

Course Syllabus

PHY 5524 Statistical Mechanics

Spring 2015

Lectures: Mon-Wed 9:05am – 10:20am HCB314

starting Monday, Jan 7

Instructor: *Oskar Vafek*

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Office hours: Mon 10:50-11:50pm (Keen 309) and by appointment

Topics and objective:

This is a one semester graduate level course. Statistical basis of thermodynamics will be motivated by a short review of thermodynamics. Elements of ensemble theory and the role played by quantum statistics will be covered. Specific topics to be investigated will include, but are not limited to, ideal Bose systems, ideal Fermi systems, inter particle interactions and phase transitions. Upon successful completion of this course the student is expected to understand the basic logical foundation of statistical mechanics and actively use them in solving physical problems.

Main text:

- R.K. Pathria and Paul D. Beale, *Statistical Mechanics* (3rd Edition) (useful reference texts):
- L.D. Landau and E.M. Lifshitz, *Statistical Physics*
- E. Fermi, *Thermodynamics*
- E. Schrodinger, *Statistical Thermodynamics*
- M. Kardar, *Statistical Physics of Particles*

Evaluation of Performance:

The homework will be assigned approximately on a weekly basis. I will not accept late homework except for special circumstances (to be discussed with me ahead of time). There will be no make-up for late or missed homework.

A student's grade will be based 40% on the homework, 30% on a Midterm Exam and 30% on the Final Exam. Letter grades will be determined from numerical grades as follows:

100-85% : A

84-70% : B

69-55% : C

54-40% : D

below 40% : F

Attendance and participation may also be factors in determining a student's final grade at the discretion of the instructor.

ADA Statement:

Students with disabilities needing academic accommodation should: (1) register with and provide documentation to the Student Disability Resource Center (SDRC), and (2) bring a letter to the instructor from SDRC indicating your need for academic accommodation and what type. Please do this during the first week of class. For more information about services available to FSU students with disabilities, contact:

Student Disability Resource Center
874 Traditions Way
108 Student Services Building
Florida State University
Tallahassee, FL 32306-4167
(850) 644-9566 (voice)
(850) 644-8504 (TDD)
E-mail: sdrc@admin.fsu.edu
<http://www.disabilitycenter.fsu.edu/>

Academic Honor Policy:

The Florida State University Academic Honor Policy outlines the University's expectations for the integrity of students' academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process. Students are responsible for reading the Academic Honor Policy and for living up to their pledge to "... be honest and truthful and ... [to] strive for personal and institutional integrity at Florida State University." (Florida State University Academic Honor Policy, found at <http://dof.fsu.edu/honorpolicy.htm>). Students are expected to uphold this Academic Honor Policy.

University Attendance Policy:

Excused absences include documented illness, deaths in the immediate family and other documented crisis, call to active military duty or jury duty, religious holy days, and official University activities. These absences will be accommodated in a way that does not arbitrarily penalize students who have a valid excuse. Consideration will also be given to students whose dependent children experience serious illness.

Syllabus Change Policy:

Except for changes that substantially affect implementation of the evaluation (grading) statement, this syllabus is a guide for the course and is subject to change with advance notice.