



# PHYS 404: Introduction to Statistical Thermodynamics

---

Fall 2019  
MWF 9-9:50am, Atlantic 2324



Prof. James Williams  
jwilliams@physics.umd.edu  
PSC 2160  
Office Hours: All the time, anytime (By appointment)  
(301) 314-2161

**Course Description:** Introduction to basic concepts in thermodynamics and statistical mechanics.

**Prerequisites:** PHYS371 or PHYS420

**Credit Hours:** 3

**Suggested Text(s):** *Thermal Physics*, 2nd Edition, by C. Kittel and H. Kroemer: *An Introduction to Thermal Physics*, by D. V. Schroeder: *Fundamentals of Statistical and Thermal Physics*.

**Grade Distribution:**

Homework	25%
Midterm Exams	25% each
Final Exam and Project	25%

**Course Materials:** The course material will all be available through ELMS, which includes homework and my lecture notes. It is my intention to cover Chapters 1-7 and 10 of the Kittel book.

**Exams:** There will be two midterm exams and a final exam.

Exam 1: around Wednesday October 9th

Exam 2: around Friday November 1st

Final Exam: Saturday December 14th, 8-10am.

For true medical emergencies, I will accommodate those with valid, documented excuses. *The exams are open notes, so take good notes!*

**ELMS/E-mail:** I will use ELMS to communicate with the class, but please email me at the address above, not through ELMS!

**Lectures:** Class time will be spent on a mixture of lecture material, lecture demonstrations, and class discussion. You are responsible for all the assigned material, which for most chapters will be all the material in Kittel/Kroemer, even if it is not discussed in class.

**Homework:** The purpose of the homework is for you to engage with the material. This is how you will master it, and it will help you discover what you don't yet fully understand. Discussing

physics helps understanding. You are encouraged to discuss the homework with fellow students, with our grader, or with Prof. Williams. However, what you turn in should be your own answers.

1. Usually assigned once every week.
2. Must be turned in at the beginning of class on the due date (not to the grader).
3. Please make sure you **include your name and the homework and course numbers, and staple the pages together.**
4. **Late homework accepted only under dire circumstances:** if you know it will be impossible to turn in an assignment on time you must discuss this with me in advance of the due date.

**Religious Observances:** Students are responsible for notifying the instructor of any intended absences for religious observances within the first two weeks of the semester.

### **Tips for doing well:**

1. Attend class.
2. Freely ask questions both in and out of class.
3. Read the textbook before and after class.
4. Do all of the homework problems. This is mostly where you learn, and there is a strong correlation between homework and exam grades.
5. Seek help immediately if you don't understand the material.

**Academic honesty:** The University of Maryland, College Park has a nationally recognized Code of Academic Integrity, administered by the Student Honor Council. This Code sets standards for academic integrity at Maryland for all undergraduate and graduate students. As a student you are responsible for upholding these standards for this course. It is very important for you to be aware of the consequences of cheating, fabrication, facilitation, and plagiarism. For more information on the Code of Academic Integrity or the Student Honor Council, please visit <http://www.shc.umd.edu>. The University has adopted an Honor Pledge, which is a statement undergraduate and graduate students are asked to write by hand and sign on examinations, papers, or other academic assignments not specifically exempted by the instructor. The Pledge reads: "I pledge on my honor that I have not given or received any unauthorized assistance on this assignment/examination." In this course it is assumed that all students have entered the University agreeing to the honor principle which would apply in general to all campus activities, so usually no specific statement is required.