



## SOCIAL DISTANCING

Students should practice social distancing inside and outside the classroom please follow signage and pay attention to the seating arrangements. Do not remove stickers or tape from seats and/or tables, this is there to provide guidance on the appropriate classroom capacity based on the recommended 6 feet of social distancing between individuals. Please be conscious of your personal space and respectful of others. Also be cognizant of how you enter and exit the room; always try to maintain at least 6 feet of distance between yourself and others.

## DESKS AND WORK SPACES

Students will need to sanitize their desks and/or work space before class with the University provided sanitizing spray and paper towels their desks.

## SPECIAL NOTES

It's important to note that based on the unpredictability of the COVID-19 virus things can change at any time so please be patience and understanding as we move through the semester. I also ask that you keep me informed of concerns you may have about class, completing course work/assignments timely and/or health concerns related to COVID.

COVID Policies: University guidelines require the following:

- 1) Masks must be worn in classrooms when entering
- 2) Students are required to sit in assigned seats
- 3) Office hours will be online.

## Grades:

There will be five "quizzes" during the semester. Each will be worth 50 points. They will be 30 min. long in class with a possibility of one or two being take home quizzes. Problems will be assigned for each chapter which will provide experience in applying and working with the concepts in each chapter.

Problems are assigned for each chapter which will provide experience in applying and working with the concepts in each chapter. They may be collected at a time announced in class. Four bonus points will be given per completed problem set. **The problem sets turned in may not be returned, so make copies if you wish a record.** The solutions must indicate that you have worked independently from the text. If you work with other students, you must be able to explain the steps taken to solve the problems. Copying the answer book is not allowed and will result in a grade of zero for the assignment. Copying another student is not allowed and will result in a grade of zero for the assignment for both students. Other than that, these will not be graded or scored. I will post the answer key for the assigned problems on line in the web site associated with this course thru Distance Learning after class on the day the problems are due. The answer keys will be print outs of MATH-CAD or S MathStudio worksheets.

There will be at least one supplementary problem set with problems which are biologically oriented. You will be given at least two weeks to complete the assignment(s).

You are encouraged to use SMath Studio in this course. It is a mathematics program which will be very useful in CHEM 3740 and in CHEM 3860/3870 (Advanced Laboratory I & II). It will be referred to and used quite extensively in the recitation section(optional) of this course (although the software is not required). It has the potential to become very useful when you leave school. It will certainly help you with the mathematical aspects of this course. A link to the website for the software is provided on the course website. It has a few quirks but this software along with Excel will serve you well in this course.

Changes in scheduled quizam days will be announced at least 2 lectures prior to the change and placed on the course website.

Quizzes	5@	50 pts./ea	200 pts. I will drop the lowest
Final exam	1@	200 pts.	200 pts.
Class participation & projects		<u>20 pts.</u>	<u>20 pts</u>
	Total		420 pts.

## **Bonus:**

Homework &/or plots	max. 5 pts/ plot	20 (Bonus points)
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Grade scale will be 90% and above A, 86-89% A-, 85-83% B+, 84-80% B, etc. Scaling may be applied at the end of course.

**Recitation:** CHEM3742. Optional. P/NC course which will be use to discuss assigned problems and provide assistance in learning to utilize S MathStudio.

**Some notes:**

I have found that graphing data is an excellent way to visualize trends and concepts. I will give 5 pts. for graphs made (individually) of data presented in the text (for example(only), boiling pts. of Nobel gases vs atomic mass; at. radius vs. at. mass etc. From Fall Semester). You must turn in **(by email only)** :

the plot,

a printout of the data or the spread sheet file.

a one paragraph explanation of what you see as the trend

a short explanation/discussion of the cause of the phenomenon.

All parts that apply must be present to obtain credit. You must Submit the work to the BlackBoard folder labeled Extra credit the work to me as an attachment, preferably as a pdf file. Maximum of 20 pts. total for semester All materials must be a result of your own work. The last day I will accept this work will be 1 May, 2021 at 1:00 pm. This work maybe completed using Smath Studio or Excel. Work must be submitted by email.

Some websites of interest (checked on 2021-01-20):

<http://physics.nist.gov/cuu/index.html>

<http://webbook.nist.gov/>

<https://ptable.com/>

<http://www.iupac.org>

[http://old.iupac.org/reports/periodic\\_table/index.html](http://old.iupac.org/reports/periodic_table/index.html)

<http://old.iupac.org/general/FAQs/elements.html#ic>

If the link below is copied and pasted into your browser it should take you to the document on units in Phys. Chem.

<https://iupac.org/wp-content/uploads/2019/05/IUPAC-GB3-2012-2ndPrinting-PDFsearchable.pdf>

**Tentative Schedule.** Subject to change by the instructor. Any changes will be announced in class and on the DL web site for this course. YOU are responsible for knowing these changes.

Week No.	Week Start		Topic Discription	Text Chapter 2 <sup>nd</sup> printing	Text Chapter 1 <sup>st</sup> printing	Text Chapter Title
1	18-Jan		Background for Quantum Mechanics	1	1	Dawn of Quantum Theory
2	25-Jan		Introduction To Quantum Mechanics	1-2	1-2	Classical Wave Mechanics
3	1-Feb	Q	Introduction To Quantum Mechanics	2-3	2-3	Schrodinger Equation and PIB
4	8-Feb		Introduction To Quantum Mechanics	3	3	Schrodinger Equation and PIB
5	15-Feb		Introduction To Quantum Mechanics	4	4	Some Postulates and General Principles of QM
6	22-Feb	Q	Introduction To Quantum Mechanics	4	4	Some Postulates and General Principles of QM
7	1-Mar		Vibrational and Rotational Motions in QM	5	5	The Harmonic Oscillator and Rigid Rotor: Two Spectroscopic Models
8	8-Mar		Application to Hydrogen Atom	6-7	6-7	The Hydrogen Atom
9	15-Mar	Q	Basic Principles of Approximation Methods	7-8	7-8	Approximation Methods
10	22-Mar		Multielectron Atoms	9	9	Multielectron Atoms
11	29-Mar		Principles of Bonding	9-10	9-10	The Chemical Bond: Diatomic Molecules
12	5-Apr	Q	Group Theory	10, 12	10, 12	Group Theory: The Exploitation of Symmetry
13	12-Apr		Molecular Spectroscopy	12, 13	12, 13	Molecular Spectroscopy
14	19-Apr	Q	Molecular Spectroscopy	13	13	Molecular Spectroscopy
15	26-Apr		Overview Kinetics	28	28	Highlights
16	3-May		<b>Final Exams</b>			

TBA To Be Announced