

# CHM 4411: PHYSICAL CHEMISTRY I

Summer 2023, Class Number 10566, Period 3, LEI 0242, MTWF

Instructor: S. O. Colgate, 314 CLB, [colgate@chem.ufl.edu](mailto:colgate@chem.ufl.edu)

Office Hours: Tuesday Period 4, and by appointment.

TAs: TBA

See Canvas site for TA office hours

Text: Physical Chemistry P. Atkins, J. de Paula, and Keeler 11<sup>th</sup> Ed, Oxford

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## SYLLABUS

CHM 4411 is the first in a two-term sequence, CHM 4411/4412 in undergraduate physical chemistry. This course includes the study of **THERMODYNAMICS**, the **KINETIC MOLECULAR THEORY**, and **REACTION KINETICS**. Acquiring more than a superficial understanding of all these subjects in a single term is improbable, and it is necessary to select what material will be covered well and what will be covered lightly or omitted. While it is important to have at least an acquaintance with this broad subject matter, even though it is impossible to study and thoroughly understand all of it in twelve weeks, it is equally important for university students to learn something of the deeper meaning of science, its rules, its strengths, its limitations. The instructor's choice for dealing with this problem is to structure the course activities in two tiers. Tier 1 involves *independent* weekly reading assignments to assure that, over the course of the term, each student:

- 1- reads all the relevant material, as presented in the textbook, and acquires at least a nodding acquaintance with this broad subject matter,
- 2- gains sufficient understanding to answer questions and work select problems at the ends of chapters, and
- 3- submits for grading solutions to short sets of specific homework problems based on these reading assignments.

Simultaneously, Tier 2 concerns the classroom lectures which have a *narrower focus* on materials glossed over or not included in the textbook. They begin with a look at the philosophical principles of physical science then explore how the application of those principles can lead, and has led, to a growing understanding of the nature and behavior of matter and energy.

This classroom focus will often probe more deeply into the subset of lecture topics than is covered in traditional textbooks, and *students will be expected to demonstrate understanding of this lecture material on the exams*. Exam questions will relate *specifically to material presented in these lectures*, whether or not that material is included in the Tier 1 reading assignments or represented in the Tier 1 homework assignments. The only way for the student to be sure what might be covered in the exams is to attend class meetings, where the emphasis of topics will be evident. Each student should understand that *the content of the course is essentially what is presented in class*. The textbook will be helpful, but it is no substitute for understanding the lectures. Supplementary material will be posted on the class web site, as needed, to assist with understanding and learning the lecture material.

As a minimum, each student should complete each outside reading assignment, work and submit a short set of problems based on each reading assignment, and maintain a well-organized book of lecture notes. The reading and homework assignments are made in advance for the term and posted on the class website. Work that is turned in for grading must be your own. You may use *any* resource to learn the material, but what you write down **MUST** reflect your own understanding. Do not copy one another's work! Doing so is a violation of the UF Honor Code and of basic ethics. Students who cannot resist the temptation to cheat, disgrace not only themselves, but the University and all its students, especially their classmates. Sophisticated software now exists for identifying copied or closely paraphrased work. We prefer not to use this capability, but if necessary to protect those who follow the rules from the abuses of those who choose not to, we will.

There will be four exams during the term. They will be administered by the teaching staff every third Friday during our regular 3<sup>rd</sup> period class meeting. The protocols for taking these exams will be explained and posted on the course Canvas site. As stated above, the material covered in each exam will be *principally* based on the *lecture material* presented, with emphasis on that material presented during the three-week period preceding the exam. *The emphasis will be on the material presented in the lectures.*

There is no final exam. A percentage of credit earned will be computed according to the following schedule:

<b>Eight Homeworks @ 2.5% each</b>	<b>20%</b>
<b>Four Exams @ 20% each</b>	<b>80%</b>

The final letter grade will be determined from the final percentage credit earned. The instructor cannot state exactly what the point requirements will be for the various letter grades, but you may judge yourself approximately by this schedule:

<b>A</b>	<b>100% to 85%</b>
<b>A-</b>	<b>&lt; 85% to 80%</b>
<b>B+</b>	<b>&lt; 80% to 78%</b>
<b>B</b>	<b>&lt; 78% to 72%</b>
<b>B-</b>	<b>&lt; 72% to 70%</b>
<b>C+</b>	<b>&lt; 70% to 68%</b>
<b>C</b>	<b>&lt; 68% to 62%</b>
<b>C-</b>	<b>&lt; 62% to 60%</b>
<b>D+</b>	<b>&lt; 60% to 58%</b>
<b>D</b>	<b>&lt; 58% to 50%</b>

**Supplemental information about the course, its intentions, and its prerequisites is given in the document *Introduction to CHM 4411*. A link to it is available on the home page of the Canvas website. A notice about this document will be sent to all registered students before class begins. Reading and understanding it in advance will facilitate getting off to a good start.**

***Class attendance:*** Refer to the official UF policy at <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

All effort should be made to attend all class meetings and take all exams at the scheduled times. Make-up exams for excusable absences will be arranged with the instructor.

***Honor Code.*** Each student is expected to be familiar with the UF Student Honor Code, the provisions of which may be found at this web site:

<http://regulations.ufl.edu/wp-content/uploads/2012/09/4041.pdf>

Keep in mind that on all work submitted for credit by students at the University of Florida, the following pledge is either required or implied:

***"On my honor, I have neither given nor received unauthorized aid in doing this assignment."***

***Counseling-*** Students facing difficulties completing the course or who are in need of counseling or urgent help should call the on-campus Counseling and Wellness Center (352-392-1575; <http://www.counseling.ufl.edu/cwc/>).

***Special Accommodations*** Students requesting classroom accommodation must first register with the Dean of Students Office. That office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation.

**We will use the web-based software, Canvas, for communication and record keeping. Registered students may log on to this site at <http://lss.at.ufl.edu/> using your Gatorlink ID**

**and password. Look for announcements, assignments, and messages posted there. Keep in touch with one another, check your grades, and post your comments.**