

Chemistry 42-Spring2017 Syllabus

“We learn more by looking for the answer to a question and not finding it than we do from learning the answer itself.”

~Lloyd Alexander~

This syllabus is an agreement; your continued registration in this course means that you agree to the policies and procedures here.

Instructor: Dr. Tatjana Omrčen (pronounced *Tatiana Omerchen*). Please call me Tatjana.

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Office hours: W 9:00-10:30am and 12:00-1:30pm

Thur 9:00-10:30am

I am also available by appointment, if none of these hours work with your schedule.

Required Course Material

Course textbook: *Chemistry in Context, Project of the American Chemical Society, 8th ed.*, McGraw Hill 2015, with access code to McGraw-Hill Connect[®] online textbook/homework resources. A hard copy of the book is available at the Doyle library for in-library use. To check it out bring your SRJC Student ID card to the Reserve desk and give them the call number QD415 .C482 2015.

Laboratory manual: *SRJC Chemistry42Laboratory Manual, Spring2017 ed.*, Arbor Crest. Older editions of this manual will not work, because of the major changes in this edition.

Student laboratory notebook: While different formats exist on the market, please buy Hayden-McNeil Chemistry Spiral Bound notebook, with numbered duplicate pages. ISBN 978-1-930882-23-2 for 50-page version.

Small green book (what used to be called “blue book”) for in-class writing assignments.

i>clicker remote: i>clicker is a response system that allows you to respond to questions I pose during class and is also required for chapter quizzes. In this course, you have the option of using an i>clicker, i>clicker+ or i>clicker2 remote. If you already have any of the above i>clicker remotes from a previous class, you are all set, and you will be able to register the device in class.

A simple scientific calculator: Graphing calculators are acceptable, but not necessary in this class. Please be aware that cell phones, wireless or web based devices, or sharing of calculators are not allowed on tests.

Protective eyewear and apron must be used in the laboratory at all times as required by California State law. These items are covered by your fees and will be issued to you in class.

Course Goals and Objectives

This course 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, and qualitative and quantitative theory and techniques.

By the end of the course you will be able to:

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

Class Philosophy

In many traditional classrooms the flow of information generally occurs from the instructor to students. While it may seem easier for an instructor to just tell you what she wants you to know, and how to

solve problems, this approach is not very effective at promoting learning. Contrary to what you may have heard, studying science is much more than memorizing facts, rules and definitions. The approach in this class is to ask you lots of questions and, based on your answers, provide feedback, more questions – and some answers! A typical class period will consist of short lectures, clicker questions, partner/group activities and writing tasks – a format that requires you to be an active and responsible participant in the classroom.

The work in this course is university level: it is not enough to just show up for class hoping to be handed everything you need to know. What you get from this course depends on you. If you embrace the process, do all the assigned work and keep up with the material, you will learn more, in more depth, than you would in a traditional lecture format. If not, you will find that the material quickly becomes incomprehensible. Learning how to learn is difficult and, at times, messy. The goal of this class is to encourage you to hone your time management and study habits and help you advance on a path of becoming a self-directed learner, by raising your thinking abilities to a higher level. Ultimately, what you learn in this course will serve you well in many realms –future courses, potential careers, and the many areas of everyday life where good analytical thinking can go a long way. Einstein said: “An education is what remains after you have forgotten everything you learned in school.” I’m pretty sure that, when saying “education” he was referring to thinking skills, which will remain with you long after you have forgotten many of the subject-specific facts. At the end of this course, you should have better appreciation of how scientists think, the beauty of chemistry and its importance in other fields and in everyday situations. I expect you to be better at problem solving and critical thinking than you were before you took this course. It is my hope that you will learn how to evaluate the available information, formulate good questions, recognize what is being asked, and conceptualize how to solve problems.

Classroom Etiquette

This is a very interactive class. I expect you to come to every class with positive attitude and a genuine desire to learn. I will make every effort to learn every student’s name, but I am more likely to be successful if you make an effort that will help me notice you. Please come to class prepared and ready to actively participate in class discussions. You should strive to always turn in the highest quality work of which you are capable.

Please be punctual when arriving to class. If you happen to be late, enter quietly. If you must leave early, sit where you can leave with minimal disruption. If you have any uncontrollable scheduling issues that may cause you to be regularly late for lecture (such as child care), please come and talk to me at the beginning of the semester. For the safety reasons, you will not be able to participate in lab if you arrive late, if you did not complete the assigned pre-lab activities or if you otherwise demonstrate the lack of sufficient preparation.

Do not carry out unrelated side conversation with your neighbors when one person is speaking. These conversations are distracting and disrespectful and make it difficult for others to hear and focus.

You do not have my permission to record lectures in this class, unless you submit documentation from DRD indicating that you need this service due to disability. In such case you may use the recordings for your personal study only. Any violation of this policy will be considered an act of dishonesty and dealt with accordingly.

A few words about the use of cell phones, tablets, and computers in class

Often a question will come up in class discussion to which we may not know the immediate answer. Internet at our fingertips can be of great help. Your use of the wireless devices for in-class research is appropriate but you may not use your phone, tablet or computer for random unrelated Internet searches, chatting, texting, e-mailing, facebooking, or any other similar types of distractions. Please turn off the sound on anything that makes noise (phone ringing is the most obvious offender, but persistent buzzing or chiming of incoming text messages can be annoying as well).

Course Requirements and Grading Policy

The final grade will be determined based on the percentage of points earned in all the individual grade components and their weighting factors, as summarized in the table. The specific requirements for each category are explained below. Borderline cases will be decided after taking into consideration such factors as academic growth, initiative, attendance, punctuality, attitude, and individual motivation. Grades will not be based on a curve. Everyone can do well in the course. You are encouraged to help each other **learn** chemistry, but be careful not to confuse “helping each other learn” with cheating.

To keep track of your own grade throughout the semester refer to this policy regularly.

GRADE CATEGORY	WEIGHT
Lesson preparation and online homework	20%
In-class participation	10%
Laboratory	20%
Four semester exams	40%
Final exam	10%
Total	100%

Approximate grade cutoffs **A** ≥88% **B** ≥76% **C** ≥64% **D** ≥52% **F** <52%

LESSON PREPARATION AND ONLINE HOMEWORK

How should you prepare for class?

- Study in your textbook (or e-text) the material we will cover each day and, at the minimum, complete all the assigned LearnSmart assignments.
- Identify anything you don't understand and bring your questions to class.
- Online homework will be assigned on a regular basis to help you prepare for classroom discussion and to monitor your learning.

Expect to spend 3-6 hours per week doing the readings, LearnSmart assignments and homework

IN-CLASS PARTICIPATION

Your participation in class will be determined by these criteria:

- Coming to class having all assigned online reading/exercises completed
- Participation and/or performance on i>Clicker activities
- Asking pertinent questions
- Active involvement in partner/group activities; completing in-class writing assignments

LABORATORY

Your lab grade will be based on the following:

- Completing and submitting on time all the required written and/or online work. These will vary for each experiment, and will be announced in lab.
- In-lab performance, with the emphasis on your active involvement, curiosity, teamwork, and consideration for lab safety and equipment. This may also include occasional short lab quizzes, to confirm that you completed all the required reading and pre-lab activities for the scheduled experiment.
- Keeping meaningful lab notebook record that demonstrates the understanding of the practical principles being explored and full intellectual involvement with the experiment. Copies of all the notebook pages must be turned in as indicated by the instructor for each experiment.
- Lab exams

Your active presence in the laboratory is mandatory. You will not be able to participate in lab if you arrive late or unprepared. There will be no make-up labs. I will make a grade adjustment to account for

one absence due to an occasional unforeseen event (such as illness, or family emergency). Prolonged illness, or other reasons out of your control for missing more than a single lab, will be handled on an individual basis. In that case, please talk to me as soon as possible so we can figure out what options exist. Otherwise, if you miss more than two labs you may be dropped from the course for lack of participation. You will not be able to receive a C or better in the course, without also receiving at least 64% overall point average on the lab component of the course.

SEMESTER EXAMS

There will be four semester exams that will be based on all the reading, classroom work, laboratory activities, and homework assignments scheduled up to that date. There will be no make-up exams. If you have to miss an exam, your final exam score will be used in its place. If you do not miss any exams, a superior score on the final exam will be used to replace **one** lowest score of the semester exams. You will not be able to receive a C or better in the course, without also receiving at least 64% overall point average on all the course exams.

FINAL EXAM

Final exam will be a comprehensive, multiple-choice exam of all the subject matter covered in the course. There will be no make-up exam. Make sure you talk to me as soon as possible, if you anticipate any scheduling conflicts. The superior score on the final exam may be used to replace **one** low score of the four semester exams.

A general note regarding grades

Please remember that instructors do not *give* the grades. The grade you ultimately *earn* in this class will reflect the depth of your own learning as described below. Please use this regularly as you monitor your progress in the class.

The "**A**" **grade** indicates that the student exhibits **mastery** of the details, concepts, vocabulary, and operations of the subject matter. The student displays the potential for significant achievement at the professional level.

The "**B**" **grade** indicates that the student exhibits an **understanding** of the details, concepts, vocabulary, and operations of the subject matter. The student displays the determination and commitment in the pursuit of mastery of the subject.

The "**C**" **grade** indicates that the student exhibits an **awareness** of the details and vocabulary of the subject matter, and the capability of performing the **basic operations**, and possesses an **elementary knowledge** of the principal concepts.

The "**D**" **grade** indicates that the student has **awareness** of the details and vocabulary of the subject matter but **lacks the capability** of performing the basic operations or of understanding the basic concepts. This student can be considered to be at the entry level of the class, and would benefit by repeating the course.

The "**F**" **grade** indicates that the student, due to one or more of the following factors, received no obvious benefit from participation in the class.

Failure to take or pass required examinations

Continued lack of preparation

Distracting or disruptive behavior in class

Disregard of instructions

Failure to submit required assignments

Excessive absences

A note regarding re-evaluation of graded work

Occasionally I will make a mistake while grading. Often it is a calculation or some other technical error, but sometimes the mistake will be in my interpretation of your answer. I am always more than happy to fix such mistakes. Please observe the following procedure in submitting the graded work for re-evaluation. After your graded assignment is returned to you, do not write on it if you plan to submit it

for a “re-grade.” All “re-grades” must be submitted within one week of the day the graded assignments were returned to you, with a written note explaining what is to be re-graded and why. The note can be very short, e.g. “points added incorrectly,” or longer if there is a more complicated point to be explained. Based on the rationale submitted, the entire report/exam will be reevaluated. If your dispute is based on the comparison with another student’s assignment, both assignments need to be turned in together. Please be sensible: do not submit a re-grade request before the answer key is posted and, unless it is a technical error, please do not seek 1 or 2 point changes. This is within the error of any process requiring thought, and is accounted for when the final grades are rounded off.

Standards of Conduct and Academic Integrity

SRJC Academic Integrity Statement

Santa Rosa Junior College 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, this institution will not tolerate or ignore any form of academic dishonesty.

You are expected to complete all assignments and examinations with total honesty. I will take very seriously any incidents that violate the academic integrity policy. Some obvious examples of cheating include: copying during an exam or quiz, turning in falsified laboratory results (whether or not you completed the lab work), copying directly from another student's lab notebook, aiding another student's dishonesty, etc. In many ways the activities forbidden and called cheating in school (at all levels) are different from those that are forbidden in the workplace. For example, collaboration on projects is encouraged in the workplace, but usually forbidden in school. In this course, collaboration between students is strongly encouraged, so that you can learn and practice the skills you will need in the workplace. However, written assignments must be composed in your own words, even if the answers resulted from a group discussion, in order to demonstrate **your understanding** of the concepts. Thus, turning in identical problem sets will be treated as cheating. This sometimes creates confusion about what is cheating. If, after reading this paragraph, you are still unsure about whether a particular activity is permitted, please talk to me.

At the minimum, students found cheating will earn zero on the assignment in question, and may be subject to a two-day suspension, in accordance with the SRJC Policy.

Emergency Evacuation Plan

In the event of an emergency during class that requires evacuation of the building, please leave the class immediately, but calmly. Our class will reassemble on the lawn between Bech, Shuhaw and Baker Halls, to make sure everyone got out of the building safely and to receive further instructions. If you are a student with a disability who may need assistance in an evacuation, please see me during my office hours as soon as possible so we can discuss an evacuation plan.

Accommodations for Students with Disabilities

If you need disability related accommodations for this class, such as a note taker, test taking services, special furniture, etc., please provide the Authorization for Academic Accommodations (AAA letter) from the Disability Resources Department (DRD) to the instructor as soon as possible. You may also speak with the instructor privately during office hours about your accommodations. If you have not received authorization from DRD, it is recommended that you contact them directly. DRD is located in the Bertolini Student Center (3rd Floor) on the Santa Rosa campus, and 101 Jacobs Hall on the Petaluma Campus.

CHEM42-S17-Omrccn: Tentative Schedule, all sections

WK	Day	Date	In Class	In Lab This Week
1	M	1/16	Martin Luther King Day Holiday	
	T	1/17	Section 5214 will not meet for lecture	No lab this week
	W	1/18	Science, scientific reasoning, scientific method	
	Th	1/19		
	Su	1/22	Last Day to register w/o instructor's add code	
2	M	1/23	Chapter 1: Intro	Lab info, lab safety, keeping lab notebook
	T	1/24		
	W	1/25	Chapter 1: Matter and its classification; periodic table	
	Th	1/26		
3	M	1/30	Appendix 1, Chapter 1: Measurements/units	EXP1: Measurements
	T	1/31		
	W	2/1	Chapter 1: Chemical changes, compounds	
	Th	2/2		
	Su	2/5	Last Day to register/add with instructor's approval; Last day to drop without a "W"	
4	M	2/6	Chapter 1: Chemical equations, nomenclature	EXP2, Part1: Separation of a Mixture
	T	2/7		
	W	2/8	Chapter 2: Covalent bonding, Lewis structures	
	Th	2/9		
5	M	2/13	Chapter 2: Covalent bonding, Lewis structures, cont.	EXP2, Part2: Separation of a Mixture (M, Tu, W sections)
	T	2/14		
	W	2/15	Catch up	
	Th	2/16	PDA Day (No Classes)	
6	M	2/20	Washington's Day Holiday	
	T	2/21	Catch up	(No lab Tu, W) EXP2, Part2: Separation of a Mixture
	W	2/22	EXAM 1	
	Th	2/23		
	Su	2/26	Last Day to opt for P/NP	
7	M	2/27	Chapter 3: Shapes of Molecules	EXP2, Part 3: Notebook/lab report self-assessment
	T	2/28		
	W	3/1	Gases, kinetic molecular theory, intermolecular forces	
	Th	3/2		
8	M	3/6	Chapter 5: Water	EXP3: Ionic and Molecular Compounds
	T	3/7		
	W	3/8	Chapter 5: Ionic vs. molecular compounds	
	Th	3/9		
9	M	3/13	Chapter 5: Aqueous solutions	EXP4: Making an NaCl Solution
	T	3/14		
	W	3/15	Chapter 5: Nomenclature of ionic compounds	
	Th	3/16		
3/20-3/26 Spring Break				
10	M	3/27	Chapter 5: catch up	EXP5: Solution Concentration Using Hydrometer
	T	3/28		
	W	3/29	EXAM 2	
	Th	3/30		

CHEM42-S17-Omrccn: Tentative Schedule, all sections

WK	Day	Date	In Class	In Lab This Week
11	M	4/3	Chapter 4: Energy from chemical reactions	Lab exam
	T	4/4		
	W	4/5	Chapter 4: Energy from chemical reactions, cont.	
	Th	4/6		
12	M	4/10	Chapter 4: Energy changes at the molecular level	EXP6: Solution Concentration by Evaporation
	T	4/11	Chapter 4: Energy changes at the molecular level, cont.	
	W	4/12		
	Th	4/13		
13	M	4/17	Chapter 6	EXP7: How Much Energy is in Food
	T	4/18	Chapter 6	
	W	4/19		
	Th	4/20		
	Su	4/23	Last day to drop with a "W"	
14	M	4/24	Chapter 6	EXP8: Chemical Reactions
	T	4/25	EXAM 3	
	W	4/26		
	Th	4/27		
15	M	5/1	Chemical Reactions; stoichiometry	EXP8, Part2: Chemical Reactions
	T	5/2	Chemical Reactions; stoichiometry	
	W	5/3		
	Th	5/4		
16	M	5/8	Chapter 8: Energy from Electron Transfer	EXP9: Electricity from a Chemical Reaction
	T	5/9	Chapter 8: Energy from Electron Transfer	
	W	5/10		
	Th	5/11		
17	M	5/15	catch up	Lab exam
	T	5/16	EXAM 4	
	W	5/17		
	Th	5/18		
18	M	5/22	7:00am-9:45am FINAL EXAM for section 4339	
	T	5/23	7:00am-9:45am FINAL EXAM for section 5214	
	W	5/24	1:00pm-3:45pm FINAL EXAM for section 5216	