

SABANCI UNIVERSITY

Faculty of Eng. & Natural Sci.

PHYS 541

Basic Concepts of Physics for Scientists and Engineers

Instructor: Unal Ertan

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Course Content

- Laws of thermodynamics and its applications.
- Classical kinetic theory and Boltzmann's equation.
- Micro-canonical, canonical and macro-canonical distribution functions. Ideal quantum gases.
- Applications of statistical mechanics in solid state, nuclear physics, and astrophysics.

Reference Books:

Fundamentals of statistical & thermal Physics - F. Reif.

Thermodynamics & Statistical Mechanics - W. Greiner, L. Neise, H. Stöcker

Introduction to Statistical Mechanics - J. D. Walecka

Statistical Mechanics - R.K. Pathria & P.D. Beale

Grading:

- Midterm Exam: 40 %
- Final Exam: 45%
- Homework: 15%