Physics 214A–Fall 97

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Office hours:	anytime
Book:	Pathria; Statistical Mechanics, second edition
Homework:	Assigned on Thursday, due the following Tuesday; problem sets will be posted on http://www.physics.uci.edu/∼mbander .
Midterm:	October 30
Grading Policy:	Final: 50% Midterm: 30% Homework: 20%

Outline of 214A

Foundations of Statistical Mechanics:
- Density Matrix
- Quantum Master Equation

Ensembles:
- Microcanonical, Canonical and Grand Canonical
- Equivalence of all three ensembles
- Thermodynamics
- Applications to Classical Ideal Gases
- Applications to Spin Systems
- Negative Temperatures
- Gases with Internal Degrees of Freedom

Quantum Systems:
- Ideal Fermi Systems:
  - Applications to metals, magnetism and stellar physics
- Ideal Bose Systems:
  - Bose-Einstein condensation, black body radiation and phonons

A brief thermal history of the early universe (if time permits)

Topics to be covered in 214B

Non-equilibrium Transport

Existence of thermodynamic limits

Phase transitions

Critical phenomena