PHY 7500 **Statistical Mechanics** **Fall 2011**

Instructor: Ashis Mukhopadhyay, Associate Professor
258 Physics Building
Tel: (313) 577 2775; Email: ashis@wayne.edu
Office hours: T & Th 3:00 pm – 4:00 pm, or by appointment

Lecture time and location: T & Th 12:50 pm – 2:50 pm, 185 Physics Building

Textbook: *Statistical Mechanics* by R. K. Pathria (any edition).

Additional References:
Entropy, Order Parameters, and Complexity by J. Sethna (available online)
Thermal Physics by C. Kittel and H. Kroemer
Statistical and Thermal Physics by F. Reif

Homework: Will be posted on Blackboard. Due 1 week after assigned.
Late solutions will NOT be accepted. You will get credit on each HW for completing more than 80% of the assignment.

Exams: Two midterm exams: October 4 (Tuesday) & November 15 (Tuesday)
Final exam (Cumulative): December 20 (Tuesday), 10:40 am – 1:10 pm.

Grading:
1st exam: 20%
2nd exam: 20%
Final exam: 30%
Quiz (in class): 20% (No make-up quizzes will be given)
Homework: 15%

Grading Scale: A: Above 80%, B: 65%-79%, C: 50%-64%, D: 35%-49%, F: 0-34%.

Course content:
The Statistical Basis of Thermodynamics
Ensemble Theory: Micro Canonical Ensemble, Micro Canonical Ensemble, Grand Canonical Ensemble
Formulation of Quantum Statistics: Bose Systems, Fermi Systems
Introduction to Phase Transitions
Fluctuations and Nonequilibrium Statistical Mechanics (time permitting)