

PHYS 3700: Thermal Physics

Spring 2016

Meeting Times: Tu., Th., 9:00-10:15 a.m., ENGR 238

Instructor

Maria J. Rodriguez
Physics Department 236
maria.rodriguez@usu.edu

Office Hours: Tu. – Th. 11-12 a.m., or by appointment, SER 236

Overview

A survey of the physics of thermal systems focusing on deep puzzles concerning the relations between thermodynamics, statistical and quantum mechanics. Topics include: energy in thermal systems, the laws of thermodynamics, equilibrium, engines and refrigerators, free energy, chemical thermodynamics, Boltzmann Statistics, entropy and quantum statistic. Parallel issues arising in black hole thermodynamics will also be covered.

Textbook

An Introduction to Thermal Physics, by D. Schroeder.

Other references

- *Course Slides and Notes*, Maria J. Rodriguez on Thermal Physics Web-site
- *Thermal Physics*, C. Kittel and H. Kroemer (second edition W.H. Freeman and Company, New York)
- *Black Hole Thermodynamics*, S. Carlip, e-print:arXiv-1410.1486

Grading

The grade will be based on the homework performance and the exams. Homework (40%) and two exams (60%). Grades for the subject will be based on a total of 500 points

Activity	Points
Midterm Exam (one hour)	100
Homework	200
Final Exam	200

Homework

Home-work sets will be posted every two weeks.

Examinations

Mid Exam: 3/03 (9:00 a.m. -10 a.m.) — Final Exam: 5/03 (9:30 a.m. - 11:20 a.m.)

Prerequisite: PHYS 2710 - Introductory Modern Physics

Disability Resource Center: Students with ADA-documented physical, sensory, emotional or medical impairments may be eligible for reasonable accommodations. Veterans may also be eligible for services. All accommodations are coordinated through the Disability Resource Center (DRC) in Room 101 of the University Inn, (435) 797-2444. Please contact the DRC as early in the semester as possible. Alternate format materials (Braille, large print, digital, or audio) are available with advance notice.