



**HOUSTON COMMUNITY COLLEGE SOUTHWEST**  
**COURSE OUTLINE FOR CHEM 1405 – INTRODUCTORY CHEMISTRY I**  
***Distance Ed. Second Start Section, Spring, 2010***  
**Class Number 24762, *Lecture Portion by Internet, Lab On Campus***

**Time and Location**

Lecture component online: <http://hccs.blackboard.com/>

Lab: 8:00 AM - 12:00 Noon Friday, Room D105, Alief Center, 2811 Hayes Road.

**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](mailto:steven.dessens@hccs.edu)

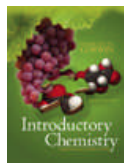
Learning Web: <http://learning.swc.hccs.edu/members/steven.dessens>

Blackboard: <http://hccs.blackboard.com>

DE Main Page: <http://de.hccs.edu>

Lab Handouts: [http://learning.swc.hccs.edu/members/steven.dessens/notes\\_and\\_exams/chem\\_1405](http://learning.swc.hccs.edu/members/steven.dessens/notes_and_exams/chem_1405)

**Textbook**



**Introductory Chemistry: Concepts & Connections**, by Charles H. Corwin.

Fifth Edition, Pearson Prentice Hall, 2008.

ISBN-10: 0-13-600231-5

ISBN-13: 978-0-13-600231-4

**Laboratory Manual**

Online handouts can be accessed and printed from my Learning Web site at

[http://learning.swc.hccs.edu/members/steven.dessens/notes\\_and\\_exams/chem\\_1405](http://learning.swc.hccs.edu/members/steven.dessens/notes_and_exams/chem_1405).

**Optional Study Guide and Solutions Manual for the Corwin Textbook**

Study Guide and Selected Solutions Manual, 5<sup>th</sup> Edition. Pearson Prentice Hall, 2008. ISBN-10: 0-13-232150-5

**☞ Important Dates ☞**

February 13	Saturday	Classes Begin
February 15	Monday	Presidents Day Holiday
February 17	Wednesday	Last Day for Student Drop/Add/Swap
March 15-21		Spring Break, No Classes
April 2-4		Offices Closed – Easter Holiday
April 22	Thursday	Last Day for Administrative/ Student Withdrawals with a grade of “W” 4:30 PM
		<b>After the withdrawal date no W can be given,</b>
		<b><i>you <u>must</u> receive a regular grade (A-F) in the course.</i></b>
May 9	Sunday	Instruction Ends
May 14	Friday	<b>Final Exam</b> , Chapters 1–13 (at the Alief Campus)
May 21	Friday	Grades Available to Students

**DE Student User ID**

Your Blackboard login user ID will be your HCC User ID (sometimes referred to as the “W” number). All HCC students have a unique User ID. If you do not know your User ID you can look it up by visiting the HCC Student Help page at <http://www.hccs.edu/hccs/current-students/student-system-help>. Logging into Blackboard for the first time, the default student password is “distance.” You will then be prompted to change your password after your first login.

**Course Catalog Description**

A general introduction to the properties of matter. Topics include atomic structure, energy, chemical bonding, reactions, gas laws and elementary thermodynamics. This is a preparatory course to CHEM 1411 for science majors who have no prior knowledge of chemistry. Core Curriculum Course. Note: Only one of CHEM 1305, CHEM 1405, and/or CHEM 1411 can be used toward associate degree natural science requirements. Only one of the three will count as Natural Science core; the others may count as electives in the degree plan.

**Prerequisites: Must be placed into GUST 0342 (or higher) in reading and ENGL 0310/0349 (or higher) in writing.**

4 credit (3 lecture, 3 lab).

### **Course Prerequisites**

These are the prerequisites stated in the course description above: GUST 0342 (Developmental Reading II), ENGL 0310 (Fundamentals of Grammar and Composition II), and ENGL 0349 (Advanced Composition for Foreign Speakers). In addition, a math level of Intermediate Algebra (MATH 0312) or higher is highly recommended. *Lack of satisfactory completion of the course prerequisites are one of the main reasons that cause students to do poorly in chemistry.* 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 to introduce the student to the fundamental principles of chemistry and to acquaint the student with the role chemistry plays in our everyday lives. CHEM 1405 is also intended to serve as a preparatory course for students who are intending to major in a science but have no prior knowledge of chemistry. After taking this course, the student should have a good grasp of atomic structure and the periodic table, naming and writing formulas of ionic and binary molecular compounds, empirical and molecular formulas, chemical bonding, dot structures and molecular geometry, calculations involving unit conversion and stoichiometry, acids and bases, energy changes in reactions, gas laws, interactions between molecules, solutions, and nuclear chemistry. In the laboratory, the student should gain experience in handling lab equipment, measuring length, mass, and volume, separating a mixture, determining empirical formulas, using the activity series, measuring pH, and making observations and drawing conclusions from them.

### **Course Content**

See the course schedule below for the topics (listed by chapter title) and labs that will be covered in this class.

### **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).*”

For the online portion of the course, attendance is determined by logging into Blackboard at least on a weekly basis and doing the online quizzes and exams. The laboratory portion of the course is done in-person. In a pinch, make-up labs can be arranged at the Stafford campus on Friday afternoons, but you should make every effort to do the labs on their scheduled days.

### **Last Day for Administrative and Student Withdrawals**

The State of Texas imposes penalties on students who drop courses excessively. Students are limited to no more than SIX total course withdrawals throughout their educational career at a Texas public college or university. To help students avoid having to drop/withdraw from any class, HCC has instituted an Early Alert process by which your professor will “alert” you and Distance Education (DE) counselors that you might fail a class because of excessive absences and/or poor academic performance. Contact your DE professor regarding your academic performance or a DE counselor to learn about helpful HCC resources (e.g. online tutoring, child care, financial aid, job placement, etc.).

In order to withdraw from your DE class, you MUST first contact your DE professor PRIOR to the withdrawal deadline to receive a “W” on your transcript. After the withdrawal deadline has passed, you will receive the grade that you would have earned. Zeros averaged in for required coursework not submitted will lower your semester average significantly, most likely resulting in a failing grade of an “F.” It is the responsibility of the student to withdraw from the class; however, your professor reserves the right to withdraw you without your request due to excessive absences.

The final withdrawal deadline for this spring semester is April 22, 2010 at 4:30 PM. Classes of other duration (miniterm, flex-entry, 8-weeks, etc.) may have different final withdrawal deadlines. The academic calendar is found at <http://www.hccs.edu/hccs/current-students/academic>.

### **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.”

## **Student Services**

### **DISTANCE EDUCATION ADVISING AND COUNSELING SERVICES**

Much DE student information can be found on the HCCS DE website at <http://de.hccs.edu>. Advising or counseling can be accomplished through an online request form (quickest and recommended) under “Student Services.” Student Services Associates (SSA) and Counselors can assist students with admissions, registration, entrance testing requirements, degree planning, transfer issues, and career counseling. In-person, confidential sessions can also be scheduled to provide brief counseling and community referrals to address personal concerns impacting academic success.

### **INTERNATIONAL STUDENTS**

International Students are restricted to ONLY ONE online/distance education class per semester. Please contact the International Student Office at 713-718-8520 if you have additional questions about your visa status.

### **STUDENTS WITH DISABILITIES**

Any student with a documented disability (e.g. physical, learning, psychiatric, vision, hearing, etc) who needs to arrange reasonable accommodations must contact the appropriate HCC [Disability Support Service](#) (DSS) Counselor at the beginning of each semester. Faculty is authorized to provide only the accommodations requested by the Disability Support Services Office.

Students who are requesting special testing accommodations must first contact the appropriate (most convenient) DSS office for assistance. Disability Support Services Offices:

System: 713-718-5165

Central: 713-718-6164 (also for [Deaf and Hard of Hearing Services](#) and Students Outside of the HCC District service areas)

Northwest: 713-718-5422

Northeast: 713-718-8420

Southeast: 713-718-7218

Southwest: 713-718-7909

After student accommodation letters have been approved by the DSS office and submitted to DE Counseling for processing, students will receive an email confirmation informing them of the Instructional Support Specialist assigned to their professor.

### **NOTICE FOR STUDENTS OUTSIDE OF HCC SERVICE AREA**

Students who live or work outside the HCC service area and cannot take paper exams at one of our HCC testing locations MUST make arrangements for a proctor. Please see the DE Student Services Additional Resources webpage (Under “Student Services”) for more information.

### **VIRTUAL CLASSROOM CONDUCT**

As with on-campus classes, all students in HCC Distance Education courses are required to follow all HCC Policies & Procedures, the Student Code of Conduct, the Student Handbook, and relevant sections of the Texas Education Code when interacting and communicating in a virtual classroom with faculty and fellow students. Students who violate these policies and guidelines will be subject to disciplinary action that could include denial of access to course-related email, discussion groups, and chat rooms or being removed from the class.

### **Exams and Make-up Policy**

A total of four (4) exams will be given during the semester, 3 of which are regular exams given during the semester and then a comprehensive final exam given at the end of the semester. The three regular exams are online and they all count towards your final grade. The final exam is given in person on a lab day (Friday) at the Alief campus. There is no make up of any exam under ANY circumstances!

Also note:

- “Extra Credit Quizzes” will be given for extra points.
- No other type of extra-credit work will be given.
- Online discussion participation will also be graded.
- You will be provided with sample exams on Blackboard and on the Learning Web for practice.

### **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.

## **Laboratory Policy**

**Lab safety** will be reviewed on the first day of 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. Each student should arrive at the lab *on time*, with the complete handout for the experiment in hand. *Laboratory reports are due on the next lab day.* 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!

## **Grading**

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

Three Regular Exams	Discussions	Laboratory	Final Exam
50%	10%	20%	20%

$$\text{Overall Score} = 0.50(\text{Average of Three Regular Exams}) + 0.10(\text{Discussion Points}) + 0.20(\text{Lab Average}) + 0.20(\text{Final Exam})$$

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

<i>Final Average</i>	90 – 100	80 – 89	70 – 79	60 – 69	< 60
<i>Letter Grade</i>	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/physical-sciences>).











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 a free student companion site at [http://wps.prenhall.com/esm\\_corwin\\_chemistry\\_4/16/4162/1065587.cw/index.html](http://wps.prenhall.com/esm_corwin_chemistry_4/16/4162/1065587.cw/index.html). It contains “Explorer Quizzes” arranged by chapter and other material. Although designed for the previous edition of the textbook, these quizzes are still a convenient way to further test your mastery of the chapter material. The links to chapters may be found under “Web Links” in Blackboard under the “Course Tools” menu.

### 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 atomic structure, chemical bonding, gram-mole conversions and reaction stoichiometry, gass, intermolecular forces, acids and bases, pH calculations, solutions and concentration, and nuclear 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. Heavy work and/or class loads are not compatible with learning chemistry!
-  Participate regularly by posting questions and comments on the Discussion board.
-  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 example 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,  $x^2$ ,  $\sqrt{\quad}$ , etc. Business calculators usually do not have all of these features.
-  Review basic math operations if you are rusty.
-  Study groups can be very helpful. A small group of three or four people is usually best.
-  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 this semester!



Steve Dessens  
February, 2010

# Course Schedule

<u>Mon / Fri</u>	<u>Activity</u>
Feb 15	Chapter 1 – Introduction to Chemistry Chapter 2 – Scientific Measurements
<b>Feb 19</b>	<b>Lab Safety</b>
Feb 22	Chapter 3 – The Metric System
<b>Feb 26</b>	<b>EXPERIMENT 1 – Measurements</b>
Mar 1	Chapter 4 – Matter and Energy
<b>Mar 5</b>	<b>EXPERIMENT 2 – Physical Properties – Separation of a Mixture</b>
Mar 8	Chapter 5 – Models of the Atom
<b>Mar 12</b>	<b>EXAM 1 – Chapters 1–4, Monday–Sunday, due Sunday by Midnight</b> <b>EXPERIMENT 3 – Emission Spectra – Electron Arrangement</b>
Mar 15	Chapter 6 – The Periodic Table
<b>Mar 19</b>	<b>☞ Spring Break – No Classes ☞</b>
Mar 22	Chapter 7 – Language of Chemistry
<b>Mar 26</b>	<b>EXPERIMENT 4 – Periodic Table – Atoms and Elements</b>
Mar 29	Chapter 8 – Chemical Reactions
<b>Apr 2</b>	<b>☞ Easter Holiday – No Classes ☞</b>
Apr 5	Chapter 9 – The Mole Concept
<b>Apr 9</b>	<b>EXPERIMENT 5 – Double Replacement Reactions</b>
Apr 12	Chapter 10 – Chemical Equations Calculations
<b>Apr 16</b>	<b>EXAM 2 – Chapters 5–8, Monday–Sunday, due Sunday by Midnight</b> <b>EXPERIMENT 6 – Empirical Formula of a Compound</b>
Apr 19	Chapter 11 – The Gaseous State
<b>Apr 22</b>	<b>☞ Last Day for Withdrawals (for grade of W) ☞</b>
<b>Apr 23</b>	<b>EXPERIMENT 7 – Limiting Reactant and Percent Yield</b>
Apr 26	Chapter 12 – Chemical Bonding
<b>Apr 30</b>	<b>EXPERIMENT 8 – Gas Laws</b>
May 3	Chapter 13 – Liquids and Solids
<b>May 7</b>	<b>EXAM 3 – Chapters 9–13, Monday–Sunday, due Sunday by Midnight</b> <b>EXPERIMENT 9 – Molecular Geometry – Lewis Dot Structures</b>
May 10	Finals Week
<b>May 14</b>	<b>FINAL EXAM – Chapters 1–13, Friday 10:00 AM – 12:00 Noon, Alief Campus Room B125</b>

