PHYSICS 410 – Spring 2018
Thermal Physics

Monday, Wednesday, Friday, 4:10 -5:00pm, BPS 1415

Instructor: Norman Birge, 4224 BPS, 884-5653, birge@pa.msu.edu
Office hours: Tuesday, 4:15 – 6:00 or by appointment

Grader: Zhite Yu, zhite.yu@gmail.com

Course Information: Check the D2L web site for course information: https://d2l.msu.edu/. The weekly homework sets will be posted on D2L. Homework solutions will be posted on D2L after the due date.

Clicker Questions: I hope to create some i-clicker questions for the lectures. (They will not be graded.) Please remember to bring your i-clicker to each lecture.

Required Textbook: Charles Kittel and H. Kroemer, *Thermal Physics, 2nd edition*

Homework & Exams: There will be 11 homework assignments due on Wednesdays at the beginning of class. You are welcome to consult with your peers when doing your homework, but you are responsible for completing the problems yourself. Copying somebody else's homework is not acceptable. Given the large number of students in the class, the grader will not be able to check every detail of your homework solutions. It is your responsibility to consult the online homework solutions to make sure you understand all the homework problems and solutions.

There will be 3 midterm exams and a final exam. The dates of the midterm exams will be Feb. 7, March 14, and April 11. The final exam will be Wednesday, May 2, at 8:00pm. All exams will be closed book, but you will have a sheet of formulas that I will hand out in class the week before each exam. The final exam will be cumulative.

Grading Scheme: The scores on the homework assignments and exams will determine your Total Score. The Total Score is weighted as follows: 20%-Homework, 15%-Each Midterm, 35%-Final Exam. Grade assignments at the end of the term will be taken from the table below. (The grading scale may be shifted in your favor.)

Minimum %	Grade	Minimum %	Grade
90	4.0	66	2.0
84	3.5	60	1.5
78	3.0	50	1.0
72	2.5	< 50	0.0

(over)

Course Outline: We will cover chapters 1-10 and 14 of Kittel and Kroemer. The course covers statistical mechanics, thermodynamics, and kinetic theory. The emphasis is on showing how the laws of thermodynamics arise from the fundamental principles of statistical mechanics.

Workload: For many of you, this will be the most difficult physics course you have taken. Be prepared to spend about twice as many hours outside of class as you do in class. I encourage you to read the textbook before lecture as well as after, to enhance your understanding. If you are having trouble understanding the concepts or doing the homework, get help from me, from your peers, or from a tutor.

Tentative Homework and Exam Schedule

Mon 1/15	No class -- Martin Luther King Day	
Wed 1/17	Homework 1 due	Ch. 1; Probability and Statistics
Wed 1/24	Homework 2 due	Ch. 2
Wed 1/31	Homework 3 due	Ch. 3
Wed 2/7	Midterm #1	Chapters 1-3
Wed 2/14	Homework 4 due	Ch. 4
Wed 2/21	Homework 5 due	Ch. 5
Wed 2/28	Homework 6 due	Ch. 6
3/5-3/9	Spring Break	
Wed 3/14	Midterm #2	Chapters 1-6
Wed 3/21	Homework 7 due	More Ch. 6
Wed 3/28	Homework 8 due	Ch. 7
Wed 4/4	Homework 9 due	Ch. 8
Wed 4/11	Midterm #3	Chapters 1-8
Wed 4/18	Homework 10 due	Ch's. 9 & 10
Wed 4/25	Homework 11 due	Ch. 14 & review
Wed 5/2, 8:00 p.m.	Final Exam	Everything

Spartan Code of Honor: Taking classes is not just about learning physics and getting good grades. Please read the Spartan Code of Honor and reflect on how it affects everything you do in your life. "As a Spartan, I will strive to uphold values of the highest ethical standard. I will practice honesty in my work, foster honesty in my peers, and take pride in knowing that honor is worth more than grades. I will carry these values beyond my time as a student at Michigan State University, continuing the endeavor to build personal integrity in all that I do."