Chemistry 100
Introduction to General Chemistry
Fall 2020

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Lab rooms: CSL 522, 524, 525, 528 (5th floor Chemical Sciences Laboratory building)

Dr Huxford's Zoom Help Room hours: MWF 8-9 a.m and 1-2 p.m.; also by appt.
The modality of this course is subject to change in connection with evolving public health conditions and recommendations.

Textbook (required): Immediate Access-Two of the required course materials for this class, Blei and Odian, *Introduction to General Chemistry, 2nd edition*, (ISBN 9780738080710) and Denniston, *Connect Access Code for General, Organic, and Biochemistry* (ISBN 9781259147500) are provided in a 365 day subscription digital format by the first day of classes and are free through Sep. 4 at 11:59 p.m. After Sep. 4, your SDSU student account will be charged a special reduced price to maintain access for the remainder of the fall semester unless you opt-out of the content by 11:59 p.m. on Sep. 4. To opt out visit: www.shopaztecs.com/optout . If you opt-out and wish to opt back in, you may log in to this website and change your status. Students can change their status as many times as desired until the deadline of 11:59 p.m. on Sep. 4. Visit: www.shopaztecs.com/immediateaccess for additional information on Immediate Access pricing, digital subscription duration, print add-ons, opting out, and other frequently asked questions. If you still have questions, please send an email to immediateaccess@aztecmail.com.

If you are retaking this course from last semester your name has been passed to the Bookstore and you will NOT be charged by Cashier's Office. If you took it in Fall semester, 2019 or before, you will need to pay again.

Additionally, after the opt-out period ends and if you remain in the program, a reduced price print add-on will be available at the SDSU Bookstore if you prefer print. For those opting out, you will need to procure digital and/or print materials at regular pricing through the bookstore or elsewhere.

Note: the textbook can be substituted with used copies of ISBN 978-0716770732 or ISBN 978-0716743750 (first ten chapters only).

Lab manual (required): Chem 100 Lab Manual, Chemistry Dept. Printed by Hayden MacNeil, Fall 2020

Study aides (optional): Study Guide for General, Organic, and Biochemistry, Second Edition (2006) M.L. Gillette & W. Gloffke

Blackboard web sites: http://blackboard.sdsu.edu

1) "Combined Sections": This syllabus, videos, and other helpful course materials
2) "Lab Section #": Grades, announcements from your TA

Initial web site: http://www.chemistry.sdsu.edu/courses/CHEM100/
Use this website until the Combined Sections Blackboard site becomes available on September 8, 2020 (NOTE: E-mail Kathy right away with your name, lab section number, and RED ID if you do not see the Blackboard "Combined Sections" site on September 8)

Student email addresses: All communications from the course instruction team will be directed to students' official SDSU Gmail account. All students have been provided with an SDSU Gmail account for their official use. Check this email account for all communications. Per university policy, students are responsible for checking their official university email once per day, please see Student Official Email Address Use Policy here.

Additional required items: Non-programmable calculator (e.g., TI-30Xa or Casio fx-300ms plus)
Matches or butane lighter for some lab exercises
Safety Glasses and apron (available at the Bookstore)
Gloves (available at drugstores such as CVS and Walgreens) and masks (no neck gaiters or bandanas) as PPE when meeting in groups
A computer and stable internet connection will be needed.

The course:
Prerequisites-A working ability with high school level algebra.

Course enrollment-You must be enrolled in one laboratory section as well as lecture. If you do not attend the lab section in which you are enrolled, your spot will be given to another student and you will be dropped from the course.

Expected learning outcomes-Chemistry 100 is an introduction to general chemistry. By the end of this course a successful student will be able to:

i) execute basic chemistry calculations such as unit conversions and stoichiometry;
ii) explain the basic principles of atomic theory and chemical bonding;
iii) quantitatively and qualitatively describe physical and chemical properties of matter;
iv) illustrate the concept of dynamic equilibrium with acid-base chemistry;
v) safely and confidently conduct protocols in a laboratory environment.

Organization of the course-This fall we have organized the course to maximize student flexibility. There will be no live, in-person lecture. Rather, your instructor will provide a complete set of 15-35 minute videos covering material that would be normally presented during lectures. These videos will be numbered according to the textbook chapter with which they correspond and given names that describe their content.
Students are encouraged to apply the following approach:

1) Read from the textbook for an introduction to concepts
2) View the videos provided to gain additional clarification, illustration, and practice with the concepts
3) Attempt the online practice problems that correspond to the chapter concepts
4) Bring your questions with you to Zoom Help Room*
5) Repeat, until you are comfortable with the concepts and ready to show your mastery of them on a graded, online assessment

*It is highly recommended that you take advantage of the Zoom Help Room to ask your instructor or a teaching assistant (TA) for help answering questions that arise during your studies. The Chem 100 Zoom Help Room can be accessed Monday – Friday between the hours of 8 a.m. – 6 p.m. Any student may attend any of the Zoom Help Room hours of any TA and you may attend as many as you like. The weekly schedule for TA and instructor hours is available for download on the Combined Sections Blackboard site.

In order to be successful in this course, you will need to spend a considerable amount of time (estimated at approximately 15 hours per week) on reading the text, watching videos, attempting homework problems, completing lab assignments, and participating in Zoom Help Room sessions. Develop consistent work habits. This is not the type of material that is easily memorized at the last minute. Moreover, the familiarity with chemistry principles and problem solving skills you develop as you consistently work through the course material will serve you well as you continue forward in your university education.

Statement on Cheating and Plagiarism: DO NOT cheat! Cheating is the actual or attempted practice of fraudulent or deceptive acts for the purpose of improving one's grade or obtaining course credit. Such acts also include assisting another student to do so. The penalty for cheating and plagiarism is an F for the course and possible expulsion from the University. For more information on the University's policy regarding cheating and plagiarism, refer to the Schedule of Courses ('Legal Notices on Cheating and Plagiarism') or the University Catalog ('Policies and Regulations').

Supplemental Instruction: Supplemental Instruction (SI) study sessions are available for this course. These are peer-led study sessions that students may choose to attend on a voluntary basis. 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 demonstrated the ability to learn the Chem 100 course material and has been trained to lead group sessions where students can improve their understanding of course material, review and discuss important concepts, develop successful study strategies, and prepare for assessments. Students who begin attending SI sessions early in the semester typically earn higher final course and assessment grades than students who do not participate in SI.

Grading:

Assessments and final exam-There will be six assessments worth 75 points each. These are opportunities for students to demonstrate their mastery over the course material. Assessments will be posted to the Blackboard Combined Sections site on select Fridays (see Schedule at the end of this syllabus) and there will be a 24 hour time frame for completion. Please note all times will be Pacific Time, if you are in a different time zone it is up to you to convert times. Once a student has begun taking an assessment they will have 75 minutes to complete it, after which all answers given will automatically be recorded. For each of assessments 1-5, students will also be given the opportunity to earn up to 5 additional points per assessment by writing up and submitting a brief report to their Lab TA on what they answered incorrectly on the assessment, why it is incorrect, and what is the correct answer. In addition to the six assessments, there will be a cumulative final exam worth 150 points. The final exam will be given online on Friday December 11, 2020.

Homework- Each student must acquire their own *Connect* online homework access code (included with Immediate Access) from the SDSU Bookstore. Instructions on how to enroll for and use the online homework platform will be posted to the Blackboard Combined Sections website. The *Connect* online homework is the principal means for students to develop their problem solving skills while working with the material of the course. The online homework is divided by chapter, with each chapter containing between 30-80 individual problems. Keep in mind that the total value of all 600+ homework problems is only 50 points, so no single problem accounts for any appreciable amount. The real value of working through and completing these exercises is in identifying where students need further clarification so they can seek out additional help (such as from Zoom Help Room) and master the material prior to assessments.

Laboratory-Students will participate in weekly lab activities together with their lab classmates and under the supervision of a TA. There will be a graded response due for every session of lab (see Schedule at the end of this syllabus) and each lab is worth 20 points. The TA will assign up to 10 additional "Participation points" to students who arrive to the Lab sessions prepared and support positive lab experiences.

Connectedness activities-There will be 75 points assigned to students for "connectedness activities." We recognize that being a university student during a time of mandated social distancing negatively affects opportunities for students to meet one another and work together—which is an invaluable part of the university experience. In an attempt to combat this, students will be rewarded with points for activities in which they participate that increase "connectedness" to one another and to their instructors. Students may earn up to 75 points by completing an online report due to their TA by Dec. 7, 2020 documenting the student's involvement in activities that promote connectedness during this time of social distancing. The list of acceptable activities includes:

1) Participate in Supplemental instruction (5 pts/session)-Document the dates you attended, the name of the person leading the session, and the topics that were covered.
2) Participate in a Zoom Help Room session (5 points/session)-Document the dates you attended, the name of the person leading each session, and something that you learned at each session.
3) Participate in a Student-led online study group session (10 points/event)-Document the date you attended, the medium used (Zoom, Google, etc.), the name of the person leading the session, and something that you learned.
4) Lead an online study group session (25 points/event)-Document the date, the medium used, the names of your classmate attendees, and something that you learned.
5) View a video that addresses a chemistry topic covered in class and discuss it with your classmates (15 points per video + 5 points for every classmate who also views the video and with whom you also discuss it)-Document the name and location of the video, summarize what you learned and how it relates to the course, and list the names of classmates with whom you talked about it.
6) Read a book about science or a scientist and discuss it with your classmates (15 points per book + 5 points for every classmate who also read the book and with whom you discuss it)-Document the name and author of the book, summarize what you learned and how it relates to the course, and list the names of classmates with whom you talked about it.
7) Join a club at SDSU (25 points per club)-Document the name of the club, prove membership, and give the names of at least three other SDSU students you have met through your participation in the club.

Assessment 1	75 points	Chapter 1
Assessment 2	75 points	Chapters 2,3
Assessment 3	75 points	Chapter 4
Assessment 4	75 points	Chapters 5,6
Assessment 5	75 points	Chapter 7
Assessment 6	75 points	Chapters 8,9
Assessment corrections	25 points	5 points/assessment (1-5)
Final	150 points	Chapters 1-10
Homework	50 points	5 points/chapter (1-10)
Lab	240 points	20 points/lab (lowest dropped)
Participation points (lab)	10 points	Assigned by TA
Connectedness activities	75 points	Due to TA on Dec. 7
	1,000 points total	

The following grades are guaranteed for the percentages shown. It is possible that the percentages may be lowered, but they will not be raised for a given letter grade. The low end of each range is a minus, the upper end is a plus.

A	90-100%
B	80-89.99%
C	70-79.99%
D	60-69.99%
F	below 59.99%

Dropping the course: It is your responsibility to follow university policies regarding Cr/NC, drops, withdrawals, and incompletes. Your last opportunity to withdraw from the course without a grade appearing on your report card is Sep. 4 at 7:59 p.m.

Students with disabilities-At San Diego State we have excellent resources for all of our students. If you are a student with a disability and believe you need special accommodations for this class, it is your responsibility to contact the Student Ability Success Center (http://go.sdsu.edu/student_affairs/sds) at (619) 594-6473 to schedule an appointment. Do this as soon as possible to avoid any delay in the receipt of your accommodations. Please note that testing accommodations on the basis of disability are not retroactive and cannot be provided by the instructor without the student first obtaining an accommodation letter from SASC. Please also be aware that SASC has deadlines for submitting forms, if you do not meet their deadlines, no further accommodation will be offered.

Religious observances: Please notify Kathy within the first two weeks of class of any planned absences from exams or labs due to religious observances so that we can arrange some reasonable accommodation.

Changes to the syllabus: This syllabus and schedule are subject to change in the event of extenuating circumstances. We will do our best to make these clear with announcements in class and on the Blackboard website. Please pay attention to announcements made in class and lab. It is your responsibility to check on announcements made in your absence.

Lab-Chemistry is an experimental science. As such, its principles are best illustrated in the laboratory setting. As a student in this course, you will have the opportunity to learn many basic principles of

chemistry in a modern, well-equipped laboratory environment. Learn the name of your laboratory teaching assistant (TA) and your lab section number. You will need to include this information on your lab assignments.

All persons present in a chemistry laboratory must wear approved eye protection, apron or BLUE flame resistant lab coat- white ones are not flame resistant, and closed-toe and heel shoes any time ANY chemicals are present in a lab. Gloves and masks must also be worn in lab. Long pants or skirts that fall below mid calf must be worn, and shoulders must be covered. Long hair must be confined securely. The eye protection and specific clothing and apron must be worn whenever anyone in the room is working with chemicals. Anyone not in compliance will be asked to leave and will not be allowed to return until properly attired. Aprons are in the bookstore. No food or drink at any time is allowed.

Lab work for Chem 100 must be performed in CSL 522, 524, 525, or 528 during the lab hours for which the student is registered. Because of logistical constraints, you will not be allowed to make up missed lab experiments; however, your lowest scored lab report *will be dropped* when determining your course grade. Use this free passes wisely.

Remember, **whenever any chemicals are in use anywhere in the room, everyone must wear appropriate clothing (including pants or skirts with no holes that end below mid-calf), safety glasses, flame resistant blue lab coat or yellow apron, and closed-toe shoes**. If you have forgotten your safety glasses then you must either borrow a pair from a friend, buy new ones at the Bookstore, or go home and take a zero on that lab. Any week that contains the word "Experiment" on the lab schedule indicates safety glasses, apron/lab coat, and shoes will be required that day. Lab reports are due at the end of the lab period. **Late reports will receive no credit**. No credit will be given for a lab report if the work was not actually done by that student.

The lab report consists of the data pages and questions in the lab manual. Where computations are involved, numerical set-ups must be shown. The final answer must include units and the correct number of significant figures. Reports must be legible.

There are 10 participation points available. These will be assigned at the discretion of the lab TA at the end of the semester. Arriving on time prepared for laboratory, proper bench cleaning and prep, will insure that you receive these points.

Additional practice problems: One of the most common requests by students before exams is for more practice problems. The following problems from the "Exercises" section at the back of each chapter in your textbook are recommended to help with your mastery of the material prior to exams. It is recommended that you work on these in groups, identify concepts that are giving you trouble, and then bring your questions with you to help room/office hours. Answer keys for practice problems from each chapter will be posted to the Combined Sections Blackboard site periodically.

Ch.	Additional practice problems
1.	1-14, 18-24, 26, 29, 31,33, 36, 38, 47-48, 54-56, 58, 60, 68
2.	1-4, 9-10, 12-15, 17, 19-28, 33-42, 52-58
3.	5-12, 15, 18, 19, 23-36, 42, 44, 46, 55, 57
4.	1, 4-19, 22, 25, 27, 31-35, 40-42, 47
5.	2, 8, 12-18, 21, 22, 25-30, 34, 36-38, 48, 49

6. 1-2, 6-7, 11-12, 15-17, 20-24, 33, 35, 37, 39-43, 45-46, 48, 52-54, 59
7. 2-4, 6, 10, 14-27, 29, 31, 34-36, 38, 49, 51-52, 55, 59-61
8. 1-5, 9-11, 14-20, 23, 26-28, 31, 33
9. 1-6, 8, 11-13, 15-21, 27, 28, 35, 36, 45, 51-54, 68, 72
10. 1-8, 15, 17, 18, 43, 44, 49, 50

9 steps to Chem 100 success:

1. Read the relevant textbook chapter **BEFORE** viewing lecture videos. The textbook material may not be clear initially, but you will have an idea of where the material is headed and that will help prepare you to make better sense of the concepts presented in the lectures.
2. Pay attention during lecture videos, stop videos to record notes, and try to solve problems as they are presented.
3. As soon as lecture is over, set to work on relevant problems in the *Connect* online homework system.
4. When you encounter a problem that you cannot solve, make a note of it and seek help right away. That help may come from the text, lecture, study with friends, etc. But make a habit of also attending Zoom Help Room hours. This is your opportunity to ask questions of your instructor and the teaching assistants and clarify points of confusion. You can even earn points towards "Connectedness activities" by documenting your attendance at Zoom Help Room.
5. Once you have completed the *Connect* online homework, seek out additional problems with which to test yourself. There are great example problems at the end of your textbook chapters and other worksheets will be posted to Blackboard.
6. Go back to read the book again (and again).
7. Do **NOT** allow yourself to fall behind. Once you start thinking "I will catch up later" you are already at risk.
8. Eat well and get a good night's sleep before assessments. Don't underestimate the importance of maintaining your health on the success of your education.
9. After each assessment, take the time to look over what you answered incorrectly and figure out what you missed on each problem. This will help you learn what to focus on for next assessment and the cumulative final exam. Also, you can also earn 5 points each for assessments 1-5.

Date	**Lecture Schedule**	**Weekly Lab Schedule**
Aug. Mon. 24 Wed. 26 Fri. 28	Introduction, Chapter 1 Chapter 1 Chapter 1	Introduction, Lab tour, Sig. Fig. and Scientific Notation worksheet **Group A first hour, Group B 1.5 hour**
Mon. 31 Sep. Wed. 2 Fri. 4	Chapter 1 Chapter 1 Chapter 2	Periodic table worksheet **Group A first hour, Group B 1.5 hour**
Sep. Mon. 7 Wed. 9 Fri. 11	Chapter 2 Chapter 2 **Assessment 1- Chap 1**	Chemical nomenclature worksheet

Date	Lecture Schedule	Weekly Lab Schedule
Sep. Mon. 14 Wed. 16 Fri. 18	Chapter 2 Chapter 3 Chapter 3	Group A-Experiment-Separation of an unknown mixture Group B-VSEPR worksheet
Sep. Mon. 21 Wed. 23 Fri. 25	Chapter 3 Chapter 3 **Assessment 2- Chap 2-3**	Group B-Experiment-Separation of an unknown mixture Group A-VSEPR worksheet
Sep. Mon. 28 Wed. 30 Oct. Fri. 2	Chapter 4 Chapter 4 Chapter 4	Group A- Experiment-Mass and density Group B- Worksheet-Metal carbonate
Oct. Mon. 5 Wed. 7 Fri. 9	Chapter 4 Chapter 4 **Assessment 3- Chap 4**	Group B- Experiment-Mass and density Group A- Worksheet-Metal carbonate
Oct. Mon. 12 Wed. 14 Fri. 16	Chapter 5 Chapter 5 Chapter 5	Group A-Experiment-Heat capacity of a metal Group B-Worksheet-Determination of molar volume of gas and gas constant
Oct. Mon. 19 Wed. 21 Fri. 23	Chapter 6 Chapter 6 Chapter 6	Group B-Experiment-Heat capacity of a metal Group A-Worksheet-Determination of molar volume of gas and gas constant
Oct. Mon. 26 Wed. 28 Fri. 30	Chapter 7 Chapter 7 Chapter 7 **Assessment 4- Chap 5-6**	Group A-Experiment-Empirical formula of magnesium oxide Group B- Chemical reactions worksheet
Nov. Mon. 2 Wed. 4 Fri. 6	Chapter 7 Chapter 8 Chapter 8	Group B-Experiment-Empirical formula of magnesium oxide Group A- Chemical reactions worksheet
Nov. Mon. 9 Wed. 11 Fri. 13	Chapter 8 Chapter 8 **Assessment 5- Chap 7**	

Date	**Lecture Schedule**	**Weekly Lab Schedule**
Nov. Mon. 16 Wed. 18 Fri. 20	Chapter 8 Chapter 8 Chapter 9	Worksheet- Acid/Base titrations
Nov. Mon. 23 Wed. 25 Fri. 27	Chapter 9 Chapter 9 Thanksgiving- No class	
Nov. Mon. 30 Dec. Wed. 2 Fri. 4	Chapter 9 Chapter 9 **Assessment 6- Chap 8-9**	Final lab exercise submitted (online)
Dec. Mon 7 Wed 9	Chapter 10 Chapter 10	
Final Exam: Fri. December 11, 2020	**Final Exam** is online	The Final Exam is cumulative (Chapters 1-10)