

# Introductory Chemistry ~ CHM 103

## Course Information & Syllabus ~ Fall Semester, 2010

### Instructor

Cindy Graham Brittain, PhD

Email: [cbrittain@chm.uri.edu](mailto:cbrittain@chm.uri.edu)

Office: Pastore 215B

Phone: 401-874-2028

Office Hours: posted at <http://www.chm.uri.edu/chm105/index.html>

### Required Lecture Materials

- Custom textbook: *Chemistry for Today, 7<sup>th</sup> Edition*, by Seager/Slabaugh (or previous edition)
- OWL (Online Web Learning) System: <http://www.cengage.com/owl/>
- Scientific calculator (with log and exponent functions) – *NO OTHER electronic devices may be used in class. Calculators will NOT be provided, and students will NOT be permitted to share calculators during exams.*
- Additional materials at the CHM 103/105 course website: <http://www.chm.uri.edu/chm105/index.html>  
*Students are expected to print their own copies of course documents and carefully study ALL posted lecture materials.*

### Class Meetings

Section 003:	M W F	2:00 – 2:50 PM	Pastore 124 Main Lecture Hall
Section 004:	M W F	9:00 – 9:50 AM	Pastore 124 Main Lecture Hall

*CONSISTENT* lecture attendance is *ESSENTIAL* for success in this course. One of the most significant mistakes students can make in this course is to miss lecture. A second is to fall behind in practicing problems. Students *MUST keep current* in working through the textbook, the materials on the course website, and the online OWL (Online Web Learning) System.

### Grading Policy

Each student's course grade will be determined from the results of four Lecture Exams, the OWL (Online Web Learning) System, and the comprehensive Final Exam:

4 Lecture Exams (17% each)	68%
OWL (Online Web Learning) Homework	12%
Comprehensive Final Exam	<u>20%</u>
	100%

The grade for any *one* of the four Lecture Exams that is *missed* (OR substantially lower than the Final Exam) may be replaced by the Final Exam score. Thus the Final Exam may count as much as 37% of a student's overall grade.

*NO* extra credit assignments will be given, and the standard grading scale will be in effect:

$$90\%+ = A / A+; \quad 80-89\% = B- / B / B+; \quad 70-79\% = C- / C / C+; \quad 60-69\% = D / D+; \quad <60\% = F.$$

Grades in the CHM 103 lecture are *earned* by demonstrating mastery/proficiency in the required skills; these skills include problem-solving, critical thinking, and the ability to apply course concepts within relevant scenarios.

*To be clear:* Each student's grade is determined by the *quality* of that student's performance on the lecture course work items. The grade is *not* open to negotiation, and it is *not* dictated by what's needed to progress in the student's chosen program of study. The grade must be *earned* by achieving *proficiency in* (and ideally, *mastery of*) the skills identified as essential to ongoing success in the student's degree program.

The purpose of using the Final Exam as a replacement for a missed Lecture Exam is *not* to boost each student's overall average. Instead it is to *eliminate* the need for make-up tests for any students who are absent on the day of a Lecture Exam.

*All* students *MUST* adhere to the exam schedule specified on the syllabus. *NO make-up exams will be given, and students who miss an exam should NOT inquire as to whether they may be given a make-up test.*

Alternate testing *will* be made available for students with a documented disability; these students should contact the instructor *as early as possible* in the semester to make arrangements for reasonable accommodations. Alternate test arrangements for these students (as well as for students participating in *University-sanctioned* events OR observing religious holidays) *MUST* be made at least *one full week prior to the scheduled exam.*

Students should anticipate that graded exam papers will be returned in class approximately one week after the exam date, and should *not* inquire as to the status of their test papers.

If the Kingston campus is closed due to weather (or other unexpected event) on a scheduled Lecture Exam day, students should anticipate that the exam will be given at the *next* class meeting.

## **Lecture Work Items:**

### **1. Lecture Exams**

Lecture exams will have two parts: 1) a portion with multiple-choice questions that will be scantron-graded, and 2) a portion with essay, structure-drawing and problem-solving questions. Exam questions will come *directly* from the content presented and discussed during lecture, and are likely to be similar to the problems in the OWL online study system, the recommended problems in the textbook, and the old exam questions posted on the course website.

Students should commit to working as many of these homework problems as possible as practice for taking exams; the goal is to become *confident* and *efficient* at *analyzing* and *solving* problems.

*Students who get the MOST practice solving problems tend to have the greatest success in this course.*

#### **Guidelines for Solving Problems: SIX Steps you should ALWAYS perform when working a Chemistry Problem**

1. *Translate* the word problem by *identifying* (and *writing down*) what is *GIVEN*, and what is *UNKNOWN*.
2. If a mathematical formula is needed to solve the problem, *show* the formula (*example*:  $PV = nRT$ ).
3. Substitute in the numerical values *WITH their UNITS*. (Numerical values have *NO* meaning without their units.)
4. Carefully and systematically *CHECK THE UNITS* all the way through the problem to ensure that the calculation has been set up correctly. *Don't EVER assume that the units of the final answer will be what you intended*. Check them to make sure! If the intermediate units don't cancel properly to yield the desired units in the final result, then you've made an error in setting up the calculation. Go back and look for the error! You'll be able to catch and prevent frustrating and costly mistakes if you take a moment to *check your units*.

Even after you've entered all of the numerical values into your calculator and computed the result, you *still* have *TWO more* steps to perform:

5. Carefully consider the numerical *value* of your result. *Does it make sense to you? Does the value feel right?* Were you expecting a *larger* number than the one that's shown on your calculator? Or a *smaller* number? If the number seems odd to you, *check your work AGAIN!* Check the algebra you used to rearrange the formula to solve for the unknown variable. Double-check the units of every value. Then try entering all of the numbers into your calculator a second (or even third) time to verify that you haven't made an error in pressing the buttons of the functions or numbers.
6. Finally, round the value of your result according to the rules of *significant figures*. Remember that this value is only as "good" as the numbers you used to calculate it. And remember to report the final result *with its units*.

*Always remember that your PRIMARY goal in solving a problem is NOT to get the "right number" on your calculator. It's to clearly demonstrate the thought process you used to arrive at that result.*

### **2. OWL (Online Web Learning) System**

The OWL (Online Web Learning) System was designed to *HELP STUDENTS LEARN*. The objective in selecting the OWL system for this course was that it would both complement and supplement the in-class lectures – helping you to *learn*, and then to *practice* the skills needed for success in this course.

The OWL assignments include *required* "pools" of homework questions, as well as extra credit tutorials, exercises, and "active figures." Many of the extra credit assignments provide exceptional learning opportunities, while the homework pools provide a chance for both *learning* and *practicing* the needed skills.

Completion of a homework pool assignment will require that you answer a particular number of questions correctly (usually two out of three) in a single attempt. These homework assignments are called "pools," because a number of questions are selected at random from a larger pool of questions each time the assignment is opened. This means that even *after* you've completed the assignment (and received credit for your work), you can re-open the assignment and answer a *different* set of questions to get additional skill practice.

Your objective in using the OWL system should *NOT* be to simply *click* your way through each assignment, trying to earn the "green check mark" (and corresponding credit). Your goal should be to carefully *work* your way through each

assignment, *trying to learn as much as you can*. And then perhaps you'll want to work the assignment a *second* (or a *third*) time to answer new questions and get additional skills practice. In short, your goal should be use OWL as an integral part of your learning and practice for the in-class exams.

You'll need to stay on track and on time with your OWL homework, as each assignment will have a due date that corresponds with the timing of each topic in lecture. As ample time is provided to complete each assignment, *NO EXTENSIONS* of due dates will be granted. Students *should NOT inquire as to whether they may have an OWL due date extended*.

As the OWL system is intended as a key part of students' learning in this course, the assignments may be worked in student study groups and/or with help from a tutor.

#### **4. Comprehensive Final Exam**

The Final Exam will consist of 100 multiple-choice questions, and will be scantron-graded.

#### **Lecture Attendance, Preparation, and Participation**

Students need to plan for *significant* study time outside of class. A rule of thumb for most college courses: 2 to 3 hours of study time outside of class for every 1 hour of in-class lecture. As this lecture meets a total of 2½ hours each week, this means that students should plan to spend approximately 5 to 7½ hours every week studying chemistry.

Students should *prepare to participate actively* in each lecture by:

- Becoming familiar with the concepts to be presented in lecture *ahead of time* (by *pre-viewing* the Skills Summaries, relevant sections of the textbook, and OWL tutorials)
- Staying current in practicing problems relevant to each lecture concept (OWL assignments, recommended end-of-chapter problems, and posted old exam questions)
- Reviewing concepts from previous lectures that are essential to learning new skills (by revisiting Skills Summaries, lecture notes, and worked practice problems)

Each student should identify *several* study partners that are in the same lecture section. In the event of an absence, students should plan to *immediately* obtain copies of missed lecture content from their study partners.

*You CANNOT AFFORD TO FALL BEHIND in this course! EVERY new concept will build on material that students should have previously MASTERED. You MUST take responsibility for reviewing those concepts as needed.*

#### **Potential Study Partners:**

<b>Name</b>	<b>Contact Information (email and/or phone)</b>

#### **H1N1 Flu Precautions**

Any students who develop flu-like symptoms are being asked to *NOT* attend classes until their fever has subsided for 24 hours. The Centers for Disease Control and Prevention have posted simple methods to avoid transmission of illness; these include: covering the nose and mouth when coughing or sneezing; washing hands frequently; avoiding touching eyes, nose, and mouth; staying home when sick. URI information on the H1N1 virus is posted at: <http://www.uri.edu/news/h1n1>.

## ***Additional Study Help Resources***

- ***Supplement Instruction (SI) Sessions provided by the Academic Enhancement Center (AEC).***

Supplemental Instruction is a popular kind of support that helps students learn material and study more effectively in challenging classes. It's being used by colleges all over the country, students *love it*, and it *works*. AEC SI Leaders have been specially trained to facilitate learning sessions for students. The SI Leader assigned to CHM 103 will attend the lectures, meet regularly with Dr. Brittain, and hold 90 minute SI sessions twice a week for anyone who wants to attend. These interactive sessions usually focus on developing effective approaches to studying for the course, understanding the course content, and preparing for exams and assignments. They're a great opportunity for students to ask questions, practice, and review and re-enforce what they're learning.

At URI, as in other colleges across the country, students who participate in SI are statistically *less likely to fail* and *more likely to earn A's and B's* than students who choose not to participate. SI is *not* just for students who are at risk of failing – it's used by *ALL* students in a course who want to do as well as they can, and who would like to benefit from working with others on course material. And because it's run by experienced facilitators who also happen to be students, it's a really comfortable, fun environment. No one gets put on the spot, and everyone is focused on the same goal: *SUCCESS!*

The schedule of SI Sessions is provided at: <http://www.uri.edu/aec/sisched.php?aec=sisched&Department=Chemistry>

- ***Chemistry Graduate Student Teaching Assistants in the Chemistry TA Help Office, Pastore 215.***

The Chemistry Help Office provides a study area for working on lecture problems or preparing for lab, and it is fully staffed by the Chemistry Department's Teaching Assistants. If you have a general question about lecture, or need help with questions/calculations, you can see any one of the TAs (however, those TAs teaching the CHM 105, 102, or 114 Introductory/General Chemistry labs will be *most* familiar with the content of this course).

A complete schedule of TA office hours is posted at: <http://www.chm.uri.edu/chm105/index.html>.

- ***Chemistry Tutors at the Academic Enhancement Center.***

Success in this course requires that you keep up with the class work and study the course materials effectively. The AEC ([www.uri.edu/aec](http://www.uri.edu/aec)) can help. Their friendly staff of learning specialists and student tutors can help you find an approach to studying that suits your needs and schedule, develop effective study strategies, understand course concepts and practice productively. The center is also a great place to go and study on your own, with space available for individuals or groups.

The AEC's tutoring service is designed to support the goals of in-class instruction, and to promote effective study techniques. The tutors are URI students who have been recommended by their professors. They are hired based on their level of success in the courses they tutor, their excellent study skills, and on their ability to work well with other students. Tutors conduct one-on-one and small group sessions for students in a variety of courses. The tutoring service is available by appointment and on a drop-in basis (first come, first served) and is *FREE!*

Many students believe that tutoring is something you do only if you're having problems in a class. *This is a mistake!* Tutoring is simply an extremely effective means of studying. When you interact with a tutor, your brain processes the information more effectively than if you study passively. Plus, the tutor can help you identify what you don't know and show you more effective ways of learning. Remember, tutoring helps you to process and understand your course material better, regardless of how poorly or well you understand it now.

The AEC is open Monday – Thursday from 10 AM until 9 pm, and on Fridays until 1 pm. All services are free (the coffee is free as well). You can call the AEC for complete information at 874-2367, or just stop by the center on the fourth floor of Roosevelt Hall.

To obtain a complete schedule (including when tutors are available specifically for CHM 103), see the AEC website at [www.uri.edu/aec](http://www.uri.edu/aec), call (401) 874-2367, or stop by the fourth floor in Roosevelt Hall.

- ***Assistance from Dr. Brittain, during office hours or via email.***

***Office Hours:*** My office hours are posted on the CHM 103/105 course website. (An appointment is not needed during a professor's posted office hours.) Students whose class/work schedules conflict with posted office hours should feel free to request an appointment at an alternate day/time. As my faculty office is accessed through the Chemistry TA Help Office (Pastore 215), students who stop by without an appointment can often get questions answered by a Teaching Assistant or another chemistry professor if I happen to be unavailable.

**Email:** Please understand that because I have responsibility for four courses, I receive a substantial number of email messages each day. To ensure that your email will be answered, it's recommended that you:

- Use a *concise*, yet *descriptive* subject line.
- Include your full name, chemistry lecture (or lab) course number, and section number in the message.
- Make sure the question asked or information conveyed in your message is both *clear* and *complete*.

### ***Study Help Advice***

Whether you're seeking help from Dr. Brittain, a Chemistry Teaching Assistant, or an AEC Tutor or SI Leader, you need to arrive at your help session *on time* and *fully prepared*, so as to make the discussion as productive and efficient as possible. This means that you should bring all relevant study/reference materials with you to the session. These include:

- Your lecture textbook
- Print-outs from the course website (Skills Summaries, Old Exam Questions, Lab Handouts, etc.)
- Your notebook of worked homework problems and lecture notes
- Your scientific calculator
- For help with the OWL online homework, your laptop or screen prints and/or hand-written notes of that clearly indicate the particular assignment and question
- And the most important item – your *written* list of specific questions and/or your goals for the help session.

### ***Academic Honesty***

Academic dishonesty in any form is considered a serious offense, and disciplinary action will be taken immediately. The URI policy on academic honesty is detailed in the student handbook (available online), and it is summarized below:

*Students are expected to be honest in all academic work. A student's name on ANY written work shall be regarded as assurance that the work is the result of the student's own thought and study. Work should be stated in the student's own words, and produced without assistance.*

*The following are examples of academic dishonesty:*

- *Unauthorized possession or access to exams.*
- *Unauthorized communication during exams.*
- *Unauthorized use of another's work or preparing work for another student.*
- *Taking an exam for another student.*
- *Altering or attempting to alter grades.*
- *The use of notes or electronic devices (e.g. cell phones, calculators) to gain an unauthorized advantage during exams.*
- *Facilitating or aiding another's academic dishonesty.*

***When there is an allegation of academic dishonesty, the instructor may:***

- ***Fail the student for the assignment, or recommend that the student fail the course.***

**Syllabus – Sections 003 and 004**

<b>Week #</b>	<b>MONDAY</b>	<b>WEDNESDAY</b>	<b>FRIDAY</b>
1	<b>9/6:</b> <i>No Classes – Labor Day Holiday</i>	<b>9/8:</b> Course Information <i>Ch 1: Matter, Measurements, and Calculations</i>	<b>9/10:</b> <i>Ch 1: Matter, Measurements, and Calculations</i>
2	<b>9/13:</b> <i>Ch 1: Matter, Measurements, and Calculations</i>	<b>9/15:</b> <i>Ch 1: Matter, Measurements, and Calculations</i>	<b>9/17:</b> <i>Ch 1: Matter, Measurements, and Calculations</i>
3	<b>9/20:</b> <i>Ch 2: Atoms and Molecules</i>	<b>9/22:</b> <i>Ch 2: Atoms and Molecules</i>	<b>9/24:</b> <i>Ch 2: Atoms and Molecules</i>
4	<b>9/27:</b> <b>EXAM 1</b>	<b>9/29:</b> <i>Ch 3: Electronic Structure and the Periodic Law</i>	<b>10/1:</b> <i>Ch 3: Electronic Structure and the Periodic Law</i>
5	<b>10/4:</b> <i>Ch 3: Electronic Structure and the Periodic Law</i>	<b>10/6:</b> <i>Ch 4: Forces Between Particles</i>	<b>10/8:</b> <i>Ch 4: Forces Between Particles</i>
6	<i>Monday Classes meet on TUESDAY, 10/12:</i> <i>Ch 4: Forces Between Particles</i>	<b>10/13:</b> <i>Ch 4: Forces Between Particles</i>	<b>10/15:</b> <i>Ch 4: Forces Between Particles</i>
7	<b>10/18:</b> <i>Ch 4: Forces Between Particles</i>	<b>10/20:</b> <b>EXAM 2</b>	<b>10/22:</b> <i>Ch 5: Chemical Reactions</i>
8	<b>10/25:</b> <i>Ch 5: Chemical Reactions</i>	<b>10/27:</b> <i>Ch 5: Chemical Reactions</i>	<b>10/29:</b> <i>Ch 5: Chemical Reactions</i> <i>Ch 6: The States of Matter</i>
9	<b>11/1:</b> <i>Ch 6: The States of Matter</i>	<b>11/3:</b> <i>Ch 6: The States of Matter</i>	<b>11/5:</b> <i>Ch 6: The States of Matter</i> <i>Ch 7: Solutions and Colloids</i>
10	<b>11/8:</b> <i>Ch 7: Solutions and Colloids</i>	<b>11/10:</b> <i>Thursday Classes Meet (Veterans' Day Holiday on 11/11)</i>	<b>11/12:</b> <b>EXAM 3</b>
11	<b>11/15:</b> <i>Ch 7: Solutions and Colloids</i>	<b>11/17:</b> <i>Ch 7: Solutions and Colloids</i>	<b>11/19:</b> <i>Ch 8: Reaction Rates and Equilibrium</i>
12	<b>11/22:</b> <i>Ch 8: Reaction Rates and Equilibrium</i>	<b>11/24:</b> <i>Ch 8: Reaction Rates and Equilibrium</i>	<b>11/26:</b> <i>No Classes – Thanksgiving Day Holiday</i>
13	<b>11/29:</b> <i>Ch 9: Acids, Bases, and Salts</i>	<b>12/1:</b> <i>Ch 9: Acids, Bases, and Salts</i>	<b>12/3:</b> <i>Ch 9: Acids, Bases, and Salts</i>
14	<b>12/6:</b> <b>EXAM 4</b>	<b>12/8:</b> <i>Last Day of Class: Final Lecture Topics; Review for Final Exam</i>	<b>12/10:</b> <i>Reading Day</i>

***Last day for students to drop courses via e-Campus: November 3, 2009***

***FINAL EXAM for Section 004 (MWF @ 9 AM): Wednesday, December 15<sup>th</sup> at 8:00 AM in Pastore 124***

***FINAL EXAM for Section 003 (MWF @ 2 PM): Monday, December 20<sup>th</sup> at 11:30 AM in Pastore 124***