

## Course Information and Lecture Schedule

**Instructor:** Dr. Abdulaziz Aljalal  
**Office:** 6-117  
**Tel:** 1017  
**Office Hours:** UTR: 11.00-11:50      W: 10.00-10:50  
**Email:** aljalal@kfupm.edu.sa  
**Course page:** <http://faculty.kfupm.edu.sa/phys/aljalal/phys430.htm>

### Course Description from the Undergraduate Bulletin:

Concepts of temperature, laws of thermodynamics, entropy, thermodynamic relations, free energy. Applications to phase equilibrium, multicomponent systems, chemical reactions, and thermodynamic cycles. Introduction to Kinetic theory and transport phenomena. Introduction to Maxwell-Boltzmann, Bose-Einstein, and Fermi -Dirac statistics.

### Course Objectives

- 1- Provide students with an operational understanding of the basic concepts of thermodynamics with applications to classical systems.
- 2- Provide students with an operational understanding of the basic concepts of statistical mechanics with applications to classical and quantum systems.
- 3- Convey to students knowledge of the basic concepts of transport phenomena with applications to simple classical systems.
- 4- Enable students with appropriate mathematical and computational skills to solve problems in thermodynamics, statistical mechanics, and simple transport phenomena.

### Textbook:

"Introduction to Thermal Physics", by D. Schroeder, 1<sup>st</sup> Edition, Addison Wesley Longman (2000).

### Grading Policy:

15%	Homework and quizzes	
10%	Project	
25%	Exam 1	23 Feb
25%	Exam 2	5 Apr
25%	Final	

You may discuss how to solve your homework with other students, but you are not allowed to copy their work. The grade for homework submitted after the deadline will be subject to a reduction of 10% per day.

The topic of the project is open, but it should be related to thermal physics. I advise you to choose the subject of your project as soon as possible but no later than 26 Feb. 2023. A suitable project might be reviewing papers, writing about advances or history, developing a computer program, or building a device. You are strongly encouraged to discuss your progress in your project with me during office hours. At the end of the term, you will submit a report and give a presentation.

Based on KFUPM policy, a student deserves a DN if he misses one-fifth of the class hours scheduled for the course. That is 12 lectures.