

Chemistry 42

Fall 2018

Dr. Jamie Kulp

Section: 4510

Lecture: Bech Hall 1999, Sat 9:00am–12:00p

Laboratory: Bech Hall 1960 Sat 12:00am–3:00pm

Office Hours 3–4:30pm Room 1960 and by appointment via email/video chat

email: jkulp@santarosa.edu

Introductory Chemistry

Santa Rosa Junior College

Required Materials

Online Link: <http://bookstore.santarosa.edu/santarosa/CourseMaterials.aspx?src=2>

1. **Text:** Introductory Chemistry, Tro, 5th Edition Pearson; ISBN, 9780134026886
2. **Laboratory Manual:** *Chemistry 42 Laboratory Manual* ISBN 2818120146144
3. **Laboratory Notebook:** You will need a notebook with duplicate pages, such as carbonless copies.
4. **Scientific Calculator**

Course Information

Welcome to chemistry 42. This will serve as an introduction to chemistry for students with very limited to zero exposure to chemistry. This course is designed for students who are preparing for either one year of general chemistry (Chem 1AB or Chem 4AB) or for Chem8, one semester organic chemistry course. Chemistry is the central science in our world today with applications ranging from medicine and biology to engineering, biotechnology, nanotechnology, materials and nearly every field of modern technology and science as well as more! Chemistry is the study of matter and its changes and our world is made up of matter so nearly every thing in our world can be appreciated uniquely through the perspective chemistry provides. The tools you will develop in this course such as problem-solving strategies, critical thinking and quantitative methodology will build a foundation for you to build further scientific knowledge upon.

Student Learning Outcomes

Upon completion of this course, a student will be able to:

1. Analyze basic quantitative problems in chemistry, and apply them to real life situations. ^[L]_[SEP]
2. Understand macroscopic properties of matter with the underlying atomic structure.
3. Communicate intelligently using common chemical language and notation. ^[L]_[SEP]
4. Utilize data sets and background information to plan, perform and interpret basic laboratory experiments.

Prerequisites

Course completion of MATH 155 or two years of high school algebra or equivalent.

Attendance

Attendance is important and expected of all students. Attendance and attention are vital for your learning. Please do not miss or be consistently late to the class. Excessive absences will result in a significant reduction in your course grade, and may lead to the student being dropped from the course completely. There will be no make-up exams or quizzes. Missing more than three labs will result in an "F" for the entire course, regardless of the student's performance in the class.

Standards of Conduct

All students are expected to do their own work. This does not preclude collaboration and group study, but it does mean that anything put to paper and turned in is expected to come from that student. Cheating, or anything that can be construed as cheating will result in no credit given, if not worse. No inter-student communication is allowed during exams; any comments or questions are to be directed toward the instructor. Laboratory experiments will often be done in pairs, but each student is expected to record his or her own data. It is not acceptable for one partner to take notes and the other partner to copy everything at the end of the lab.

Homework Assignments

Homework is one of the most important aspects of this course in terms of your personal input and involvement in the course. You will not learn chemistry without putting in the time to work on problems and go through the process yourself. So try to spend time working on the assigned problems each week. Your hard work and dedication will show. Homework is not graded but is instead for you to practice and work out on your own over the semester. I will often work out problems in class as examples, so if you have questions you desire to have reviewed in lecture please ask me or email prior to the lecture.

Laboratory

Laboratory is your chance to do chemistry! Here you will explore in person the ideas and concepts learned in lecture. The experiments performed in lab will help to give you hands-on exposure to chemistry and help you to see that chemistry is not an abstract science, but instead a real physical experience that can be very exciting and help us understand our world in a way no other method of learning can provide. Before lab, read the experiment and do all the pre-lab questions. You will not get the most out of lab if you come unprepared. You are also required to do the following:

1. Arrive on time, properly dressed.
2. Follow all lab safety regulations discussed.
3. Turn in your lab reports. Late labs will be marked down by 20% of the value of the lab reports.
4. Please do not miss labs. It is hard to schedule a make-up lab in this course. Attendance at laboratory sessions is mandatory. **PLEASE DO NOT MISS LABS.** No incomplete grades will be given for missing labs. In order to pass the course, no more than three (3) missing lab reports are allowed. You are expected to keep a Lab Notebook. The Lab Notebook is an extremely important part of any laboratory experience, since it is the permanent record of what was done and what was observed.

Exams

There will be 3 exams and a final exam (cumulative) in the course. No make-up exams will be given. An excused absence from an exam will be granted only if proper documentation is provided.

Accommodations for Students with Disabilities

If you need disability-related accommodations for the class, please provide the authorization letter from the Disability Resources Department to me as soon as possible. Also, please come see me during the office hour as soon as possible to discuss about the accommodations.

Grading

Your course grade will be determined by the following items:

1. Exams 40%
2. Quizzes/In-Class Questions/Participation 10%
3. Lab Assignments/Performance 30%
4. Final 20%

Final course letter grades will correspond to the following percentages:
Below 49% F
50-59% D
60-69% C
70-79% B
80-89% A
90-100% A+

TO RECEIVE A PASSING GRADE IN THE COURSE, PASSING WORK MUST BE DONE IN BOTH THE LAB AND LECTURE PORTIONS

Exam Dates

1. Sep 15rd 2017 Exam - 1
 2. Oct 27st 2017 Exam - 2
 3. Dec 8th 2017 Exam - 3
 4. Dec 15th Final Exam
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Lecture Schedule			
Week	Date	Topic	Chapter
1	8/25/2018	Chemical World, Measurements and Problem Solving	1, 2
2	9/1/2018	Matter and Energy - Atoms & Elements	3,4
3	9/8/2018	Atoms & Elements in Atoms, Molecules and Compounds	4,5
4	9/15/2018	Exam 1 Ch 1 - 5 / Chemical Composition	6
5	9/22/2018	Electrons in the Atom & the Periodic Table	9
6	9/29/2018	Chemical Bonding	10
7	10/6/2018	Chemical Reactions	7
8	10/13/2018	Quantities in Chemical Reactions	8
9	10/20/2018	Oxidation - Reduction	16
10	10/27/2018	Exam2 Ch 6 - 10 / Gases	11
11	11/3/2018	Liquids, Solids & Intermolecular Forces	12
12	11/10/2018	Solutions	13
13	11/17/2018	Acid & Bases	14
14	11/24/2018	Thanksgiving Break - Holiday	
15	12/1/2018	Chemical Equilibrium	15
16	12/8/2018	Exam 3 Ch 11-16 / Radioactivity & Nuclear Chemistry	17
17	12/15/2018	Final Exam - Cumulative 9am -12pm	

- Laboratory Schedule			
Week	Date	Topic	Due Date
1	8/25/2018	Introduction, Safety	
2	9/1/2018	Dimensional Analysis & Locker Check-In	9/8/2018
3	9/8/2018	No Lab	
4	9/15/2018	Measurements	9/22/2018
5	9/22/2018	Separation of a Ternary Mixture	9/29/2018
6	9/29/2018	Atoms & the Electromagnetic Spectrum	10/6/2018
7	10/6/2018	Ionic & Molecular Compounds	10/13/2018
8	10/13/2018	Lewis Structures	10/20/2018
9	10/20/2018	Chemical Reactions	10/27/2018
10	10/27/2018	Electrochemistry & the Activity Series	11/3/2018
11	11/3/2018	Synthesis of Indigo	11/10/2018
12	11/10/2018	Gas Laws	11/17/2018
13	11/17/2018	Preparation & Concentration of a Solution Part I	12/8/2018
14	11/24/2018	Thanksgiving Break - Holiday	
15	12/1/2018	Preparation & Concentration of a Solution Part II	12/8/2018
16	12/8/2018	Acetic Acid Titration & Locker Check-Out	12/15/2018
17	12/15/2018	No Lab	

Important Dates	
Day Class Begins:	Saturday, August 25, 2018
Day Class Ends:	Saturday, December 15, 2018
Day/Time of Final Exam:	Saturday, December 15, 2018
	9:00 AM – 12:00 PM
Last Day to Add without instructor's approval:	Sunday, August 26, 2018
Last Day to Add with instructor's approval:	Sunday, September 9, 2018
Last Day to Drop and be eligible for enrollment/course fee refund:	Sunday, September 2, 2018
Last Day to Drop without a 'W' symbol:	Sunday, September 9, 2018
Last Day to Drop with a 'W' symbol:	Sunday, November 18, 2018
Last Day to opt for Pass/No Pass:	Sunday, September 30, 2018
First Census Date:	Monday, September 10, 2018

Suggested Problems from Tro 5th Edition

Ch.1 – 17

Ch.2. – 31, 37, 41, 43, 47, 55, 57, 65, 67, 69, 79, 87, 95, 99, 103, 117

Ch 3. – 31, 45, 49, 51, 55, 59, 61, 73, 75, 79, 89, 91, 93, 95, 103

Ch.4 – 51, 73, 75, 77, 81, 83

Ch.5 – 33, 37, 41, 45, 53, 59, 63, 65, 67, 69, 71, 75, 77, 79, 81, 83, 85

Ch.6 – 17, 19, 25, 35, 53, 59, 67, 71

Ch.7 – 31, 33, 37, 49, 51, 59, 65, 69, 71, 73, 81, 85, 91

Ch.8 – 15, 17, 23, 27, 29, 31, 33, 35, 43, 45, 49, 55, 57, 61, 69, 71, 73, 75, 77, 81, 93

Ch.9 – 29, 31, 33, 41, 43, 45, 47, 49, 55, 57, 59, 61, 63, 69, 75, 77, 81, 89, 97, 105, 109

Ch.10 – 35, 45, 47, 49, 51, 53, 55, 57, 59, 61, 63, 65, 69, 73, 77, 79, 85, 89, 91

Ch.11 – 23a, d, 33, 37, 43, 49, 55, 57, 59, 61, 65, 69, 73, 77, 83, 89, 91, 99, 101

Ch.12 – 35, 39, 49, 57, 61, 63, 65, 79, 87,

Ch.13 – 29, 31, 59, 61, 63, 65, 67, 69, 71, 73, 77, 79, 81, 83, 89, 91, 93, 95, 97

Ch.14 – 29, 31, 33, 35, 39, 41, 43, 45, 47, 49, 51, 53, 55, 59, 61, 63, 67, 69, 73, 75, (85, 89 if we have time to cover this)

Ch.15 – 43, 45, 49, 51, 53, 55, 57, 59, 61, 63, 65, 67, 69, 71, 73, 75, 77, 79, 81, 91(challenge)

Ch.16 – 33, 35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 61, 63, 65, 67, 71, 73, 75, 77, 85, 87