PHYSICAL CHEMISTRY I (CHEM 312): THERMODYNAMICS, FALL 2017

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TEXT 1: *Thermodynamics, Statistical Thermodynamics, and Kinetics,2nd Ed. by Thomas Engel and Phillip Reed, 2010. Prentice Hall.* (ISBN-10: 0-321-61503-4).
TEXT 2: Absolute *Zero and the Conquest of Cold*, by Tom Shachtman, 2000. *Mariner Books*. (ISBN 0-6180-8239-5) *optional*.

COURSE DESCRIPTION: The topic of ***thermodynamics*** deals with the description of matter on the macroscopic scale. Thermodynamics does not acknowledge atomic level details, like bond lengths or electron configuration. The description of matter generally falls under one of two categories: 1) behavior of matter, and 2) transformation of matter, generally involving different forms of energy. It is very common in thermodynamics to develop mathematical models using variables that are accessed through experimentation; these models give us predictive powers. This course requires a fair amount of mathematical manipulations, but the student is well assisted by the course textbook. It is my hope that you will find the subject matter interesting and relevant.

CLASS TIMES: MWF 11:00-11:50 am, CSB 380.

PREREQUISITES: Organic Chemistry II (Chem 230) Calculus II (Math 152) and Introductory Physics (Phys 132)

ATTENDANCE*:* A lecture is a presentation ***and*** discussion of concepts viewed by the instructor as most important or most difficult and in need of additional explanation. Lecture is a conversation between you and me. If you are not present, I have no choice but to have the conversation in your absence. This of course affects our level of communication and ultimately your grade. ***I fully expect that you attend all lectures.*** Although most course content is contained in the text, not all sections are equally emphasized. All graded work will be based on material discussed in class or an extension thereof. Also keep in mind that to make up for missing a 50 minute lecture will take you longer than 50 minutes, therefore missing lecture is a really bad "time management" practice.

OFFICE HOURS: MWF 10-11am in my office (CSB 358). If I am not in my office, then I may be in the research space or nutrition lab; if my door is open I am around. Although you may also make an appointment at other times convenient to you and me, I strongly prefer that you find me during business hours (9-5) to seek help. Review sessions may be conducted when deemed necessary.

HOMEWORK: Any discipline requires practice (homework). The depth of understanding will be directly related to your understanding of the assigned homework. Homework will be assigned and evaluated. I encourage you to establish study partnerships. *Keep in mind that you will not have your study partner's help during exams, so make sure that you can independently work problems.*

LABORATORY: There is a lab component to this course that will meet on Thursday from 2-6 pm. The details of the lab will be discussed on the first day of lab (Aug 24th).

GRADES: Keep in mind that the instructor does not *determine* your grade, but rather *assigns* your grade based on the following: homework (10%), three exams given during normal class or lab time (50%), laboratory (20%) and a final exam (20%) given on Tues, Dec 12th at 11:30 am.

The letter grades will be ***assigned*** as follows:

AVERAGE %	GRADE
93-100	A
90-92	A-
87-89	B+
83-86	B
80-82	B-
77-79	C+
73-76	C
70-72	C-
60-69	D
<60	F

HOURS PER WEEK WORK EXPECTATION: There is an expectation that you will complete significant work outside of the classroom and laboratory. Understand that the hours listed in the table are weekly averages. Some weeks will demand more than others; for example, in weeks that you have an exam or lab report due. Additionally, some may need more time to master the material than others. Please keep in mind that if during any week you spend "little time" on course material, you are probably falling behind.

Work Expectations, continued

In class	Hours
Lecture	2.5
In lab	
Lab Lecture and Lab	4
Outside of class/lab	
Reading/Homework	2
Studying for exams/quizzes	2
Preparation for lab	0.5
Lab Report Sheets/Lab Report Writing	2
Total	13.0

ACADEMIC SUPPORT: **Teaching & Learning Center:** The Teaching and Learning Center offers various resources to assist Monmouth students with their academic success. All programs are open Monmouth students and are offered as a means to help you excel academically. Services are not just for struggling students, but designed to assist all students to get better grades, learn stronger study skills, and be able to academically manage your time. Visit them at the 2nd floor of Poling Hall from 8am-4:30pm.

DISABILITY SUPPORT/ACCOMMODATIONS
Monmouth College wants to help all students be as academically successful as possible. It is the goal of Monmouth College to accommodate students with disabilities pursuant to federal law, state law, and the college's commitment to equal educational opportunity. Any student with a disability who needs an accommodation should speak with the Teaching and Learning Center. The Teaching and Learning Center is located on the 2nd floor of Poling Hall, 309-457-2257. ***Please not that although a disability or accommodation may be recorded with the College, the faculty member leading this course will take no action unless requested by the student.***

***ACADEMIC HONESTY*: What is Academic Honesty?**
To be deemed "honest" is to be "held in honor," to be respected and judged "decent" and "creditable." The honest person is one who "deals fairly and uprightly in speech and act...who is sincere, truthful, candid...someone who will not lie or cheat or steal," (Oxford English Dictionary) and so, a person who may be trusted.

From the Monmouth College Academic Honesty Policy: "We view academic dishonesty as a threat to the integrity and intellectual mission of our institution. Any breach of the academic honesty policy – either intentionally or unintentionally - will be taken seriously and may result not only in failure in the course, but in suspension or expulsion from the college. It is each student's responsibility to read, understand and comply with the general academic honesty policy at Monmouth College, as defined here in the Scots Guide, and to the specific guidelines for each course, as elaborated on the professor's syllabus."

"The following areas are examples of violations of the academic honesty policy:

1. ***Cheating*** on tests, labs, or any assigned work;
2. ***Plagiarism***, i.e., using the words, ideas, writing, or work of another without giving appropriate credit;
3. ***Improper collaboration*** between students, i.e., not doing one's own work on outside assignments specified as group projects by the instructor;
4. ***Submitting work previously submitted*** in another course, without previous authorization by the instructor."

"Please note that this list is not intended to be exhaustive."

The complete Monmouth College Academic Honesty Policy can be found on the College web page by clicking on "Student Life" then on "Scot's Guide" in the navigation bar to the left, then "Academic Regulations" in the navigation bar at the left.

In this course, any violation of the academic honesty policy will have varying consequences depending on the severity of the infraction as judged by the instructor. Minimally, a violation will result in 0 points on the assignment in question. Additionally, the student's course grade may be lowered by one letter grade. In severe cases, the student will be assigned a course grade of "F" and dismissed from the class. All cases of academic dishonesty will be reported to the Associate Dean who may decide to recommend further action to the Admissions and Academic Status Committee, including suspension or dismissal. It is assumed that students will educate themselves regarding what is considered to be academic dishonesty, so excuses or claims of ignorance will not mitigate the consequences of any violations.

Instructional Behaviors That Motivate Students
- *Hold high but realistic expectations for your students.*
- *Help students set achievable goals for themselves.*
- *The instructor needs to be clear in expectations.*
- *Strengthen students' self-motivation.*
- *Avoid creating intense competition among students.*
- *Be enthusiastic about your subject.*