

Syllabus (1/2/05)

PHYU305 Thermodynamics and Statistical Mechanics

Spring 2005 Professor Wu

Text: Thermodynamics, Kinetic Theory and Statistical Thermodynamics

F.W. Sears and G.L. Salinger, 3rd Edition, Addison-Wesley

Your grade will be based on 20% homework, 30% midterm, and 50% final

My office hours are 1 - 2 pm, Mon. Wed. Thurs.

I can also be contacted at: fywu@neu.edu and 617-373-2925

- 1st week (1/5 - 1/7):
Thermal equilibrium, the zeroth law of thermodynamics
- 2nd week (1/10 - 1/14):
Equation of states, the Van der Waals gas
- 3rd week (1/17 - 1/21):
Partial differentials, internal energy, the first law of thermodynamics
- 4th week (1/24 - 1/28):
Consequences of the first law of thermodynamics, the Carnot cycle
- 5th week (1/31 - 2/4):
Entropy, the second law of thermodynamics
- 6th week (2/7 - 2/11):
Applications of the first and the second laws of thermodynamics
- 7th week (2/14 - 2/18):
Thermodynamics potentials, Maxwell relations
- 8th week (2/21 - 2/25):
Mid-term, the third law of thermodynamics
- **Spring Break Week** (2/28 - 3/4)
- 9th week (3/7 - 3/11):
The kinetic theory of an ideal gas
- 10th week (3/14 - 3/18):
Statistical thermodynamics, macrostates and microstates
- 11th week (3/21 - 3/25):
The Bose-Einstein and Fermi-Dirac statistics
- 12th week (3/28 - 4/1):
The partition function, applications of statistical mechanics
- 13th week (4/4 - 4/8):
Applications of statistical mechanics, blackbody radiation
- 14th week (4/11 - 4/13 *last day of class*):
Debye theory of solids, review
- **Final Examination** (4/15 - 4/22)