

CHEM 200 & 202 Syllabus

Contact Information:

Email (for all needs): chem200@mail.sdsu.edu

Instructor:

Professor: Gregory Holland, Ph.D.
Lecture (in ENS-280): 11-11:50am MWF
Office: GMCS-213C
Phone: 619-594-1596
Office Hours (in GMCS-212): 12:00pm-2:00 pm Monday

Lab Coordinators:

Theresa Carlson, M.A.
Office: GMCS-213B
Phone: 619-594-5481

Kathleen McNamara
Office: CSL-313
Phone: 619-594-1614

All Instructor and TA office hours will be held in the CHEM 200/202 HELP ROOM located in GMCS-212.

Office hour schedules will be posted in GMCS-212 and online.

The CHEM 200/202 Help Room located in GMCS-212 is for all enrolled students seeking assistance with the course material. The Help Room will be staffed by the teaching assistants and the instructors (during their office hours) and will be open approximately 40 hours per week.

Textbook:

Chemistry: The Molecular Nature of Matter and Change, 7th Ed., Silberberg
Combined with: *Connect Plus* - for online textbook access and online homework.

The **Lab Manual** with integrated **Notebook** is available in the bookstore.

Lab Equipment will be available for purchase in the bookstore. They will have lab aprons/coats, safety glasses, gloves, and other useful lab equipment.

Online Resources:

- Blackboard will be used for obtaining the syllabus, glassware quiz, course communications (e.g. exam locations), and grade dissemination.
- Connect will be used extensively for online homework, quizzes, and practice problems.
- Dropbox will be used for distributing other course materials (e.g. lab handouts, lecture slides, sample exams...). The URL for the specific Dropbox page will be provided through Blackboard.

General Student Learning Outcomes

Below is a summary of what students should be capable upon the successful completion of this course.

- Perform calculations with the correct number of significant figures with a variety of SI units.
- Name and write a range of simple ionic and molecular formulas.
- Describe the structure of atoms and the various classes of compounds that they can form.
- Classify the different states of matter and describe each state at the molecular level.
- Use Avogadro's number and reaction stoichiometry to calculate the amounts of reactants and products involved in chemical reactions.
- Write and balance chemical reactions.
- Describe the major classes of chemical reactions at a molecular level and perform stoichiometric calculations related to these reactions.
- Describe, manipulate, and use the ideal gas law.
- Describe the kinetic-molecular theory of gasses and how it deviates from real gas behavior.
- Perform calculations on the exchange of heat in thermochemical processes.
- Calculate the enthalpy of chemical reactions.
- Describe and apply the quantum theory rules of atomic structure.
- Describe the electron configurations of many electron atoms.
- Use trends in atomic properties to compare different elements.
- Differentiate and describe the various models of chemical bonding.
- Compare and calculate bond energies.
- Draw and identify molecular structures based on the Lewis and VESPR models.
- Describe covalent bonding in terms of the valance bond and molecular orbital theories.
- Define the various changes of physical states for a substance and quantify the related enthalpy changes.
- Describe and differentiate the various forms of intermolecular forces.
- Describe and predict solubility in terms of intermolecular forces.
- Quantify the influence of solutes on the colligative properties of solutions.
- Quantify the enthalpy changes associated with dissolution of solutes.

Grading

CHEM 200 Grade Scheme				
Item	Quantity	Value (each)	Total	Percentage
Review Assignment*	1	30	30	2.0%
Homework**	14	10	140	9.2%
Mid-Semester Exams	3	225	675	44.2%
Final Exam	1	225	225	14.7%
Quizzes*	4	20	80	5.2%
Lab Reports	Best 9 of 10	20	180	11.8%
Lab Safety Quiz	1	15	15	1.0%
Glassware Quiz	1	15	15	1.0%
Participation***	1	30	30	2.0%
Lab Practical Exam	1	80	80	5.2%
Seminar Report	1	30	30	2.0%
Discussion	Best 13 of 14	2	26	1.7%
Total			1526	100.0%

CHEM 202 Grade Scheme				
Item	Quantity	Value (each)	Total	Percentage
Review Assignment*	1	30	30	2.0%
Homework**	14	10	140	9.3%
Mid-Semester Exams	3	225	675	45.0%
Final Exam	1	225	225	15.0%
Quizzes*	4	20	80	5.3%
Lab Reports	Best 9 of 10	20	180	12.0%
Lab Safety Quiz	1	15	15	1.0%
Glassware Quiz	1	15	15	1.0%

CHEM 202 Grade Scheme				
Item	Quantity	Value (each)	Total	Percentage
Participation***	1	30	30	2.0%
Lab Practical Exam	1	80	80	5.3%
Seminar Report	1	30	30	2.0%
Total			1500	100.0%

* **Quizzes, homework, and the review assignment** will all be administered through the **Connect** online homework system.

** **Homework** policies:

- There will be homework from each of the 13 chapters covered in the text, chapter 5 will have two parts, thus the 14 homework assignments.
- Full points can be obtained for each chapter's homework by scoring above 85% on the homework problems for that chapter.
 - Homework score $74\% = (74\% \div 85\%) \times 10 = 8.7$ points
- For each chapter a LearnSmart section will also be available. You are encouraged to use this as a tool to help cover/learn/review the course material. There are no points associated with completing the LearnSmart modules.
- It is in your best interest to complete all the homework as well as the LearnSmart to ensure that you are fully prepared for the exams.

*** **Participation** points are allocated as follows:

- 2 notebook checks worth 10 points each
- 5 points for proper lab etiquette
- 5 points for coming to check-out

Note: Your individual grades for each course component will be posted on Blackboard. However, Blackboard is unable to carry out the complex calculations for grade allocation, do not rely on the total points in Blackboard as a measure of your grade. An excel sheet will be provided, through Dropbox, to allow you to better track your actual grades during the course of the semester.

LearnSmart is a system designed to help you read through the textbook material and gauge your understanding as you progress. Modules for each chapter are available through Blackboard and though they are given a 1 point value in Blackboard, these points will not be counted towards your final grade.

However, you are strongly encouraged to make use of the LearnSmart modules to help improve your understanding of the course material.

Your letter grade will be determined by your individual points total for the course. **There will be no curving of the course grades**. Below is a tentative grade range breakdown for each letter grade. The instructors reserve the right to universally modify this grade scale prior to assigning final letter grades.

Letter	Percentage	Letter	Percentage
A	> 90%	C+	68-72%
A-	85-90%	C	63-68%
B+	81-85%	C-	59-63%
B	76-81%	D	53-59%
B-	72-76%	F	<53%

Enrollment/Crashing Policy

Enrolled students. *It is absolutely crucial that you attend the first three laboratory periods.*

Failure to do so may result in your spot in the laboratory section being given to another student. Notify the laboratory coordinator (chem200@mail.sdsu.edu before the first week of class) if you must miss a laboratory period in the first week of the semester for a legitimate reason. You must be able to attend the laboratory section of CHEM 200 for which you are enrolled; otherwise, you must drop the course and attempt to crash a different section that you can attend. If you decide to drop the course, inform the laboratory coordinator by email as soon as possible so your place can be given to a crasher.

Crashers (waitlist). If you are attempting to crash CHEM 200 or 202, you should attend every possible lab section and lecture that will fit into your schedule. And keep track of which discussion and lab you attended.

As a crasher you are advised NOT to buy the course textbook and/or the online homework access system (Connect). A free two week trial can be used by crashers (waitlist) until their enrollment in the course has been confirmed.

Course Schedule			
Lecture #	Date	Text Chapter	Topic
1	Jan 20, 2016	Welcome	Syllabus, Class and Lab Overview
2	Jan 22, 2016	Chapter 1	Introduction/Review
3	Jan 25, 2016	Chapter 1 & 2	Nomenclature
4	Jan 27, 2016	Chapter 3	Limiting Reactants, Percent Yield
5	Jan 29, 2016	Chapter 4	Chemical Reactions
6	Feb 1, 2016	Chapter 4	Chemical Reactions
7	Feb 3, 2016	Chapter 4	Chemical Reactions
8	Feb 5, 2016	Chapter 5	Gas Laws & Kinetic Molecular Theory
9	Feb 8, 2016	Chapter 5	Gas Laws & Kinetic Molecular Theory

Course Schedule

Lecture #	Date	Text Chapter	Topic
10	Feb 10, 2016	Chapter 5	Gas Laws & Kinetic Molecular Theory
11	Feb 12, 2016	Chapter 5	Gas Laws & Kinetic Molecular Theory
12	Feb 15, 2016	Chapter 6	Thermochemistry
13	Feb 17, 2016	Chapter 6	Thermochemistry
14	Feb 19, 2016	Chapter 1-5	Review for Exam 1
15	Feb 22, 2016	Chapter 6	Thermochemistry
16	Feb 24, 2016	Chapter 6 & 7	Thermochemistry & Quantum Theory
17	Feb 26, 2016	Chapter 7	Quantum Theory & Atomic Structure
18	Feb 29, 2016	Chapter 7	Quantum Theory & Atomic Structure
19	Mar 2, 2016	Chapter 7	Quantum Theory & Atomic Structure
20	Mar 4, 2016	Chapter 7 & 8	Quantum Theory & Atomic Structure
21	Mar 7, 2016	Chapter 8	Electron Configuration & Periodicity
22	Mar 9, 2016	Chapter 8	Electron Configuration & Periodicity
23	Mar 11, 2016	Chapter 8	Electron Configuration & Periodicity
24	Mar 14, 2016	Chapter 9	Models of Chemical Bonding
25	Mar 16, 2016	Chapter 9	Models of Chemical Bonding
26	Mar 18, 2016	Chapter 5-8	Review for Exam 2
27	Mar 21, 2016	Chapter 9	Models of Chemical Bonding
28	Mar 23, 2016	Chapter 10	Models of Chemical Bonding
29	Mar 25, 2016	Chapter 10	Shapes of Molecules
-	Mar 28-Apr 1, 2016	No Class	Spring Break
30	Apr 4, 2016	Chapter 10	Shapes of Molecules
31	Apr 6, 2016	Chapter 10 & 11	Shapes of Molecules
32	Apr 8, 2016	Chapter 11	Theories of Covalent Bonding
33	Apr 11, 2016	Chapter 11	Theories of Covalent Bonding
34	Apr 13, 2016	Chapter 11	Theories of Covalent Bonding
35	Apr 15, 2016	Chapter 9-11	Review for Exam 3

Course Schedule			
Lecture #	Date	Text Chapter	Topic
36	Apr 18, 2016	Chapter 12	Intermolecular Forces
37	Apr 20, 2016	Chapter 12	Intermolecular Forces
38	Apr 22, 2016	Chapter 12	Intermolecular Forces
39	Apr 25, 2016	Chapter 12	Intermolecular Forces
40	Apr 27, 2016	Chapter 13	Properties of Mixtures
41	Apr 29, 2016	Chapter 13	Properties of Mixtures
42	May 2, 2016	Chapter 13	Properties of Mixtures
43	May 4, 2016	Chapter 13	Properties of Mixtures
44	Time & Room TBD	All Chapters	Review for Final

Exam Schedule		
	Date	Alternative date for conflicts only
Exam 1	Sat, Feb 20, 2016 2:00 PM	Mon, Feb 22, 2016 6 AM
Exam 2	Sat, Mar 19, 2016 2:00 PM	Mon, Mar 21, 2016 6 AM
Exam 3	Sat, Apr 16, 2016 2:00 PM	Mon, Apr 18, 2016 6 AM
Final Exam	Sat, May 7, 2016 6:00 PM	N/A

Lab Schedule*		
Experiment/Activity	Monday Labs	Tuesday Labs
Lab Safety	January 25, 2016	January 26, 2016
Check-In & Use of Volumetric Equipment Experiment	February 1, 2016	February 2, 2016
An Introduction to Qualitative Analysis Experiment	February 8, 2016	February 9, 2016
Limiting Reagent of Solutions Experiment	February 15, 2016	February 16, 2016
Standardization of an Aqueous NaOH Solution Experiment	February 22, 2016	February 23, 2016
Molar Mass of an Unknown Acid Experiment	February 29, 2016	March 1, 2016

	Lab Schedule*	
Experiment/Activity	Monday Labs	Tuesday Labs
Analysis of an Aluminum-Zinc Alloy Experiment	March 7, 2016	March 8, 2016
Calorimetry Part 1: Specific Heat Capacity Experiment	March 14, 2016	March 15, 2016
Calorimetry Part 2: Enthalpy of Reaction Experiment	March 21, 2016	March 22, 2016
Spring Break- NO LAB	March 28, 2016	March 29, 2016
Atomic Emission Spectra	April 4, 2016	April 5, 2016
Experiment 10 TBA	April 11, 2016	April 12, 2016
TA Seminar	April 18, 2016	April 19, 2016
Lab Practical	April 25, 2016	April 26, 2016
Check-Out	May 2, 2016	May 3, 2016

*This is a tentative lab schedule; some experiments may be modified.

Pre-Lab Policy

Pre-lab assignments must be turned in to your TA **no later than 5 minutes after** the official start of your lab period. Your TA has the right to refuse to grade any late pre-labs.

Lab Attire

If a student is not wearing any of the following they will not be permitted into the lab:

- Lab apron or lab coat
- Lab glasses
- Closed toed and closed heeled shoes
- Gloves
- Pants, skirts, and dresses must extend below the calf.

Online Assignment Policy

The deadlines for the online assignments, including pre-labs, homework, and quizzes are hard deadlines and extensions will not be granted. All assignments will be scheduled with sufficient time to allow you to complete the assignment in advance of the "last minute". *Consequently, you are solely responsible for any failures to complete the assignment by the scheduled time.* Problems such as lack of internet service, Connect site problems, or dogs eating WiFi antennas will not be acceptable reasons for not completing the assignments. *You are encouraged to complete the assignments well before the deadlines to avoid potential technological obstacles.*

In the case of an extended system-wide failure the instructors will be notified by the site operator and steps will be taken to accommodate any problems that arise.

For all technical difficulties or errors that arise with the Connect systems **please contact the Connect technical support staff directly and by phone**, the instructors, lab coordinator, and TAs will be unable to help you resolve anything but the most basic (is it plugged in?) technical problems.

Attendance Policy

Excused absences:

Excused absences will only be awarded in the case of a legitimate reasons (illness, scheduled academic/athletic events, court appearances, etc.) as determined by the instructor. **Proper documentation of the reason for the absence is required to avoid receiving a grade of zero on a missed course component two weeks into the semester (by 2/2/2016).** If at all possible, it is best to contact your instructor prior to the absence to ensure that the absence will be excused.

For lectures:

Regular attendance in the lectures is strongly recommended. If you do have to miss class, you should obtain class notes from another student.

For labs:

Attendance in **all** laboratory meetings is **REQUIRED**, and all lab work during the semester must be done in the scheduled laboratory periods. Under no circumstances will students be allowed to make up lab experiments. **Note that CHEM 202 students are required to attend only the laboratory and not the discussion section lab each week.**

For exams:

Attendance for all exams is required, including the lab practical exam. For excused absences only there will be makeup exam days the Monday before the exam. Students requesting to take the exam on the makeup day will need to sign-up through an online form that will be made available in the weeks prior to the exam. Students must sign-up in order to have permission to take the makeup exam. No other makeup times will be offered. It is your responsibility to ensure that you will be available for the makeup exam times.

Only under exceptional circumstances, as determined by the instructor, will a makeup exam be granted for the final exam.

Test accommodations:

If you are a student with a disability and believe you will need accommodations for this class, it is your responsibility to contact Student Disability Services at (619) 594-6473. To avoid any delay in the receipt of your accommodations, you should contact Student Disability Services as soon as possible. Please note that accommodations are not retroactive, and that accommodations based upon disability cannot be provided until you have presented your instructor with an accommodation letter from Student Disability Services. Your cooperation is appreciated.

Students who have made arrangements with SDS for test accommodations and require a signature from an instructor must make arrangements to meet the instructor outside of the class time to obtain a signature. Absolutely no forms will be signed immediately prior to, during, or after a lecture.

Policy on Cheating/Plagiarism

There is a zero tolerance policy regarding plagiarism in this course. Any instances of cheating or plagiarism identified by the TA, lab coordinator, or the instructors, will result in a meeting between the instructor and student(s) following which the instance and documentation of plagiarism will be reported to the Academic Senate. It is your responsibility to know what constitutes cheating and plagiarism.

It should be noted that turning in a lab report for a lab that you have not performed, or the results of a lab that you had completed in a prior semester, both constitute cheating and plagiarism and will be reported - *all students must perform their own analyses in the labs.*

Am I Ready For CHEM 200

ASSUME THIS CLASS WILL REQUIRE A MINIMUM OF 15 HOURS OF YOUR TIME PER WEEK TO COMPLETE!

The prerequisites for CHEM 200 are one year of high school chemistry, two years of algebra, and a passing score on the Placement Test, or a passing grade (a C or higher) in Chem 100. Chemistry 200 is a demanding, 5-unit course which requires an enormous amount of time and your commitment to work hard! (Please do NOT take this course unless you are prepared to commit the necessary time and hard work.) It is advisable that you make Chemistry 200 the focus of your semester and that you do NOT overburden yourself with an unmanageable course load while taking this course. YOUR success is our success. and we want you to succeed in this course. YOUR success requires a large time commitment and hard work - please do NOT take this course unless you are willing to allow sufficient time to study, attend ALL lectures, and attend ALL labs with preparation in advance. Writing good laboratory reports also requires a lot of time and preparation prior to lab. You will enjoy your semester in Chemistry 200 - and you will benefit in the sciences so much more from all that you learn - if you allow yourself the time necessary to work hard and succeed! PLEASE ALLOW ADEQUATE TIME IF YOU TAKE THIS COURSE!