

Spring 2018 CHEM 42 INSTR: O. RAOLA

Syllabus and Course Information

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Faculty Information



Instructor: Dr. Orlando E. Raola

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Course Information

Course: CHEM 42 Introductory General Chemistry

Sections: 3008

Credits: 4

Locations:

Lectures: Bech 1999

Labs: Bech 1980

Prerequisites: Course Completion of MATH 154 or Course Completion of MATH 155 or higher or higher or two years of high school algebra or equivalent.

Recommended Preparation: Eligibility for ENGL 100 or ESL 100

Web Pages:

1. This class uses Mastering Chemistry by Pearsons for the online homework and quizzes. Follow the instructions in the [Get Started with Pearson's Mastering Chemistry](#) flyer. The course ID is MCRAOLAF17CHEM42, the access code is will be found in your book package purchased from the bookstore or it can be purchased online during registration.
2. [https:// Santa Rosa Junior College](https://santarosa.edu) provides [a Canvas website](#) for all courses and sections. There you can find the most current information, additional materials and grades for this course.

Meetings

Lecture: Monday and Wednesday 10:30 am - 12:00 noon

Laboratory Exercise:

Monday 12:00 noon - 3:00 pm

Office hours:

Monday 3:00 – 5:00 pm

Tuesday and Thursday: 10:00 - 11:00 am

Wednesday 12:00 noon – 1:00 pm

Materials

Required text: Introductory Chemistry, 6th Edition

Nivaldo J. Tro

©2018 Pearson ISBN: 9780134290812

Additional materials (required):

Chem 42 Introductory General Chemistry Laboratory Manual, SRJC Chemistry Department. Available at the bookstore.

General Chemistry Laboratory Notebook, CER, Chemical Education Resources (spiral bound carbonless copy), ISBN 0-87540-247-X or equivalent.

Scientific or graphing calculator. Stylus-operated, wireless or web-enabled devices, including cell phone calculators, or QWERTY-keyboard devices (ex. TI-92, Voyage 200) may NOT be used during examinations.

Additional materials (suggested):

LoggerPro 3.14 program, good tool for data processing. The college has a site license, you can get a copy for personal use from Vernier. [Follow the instructions given in the link.](#)

Grading policy

Activity	% of grade
Online quizzes	10
Homework on Connect	10
3 midterm exams	40
Laboratory work	25
Final comprehensive exam	15
TOTAL	100

Grading scale

% achieved Letter grade	
100 – 89	A
88 – 79	B
78 – 65	C

64 – 50	D
< 50	F

Important dates and deadlines

What?

Classes begin
 Last day to add without instructors signature
 Last day to drop with refund
 Last day to add with instructors signature
 Last day to drop without “W”
 Last day to drop with “W”

When?

August 21, 2017
 August 27, 2017
 September 3, 2017
 September 10, 2017
 September 10, 2017
 November 19, 2017

Emergency Preparedness

The Sonoma County Junior College District maintains a [plan for emergency preparedness](#) in case of any disaster or critical incident occurring. In case of earthquake, fire or similar emergencies, the Chemistry department building (Bech Hall) should be evacuated. The evacuation assembly area is in front of the East exit, in the lawn between Bech, Shuhaw and Baker halls.

In case of an emergency, contact the District Police at (707) 527-1000

Attendance policy and due dates for tasks

Since regular attendance promotes success in class work, a student is expected to attend all sessions of each class in which the he/she is enrolled. Attendance is the students responsibility. Any student who ceases to attend a class and fails to drop it officially in the Admissions and Records Office may receive a grade of “F”.

Any student enrolled in a course who is not present or who has not made prior arrangements with the instructor by the second class roll call will be dropped from the course by the instructor. (From SRJC Catalog)

You are expected to attend all lectures. There are no make-up midterms. If you cannot attend a midterm because of legitimate, unavoidable reasons such as illness, injury, or family emergency, you should contact the instructor before the scheduled time for the test.

You must attend all lab sessions. Completed pre-lab assignments are due at the beginning of the lab. Lab write-ups are due at the end of the next lab session. Late work may be turned in up to one week past due date for half-credit. There are no “make-up labs” scheduled for this semester.

The Sonoma County Junior College District attendance procedure (Policy 8.1.5 and Procedure 8.1.5P , Revised February 2014) states that students with excessive absences may be dropped from the class. According to the scheduled instruction time in this class, excessive absence would be missing more than 11 hours of combined lecture and/or labs. If for any reason you expect to be absent from the lab more than twice in the semester or if you have a conflict with any of the midterms or final, it is in your best interest to take this class at some other time.

Due dates for online assignments

The online component of this class amounts to 20% of your grade, therefore it is in your best interest to start working on your assignments right away. The problem sets in the homework assignments are due on the day of the midterm corresponding to each group of chapters. Only

homework completed before the due date counts for grade. Past the due date you will be able to access the problem sets but no grade will be recorded. You need to complete at least 70% of all the homework problem sets in a timely fashion in order to receive full credit for homework (10% of final grade). Your grade for homework will be then the fraction of that 70% that you complete on time. See instructor if you need further clarification on this matter.

During the semester you will access also online quizzes. The quizzes do not have a deadline, but it is in your best interest to complete a quiz as soon as you have finished the corresponding homework assignment.

Academic Integrity

According to the college's academic integrity policy (Policy 3.11, as revised 7/10/2012), "Sonoma County Junior College District (SCJCD) holds that its primary function is the development of intellectual curiosity, integrity, and accomplishment in an atmosphere that upholds the principles of academic freedom. All members of the academic community - student, faculty, staff, and administrator - must assume responsibility for providing an environment of the highest standards, characterized by a spirit of academic honesty and mutual respect.

Because personal accountability is inherent in an academic community of integrity, this institution will not tolerate or ignore any form of academic dishonesty. Academic dishonesty is regarded as any act of deception, benign or malicious in nature, in the completion of any academic exercise. Examples of academic dishonesty include cheating, plagiarism, collusion, and other academic misconduct."

Examination Policy

There will be three midterm exams and a final. The midterms will consist of questions and problems related to the content of the chapters indicated in the schedule. The final will be a comprehensive exam of all the subject matter covered in the course and will take place on Monday, December 18, 10 am – 12:45 pm. If you have a scheduling conflict for the final, let the instructor know as soon as possible.

Accommodations for students with disabilities

If you need disability-related accommodations for this class, such as a note taker, test taking services, special furniture, use of service animal, etc., please provide the Authorization for Academic Accommodation Authorization (AAA letter) from the Disability Resources Department (DRD) to me as soon as possible. You may also speak with me privately during office hours about your accommodations. If you have not received authorization from DRD, it is recommended that you contact them directly. DRD Bertolini Student Center, 3rd Floor (East wing).

Course description

CHEM 42 Introductory General Chemistry: A basic introduction to fundamental laws and principles of the composition of matter, physical and chemical changes, atomic and molecular structure, chemical equilibria, intermolecular forces, solutions, and qualitative and quantitative theory and techniques. This course is a pre-requisite for Chemistry 1A.
(from SRJC Catalog)

Course Contents and Objectives

Upon completion of the course, the student should 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.

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 the 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

Teacher's Expectations

You are expected to acquire the basic intellectual tools needed for understanding the wide world of chemical interactions from the formation of the simplest molecules in intergalactic space to the inner workings of neurons in the human brain. In order to achieve this, you are expected to come to class every day on time, to read the material suggested in preparation for the lecture, to do all the homework problems assigned, to participate actively in class, to take notes and ask questions, to take all three midterm and the final exam. You are also expected to show respect for your instructor, teaching assistants and staff, to abide by SRJC Student Conduct Code as outlined in the corresponding [policy](#) and [procedure](#), and by the academic integrity [policy](#) and [procedure](#) regarding the individual authorship of all material that you turn in for grade.

Learning Support

Some laboratory experiments will require the use of personal computers with Microsoft Excel, Microsoft Word, and Vernier Logger Pro programs. The computers are located in each of our Laboratories and in the Mathematics Department Computer Lab. in Shuhaw Hall, in the Multi-Curricular Computer Lab. in Barnett Hall, and in the Computer Lab. on the Petaluma Campus.

If you have any problem, opinion, issue, comment, suggestion, in short, anything that could improve your experience taking this class, or the experience of your fellow students, or that of your instructor, please do not hesitate to contact the instructor in person, during office hours, after class or at any other time, or use email or the phone.

DISCLAIMER

This syllabus sets the basic information you should be aware of in order to succeed in this class, but you should regard it as a “living document”. It is your responsibility to check the course link on the Canvas frequently in order to find out about changes and updates.

Laboratory

Grading

Activity	Points
Lab Report	20
Total	11 labs x 20 = 220
Discretionary points	80
TOTAL	300
	(25 % of grade)

Notes: Discretionary points measure laboratory technique and citizenship in the lab.

Notebook

The laboratory is an essential component of any chemistry course because it provides a situation for learning in which abstract principles may be brought down to the level of comprehension. However, your laboratory experience will not be complete until all data and observations have been properly recorded and reported. Therefore, an accurate record of experimental results is an indispensable part of all scientific research. In many university, government, and industrial laboratories, for example, a notebook must be kept so that it can be admitted as evidence in court should a dispute arise as to the priority of discovery for patent rights. In such a notebook, each page is dated and all significant results are witnessed. Of course, we shall not need to take such elaborate precautions, but our awareness of them may serve to emphasize the fact that a laboratory notebook is not a private diary. Since the material in the notebook is subject to the scrutiny of others, it must be intelligible to anyone conversant with chemistry and in such a format as to leave no doubt as to its reliability and honesty. Therefore, the following format is suggested.

Before coming to the laboratory each day, study the assigned experiment until you thoroughly understand the purpose of the experiment. Consult with the instructor prior to this time if necessary to understand all parts of the purpose and procedure. Prepare your lab notebook by writing on it the purpose of the experiment (only a few sentences) and a brief summary (no more than half a page) of the procedure. Use a bound Laboratory Notebook, (quadrille ruled) 8.5 × 11" with numbered pages and carbonless duplicates to record laboratory observations. The Laboratory Notebook may be purchased at the campus bookstore. In the event your notebook is misplaced, its rapid return will be facilitated if you print the following your personal information on the inside cover or the first page of the Laboratory Notebook. Please note: the first three pages should be reserved for a table of contents. The table will be developed as experiments are completed and added to the table. Use black or blue ink to write in the lab notebook. Ink labeled as archival is recommended. Press firmly in order to create a legible copy. Record all data and observations directly and immediately into the laboratory notebook. When they are written days or even hours after the experiment was conducted, they inevitably are unreliable records of what actually happened in the laboratory. Only the original, unedited record has any scientific significance.

Your name and the experiment number should be written at the top of each page since the yellow carbon copies occasionally get shuffled. Each day's entry should be dated even if it appears in the middle of a page. In some cases it is helpful to record the time at which a particular observation was made. Do not record data on any surface other than your lab notebook. It is extremely important that you acquire this habit and compliance with this rule will be strictly enforced. Mistakes should be crossed out, never erased or obliterated. Draw a single line through a mistake and write the correct entry above or beside it, but never on top of it. All deletions should be accompanied by a brief statement of explanation. If considerable material on a page is to be disregarded, cross it out with a large X. In every case the deleted entry must still be legible. Record all data (masses, volumes, temperatures, times,

colors, odors, evidence of physical or chemical changes, descriptions of experimental problems, etc.). Since this written record serves as the basis on which your report will be composed outside of the laboratory at a later date, it is important that a generous amount of information be recorded in the notebook. Whenever it is possible, organize the data in tables. At the end of the laboratory period, carefully check your work for omissions or errors before submitting the copy. Initial and date the bottom right hand corner of each page, certifying the work as your own and confirming the completion date of the portion of your experimental work. At the completion of an experiment, have the instructor initialize your lab notebook.

Reports

After the completion of each laboratory session, you must prepare a laboratory report that will be due one week after you finish the data collection for the lab. The report should include a summary of your experimental results, the completed data tables containing your data and results, and the answer to any questions found at the end of the experiment. Any work that is sloppy, poorly organized, incomplete or inaccurately done will be returned with a zero grade and/or instructions to rewrite the report. The pages of the report should be stapled in the upper left-hand corner. Do not use folder covers for your report. The format and content expected for each report will be discussed at the beginning of each lab session.

Course Schedule

Week	Date	Lecture Topic	Lab Exercise	Assignments Due	Comments
1	8/21/2017	Intro to CHEM42. Ch. 1 The Chemical World	Lab Intro. Safety. Calculations and Dimensional Analysis.		
	8/23/2017	Ch. 2 Measurements and Problem Solving			
2	8/28/2017	Ch. 3 Matter and Energy	Locker Check. Lab # 1 Measurements and Density		
	8/30/2017	Ch. 4 Atoms and Elements			
3	9/4/2017	Labor Day Holiday (no classes or activities)			
	9/6/2017	Ch. 4 (cont.)			
4	9/11/2017	Ch. 5 Molecules and Compounds	Lab # 2 Atoms and the Electromagnetic Spectrum	Report 1	
	9/13/2017	Ch. 5 (cont.)		"	
5	9/18/2017	First Midterm Exam	Lab # 3 Separation of a Ternary Mixture	Homework Set # 1 Report 2	
	9/20/2017	Ch. 6 Chemical Composition			
6	9/25/2017	Ch. 6 (cont.)	Lab # 4 Ionic and Molecular Compounds	Report 3	
	9/27/2017	Ch. 7 Chemical Reactions	"	Report 3 (0285,0288)	
7	10/2/2017	Ch. 7 (cont.)	Lab # 5 Lewis Structures	Report 4	
	10/4/2017	Ch. 8 Quantities in Chemical			

		Reactions			
8	10/9/2017	Ch. 8 (cont.)	Lab # 6 Chemical Reactions	Report 5	
	10/11/2017	Ch. 11 Gas Laws	"	"	
9	10/16/2017	Ch. 11 (cont.)	Lab # 7 Synthesis of Indigo	Report 6	
	10/18/2017	Ch. 16 Oxidation and Reduction			
10	10/23/2017	Ch. 9 Electrons in Atoms and the Periodic Table	Lab # 6 Chemical Reactions	Report 5	
	10/25/2017	Ch. 9 (cont.)			
11	10/30/2017	Ch. 10 Chemical Bonding	Lab # 8 Electrochemistry and Acitivity Series	Report 6	
	11/1/2017	Ch. 10 (cont.)			
12	11/6/2017	Review Ch. 6 - 10	no lab this week		
	11/8/2017	Second Midterm Exam		Homework Set # 2	
13	11/13/2017	Ch. 12 Liquid, Solids and Intermolecular Forces	Lab # 10 Preparation and Concentration of a Solution	Report 8	
	11/15/2017	Ch. 12 (cont.)		"	
14	11/20/2017	Ch. 13 Solutions	no lab		
	11/22/2017	Ch. 13 (cont.)			
15	11/27/2017	Ch. 14 Acids and Bases	Lab # 7 Synthesis of Indigo	Report 10	
	11/29/2017	Ch. 14 (cont.)			
16	12/4/2017	Ch. 15 Chemical Equilibrium	Lab # 11 Acetic Acid Titration	Report 7	
	12/6/2017	Ch. 17 Radioactivity and Nuclear Chemistry	"		
17	12/11/2017	Review Ch. 12 - 15, 17	Check-out	Report # 11	
	12/13/2017	Third Midterm Exam			
	Monday, 12/18/2017 10:00 am - 12:45 pm	Final Comprehensive Examination			