

PHYS 3331 (Thermal Physics) - Syllabus
(CRN 20999)

Prerequisite Courses: PHYS 2421, MATH 2313

Instructor: Rajendra Zope

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Office Hrs: W 11:30 – 1:00 pm; Or through appointments (preferred)

Textbook(s), Materials: Required: *Thermodynamics and Statistical Mechanics* by Keith Stowe (Cambridge University Press).

Suggested: *Fundamentals of Statistical and Thermal Physics* by F. Reif;

Thermal Physics by Ralph Baerlein;

Thermal Physics by C. Kittel and Kroemer

Course Objectives (Learning Outcomes):

This course on Thermal Physics covers statistical mechanics and thermodynamics. The topics to be covered are probability distribution, entropy, temperature, ensemble, ideal gas, kinetic theory of gases, Laws of thermodynamics, Thermodynamic potentials, Boltzmann distribution, Fermi-Dirac distribution, Bose-Einstein distribution.

Course Activities/Assignments/HW:

Homeworks(25%), midterm exams (30%) and final exams (45%) will contribute to the final grade.

Home-works will be assigned. Tentatively, there will be three midterms on the last Thursday of the month (except for the first month). No repeat tests, no makeup tests, or quizzes.

Make-up Policy: No makeup tests or quizzes.

Attendance Policy: None.

Academic Integrity Policy:

Civility Statement: No cell phone, no chatting with classmates, active participation in class activities, and no food in the class.

Accommodation Policy:

The University is committed to providing reasonable accommodations and auxiliary services to students, staff, faculty, job applicants, applicants for admissions, and other beneficiaries of University programs, services

and activities with documented disabilities in order to provide them with equal opportunities to participate in programs, services, and activities in compliance with sections 503 and 504 of the Rehabilitation Act of 1973, as amended, and the Americans with Disabilities Act (ADA) of 1990 and the Americans with Disabilities Act Amendments Act (ADAAA) of 2008. Reasonable accommodations will be made unless it is determined that doing so would cause undue hardship on the University. Students requesting an accommodation based on a disability must register with the UTEP Center for Accommodations and Support Services (CASS). Contact the Center for Accommodations and Support Services at 915-747- 5148, or email them at cass@utep.edu, or apply for accommodations online via the CASS portal.

COPYRIGHT STATEMENT FOR COURSE MATERIALS:

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General Timeline: Weeks

Schedule: (tentative)

Binary systems and Gaussian distribution : 1-3

Entropy, and temperature, laws of thermodynamics : 4,5

Thermodynamic potentials, ideal gas, special processes : 6,7

Heat and work, engines : 8

Chemical potential, Gibbs free energy, chemical reactions : 9,10

Boltzmann's distribution, partition function : 11

Kinetic theory : 12

Fermi and Bose gasses, thermal radiation : 13-15

Final : : According to the exam schedule.

If you cannot find me in my office, please also check in Rm 123.

