

**SYLLABUS**  
*Thermodynamics and Statistical Mechanics/PHYS 4311*

SPRING 2007

**INSTRUCTOR:** Robert Glosser - Office, FO2.724C, (972) 883-2876

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Office hours: 2:00 to 3:00 pm, Mondays and Wednesdays or by appointment

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Office hours: 2:00 to 3:00pm, Tuesdays and Thursdays or by appointment

**SESSIONS:** Monday and Wednesday in CB1.108 from 5:30 to 6:45 pm with classes beginning January 8 and ending April 23. The final exam is scheduled in CB1.108 for Wednesday, April 25 at 5:00pm until 7:45pm.

**TEXTS:** REQUIRED: An Introduction to Thermal Physics by Daniel V. Schroeder published by Addison Wesley

**COURSE MECHANICS:** **2 exams**, Midterm: Mon., February 26 at usual class time

Final: Wed., April 25 at 5:00pm. (**NOTE DAY AND TIME.**)

**GRADING:** Homework 20%, Midterm 40%, and Final 40%. Homework will be assigned from time to time and is due one week after assignment.

**PREREQUISITES:** PHYS 3312, Classical Mechanics and PHYS 3352, Modern Physics I or instructor's permission

**TOPICS COVERED:** At least initially, we will follow the order of the text. From time to time supplemental material will be handed out. The topics to be presented (which are the chapter headings) are as follows:

1. Energy in Thermal Physics
2. The Second Law
3. Interactions and Implications
4. Engines and Refrigerators
5. Free Energy and Chemical Thermodynamics
6. Boltzmann Statistics
7. Quantum Statistics
8. System of Interacting Particles

**STUDENT LEARNING OBJECTIVES/OUTCOMES**

At the completion of this course, students will

1. Demonstrate a grasp of the zeroth, 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> laws of thermodynamics
2. Demonstrate an understanding of the statistical basis of the 2<sup>nd</sup> law.
3. Apply their knowledge of objectives 1 and 2 to solving physical problems that pertain to real-life systems or devices.