The goals of this course are:

- to demonstrate how the laws of thermodynamics can be obtain from simple statistical models
- to teach how these laws can be used to determine the properties of a variety of systems ranging from monatomic gases to polymer solutions

Outline

1. Model Systems: Random Walks
   - statistical ensemble; enumeration of states; Gaussian distribution.

2. Laws of Thermodynamics
   - entropy; chemical potential

3. Classical Statistics
   - partition function; Boltzmann distribution; ideal gas

4. Chemical Equilibrium. Phase Transitions

5. Applications: Binary Mixtures

Final grade is based on: problem sets (40%); midterm #1 on October 8 at 10 am (15%); midterm #2 on November 12 at 10:00 am (15%); final on December 6 at 12:00 noon (30%).

Problem sets are to be turned in on time for full credit.

Recommended Textbooks