

## CHEM 200 & 202 Syllabus Fall 2017

### Contact Information:

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

#### Professors:

##### **Christopher Harrison, Ph.D.**

Lecture (in ENS-280): 11:00 am-11:50 am Monday, Wednesday, & Friday

Office: GMCS-213E

Phone: 619-594-1609

Office Hours (in GMCS-212): 12:00pm-1:00pm Monday & Wednesday

##### **Jing Gu, Ph.D.**

Lecture (in ENS-280): 2:00 pm-2:50 pm Monday, Wednesday, & Friday

Office: GMCS-213F

Phone: 619-594-6643

Office Hours (in GMCS-212): 3:00pm-4:00pm Monday & Wednesday

#### Lab Coordinator:

Theresa Carlson, M.A.

Office: GMCS-213B

Phone: 619-594-5481

Office Hours: 9:00 am- 11:00 am Wednesday

**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 & Equipment**

*Openstax Chemistry Book:* <https://openstaxcollege.org/details/chemistry> (**FREE**)

Combined with: OWL Online Homework: <http://www.cengage.com/owlv2/>

The **Lab Manual** with integrated **Notebook** is available in the bookstore. You will be using the Fall 2017 Manual.

**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, course communications (e.g. exam locations), Turnitin assignments for **lab reports**, and grade dissemination. Blackboard will also be used for distributing other course materials (e.g. lab handouts, lecture slides, sample practice exams...).
- **OWL** will be used extensively for online homework, quizzes, lab pre-assignments, and practice problems. Immediate Access CHEM 200-All Sections. Required course materials for this class are

provided in a 180 day subscription digital format by the first day of classes and are free through **September 10<sup>th</sup> at 11:59PM**. Your SDSU student account will then be charged **\$62.00** for use of the content for the remainder of the summer session, unless you opt-out of the content by September 10<sup>th</sup> at 11:59PM. To opt out visit: [www.shopaztecs.com/optout](http://www.shopaztecs.com/optout). For more information visit: [www.shopaztecs.com/immediateaccess](http://www.shopaztecs.com/immediateaccess)

### **Supplemental Instruction:**

Supplemental Instruction (SI) study sessions are offered for this course. SI Sessions occur every day, 18 times each week, throughout the entire semester. Supplemental Instruction Sessions are peer-led, voluntary, and faculty do not know who attends and who does not participate. SI is for everyone, and open to all students enrolled in this class; not just those students who are struggling. The sessions provide group study opportunities to assist students in traditionally difficult courses. To get the most out of SI, attend early and often during the semester.

Sessions are facilitated by an SI Leader who has already received an A or B+ in the class, and has been trained to lead group sessions where students can improve their understanding of course material, review and discuss important concepts, develop study strategies and prepare for exams. Students who begin attending SI sessions early in the semester typically earn higher final course and exam grades than students who do not participate in SI. Please bring your lecture notes, books, and questions with you to the SI sessions.

Click on the Supplemental Instruction link in the Blackboard course for the CHEM 200/202 SI Session schedule. For additional information about SI, please visit: <http://its.sdsu.edu/supplemental-instruction/>

### **General Student Learning Outcomes:**

Below is a summary of what students should be capable of 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.

CHEM 200 Grade Scheme					
Item	Submission	Quantity	Value (each)	Total	Percentage
Review Assignments	Owl	2	15	30	1.7%
Lab Safety Quiz	Owl	1	15	15	0.9%
Pre-Assignment Labs	Owl	10	10	100	5.7%
Homework	Owl	11	10	110	6.3%
Quizzes	Owl	4	20	80	4.6%
Lab Reports	Paper	Best 10 of 11	20	200	11.5%
Lab Practical	Paper	1	80	80	4.6%
Lab Participation	Paper	1	30	30	1.7%
Discussion	Paper	Best 13 of 14	15	195	11.2%
Exams	Paper	4	225	900	51.7%
			<b>Total</b>	<b>1740</b>	<b>100.0%</b>

- Quantify the enthalpy changes associated with dissolution of solutes.

CHEM 202 Grade Scheme					
Item	Submission	Quantity	Value (each)	Total	Percentage
Review Assignments	Owl	2	15	30	1.9%
Lab Safety Quiz	Owl	1	15	15	1.0%
Pre-Assignment Labs	Owl	10	10	100	6.5%
Homework	Owl	11	10	110	7.1%
Quizzes	Owl	4	20	80	5.2%
Lab Reports	Paper	Best 10 of 11	20	200	12.9%
Lab Practical	Paper	1	80	80	5.2%
Lab Participation	Paper	1	30	30	1.9%
Exams	Paper	4	225	900	58.3%
			<b>Total</b>	<b>1545</b>	<b>100.0%</b>

◆**General Chemistry Review** is an assessment and review on key chemistry concepts and essential skills to help you determine if you are ready for Chem 200. There will be 31 questions in the quiz that will assess your knowledge on chemistry concepts and essential skills in chemistry. If you receive a grade of 70% or lower you will need to complete the study plan and/or redo the review before you will be allowed to proceed to the next assignment.

◆**Math Review** is to help refresh your memory and your knowledge on basic math skills and algebra skills you will need in this course.

◆**Lab Safety Quiz** The lab safety quiz must be completed with a grade of 60% or higher before you work in the laboratory. If you fail to achieve a 60% or higher on the online quiz, the lab coordinator will give you a paper quiz. Once you pass the paper lab safety quiz you will be allowed to attend lab. **Note: The paper quiz will not replace your original lab safety quiz grade.**

◆**Quizzes** are hard deadlines, extensions will not be granted. You will have one hour to complete the online quiz. Do not wait until the last minute to complete the quiz, otherwise you might not have the full amount of time to complete the quiz.

◆**Homework** policies:

- There will be homework from each of the 11 chapters covered in the text.
- Full points can be obtained for each chapter's homework by scoring above 85% on the homework problems for that chapter. Scores below 85% will be scaled proportionally to the 85% cutoff.
  - Homework score 74% =  $(74\% \div 85\%) \times 10 = 8.7$  points
- It is in your best interest to complete all the homework to ensure that you are fully prepared for the exams.
- The adjusted points will be calculated **at the end of the semester**.

## **Other Assignments**

◆**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

◆**Exams** points will be deducted if you do not properly fill out the scantron. You need to make sure you bubble in your RedID correctly as well as your form letter. Failure to do so will result in a lower grade. 6.25 points will be deducted for each violation (the equivalent of one question).

◆**Lab Reports** All lab reports, not the pre-labs, will need to be submitted to **Turnitin** for you to receive a grade for your lab report. Failure to send your lab report before your lab report is due will be an automatic zero. Lab reports that are plagiarized will be an automatic zero and will be reported. *Make sure you turn in the proper lab report into the correct Turnitin folder. Failure to do so will result in a point penalty at the discretion of the lab coordinator.*

## Grading

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/Waitlist 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.

**Waitlist.** If you are attempting to waitlist 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.

**Waitlist students that get in should email: [chem200@mail.sdsu.edu](mailto:chem200@mail.sdsu.edu) with their name and RedID info ASAP.**

Course Schedule			
Lecture #	Date	Text Chapter	Topic
1	Aug 28, 2017	Welcome	Syllabus, Class and Lab Overview
2	Aug 30, 2017	Chapter 1	Essential Ideas
3	Sep 1, 2017	Chapter 1	Essential Ideas
–	Sep 4, 2017	No Class	Labor Day
4	Sep 6, 2017	Chapter 2	Atoms, Molecules, and Ions
5	Sep 8, 2017	Chapter 2	Atoms, Molecules, and Ions
6	Sep 11, 2017	Chapter 3	Composition of Substances and Solutions
7	Sep 13, 2017	Chapter 3	Composition of Substances and Solutions
8	Sep 15, 2017	Chapter 4	Stoichiometry of Chemical Reactions

<b>Course Schedule</b>			
<b>Lecture #</b>	<b>Date</b>	<b>Text Chapter</b>	<b>Topic</b>
9	Sep 18, 2017	Chapter 4	Stoichiometry of Chemical Reactions
10	Sep 20, 2017	Chapter 4	Stoichiometry of Chemical Reactions
11	Sep 22, 2017	<b>Chapter 1-4</b>	<b>Review for Exam 1</b>
12	Sep 25, 2017	Chapter 5	Thermochemistry
13	Sep 27, 2017	Chapter 5	Thermochemistry
14	Sep 29, 2017	Chapter 5	Thermochemistry
15	Oct 2, 2017	Chapter 5	Thermochemistry
16	Oct 4, 2017	Chapter 5	Thermochemistry
17	Oct 6, 2017	Chapter 5 & 6	Thermo and Electronic Structure and Periodic Properties of Elements
18	Oct 9, 2017	Chapter 6	Electronic Structure and Periodic Properties of Elements
19	Oct 11, 2017	Chapter 6	Electronic Structure and Periodic Properties of Elements
20	Oct 13, 2017	Chapter 6	Electronic Structure and Periodic Properties of Elements
21	Oct 16, 2017	Chapter 6	Electronic Structure and Periodic Properties of Elements
22	Oct 18, 2017	Chapter 6	Electronic Structure and Periodic Properties of Elements
23	Oct 20, 2017	<b>Chapter 5-6</b>	<b>Review for Exam 2</b>
24	Oct 23, 2017	Chapter 7	Chemical Bonding and Molecular Geometry
25	Oct 25, 2017	Chapter 7	Chemical Bonding and Molecular Geometry
26	Oct 27, 2017	Chapter 7	Chemical Bonding and Molecular Geometry
27	Oct 30, 2017	Chapter 7	Chemical Bonding and Molecular Geometry
28	Nov 1, 2017	Chapter 8	Advanced Theories of Covalent Bonding
29	Nov 3, 2017	Chapter 8	Advanced Theories of Covalent Bonding
30	Nov 6, 2017	Chapter 8	Advanced Theories of Covalent Bonding
31	Nov 8, 2017	Chapter 8	Advanced Theories of Covalent Bonding

<b>Course Schedule</b>			
<b>Lecture #</b>	<b>Date</b>	<b>Text Chapter</b>	<b>Topic</b>
–	Nov 10, 2017	<b>No Class</b>	<b>Veteran's Day</b>
<b>30</b>	Nov 13, 2017	Chapter 9.1-9.3	Gases
<b>31</b>	Nov 15, 2017	Chapter 9.1-9.3	Gases
<b>32</b>	Nov 17, 2017	<b>Chapter 7 - 9.3</b>	<b>Review for Exam 3</b>
<b>33</b>	Nov 20, 2017	Chapter 9.4-9.6	Gases
–	Nov 22, 2017	<b>No Class</b>	<b>Thanksgiving</b>
–	Nov 24, 2017	<b>No Class</b>	<b>Thanksgiving</b>
<b>34</b>	Nov 27, 2017	Chapter 9.4-9.6	Gases
<b>35</b>	Nov 29, 2017	Chapter 10	Liquids and Solids
<b>36</b>	Dec 1, 2017	Chapter 10	Liquids and Solids
<b>37</b>	Dec 4, 2017	Chapter 10	Liquids and Solids
<b>38</b>	Dec 6, 2017	Chapter 11	Solutions and Colloids
<b>39</b>	Dec 8, 2017	Chapter 11	Solutions and Colloids
<b>40</b>	Dec 11, 2017	Chapter 11	Solutions and Colloids
<b>41</b>	Dec 13, 2017	<b>Chapter 1-11</b>	<b>Review for Final</b>
–	Dec 16, 2017	<b>Chapter 1-11</b>	<b>Final Exam</b>

<b>Exam Schedule*</b>		
	<b>Date</b>	<b>Alternative date for conflicts only</b>
<b>Exam 1</b>	Sat, Sep 23, 2017 2:00 PM	Mon, Sep 25, 2017 6:00 AM
<b>Exam 2</b>	Sat, Oct 21, 2017 2:00 PM	Mon, Oct 23, 2017 6:00 AM
<b>Exam 3</b>	Sat, Nov 18, 2017 2:00 PM	Mon, Nov 20, 2017 6:00 AM
<b>Final Exam</b>	Sat, Dec 16, 2017 7:30 PM	N/A

**\*Exam times are tentative and may change based on room availability.**

### Pre-Lab & Lab Report Policy

Pre-lab assignments and your typed up lab report assignment 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 and lab report assignments. **Remember:** The lab reports need to be turned into Turnitin before your lab period. Your TA will go over this in more detail during the first week of 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 (**no goggles**)
- Gloves (used for some experiments)
- Closed toed and closed heeled shoes
- Pants, skirts, and dresses must extend below the calf with no holes in the attire.
- No tank tops or open backs.

Lab Schedule		
Experiment/Activity	Monday Lab	Tuesday Lab
Introduction & Lab Safety	August 28, 2017	August 29, 2017
Check-In & Use of Volumetric Equipment Experiment	September 11, 2017	September 12, 2017
An Introduction to Qualitative Analysis Experiment	September 18, 2017	September 19, 2017
Limiting Reagent of Solutions Experiment	September 25, 2017	September 26, 2017
Standardization of an Aqueous NaOH Solution Experiment	October 2, 2017	October 3, 2017
Molar Mass of an Unknown Acid Experiment	October 9, 2017	October 10, 2017
Calorimetry Part 1: Specific Heat Capacity Experiment	October 16, 2017	October 17, 2017
Calorimetry Part 2: Enthalpy of Reaction Experiment	October 23, 2017	October 24, 2017
Atomic Emission Spectra	October 30, 2017	October 31, 2017
Analysis of an Aluminum-Zinc Alloy Experiment	November 6, 2017	November 7, 2017
Freezing Point Depression	November 13, 2017	November 14, 2017
Holiday- No Lab	November 20, 2017	November 21, 2017
TA Seminar & Check-Out*	November 27, 2017	November 28, 2017
Lab Practical EXAM	December 4, 2017	December 5, 2017

\*Students that miss checkout will be charged a \$25 fine.

\*Do not change into your proper lab clothes in the labs or in the CSL hallways, except for the lab apron or lab coat.



## 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, OWL 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 **OWL** systems **please contact the OWL 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 Sept. 11<sup>th</sup>, 2017).** 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 a makeup exam the Monday following the exam. Students requesting to take the exam on the makeup day will need to pre-register through an online form that will be made available on the first day of classes through **September 11th at 5pm**. Pre-registering for the makeup ensures you are eligible to sign up for the makeup exam and be added to the official makeup exam roster. 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!