P504 Tentative Plan

Numbers denote the sections in the current version of the lecture notes:
Equilibrium Statistical Mechanics (hypertext version Dec 10, 2011)
`http://www.yoono.org/Y_OONO_official_site/download_files/SMHyperS12.pdf`
password = sme1210 [This is still a tentative version; hopefully cleaned further by Jan 15, 2012]
A primer for undergrad level thermodynamics and statistical mechanics, see
Primer to "Introduction to Equilibrium Statistical Mechanics"
`http://www.yoono.org/Y_OONO_official_site/tutorial_files/ESMprimer.pdf`
password = primer.

Grading will probably be due to 8-10 homeworks and take-home final exam/report.
The course will never stay at the introductory level.

The weekly tentative plan is as follows:

1 Basic

Jan 15 1.1-2: Course Outline + Thermodynamics Review
Jan 22 1.3-5: Basic SM, microcanonical

2 Isothermal Systems

Jan 29 2.1-3: Canonical ensemble
Feb 5 2.4-5: Entropy, information and second law
Feb 12 2.6: Ensemble equivalence
Feb 19 2.7-9: Fluctuation, chemical reaction

3 Non-interacting Systems

Feb 26 3.1-3.6: Ideal quantum systems

4 Interacting Systems

Mar 4 4.1-2: Gas
Mar 11 4.3-5: Liquid
Mar 18 Spring Recess

5 Phase Transitions

Mar 25 5.1-2: Phase ordering and Gibbs measure
Apr 8 5.4-6: Phase transition, fluctuation and introduction to RG
Apr 15 5.7-5.11: RG, mean field and exact methods for phase transitions
Apr 22 5.12-14: First order phase transition
Apr 29
Reading Day May 3