

Physics 841: Statistical Mechanics Spring 2013

Dr Malcolm Kennett (Office: P8439, malcolmk@sfu.ca)
Lectures: Mon, Wed, Fri 11:30-12:20 AQ 5016

Course webpage: <http://www.sfu.ca/~malcolmk/teaching/phys841.html>

Textbook:

“Equilibrium Statistical Mechanics”, M. Plischke and B. Bergersen

Additional texts that may be helpful:

“Fundamentals of Statistical and Thermal Physics”, F. Reif

“Statistical Mechanics”, K. Huang

“Statistical Mechanics: Entropy, Order Parameters, and Complexity”,
James P. Sethna

Topics:

- Review of Ensembles: Microcanonical, Canonical and Grand Canonical ensembles
- Quantum Statistics; superfluidity
- Landau’s theory of phase transitions
- The Ising model (and related models) – approximate and exact solutions
- Critical phenomena and the renormalization group
- Other topics as time permits

Grading: Problem assignments	50 %
Essay	20 %
Final exam	30 %