

PRINCIPLES OF CHEMISTRY (CHS1440-0001)  
SPRING SEMESTER 2016 (Aug 22 – Dec 12)  
Lectures: MoWeFr: 2:30 – 3:20 pm; CB2 101  
6 Discussions: Tu. 9:30 am, 12:30 pm; 2:30 pm; Th. 9:30 am; 10:30 am; 12:30 pm

**Instructor:** Dr. Donovan A. Dixon

**Office:** Chemistry Building CH 225; ph: 407-823-4052 (next to Theatre; east of Library, or, between Math and Biology)

**Office hours:**<sup>a</sup> (Tu: 10:30 am – 12:30 pm; We: 4:00 – 5:00 pm; Fri: 12:30 – 1:30 pm)

**E-mail:** Donovan.Dixon@ucf.edu

**Required Text:** epack: Chemistry for Engineering Students, 3e., by Brown & Holme; loose leaf + OWLv2, 6 month access. ISBN-13: 978-1-305-367371

**Required Material: OWLv2**

Students of this course need to go to the following to enroll in the course: Principles of Chemistry Fall 2106.

**<https://login.cengagebrain.com/course/E-24YEYKNNU4XKQ> | Student Registration Instructions**

Please login to see all due dates for the assignments, as only the first assignment has a set due date of Sept. 11, 11:55 pm.

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 WELL: 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 (ASSIGNMENT 0 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.

## Course Goal

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 tests/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.

## Topics

The topics to be covered in the course will include: the scientific method, classification of matter, measurement, atomic structure, the Periodic Table, atoms, molecules, ions and ionic compounds, Avogadro's number and the mole concept for elements and compounds, stoichiometry, solution chemistry, energy and chemical reactions, plus nuclear processes. These and others are to be found in chapters 1-14 inclusive, in Brown & Holme, 3e.

## Tests and Quizzes

A photo ID will be required for each test/quiz.

Only **non-programmable scientific** (nongraphing) calculators will be permitted (e.g., TI-30XA). Graphing calculators and cell phones are not allowed. Failure to comply will result in an automatic "F" grade.

Tests will be taken during class time in CB2 101. Quizzes are taken in Discussion sections only. For a schedule of dates for tests and quizzes, please see Table 2 below.

**Confirm the official UCF Final Exam Schedule online @:  
<http://registrar.ucf.edu/exam/2016/fall>.**

The percentage score from the final test (only if the final test is a higher percentage) will replace the lowest in-course test, or take the place of a missed test. No test is dropped is just automatically dropped. The final test is mandatory, and will be taken on the date and time specified on UCF's academic calendar in CB2 101 (also Table 2). It will cover all the chapters. The lowest OWLv2 assignment score will be dropped. Based on the preceding, there will be no make-up quiz nor test! All grades (tests and quizzes) are posted under **Grades** in webcourses at most, one week after each exam.

Tests will be computer-graded, multiple-choice format/written, inclusive of calculations/conceptual questions taken from lectures, course textbook (exercises, examples, and suggested end-of-chapter problems) and/or other course resource material(s). Each student must have a clean, flat, pink NCS Test Form, or scantron (*see webcourses*) for all tests and quizzes and the correct pencil for shading brightly (a pen is not recommended).

## Grading

The course is organized such that **NO** 'curve' is necessary for this chemistry course, which is graded A, B, C, D = NC (No Credit), or F.

Overall course grade will be computed based on percentage of total points earned:

$$(\text{total points earned}/740) \times 100\% \Rightarrow (593/740) \times 100\% = 80.1 = \mathbf{B}$$

GRADE SCALE: [90-100% = **A**; 80-89.99% = **B**; 70-79.99% = **C**; 60-69.99% = D = **NC**; < 60% = **F**]; The plus/minus ( $\pm$ ) scale is generally used.

Table 1:

<b>Grading</b>	
<b>4 In-course Tests, 100 points each (25 ques/test)</b>	<b>400 points</b>
<b>Final Exam (60 questions; cumulative)</b>	<b>200 points</b>
<b>10 Quizzes (5-10 ques/quiz; 10 points each)</b>	<b>100 points</b>
<b>OWLv2 (online homework)</b>	<b>50 points</b>
<b>Grand Total</b>	<b>750 points</b>

## Success in CHS 1440!

The final course grade is determined solely from scores on homework (OWL) quizzes, tests obtained during the semester (See table 1). There is no other factor or circumstance used to determine the final course grade. Therefore, please do not lobby/negotiate/petition for any type of grade! All students are expected to WORK to make/earn the highest or best possible grade.....

**Attendance is required for all classes, no exception.** If you decide to skip classes for any reason(s), you will need to make the time to get any missed information from a student in the class. It has been observed that students who attend classes and work consistently from the first day of class, generally perform at a higher standard.

Whereas partial class notes may be posted in webcourses, it should not be viewed as an excuse for not attending class. The notes are generally supplemented by additional material covered in lectures, or examples may change. It is solely the responsibility of each student to attend all lectures to obtain and become familiar with the information discussed in the lectures.

Please do not attempt to memorize this large body of material, as this is an ineffective way of learning, and only leads to eventual frustration!

Instead, learn actively and UNDERSTAND the various principles and concepts taught/discussed in lectures. **Read/review the lecture material carefully before each class** and after each class, also early and very often – not days, nor weeks later. *Then apply the relevant information to all the conceptual and numerical questions..* Do not wait until the last few hours before a test/quiz to do the necessary work/revision. Effective preparation is one of the greatest cure for any anxiety attack.

These conceptual and numerical questions are found within **each** chapter, and the end-of-chapter problems (Table 3). These are not optional, but are mandatory, as this part of the course work is extremely useful to enhance understanding of many key principles and concepts, and for test/quiz preparation. Although these will not be collected for grading, good practice, and even more effective practice makes perfect in the long term! If you do not do them, chances are, you will not be able to develop the mastery required to handle the questions on the exams.

Please utilize any, or, all the University and Departmental resources available to enhance students' success. These information are posted in webcourses.

Table 2: Proposed Schedule

Please note that the information listed here may be subjected to change depending on the pace at which the topics are covered in class. If required, any important changes will be announced in class and/or posted in the announcement section of webcourses.

<b>Weeks</b>	<b>Chapters...</b>
Aug. 22 – Sep. 9	Chapter 1: Introduction Chapter 2: Atoms and Molecules Chapter 3: Molecules, Moles & Chemical Equation Chapter 4: Stoichiometry
Monday, Sep. 12	<b>Test 1</b>
Sep. 14 - Oct. 7	Chapter 6: Periodic Table and Atomic Structure Chapter 7: Chemical Bonding and Molecular Structure Chapter 8: Molecules and Materials Chapter 5: Gases
Monday, Oct. 10	<b>Test 2</b>
Oct. 12 – Nov. 4	Chapter 9: Energy and Chemistry Chapter 10: Energy and the Second Law Chapter 11: Kinetics Chapter 12: Chemical Equilibrium
Monday, Nov. 7	<b>Test 3</b>
Nov. 9 – Nov. 23	Chapter 13: Electrochemistry Chapter 14: Nuclear Chemistry
Monday, Nov. 28	<b>Test 4</b>
Dec. 2	Final Exam Review (Time permitting)
<b>Dec. 07 (Wednesday)</b>	<b>Final Exam – Cumulative (1:00 pm – 3:50 pm)</b>

Table 3: Reading Sections by Chapter &amp; Problems from Brown &amp; Holme, 3e

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 tests 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

### Students Registered with the SAS Office

Please supply appropriate documentation, and meet with Instructor to discuss accommodations, if necessary, and always comply with all accommodations.

### Other Policies

#### *Webcourses*

As a courtesy, this course is also managed and supplemented using webcourses. Please check daily for any announcements, the posting of partial class notes, an electronic copy of the syllabus (original, or revised), and for any other vital information that may be of relevance to the organization of the course.

#### *Class Distractions*

In order to avoid disturbing other students, be sure to arrive at all lectures on time. If you must leave early, please do so quietly and discreetly.

All cell phones and other electronic equipment/gadgets must be silenced and properly stored away. *In that case there will be no video/audio recording, nor picture taking (flash bulbs).* Also, do not indulge in audible talking, including whispering, as students sitting nearby find such practices to be a deterrent to sustained concentration and learning.

#### *'Extra' Work*

The many topics over 14 chapters to be covered in the time allotted for this course represent a substantial body of work. As such, it is incumbent on all students to master the assigned work during the normal allocated time in the semester in order to be successful in the course. No

'extra' assignment of any type can therefore be added to this schedule outlined in the tables, during, at the end of the semester, or after the semester.

### **Academic Honesty**

Only the required materials for taking tests and quizzes are allowed. Graphing calculators are not allowed (no exceptions).

Do not allow other students to copy your work, and do not copy other students' work.

Please read and understand the UCF Creed and relevant sections of the UCF's Undergraduate Catalog (<http://www.catalog.sdes.ucf.edu>).

### **Miscellaneous**

- a) Please show up only during office hours. Please make an appointment if you are unable to make the scheduled office hours listed on the front page.
- b) Drop/Swap deadline on myUCF: Thursday, Aug. 25, 2016, 11:59 PM.
- c) Add deadline: Aug. 26, 2016; 11:59 PM
- d) Withdrawal deadline: Oct. 31, 2016, 11:59 PM.
- e) Classes end: Dec. 3, 2016.
- f) Fall Holidays: Sept. 5; Nov. 11; Nov. 24, 25.

### **N.B.**

**Please be reminded that the instructor reserves the right to modify/change any part of this schedule/syllabus if warranted!**