Chemistry 42 Syllabus

Introductory General Chemistry – Section 0449

Santa Rosa Junior College, Fall 2021

Instructor: Osman F. Güner, PhD

Email: oguner@santarosa.edu

Class: online

Class Hours: Tuesday & Thursday, 7:30 am – 9:00 am

Laboratory: online

Lab Hours: Tuesday, 9:00 am – 12:00 pm

Office: online

Office Hours: Thursday, 9:00 am – 11:30 am

Course Information:

Basic, introductory chemistry for students with little or no experience with chemistry. This course is a prerequisite for either a year of general chemistry (Chem 3A, 3B, Chem 4A, 4B) or one semester of organic chemistry (Chem 8). It provides an introduction to fundamental laws and principles of the composition of matter, physical and chemical changes, atomic and molecular structure, chemical equilibria, intermolecular forces, solutions, qualitative and quantitative theory and techniques.

Student Learning Outcomes:

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

1. Analyze basic quantitative problems in chemistry, and apply them to real life situations.
2. Correlate macroscopic properties of matter with its structure and behavior at the atomic scale.
3. Communicate effectively using common chemical conventions and notation.
4. Evaluate available information to plan, perform, and interpret basic laboratory experiments.

Student Objectives:

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

1. Solve problems involving fundamental processes in chemistry, including basic atomic theory, structure and bonding, chemical reactions, equilibrium, and various forms of matter
2. Demonstrate a basic understanding of the above fundamental processes in chemistry and how the scientific method was used to develop the theories behind these processes
3. Interpret and utilize the vocabulary and nomenclature that is specific to a basic level of general chemistry
4. Follow fundamental safety procedures in a laboratory environment
5. Perform simple chemical experiments and associated calculations efficiently and accurately
6. Use fundamental processes in chemistry to investigate phenomena in the applied sciences
7. Arrange, sort, and graphically represent chemical data

General Course Policies:

1. Prerequisites

   Course completion (with a grade of C or higher) of Math 155 or two years of high school algebra (or equivalent)

2. Textbook:

   Introductory Chemistry: Atoms First, 5th Edition, Russo • Silver, Publisher- Pearson,

   ISBN 978-0-321-92711-8

   Books available on reserve at Doyle Library: Bring your SRJC Student ID card to the Reserve desk and provide the call number: QD33.2 .R87 2015

   Lab Manual: Chemistry 42 Laboratory Manual, Omrcen, Publisher-Arbor Crest,

   ISBN 281-8-1201461-4-4

   Acquisition of a personal copy of the lab manual is optional. For each experiment, the relevant Lab Manual will be provided through Canvas.

3. Attendance

   Attendance is critical for this course. Progressive nature of the material requires a thorough understanding of the previous material in order understand and build upon the next one. There will not be any make-ups on labs or exams (without a documented medical excuse). Missing more than three labs will result with an automatic fail.

4. Standards of Conduct

All work submitted for grading must be the students own work. In lab, you must make your own observations and report using your own words. Collaboration is encouraged, but final work submitted must be your own. Students who plagiarize or cheat may be suspended [for one or two class meetings by the instructor] and referred to the Vice President of Student Services for discipline sanction, in cases of egregious violation.

Cellular phones must be silenced during lectures. Texting is not allowed. In case of an emergency that requires you to send a text message or a phone call, you should step outside to do so.

5. Laboratory

Attending lab is mandatory. The concepts learned in the class come alive in the lab. The lectures in class and the experiments in the lab are aligned in a way to complement each other. There will be 12 lab sessions. Lab notebook is required to write down the objective, experimental procedure, observations and results. **The lab reports and any pre-lab or post-lab questions, if applicable, are due by the end of the day a week after the lab session (except for those weeks that include a holiday session)**. The due dates and the rubric for each report will be clearly indicated in the provided Lab Assignment. Failure to deliver lab report at the end of the session or missing a lab will result with a zero grade for that session. Late reports (no longer than 5 days late) will be marked down by 20% of the actual grade. Missing more than three labs will result with an "F" grade for the entire course. There will be 12 lab-reports 20 points each; one lab-report with the lowest grade will be dropped, yielding a total point of 220 (i.e., 22% of the final grade).

6. Homework

Following the completion of each chapter, a homework assignment will be accessible, due by midnight the day of the next lesson. The homework will be posted in Canvas, submitted by the students on-line, and will be automatically graded. Each homework will be 10 points worth and there will be 15 homework assignments, yielding a total grade of 150 points (i.e., 15% of the final grade). Missing the deadline for homework will result with an automatic zero grade.

7. Exams

There will be three midterm exams and one final comprehensive exam. The midterm exams will be during regular class hours and it will be based on the previously completed four chapters. The final exam will be cumulative with more emphasis on the last four chapters that were not covered in the midterm exams. No make-up exams will be given. Missing an exam will result with a zero grade. A medical excuse will be granted only if proper documentation from a doctor is provided. The three midterm exams will constitute 45% of the final grade (15% each). The comprehensive final exam will constitute 18% of the final grade.

8. Emergency Evacuation Plan: (not applicable for online classes)

In the event of an emergency during class or lab that requires evacuation of the building, please leave the class immediately, but calmly. Our class will meet at the lawn between Bech, Shuhaw,

and Baker Halls to make sure everyone got out of the building safely and to receive further instructions.

9. Accommodation for students with disabilities

   Authorization for Academic Accommodations Letter from the Disability Resources Department is needed for any disability-related accommodations, including note-taking, test taking services, and special equipment/furniture, etc. Please let your instructor know about such a need as soon as possible.

10. Grading

    Homework (15%): There will be 15 homework assignments following completion of each chapter, 10 points each.

    Total points 150.

    Laboratory (22%): There will be 12 lab-reports 20 points each; one lab-report with the lowest grade will be dropped.

    Total points 220.

    Midterms (45%): There will be three midterms each covering 3-4 chapters, 150 points each.

    Total points 450.

    Final Exam (18%): The final exam will be comprehensive.

    Total points 180.

    Final grade (100%): Total points 1000.

    The grading scale:

≥88% A	880-1000 points
≥76% B	760-879 points
≥65% C	650-759 points
≥50% D	500-649 points
<50% F	below 500 points

11. Exam dates:

    Midterm 1 (Chapters 1-4): Thursday, September 9, 2021, 7:30 – 8:50 am

    Midterm 2 (Chapters 5-8): Tuesday, October 12, 2021, 7:30 – 8:50 am

    Midterm 3 Chapters (9-12): Tuesday, November 9, 2021, 7:30 – 8:50 am

    Final Exam (comprehensive): Tuesday, December 14, 2021, 7:00 – 9:45 am

12. Schedule

Class: Chem 42, Section 0449
Instructor: Osman F. Güner, PhD
Admin Phone: 535-3771

Week	Day	Date	Lecture Topics	Lab Topics
1	T	8/17/2021	Chapter 1 Course Intro (Physical Transformations)	No Lab this week
	Th	8/19/2021	Chapter 2 (Significant Figures/Scientific Notation)	
	S	8/22/2021	Last day to register/add class without instructor's signature or add code	
2	T	8/24/2021	Chapter 2 (Units/Density/Dimensional Analysis)	Lab introduction, expectations, the process, grading, lab reports
	Th	8/26/2021	Chapter 3 (Atomic Theory/Atomic Structure)	
	S	8/29/2021	Last day to drop class and be eligible for a refund	
3	T	8/31/2021	Chapter 3 (Atomic Theory/Periodic Table)	Exp-1 Calculations and Dimensional Analysis
	Th	9/2/2021	Chapter 4 (Modern Atomic Model/Bohr Theory)	
	S	9/5/2021	Last day to register/add class with the instructor's signature or add code	
	S	9/5/2021	Last day to drop a class without "W" symbol	
4	M	9/6/2021	**Labor Day Holiday (No Classes, District Closed)**	
	T	9/7/2021	First Census Day	
	T	9/7/2021	Chapter 4 (Electron Configuration/Octet Rule)	Exp-2 Measurement and Density
	Th	9/9/2021	**Mid-Term Exam I, Chapters 1-4**	
5	T	9/14/2021	Chapter 5 (Bonding/Nomenclature)	Exp-3 Atoms and Electromagnetic Spectrum
	Th	9/16/2021	Chapter 5 (Dot Structure/Electronegativity)	
6	T	9/21/2021	Chapter 6 (Molecular Shape)	Exp-4 Separation of a Ternary Mixture
	Th	9/23/2021	Chapter 6 (VSEPR)	
	S	9/26/2021	Last day to opt for P/NP for a class	
7	T	9/28/2021	Chapter 7 (Intermolecular Forces)	Exp-5 Ionic and Molecular Compounds
	Th	9/30/2021	Chapter 7 (Phases of Matter)	

12. Schedule (continued)

8	T	10/5/2021	Chapter 8 (Reactions)	Exp-6 Lewis Structure and Molecular Geometry
	Th	10/7/2021	Chapter 8 (Solubility/Acid-Base rxns)	
9	T	10/12/2021	**Mid-Term Exam II, Chapters 5-8**	No Lab this week
	Th	10/14/2021	Chapter 9 (Stoichiometry/Moles)	
10	M	10/18/2021	Midterm progress indicators posted in student portal	
	T	10/19/2021	Chapter 9 (Stoichiometry/Moles)	Exp-7 Observing Chemical Reactions
	Th	10/21/2021	Chapter 10 (Electrochemistry)	
11	T	10/26/2021	Chapter 10 (Electrochemistry)	Exp-8 Synthesis of Indigo
	Th	10/28/2021	Chapter 11 (Gas Laws)	
12	T	11/2/2021	Chapter 12 (Solutions)	Exp-9 Electrochemistry and the Activity Series
	Th	11/4/2021	Chapter 12 (Molarity)	
13	T	11/9/2021	**Mid-Term Exam III, Chapters 9-12**	No Lab this week
	W	**11/10/2021**	**Professional Development Flex Day (No classes or activities)**	
	Th	**11/11/2021**	**Veterans Day Holiday (No Classes, District Closed)**	**No Lab this week**
	S	11/14/2021	Last day to drop a class with "W" symbol	
14	T	11/16/2021	Chapter 13 (Kinetics)	Exp-10 Applying the Ideal Gas Law
	Th	11/18/2021	Chapter 13 (Kinetics)	
15	T	11/23/2021	Chapter 15 (Acids/Bases)	Exp-11 Concenration of a Solution
	Th	**11/25/2021**	**Thanksgiving Day Holidays (No Classes, District Closed)**	
	F	**11/26/2021**	**Professional Development 1/2 Flex Day (No classes or activities, District Closed)**	
16	T	11/30/2021	Chapter 15 (Acids/Bases)	Exp-12 Acetic Acid Titration
	Th	12/2/2021	Chapter 16 (Nuclear Chemistry)	
17	T	12/7/2021	Chapter 16 (Nuclear Chemistry)	No Lab this week
	Th	12/9/2021	Chemistry Review	
18	T	**12/14/2021**	**Final Exam**	