



Syllabus

CHS 1440 – 0002 - Principles of Chemistry

Fall 2016

Instructor: Dr. Gang Chen

Office: Room 201 – Physical Sciences Building

Lecture Time: Mondays, Wednesdays and Fridays from 10:30 AM to 11:20 AM

Lecture Location: CB2 O207

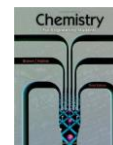
Office Hours: Monday, Wednesday and Friday from 04:00 PM to 06:00 PM

E-mail: Gang.Chen@ucf.edu

Course Objective: To make chemistry fun, understandable, and relevant to engineering via the investigation of fundamental topics including measurement in chemistry, the theory of atomic structure, chemical periodicity, stoichiometry, types of chemical reactions in aqueous solution, chemical bonding, acids and bases, chemical equilibria, and nuclear chemistry.

All students are expected to have an understanding of basic algebra. Physical constants and/or conversion factors should not be passively memorized as these are typically given on all exams/quizzes. A periodic table and solubility rules are also provided. However, since relevant equations are the only items not provided, they should always be learnt actively and utilized appropriately in all practice problems, in order to aid in the development of effective problem solving skills.

Recommended Textbook: Larry Brown and Tom Holme, “*Chemistry for Engineering Students*”, 3rd Edition, Cengage, 2015. ISBN-13: 978-1-285-19902-3



Webcourses@UCF (not for emailing Instructor): Course materials, grades, related information, and, or announcements, are posted. Please see the posted ones now. Visit daily or as often as possible.

NOTE: ALL students' academic activity must be documented at the beginning of each course. In order to document that every student BEGAN this course (CHS1440) please complete the academic activity (Syllabus Quiz in webcourses) by the end of the first week of classes (Aug 26), or as soon as possible after adding this course. Failure to do so may result in a delay in the disbursement of your financial aid.

Academic Program:

Chapter #	Topic	Page
1	Introduction to Chemistry	1
2	Atoms and Molecules	28
3	Molecules, Moles and Chemical Equations	59
4	Stoichiometry	90
5	Gases	112
6	The Periodic Table and Atomic Structure	140
7	Chemical Bonding and Molecular Structure	177



8	Molecules and Materials	212
9	Energy and Chemistry	247
10	Entropy and the Second Law of Thermodynamic	279
11	Chemical Kinetics	302
12	Chemical Equilibrium	340
13	Electrochemistry	380
14	Nuclear Chemistry	415

Class Preparations: It is necessary to read and do the problems below to reinforce understanding of key principles & concepts, to help develop effective problem solving skills, and to prepare for the exams and quizzes.

<i>Chapter (please read.....)</i>	<i>Problem # (odd nos)</i>
Chapter 1: (1.1 – 1.5)	13-17; 21; 31; 33; 37; 41-69; 73; 75; 85
Chapter 2: (2.1 – 2.10)	11-17; 21-79
Chapter 3: (3.1 – 3.6)	7 - 69
Chapter 4: (4.1 – 4.5)	7 - 61
Chapter 5: (5.1- 5.7)	9 - 79
Chapter 6: (6.1 – 6.8)	7 - 75
Chapter 7: (7.1 – 7.8)	7 - 79
Chapter 8: (8.1 – 8.6)	9; 15; 19; 23-27; 35; 39-61; 65 - 69
Chapter 9: (9.1 - 9.8)	7 – 23; 29 - 69
Chapter 10: (10.1 – 10.8)	7 – 15; 21 -75
Chapter 11: (11.1 – 11.8)	11 – 35; 39 – 45; 55; 63; 67- 77
Chapter 12: (12.1-12.9)	9 – 39; 41-67; 71 - 83
Chapter 13: (13.1 – 13.8)	5 – 35; 37 – 55; 57 – 63; 69 – 75; 79 - 91
Chapter 14: (14.1 – 14.8)	7 - 79

Exams and Quizzes: All exams will be given during regularly scheduled class time, while quizzes will be given during discussion sessions. In-course exams will be 50 minutes each, final will last 150 minutes. All exams and quizzes will be cumulative, mandatory, and computer-graded multiple choice format. Since the exam dates are given well in advance, there will be no make-up exams except in the case of illness. A written doctor's exemption will be required and an oral make-up exam could be administrated. In the event that one or more exams are missed, your grade on the final exam will substitute one missing grade. The remaining missing grades will be computed as zeros. If you do not miss any exam, your grade on the final exam will replace the lowest grade among those in any of your previous exams. This rule is only valid when your grade on the final is higher than the one to be replaced. Exams and quizzes questions will be taken from material covered in lecture, assigned reading, and suggested problems. Exams and quizzes will be computer graded. It is the responsibility of the student to have a clean, flat, pink test form (**Scantron**) with UCF logo, and a number 2 pencil for each exam and quiz.

Note: Students without a valid UCF ID and the test form will not be allowed to take the exam.

Grading: The final grade (course grade) will be calculated based on the total percentage earned in exams + quizzes.



Test	
4 In-course Exams (25 ques/exam)	Each 15 %
Final Exam (60 questions; cumulative)	20 %
Quizzes	20 %
Grand Total	100 %

Your grade will be calculated on the basis of a percentage of total points. There will be no curve and grades will be assigned based on:

90% - 100% = A
75% - 89% = B
60% - 74% = C
50% - 59% = NC (no credit)
< 49% = F

Calculator Policy: Only basic and scientific calculators (without graphic functions) are allowed for all exams in class (e.g., TI-30XA). **NO GRAPHING CALCULATORS ARE ALLOWED!!!** Any use of electronic device (iPod, cell phone, MP3 player, computer...) during exams is strictly prohibited. Any use of such device will be considered an attempt to cheat on the exam and will result in a 0 on the grade.

Academic Integrity

Academic integrity is at the center of the educational experience at UCF. Therefore students are expected to uphold the highest standards of academic integrity and not engage in nor tolerate academic dishonesty. Academic dishonesty includes, but is not limited to, fabrication, cheating or plagiarism. Any violation of academic integrity will be investigated and, where warranted, the student will receive appropriate sanctions through the University's Student Conduct Process. *Please familiarize yourself with the current UCF Student Handbook.* In particular, adherence to the Student Conduct Policy and Academic Integrity Policy will help to ensure that your learning and living experiences are founded on integrity.

Classroom Conduct

Disruptive behavior is not tolerated. The instructor will consult with students consistently interrupting classroom routine. Students are subject to removal from class permanently. Cell phones and pagers must be on silent mode during class and tests. Laptop computers are allowed for note taking purposes only. **No audio or video recording is allowed without the instructor's authorization.**

Accommodations for the differently-able students

Students with disabilities who qualify for academic accommodations must present a letter from the office of Students Accessibility Services (SAS) and discuss specific needs with the instructor, preferably within the first two weeks of class. The SAS determines accommodations based on appropriate documentation of disabilities (Ferrell Commons, Room 185, 407/823-2371).



In the best interest of fulfilling the course objectives and assuring the academic integrity of the institution, the instructor reserves the right to modify/change any part of this schedule/syllabus if warranted!

Recipe for Success in CHS 1440

- * **Take responsibility for your education** - There is a common myth among students that because they pay tuition they deserve to receive credit for the class. Instructors are here to create a learning environment. Whether you learn depends on your willingness to listen, ask appropriate questions, and do the work necessary to pass the course. If your academic preparation from high school is weak or if you have been out of school for a period of time, you may have to work harder and seek more help in order to succeed.
- * **Attend every class** - You will find that students, who attend every class, listen to the instructor and take good notes will be more likely to pass with a higher grade. If you have an emergency or illness, contact your instructor ahead of time to let her/him know that you will be absent. A local study showed that students who missed the first class meeting were more likely later to withdraw or fail. Important note: if you miss a class it is your responsibility to meet with the instructor, outside of regular class time, to determine a plan to make up the missed work.
- * **Do not lobby/negotiate for a grade!**
- * **Understanding** - the various concepts are vital to learn chemistry. Memorizing is a recipe for disaster!
- * **Review lecture material early and often** - Do not wait until the last few minutes before a test to do the necessary revision.
- * **Review the worked *exercises/examples* in the textbook** - Also at the end of each chapter is a list of chapter goals. Those serve as helpful review tools. Find time to work on the suggested end-of-chapter problems. Practice makes perfection.
- * **The instructor strongly encourages you to use office hours for discussing the material covered in classes and reviewing exams** - Get assistance ASAP, if needed. Please make use of the Student Academic Resource Center (SARC); Howard Phillips Hall 113; www.sarc.sdes.ucf.edu.
- * **When having academic difficulty seek assistance** - Your instructor is always willing to assist you however, there are other ways to get help. The Student Academic Resource Center (SARC) has Peer Tutoring and SI Leaders - undergraduate students who have already taken and succeeded in the course). The Department of Chemistry offers free one-on-one tutoring sessions with a chemistry graduate student at the Chem.



TENTATIVE SCHEDULE – Fall 2016

Days	Lectures based on...
Aug 22- Sep 14	Chapter 1: Introduction Chapter 2: Atoms and Molecules Chapter 3: Molecules, Moles & Chemical Equation Chapter 4: Stoichiometry
Friday, Sep. 16	Exam 1
Sep 19 - Oct 12	Chapter 5: Gases Chapter 6: Periodic Table and Atomic Structure Chapter 7: Chemical Bonding and Molecular Structure Chapter 8: Molecules and Materials
Friday, Oct. 14	Exam 2
Oct 17 – Nov 02	Chapter 9: Energy and Chemistry Chapter 10: Energy and the Second Law Chapter 11: Kinetics
Friday, Nov. 04	Exam 3
Nov 07 – Nov 23	Chapter 12: Chemical Equilibrium Chapter 13: Electrochemistry Chapter 14: Nuclear Chemistry
Monday, Nov 28	Exam 4
Dec 02	Final Exam Review
Monday, Dec 12	Final Exam – Cumulative (10:00 am – 12:50 pm)

Holidays: Labor Day: Mon. September 05, 2016
Veteran's Day: Mon. November 11, 2016
Thanksgiving: November 24 – 26, 2016

Important dates during the Fall 2016 semester:

- **Registration on myUCF:** August 21, 2016
- **Classes Begin:** Monday, August 22, 2016
- **Late Registration:** Monday, August 22, 2016 – Friday, August 26, 2016
- **Last Day of Full Refund:** Thursday, August 25, 2016
- **Payment Deadline:** Friday, September 02, 2016
- **Grade Forgiveness Deadline:** Monday, October 31, 2016
- **Withdrawal Deadline:** Monday, October 31, 2016
- **Classes End:** Saturday, December 03, 2016
- **Final Examination Period:** Tuesday, December 06, 2016 - Monday, December 12, 2016
(<http://registrar.ucf.edu/exam/2016/fall>)
- **Grades available in myUCF:** Saturday, December 17, 2015

INSTRUCTOR EXPECTATIONS

The following expectations are to enhance your ability to learn in this class, to avoid disruption and distraction, and to improve the quality of the classroom experience. Repeated failure to meet these expectations may result in dismissal from the classroom and/or a lower grade for the course.

Entering/Exiting Class:



- Please arrive on time to class and stay for the entire class period. Late arrivals and early departures are disruptive.
- If despite your best effort you arrive late, please quietly take a seat at the back of the classroom. Similarly, in the rare event that you must leave class early (e.g. for a medical appointment), email me in advance to let me know, then sit close to the rear door and leave as unobtrusively as possible. If you can't be there on time or must always leave early because of a class or work conflict, either seek specific permission from me or do not take the class.
- During exams, try to use the restroom before coming to class.

□ **Noise:**

- When class begins, please stop your conversations.
- Wait until class is completely over before putting your materials away in your backpack, standing up, or talking to friends.

□ **Electronic Devices:**

- No taping, filming, or photography in class without my prior permission (whether by camera, cell phone, or other means). These activities are distracting and inhibiting to faculty and other students, may infringe upon privacy or copyright, and have a chilling effect on classroom discussion.
- Cell phones should be turned off. No talking on cell phones, text messaging, or emailing on laptops during class. Wait until after class to return any calls received.
- No listening to iPods or other electronic recording devices during class.

□ **Email Etiquette:**

- You are expected to write as you would in any professional correspondence. Email communication should be courteous and respectful in manner and tone. Do not send emails that are curt or demanding.
- Do not expect an immediate response via email (normally, a response will be sent within two business days). If your email question is sent at the last minute it may not be possible to send you a response before an assignment is due or a test is given.
- Do not post personal information about yourself or others about third parties to the class list server. For example, if you are having trouble with a lab partner you should see the instructor in person to discuss the specifics of the issue.

□ **Classroom Etiquette:**

- Please come to class appropriately dressed.
- You are expected to seat in a right position, i.e. each part of your body should be on the already pre-determined part on your chair.
- Please treat the furniture and equipment in the classrooms and computer labs as if it were your own. Leave the classroom as you find it, turning off equipment as necessary and pushing in chairs. Throw any trash away on your way out.
- Do not place your feet on the top of the cushion of your seat or on the back of any of the chair in the row in front of you.
- Throw away your trash.
- Under no condition is smoking or other tobacco use (e-cigarettes) acceptable in the classroom.

□ **Participation:**



- In the case participation is counted as part of your grade, missing class could negatively impact your grade. Disrupting class could also lower your participation grade.
- Keep on the topic at hand. If you have questions off the current topic, address these outside of class at office hours or by email with the TA or instructor.
- Do not talk out of turn. Wait to be recognized before speaking and do not try to dominate a discussion with your questions or comments – give others a fair opportunity to participate.

□ **Common Courtesy:**

- Please try to be pleasant and positive in your classroom behavior.
- Show respect for all class members, be polite to your instructor and classmates. Do not use “hey” to address others in the classroom, use instead Sir, Miss, Madame, Dr., Professor, etc.
- Do not interrupt another who is speaking. Others may have different ideas and opinions from yours, they may ask questions you perceive to be “stupid,” but they deserve the same level of respect from you as you wish from them.
- Do not disturb others by engaging in disruptive behavior. Disruption interferes with the learning environment and impairs the ability of others to focus, participate, and engage.
- Food and drink are discouraged in class. There may be times that you need a beverage or small snack during class. Avoid bringing in large meals or food that is noisy when unpackaged or chewed.
- The standard class period (for Monday, Wednesday, Friday classes) at UCF is 50 minutes. Please do not start putting books away, closing up notebooks, and zipping up book-bags before the official end of class. This can be disruptive and distracting to both your classmates and the instructor.