HOUSTON COMMUNITY COLLEGE SOUTHWEST
COURSE OUTLINE FOR CHEM 1412 – GENERAL CHEMISTRY II
Fall, 2009
Class Number 96164

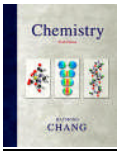
Time and location
11:00 AM - 2:00 PM Monday (lab, room S109) and Wednesday (lecture, room W121), Stafford Campus Scarcella Building.

Instructor
Dr. Steven E. Dessens
Office Hours: Room S107 (Stafford Campus) 1:00 – 4:30 PM Friday or by arrangement.
Office Phone: 713-718-6710
E-mail: steven.dessens@hccs.edu
Learning Web: http://learning.swc.hccs.edu/members/steven.dessens
See also: http://swc2.hccs.edu/pahlavan

☞ **Important Dates** ☜

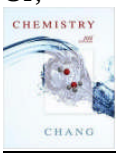
August 22	Saturday	Classes Begin
August 28	Friday	Last Day for Student Drop/Add/Swap
November 12	Thursday	Last Day for Administrative/ Student Withdrawals with a grade of "W" 4:30 PM **After the withdrawal date no W can be given,** ***you must receive a regular grade (A-F) in the course.***
November 26–27	Thursday	Thanksgiving Holiday
December 6	Sunday	Instruction Ends
December 7	Monday	Final Exam
December 18	Friday	Grades Available to Students

Textbook



Chemistry, 9th Edition, by Raymond Chang. McGraw-Hill: 2007.
ISBN-10 0-07-298060-5 (Hardcover Edition)
ISBN-13 978-0-07-298060-8
"Split" soft cover versions are available at HCC bookstores.

Or,

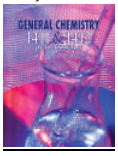


Chemistry, 10th Edition, by Raymond Chang. McGraw-Hill: 2010.
ISBN-10 0-07-351109-9 (Hardcover Edition)
ISBN-13 978-0-07-351109-2
"Split" soft cover versions are available at HCC bookstores.

Laboratory Manual

General Chemistry 1411 & 1412 Laboratory Manual, by Gholam Phalavan. Cache House: 2008.
For Southwest College Only (Spiral Bound Edition)
ISBN-10: 1-60199-058-8
ISBN-13: 978-1-60199-058-7

Or,



General Chemistry 1411 & 1412 Laboratory Manual, Second Edition, by Gholam Phalavan.
Cache House: 2009.
For Southwest College Only (Spiral Bound Edition)
ISBN-10: 1-60199-087-1 ISBN-13: 978-1-60199-087-7

Optional Study Guide and Solutions Manual
Student Study Guide for Chemistry, 9th Edition, by Kim Woodrum. McGraw-Hill: 2007.
Student Solutions Manual for Chemistry, 9th Edition, by Brandon J. Cruickshank and Raymond Chang. McGraw-Hill: 2007.

Course Catalog Description
"Continuation of CHEM 1411. Topics include solutions, chemical kinetics, equilibrium and equilibrium phenomena in aqueous solution, acids and bases, pH, thermodynamics, electrochemistry, nuclear chemistry, organic chemistry, and biochemistry. The laboratory includes appropriate experiments. Core Curriculum course. Credit: 4 (3 lecture, 3 lab)." **Prerequisites: CHEM 1411; MATH 1314 (College Algebra) is strongly recommended.**

Course Prerequisites
These are stated in the course description in the HCC catalog (quoted just above) and they are stressed again here for emphasis. *Lack of satisfactory completion of the course prerequisites are one of the main reasons that cause students to do poorly in chemistry*. Basic math and problem solving skills at the level of college algebra are *essential*. If you are not sure if your prior coursework meets these prerequisites, come and talk to me or to the department chair for advice. With the prerequisites satisfactorily completed, you can be confident that you are well-prepared for this course.

Course Intent
This course is intended for students majoring in one of the physical sciences or life sciences, engineering, or for students who are pursuing pre-professional programs in medicine, dentistry, pharmacy, veterinary medicine, or other health programs. The course is also beneficial to students who are preparing themselves for higher level science courses in their respective curricula.

Course Content
See the course schedule below for the topics (listed by chapter title) that will be covered in this class. College level general chemistry is very similar to a good high school course, but will usually cover the topics in greater detail and will place a greater emphasis on problem solving.

Attendance Policy
The HCCS attendance policy is stated as follows: "Students are expected to attend classes regularly. Students are responsible for materials covered during their absences, and it is the student's responsibility to consult with instructors for make-up assignments. Class attendance is checked daily by instructors. *Although it is the responsibility of the student to drop a course for non-attendance, the instructor has full authority to drop a student for excessive absences. A student may be dropped from a course for excessive absences after the student has accumulated absences in excess of 12.5% of the hours of instruction (including lecture and laboratory time).*"

If circumstances significantly prevent you from attending classes, please inform me. I realize that sometimes outside circumstances can interfere with school, and I will try to be as accommodating as possible, but please be aware of the attendance policy.

Last Day for Administrative and Student Withdrawals
For Fall '09 classes, this date is November 12. I urge any student who is contemplating withdrawing from the class to see me first! You may be doing better than you think. Either way, I want to be accessible and supportive. I do not believe in "weed out" classes, and I consider you to be much more than just a name or number! Note my office hours above; if you need assistance, I'm here to help.

☞ **New Policy Regarding Withdrawals** ☜
Students desiring to withdraw from a class must do so by the above withdrawal date by filling out a **withdrawal form** at the registrar's office. *After this date, instructors can no longer enter a grade of "W" for the course for any reason.*

☞ **New Policy Regarding Multiple Repeats of a Course** ☜
"NOTICE: Students who repeat a course three or more times may soon face significant tuition/fee increases at HCC and other Texas public colleges and universities. If you are considering course withdrawal because you are not earning passing grades, confer with your instructor/counselor as early as possible about your study habits, reading and writing homework, test-taking skills, attendance, course participation, and opportunities for tutoring or other assistance that might be available."

Disability Support Services (DSS)
"Any student with a documented disability (e.g. physical, learning, psychiatric, vision, hearing, etc.) who needs to arrange reasonable accommodations must contact the Disability Services Office at the respective college at the beginning of each semester. Faculty are authorized to provide only the accommodations requested by the Disability Support Services Office."

If you have any special needs or disabilities which may affect your ability to succeed in college classes or participate in any college programs or activities, please contact the DSS office for assistance. At Southwest College, contact Dr. Becky Hauri, 713-718-7909. Contact numbers for the other HCC colleges are found in the Annual Schedule of Classes, and more information is posted at the HCC web site at Disability Support.

Academic Honesty

"Students are responsible for conducting themselves with honor and integrity in fulfilling course requirements. Disciplinary proceedings may be initiated by the college system against a student accused of scholastic dishonesty. Penalties can include a grade of "0" or "F" on the particular assignment, failure in the course, academic probation, or even dismissal from the college. Scholastic dishonesty includes, but is not limited to, cheating on a test, plagiarism, and collusion." In **this class**, the penalty for willful cheating on exams is a **grade of F in the course**. This is the standard policy of the Physical Sciences department at Southwest College.

HCCS Sexual Harassment Policy

HCC shall provide an educational, employment, and business environment free of sexual harassment. Sexual harassment is a form of sex discrimination that is not tolerated at HCC. Any student who feels that he or she is the victim of sexual harassment has the right to seek redress of the grievance. HCC provides procedures for reviewing and resolving such complaints through its Grievance Policy. Substantiated accusations may result in disciplinary action against the offender, up to and including termination of the employee or suspension of the student. In addition, complainants who make accusations of sexual harassment in bad faith may be subject to equivalent disciplinary action.

Laboratory Policy

Lab safety will be reviewed before the first lab. Each student will then sign a statement affirming his or her commitment to following safe procedures in the laboratory, and turn the form in to the instructor. Be especially aware of the need for adequate *eye protection* in the laboratory. **Safety glasses or goggles must be worn at all times during the laboratory period**. Normally, experiments will be performed in groups of two to three students. Students should arrive at the lab *on time* with their lab manual. After you have finished the experiment, show me your results for me to examine briefly, and I will **initial** ("***S.D.***") your lab report before you leave. *Laboratory reports are due on the next lab day (in one week).* Each report must be done *individually*, but of course you can work with your lab partners on it. Each report will be graded on a 10-point basis. Come to lab *prepared*. Read through the experiment beforehand and do the pre-lab questions at the end of the lab report. You will be much better organized when doing the experiments, and your laboratory experience will be much more rewarding!

Exams and Make-up Policy

Examinations will consist of three non-cumulative regular exams plus a comprehensive final. Programmable calculators, such as the TI 83 Plus, are not allowed during exams! The department has calculators that you can use on test days if you do not have a "regular" calculator. Make-up exams will not normally be given, so make every effort to take the exams on their scheduled dates. In the event that you *must* miss a regular exam, I will count the grade made on the final exam as the grade for the missed exam (for one missed exam only), and calculate the final course grade accordingly. If you do not miss any of the regular exams, I will replace your lowest exam score with your final exam score if the final exam grade is higher. This is intended to provide you a "second chance" if you do not do well on a particular exam. Remember that the final exam will be *comprehensive* (meaning that it will cover *all* of the material from the whole semester, not just the last part). Please note that all students are required to take the final (no student can be exempted).

Assignments

Outside of laboratory reports, special assignments are normally not required. I will periodically give out practice problems but these are not graded. These practice problems, and especially the end of chapter problems, are highly beneficial, indeed essential, to learning chemistry. I recommend that you work as many of the even-numbered end of chapter problems as you can (these have answers in the back of your textbook); similar additional problems follow in the "Additional Problems" section. Get a spiral leaf notebook just for working chemistry problems. That will keep your work more organized and you (or I) can easily review your work.

Grading

The ***overall score*** is based on the following:

Three regular exams	Laboratory	Final Exam
55%	20%	25%

Overall Score = 0.55(Average of three regular exams) + 0.20(Laboratory grade) + 0.25(Final Exam)

The ***course grade*** is then obtained from the overall score:

Final Average	90 – 100	80 – 89	70 – 79	60 – 69	< 60
Letter Grade	A	B	C	D	F

Other Information

Free chemistry tutoring is available. A tutoring schedule will be posted in the classroom and lab and will also be placed on the departmental web site (http://learning.swc.hccs.edu/courses/chemistry).

In addition to "face to face" tutoring, HCC also offers online tutoring from AskOnline. It is also free and is available for chemistry and many other subjects. The login page is at http://www.hccs.askonline.net.

There are also many interesting chemistry resources on the Internet which can be found by using keyword searches. But your best immediate source of information is your *textbook* - make thorough use of it!

The publisher of your textbook has an extensive online site called **ARIS** (Assessment, Review, and Instruction System) at http://mharis.com. Choose your subject and textbook to go to the Chang ARIS page where you will find material under "Resources." The ARIS page for the ninth edition of Chang is at http://highered.mcgraw-hill.com/classware/selfstudy.do?isbn=0072980605 and does not require you to log in. You may also use the online site called **ChemSkill Builder** at http://chemskillbuilder.com. This site has practice problems and tutorials. A login number is required for access.

General Suggestions

Chemistry is a vast field, ranging from the study of simple inorganic salts to enormously complex molecules such as enzymes and nucleic acids in living organisms. In this course, we will be covering chemical kinetics, equilibrium, pH and buffer solutions, thermodynamics, electrochemistry, nuclear chemistry, and organic chemistry. A professional chemist may devote his or her entire career to only one of these general disciplines; we have a semester to touch on all of them! Here are some general suggestions:

- Learning chemistry takes time. A reasonable guide is to plan for two hours of study for each hour of lecture. Heavy work and/or class loads are not compatible with learning chemistry!
- Attend class regularly (!) and take generous notes during class. Ask questions.
- When beginning a new chapter, I recommend that you read through it quickly the first time, just to give yourself a good feel for what it is about. I you are really on the job you will have done this before the class lecture on the chapter! You will understand what's going on in class much better if you do this.
- Next, start tackling the end of chapter problems or other available problem sets. Often, working problems facilitates understanding much better than just reading and rereading the chapter itself. Chemistry is a "hands on" course - working problems is essential. However, do not spend an inordinate amount of time on a single problem - skip it for the time being and go on to another. Try working some of the sample exercises. They are worked out in the chapter and are very helpful.
- You should have a good, scientific calculator that has scientific notation ("EE" or "EXP" key), log, ln, x^2, $\sqrt{}$, etc. Business calculators usually do not have all of these features. As noted above, the use of programmable calculators is not allowed when taking exams.
- Review basic math operations such as properties of logarithms, if you are rusty.
- Study groups can be very helpful. Keep the group small though, no more than three or four people.
- Finally, keep a positive outlook! Chemistry can be hard, but with a good approach, you will succeed in mastering it!

I hope you find chemistry to be an interesting and rewarding subject which will not only be useful in your academic major, but will give you a better insight into the many scientific challenges we are facing today. I look forward to working with you during this summer session.

Steve Dessens
August, 2009

Course Schedule

Aug	24	Chapter 12 – Physical Properties of Solutions
Aug	26	Conclude Chapter 12
Aug	**31**	**Experiment 12 – Molecular Weight Determination by Freezing Point Depression**
Sept	2	Begin Chapter 13 – Chemical Kinetics
Sept	**7**	☞ **Labor Day Holiday – No Class** ☜
Sept	9	Conclude Chapter 13
Sept	**14**	**Experiment 13 – Measuring the Rate of a Chemical Reaction**
Sept	16	Chapter 14 – Chemical Equilibrium
Sept	21	Conclude Chapter 14
Sept	23	Begin Chapter 15 – Acids and Bases
Sept	**28**	**Experiment 14 – Acid-Base Properties of Salt Solutions**
Sept	**30**	**EXAM 1 – Chapters 12–14**
Oct	**5**	**Experiment 15 – Determination of the Purity of: Potassium Hydrogen Phthalate (KHP)**
Oct	7	Chapter 16 – Acid-Base Equilibria and Solubility Equilibria
Oct	**12**	**Experiment 16 – Determination of the Equilibrium Constant of a Weak Acid**
Oct	14	Conclude Chapter 16
Oct	19	Begin Chapter 18 – Entropy, Free Energy, and Equilibrium
Oct	21	Chapter 18
Oct	26	Begin Chapter 19 – Electrochemistry
Oct	**28**	**EXAM 2 – Chapters 15, 16, 18**
Nov	**2**	**Experiment 18 – Colorimetric Iron Analysis**
Nov	4	Conclude Chapter 19
Nov	9	Begin Chapter 23 – Nuclear Chemistry
Nov	11	Conclude Chapter 23
Nov	12	☞ **Last Day for Withdrawals (for grade of W)** ☜
Nov	16	Begin Chapter 24 – Organic Chemistry
Nov	**18**	**Experiment 19 – Molecular Geometry and Isomerism**
Nov	23	Chapter 24
Nov	**25**	**EXAM 3 – Chapters 19, 23 & 24**
Nov	**30**	**Experiment 20 – Preparation of Aspirin**
Dec	2	Review for Final
Dec	**7**	**FINAL EXAM – Chapters 12–16, 18, 19, 23, and 24, 11:00 AM – 1:00 PM**
Dec	9	Finals Week – No Class