, 2026.

Presentations can be on a specific problem from the text, or on a more general discussion of material that we skipped in class. Some specific suggestions are listed below. I have posted this document on Moodle, and will update it as we proceed through the semester. You are also free to propose other ideas.

Section 1.7: Rates of Processes. Some good problems here include 1.57 or 1.69.

Section 4.3: Real Heat Engines. Problem 4.24.

Section 4.4: Real Refrigerators. The general problem of approaching absolute zero is interesting, as well as specific problems 4.34 and 4.35.

Section 5.3: Phase Transformations. Problem 5.46 (nucleation) or 5.55 (van der Waals critical exponents).

Section 5.4: Phase Transformations of Mixtures. Some good problems here are 5.58, 5.62, and 5.67.

Section 5.5: Dilute Solutions. Problems 5.76 and 5.81.

Section 6.2: Average Values Problem 6.30 (para- and orth- hydrogen)

Section 6.7: Ideal Gas Revisited Problem 6.53 (dissociation of hydrogen)

Section 7.1: The Gibbs Factor Problem 7.6 (number fluctuations)

Section 7.3: Degenerate Fermi Gases Problem 7.24 (neutron stars)