

# Physics 467/667 (Spring 2019)

## Thermodynamics/Statistical Physics

### Tues/Thurs 11:30AM - 12:45PM BPB 249

Instructor Prof. Qiang Zhu  
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Office BPB 232  
Office hrs Tue/Thurs 10:00AM - 11:30AM

#### Course Outline:

- Fundamentals of thermodynamics, equations of state, laws of thermodynamics, entropy
- Heat engines and refrigerators
- Free energy and classical thermodynamics
- Boltzmann statistics
- Quantum statistics of ideal gas and simple solid

**Prerequisite:** PHY 182

**Credit Hours:** 3

**Textbook:** *An Introduction to Thermal Physics*, D. Schroeder

#### Grade Distribution:

Assignments	20%
Midterm Exams 1/2	40%
Final Exam	40%
Extra Credits	10%

#### Course Description:

This course combines elements of classical thermodynamics and statistical physics and covers materials from chapters 1 through 7 in the text book. Approximately, we spend two weeks for each chapter. The weekly coverage might change as it depends on the progress of the class. There will be two exams during the semester. These exams may include both take-home and in-class work. This final exam will cover all materials taught in this semester. You may work with others on the homework, but take-home exams must be done **strictly by yourself**. Barring documentable emergencies or observance of a certifiable religious holiday, all exams must be taken at the time and place specified.

#### Learning Outcomes:

- understand the fundamental principles for thermal physics
- know how to apply these principles to various applications
- understand the statistical basis for thermodynamics
- understand the difference between classical and quantum statistics

Please see the Student Syllabus Policies Handout for select, useful information for students. This document can be found at:

[https://www.unlv.edu/sites/default/files/page\\_files/27/SyllabiContent-MinimumCriteria-2018-2019.pdf](https://www.unlv.edu/sites/default/files/page_files/27/SyllabiContent-MinimumCriteria-2018-2019.pdf)