

Course Syllabus for Chemistry 60 (Chemistry for the Allied Health Sciences)

Santa Rosa Junior College in Petaluma Summer 2019

Instructor: Janice Crowley

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Office hours: Monday 2:45 pm - 3:30 p.m. (office) Tuesday 2:45 – 3:45 p.m. (tutorial ctr)
Wednesday 2:45 – 4:30 p.m. (tutorial center)
Thursday 8:15 – 8:45 a.m.(office) 2:45 – 4:30 p.m. (tutorial ctr)

Class Lecture: Section 8740 MTWTh 12:30 to 2:40 p.m. J.Crowley PC630

Lab lecture: Section 8740 TWTh 8:00 a.m. to 9:00 a.m. J. Branca PC630

Lab: Section 8740 TWTh 9:00 p.m. to 12:00 p.m. J. Branca PC208

Class Lecture: Section 8904 MTWTh 9:00 a.m. – 11:10 a.m. J.Crowley PC630

Lab lecture: Section 8904 TWTh 12:00 p.m. to 1:00 p.m. J. Branca PC208

Lab: Section 8904 TWTh 1:00 p.m. to 4:00 p.m. J. Branca PC208

Introduction

Chemistry 60 is a prerequisite for physiology and microbiology courses required for health science programs. It is designed for students who are interested in nursing, dental hygiene, radiology or other health care fields, and who have little or no background in chemistry. It will give an overview of basic general, organic and biological chemistry.

This course is intended to help you see the importance of chemistry in the health sciences. Your daily hard work will pay off with understanding and better long-term retention.

Required Course Materials

Chemistry 60 Survivor Guide: Notes and assignments study guide

Textbook: James Armstrong, *General, Organic and Biological Chemistry: An Applied Approach*, 2nd Edition (2015)

Lab manual: Tatjana Omrcen, *Chemistry 60 Laboratory Manual*

Basic scientific calculator. Cell phones, keyboard calculators, and sharing of calculators are not allowed on tests.

Important Dates

Last day to drop without a W or grade: 06/24/2019

Last day to withdraw with a W. 07/16/2019

Final Exam: Thursday, July 25, 2019

You will only remember 20 % of quickly learned material after a thirty-day period, says author Thomas H. Mentos in his book, The Human Mind. He says you lose about 80 % of what you learned because of cramming. Cramming stores information in short-term memory; therefore, doesn't create a long-lasting connection.

Short-term memory is where we process everything in our brain and put it into temporary storage. It's where all the non-important stuff goes, like what you ate for breakfast two days ago and what you wore on Monday. Just because your short-term memory is active during a five-hour study stint, doesn't mean the rest of your brain will be able to reconstruct anything when you need it to. The reason so many people rely on cramming, despite knowing it's an inferior approach, is because it worked for them in the past. Old habits die hard. Chemistry requires a very strong foundation of information that can be retrieved and connected to new concepts. If the chemistry concepts learned were crammed early on, then the material becomes progressively harder for the student to grasp because of the way it was stored in the short-term memory (due to cramming). Studying information learned the same day is best, then practicing (homework) the same day. Also, teaching someone what you learned helps you not only retain 90 – 95 %, but also improves your overall understanding and ability to restate, not just recall, the information later.

Cognitive scientist, Professor Hal Pashler, has two important principles for studying. First principle is the spacing effect, which refers to the observation that a repetition (e.g., studying the material a second time) is more effective when the two presentations are spaced apart rather than consecutive in time. The second principle is the testing effect, which refers to the phenomenon of better retention of the material when the individual has practiced retrieving the information from memory, relative to merely reading the information. In other words, being tested on the material is a potent way to enhance one's retention of the material. This is one of the main reasons I give daily quizzes.

Grading

Midterms: 420 points

Three midterms (140 points each) will be given in class. The exams will cover lecture material, homework, and reading assignments for the textbook. My exams will reflect the three levels of thinking questions (Bloom's Taxonomy). There will be no makeup exams. All exams count – no exams are dropped. Bring your calculator to all exams.

Participation/Attendance, Homework and Quizzes: 160 points

Daily attendance will be taken. Homework will be assigned, but not formally graded. Instead, you will be given quizzes almost daily to verify you are doing the homework and committing to learning the material as outlined in the introduction.

Laboratory: 260 points (12 labs at 20 points each & 2 review days – no dropped scores)

Final Exam: 160 points

Final Grades: 1,000 points possible

Final course letter grade will correspond to the following percentages:

A = 90 % or better

B = 78 % - 89 %

C = 66 % - 77 %

D = 54 % - 65 %

F = below 54 %

The Top 10 Reasons students are successful in chemistry.

1. They actively study (re-work notes and pencasts) the same day of lecture for that material [increased memory retention 90 -95 %].
2. They are focused (mindful) in lecture. Their minds are actively thinking/analyzing/reflecting on what is being said and they are writing good notes and putting question marks next to material, for which they may need further clarification.
3. They utilize the instructor provided resources – outline, pencasts, reading assignments, all homework... They focus on these without distractions such as receiving and making phone calls or text message or surfing the internet or doing this in front of a TV. Typically they study in the same, clutter free, and media free area. Note: However, some music is conducive to studying (music with good tempo and no lyrics) while some music is not (in general - music with lyrics).
4. They DO the homework that pertains to the lecture after they have actively studied their notes from that lecture that day.
5. They are in class or at least on time, organized with all their materials needed (notes, paper, pen or pencil, calculator, reference sources such as periodic tables).
6. They come prepared to work effectively in study groups. They have done # 1-5 above and are ready to explain and ask clarifying questions from each other. They can easily find their resources because they are organized and have binders with proper tabs labeled...
7. They do not create gaps in their knowledge because they do # 1- 6 above. They can receive constructive criticism.
8. They start memorizing any material the instructor asked them to memorize right away and keep practicing. This helps them to have the basics needed to connect the dots to better understanding and comprehension of the material. They are prepared for daily pop quizzes.
9. They properly prepare for the final comprehensive exam by doing # 1-8 above, but they also start a more dedicated review on weekends, reworking previous material learned in preparation for the final. The week before, they are less stressed than others because they did not procrastinate.
10. They clearly demonstrate with extra paper they used, that they re-worked notes, wrote mock tests, or practice quiz type questions from notes and pencasts before doing the homework. They only look at the answer key after they have worked the homework problem.

TEACHING PHILOSOPHY

I have taught college chemistry for 25 years and have enjoyed working with students with different learning styles. I have been fortunate to have had great science mentors in my life including my early years with my dad as an informal instructor. I believe my college chemistry students can experience great success if they follow the simple tips I have provided which are aimed at reaching every type of student learner who is willing to do the necessary work. Chemistry is also a problem-solving class which involves algebra skills. Chemistry is all around us and the relevancy of chemistry in our everyday life is probably more critical now than ever before. I hope you find the terrific sense of wonder in our world around us and that you can use this experience to make better informed decisions in your life in addition to using these credit hours toward your required graduation requirements.

Course Content

Lectures: Attendance and focused attention in lecture is required. Notes that I go over in class are a big part of your success in this course. The instructor has the right to drop a student who misses more than 10 percent as per SRJC policy. I do exercise this right so do not plan on missing more than 10 percent. In fact, try to attend 100 % to ensure success.

Laboratory: The lab portion of the course is designed to supplement the material you will be learning in lecture. Sometimes the content of the lecture material will precede or succeed the lab. You will be introduced to important practical lab skills and techniques in chemistry which will be helpful in health-related fields. It is important that you make good, detailed observations and keep clear, accurate records in a lab notebook. Each lab is preceded by a mandatory lab lecture that will review or explain the principles in the lab as well as procedural and safety considerations. Prepare for lab by reading the lab carefully beforehand and answer any prelab questions ahead of time.

Office Hours: Students may best utilize office hours by first re-reading class notes and attempting homework problems. I will answer clarifying questions. If you require a lot of one on one help - the Tutorial Center on campus has great tutors and student friendly hours.

Student Expectations

Academic Integrity: All work submitted for grading must be your own work. I encourage you to collaborate with other students, discussing questions as you like, but make sure that you understand everything you put down for an answer. While in lab, you must make your own observations. Copying down and cheating is unacceptable behavior – it is unfair to other students and hinders your own learning. Work that is found to have been copied or plagiarized will be penalized or given a score of zero, whether it is the original or the copy. All exams are individual not collaborative.

Academic Decorum: Please arrive to class on time. If you arrive late, please enter quietly. If you must leave early, sit where you can leave with the minimal disruption to other students and the instructor. Side conversations are disrespectful to the instructor and make it difficult for other students to hear and concentrate. If you have a question about the lecture, please raise your hand and ask it or write it down on a piece of paper and ask after class. I have additional hand-outs for you on the first day.

Cellular phones must be silenced during lectures. Do not send text messages during class. It is disrespectful to the instructor and a distraction to others. If you are found “texting” or otherwise disrupting class, you will be dismissed for two class periods. You will lose points for those two classes/labs. If an emergency arises that requires you to send a text message or make a phone call, please step outside of class to do so. You may return when you are done with your call. Do not make this a habit.

Attendance: Attendance is important and expected of all students. In fact, attendance is so vital for your student learning that I have incorporated points into your grade based on your daily quizzes and participation. Please do not miss or be consistently late to class. The first five minutes are an incredible overview of what you will be learning including

quizzes and demos. To be fair to all students, there will not be any make-ups on labs or exams for any reason other than a thoroughly explained and correctly dated document from a medical doctor for reasons you were not able to attend lab or exam. If you miss a quiz, it is a zero and no make-ups. In addition, since this is a lab-based course, missing more than 3 labs will result in an “F” for the entire course, regardless of the student’s performance in the class (department policy).

Standards of Conduct: All students are expected to do their own work. I applaud collaboration, but at the end of the group study it is the responsibility of the individual to turn in their own work that is not a copy in any sense of other students. Cheating, or anything that can be construed as cheating will result in no credit given, or even worse.

No inter-student communication is allowed during exams. Any comments or questions you may have, must be directed toward the instructor by raising your hand and the instructor acknowledging you. No eating food in the classroom.

Laboratory experiments will often be done in pairs, but each student is expected to record his or her own data. For example, it is not acceptable for one partner to take notes and the other partner to copy their results at the end of the lab.

To ensure an effective learning experience: use of cell phones in class and in lab is prohibited. Refrain from talking while lecturing is taking place because it is a distraction from learning. Laptops are not necessary for this course and should not be used.

Do not ask me for extra credit. Use the appropriate recommended study tips I have stated.

Violation of appropriate student behavior may result in my giving the student two (2) class days dismissal with zero credit for what is covered during the dismissal days.

Student Conduct: The Sonoma County Junior College District supports a safe, productive learning environment to foster intellectual curiosity, integrity and accomplishment as defined in the District Mission and Goals. The District holds that students shall conduct themselves in a manner which reflects their awareness of common standards of decency and the rights of others. Interference with the District’s mission, objectives, or community life shall be cause for disciplinary action. Policy 8.2.8: The full policy may be found here. Procedure 8.2.8P: The full procedure may be found here. Also, refer to policy 3.11 and 3.11 P for academic dishonesty.

The following link will take you to the above policy and procedures:

<https://www.boarddocs.com/ca/santarosa/Board.nsf/Public?open&id=policies#>

Good Lab-keeping: Maintaining a clutter free work area in the lab and cleaning up after yourself are requirements for (1) participating in and (2) leaving the laboratory. The stockroom staff is friendly and helpful but does not have time to clean up after everyone individually. After each lab, the counters, floors, sinks and balances should be clean, equipment in its proper location, and chemical waste disposed of

in the correct container. All students in a section will be held accountable for cleaning up the lab, regardless of who made any messes.

Reading Assignments, Pencast Assignments, and Animation Assignments: Any additional assignment be it homework, pencast viewing or animation viewing are an important part of learning in this course. To attain the greatest success in this course, you should always do these recommended assignments the same day they are assigned after you have actively reworked your notes. These assignments are typically found in Canvas.

Homework Assignments: Chemistry is a vertical subject that is best learned in appropriate chunks. As an instructor I have gone to great lengths to not overburden you with an inordinate amount of information per lecture. Therefore, it is imperative that you complete the recommended homework assignments before the next class period to avoid gaps in understanding. Studying on a daily basis and not cramming increases your ability to retain long-term information and perform more successfully on mid-terms and comprehensive final exams. I will be providing answers to almost all your written assignments so you can double check your work immediately and know whether you are studying and learning what you need to know for proper preparation for the daily quizzes and the exams. Please note that I use Bloom's Taxonomy of questions on the exam which means I will ask recall questions, application questions, and higher order critical thinking questions. Cramming typically will not enable you to perform at the higher levels.

Course Policies

Missed Labs: If you miss a lab period, it is possible, if space is available, with the consent of the lab instructor, to make up the time during another lab period, as long as the same experiment is still being used. Please do not make a habit of requesting this accommodation. If you are sick or have an acceptable reason for being unable to complete an experiment, the instructor may, at his discretion, excuse one lab report for the semester. After this, no further absences will be excused, regardless of the circumstances. **If you miss more than 3 labs, you will receive an F in the course regardless of your grade in lab or lecture as per department policy.**

Late Labs: Late labs will be marked down by 20 % of the value of the assignment (4 points on a 20-point lab). They will not be accepted more than one week after the regular due date for report. No more than three late labs will be accepted from each student for the semester.

Accommodations for Students with Disabilities: If you need disability-related accommodation for this class, please provide the Authorization for Academic Accommodations Letter from the Disability Resources Department (DRD) to your instructor as soon as possible. You must also speak with me privately during my office hours about your accommodations. Please fill out any paperwork necessary for testing accommodations in advance of the exam day. If you have not received authorization from DRD, contact the office directly. It is located in 101 Jacobs Hall in Petaluma (778-2491) and Analy Village (527-4278) in Santa Rosa.

Safety

Laboratory Safety: Safety in the lab is of primary importance. **While in the lab, you must be dressed in long pants and closed-toe shoes.** Backpacks and other loose articles must be stored in the cubbies provided, not on the floor. If you have long hair, you must tie it back. When anyone in class is working on chemistry, everyone must be wearing safety goggles. These may be worn over prescription glasses. Food and drink are strictly prohibited in lab. More complete safety instructions will be given to you in the lab lecture and in the lab.

Emergency Information: In the event of an emergency, remain calm and take deliberate action as necessary. In an earthquake, seek cover from falling objects and hold on. In most other situations, your instructor will have time to tell you what to do. In the event of an evacuation from lab (Room 208), turn off any flame or heat source you are using and exit using the exterior door if safe to do so. In an evacuation from Ellis or Call, meet at Rotary Plaza in front of the library. **Do not leave:** your instructor will take roll and give further instructions. Copies of the red Emergency Preparedness Handbook are posted in most rooms on campus and have detailed information and procedures for most imaginable emergencies. Any type of emergency can be reported to the District Police Dispatcher at (707) 527-1000.

Course Calendar

<i>Mon</i>	<i>Tue</i>	<i>Wed</i>	<i>Thu</i>
2019	June	Calendar Is subject to change only as deemed necessary.	
17 UNIT: 2 Intro, Rules, Atoms, Elements, Electrons UNIT 1: Measurement Is covered in lab lecture and lab on Tues.	18 UNIT: 2 Avogadro's # and significant figures LAB- Safety & Intro Check In AND Metric measurements covered in lab and will be on EXAM 1	19 UNIT: 3 Bonds, formulas LAB – Exp. 2 Separation of a Mixture	20 UNIT: 3 Lewis Structures LAB – Exp.1 Measurements
24 TEST 1: Units 1 – 3 and After exam HW: Pencasts on NOMENCLATURE	25 UNIT: 4 IMF, formal charges Balancing equations LAB – Exp. 3 Identification of a Pure Substance	26 UNIT: 5 Solutions LDF due to symmetry LAB – Exp. 10 Observing Chemical Reactions	27 UNIT: 5 Solutions Stoichiometry LAB – Exp. 7 Concentration of a Salt Solution

<i>Mon</i>	<i>Tue</i>	<i>Wed</i>	<i>Thu</i>
July 1 UNIT: 6 Reactions Balance & Stoichiometry	2 UNIT: 6 Energy UNIT: 7 Acids/Bases LAB – Dry Lab Stoichiometry	3 UNIT 7: Acids, Bases, Buffers, pH UNIT: 6 Equilibrium LAB – Exp. 13 Acids/Bases/Buffers	4 Holiday – no classes
8 TEST 2: UNITS 4-7 After exam HW: Pencasts on Gases Lewis Structure Modeling	9 UNIT: 9 Hydrocarbons Structure, HH buffer problems LAB – Isomers Dry Lab	10 UNIT: 9 Hydrocarbons - Nomenclature UNIT: 10 Alcohols/Chirality LAB – Exp. 11 Syn. of Acetaminophen	11 UNIT: 10 Alcohols dehydration LAB – Exp. 4 Vegetable Pigments
15 UNIT: 11 Carbonyl Compounds	16 UNIT: 12 Organic Acid/Bases LAB – Exp. 14 Synthesis of Soap	17 UNIT: 13 Hydrolysis, Condensation UNIT: 14 Amino Acids, proteins LAB: Polarimeter & GC	18 UNIT: 14 Proteins UNIT: 15 Lipids LAB – Locker Check
22 TEST 3: Units 9 – 14, 16	23 UNIT: 16 Carbohydrates LAB Time – Mandatory review Session	24 UNIT: 16 Carb Quiz Acid/Bases/Salts pH review LAB Time – Mandatory review	25 FINAL EXAM: Units 1-7 & TBA_____

