Introductory Chemistry Lecture ~ CHM 103  
Course Information & Syllabus ~ Fall Semester, 2015

Instructor
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Office Hours: see CHM 103 Sakai site and Google Calendar link

Required Course Materials
- Textbook: “Chemistry for Today, Seager/Slabaugh, 8th Edition” (at URI Bookstore, bundled with OWLv2 access)
- Online Homework: OWLv2 24-month access (at URI Bookstore, bundled with textbook)
- Response Device: Turning Technologies QT Response card and Account License (at URI Bookstore, or online)
- Skills Practice Book: CHM 103 Skills Summaries and Practice Problems (at Chemistry Stockroom, 2nd floor Pastore)
- Scientific calculator: Logarithm and exponent functions required (Students may not share calculators during exams. The calculator and QT Response card are the only electronic devices that may be used in class.)
- CHM 103 Sakai site: Lecture Prep Lessons, Skill Checks, Assignments, and Announcements  
  Students are responsible for completing all posted Lecture Prep Lessons, Skill Checks, and Assignments, and carefully reading all posted/emailed Sakai Announcements.

Class Meetings
Section 004: M W F 9:00 – 9:50 AM Pastore 124 Main Lecture Hall

The most successful students in this course are those who consistently and diligently prepare for class, participate fully in each class meeting, and make a strong effort to practice the required skills – with the goal of growing their brains and thus growing more confident, competent and efficient at analyzing and solving chemistry problems.

Students should be familiar with and adhere to the Community Standards of Behavior: University Policies and Regulations in the University Student Handbook. Thus students should arrive on time to each class meeting, and remain engaged and attentive until class has concluded. Computers, tablets, and cell phones must be turned off and put away during class.

Grading and Testing Policies

Each student’s course grade will be determined from the results of the Sakai and OWLv2 online skill practice systems, submitted responses to in-class questions, four Lecture Exams, and the comprehensive Final Exam:

| Prepare Sakai Skill Checks and Assignments | 5% |
| Participate Response Questions | 5% |
| Practice OWLv2 (Online Web Learning) Homework | 10% |
| Four Lecture Exams (16% each) | 64% |
| Comprehensive Final Exam | 16% |
| | 100% |

The Final Exam score will replace the grade of any one of the four Lecture Exams that is missed OR lower than the Final Exam score. Thus the Final Exam may count as much as 32% of a student’s overall grade.

No extra credit assignments will be given (other than those in Sakai and OWLv2), and the standard grading scale is used:

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

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

Each student’s grade is determined by the quality of the 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. Each student’s 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 replacing a missed Lecture Exam with the Final Exam score is to eliminate the need for make-up tests for any students who are absent the day a Lecture Exam is given. Students must adhere to the exam schedule specified in the
sylabus. 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 is available for students with a documented disability. These students should contact the course instructor as early as possible in the semester to make arrangements for reasonable accommodations, as indicated by the Disability Services for Students Office. Alternate test arrangements for these students – and for students participating in University-sanctioned events OR observing religious holidays – require written notification to the instructor, and should be made at least one full week prior to a scheduled exam.

Students can anticipate that their graded exam papers will be returned in class at least one full week after the exam date. In the interim, students should not inquire as to the status of their test papers. Exam scores will also be communicated to students at the earliest opportunity through the Sakai Gradebook.

**The "Prepare - Participate - Practice" Learning Process**

You’ll need to plan for significant skills practice outside of class – both BEFORE and AFTER you attend the class. Here’s the rule of thumb for most college courses: two to three hours of study time outside of class for every one hour of in-class lecture. Since CHM 103 meets a total of 2½ hours each week, this means you should plan to spend approximately 5 to 7½ hours every week practicing your chemistry skills outside of class.

The CHM 103 instructors have created a learning process designed to help you become not just actively engaged, but proactively engaged in learning and practicing the skills you’ll need to grow your brain and succeed in this course. The three steps of the learning process are:

1. **Prepare**

Before each class, you’ll complete a pre-lecture learning activity outlined in a Sakai "Lecture Prep" Lesson. The idea is to get acquainted with the concepts to be discussed in class BEFORE you come to class. That way, class time is used more strategically: to help you understand the new concepts and practice the new skills.

Each Sakai "Lecture Prep" learning activity is likely to include:

- A video tutorial, to introduce the new concepts and skills
- A Sakai "Skill Check," to help you think deeply about the new concepts and try some of the skills
- A Sakai "Assignment," so you can share some pre-lecture thoughts on the new skills with your instructor

For those students also taking the CHM 105 lab course – realize that the expectations for chemistry lecture are consistent with those of the accompanying lab: just as we expect you to complete a pre-LAB learning activity and come to lab fully prepared to work an experiment, we also expect you to complete a pre-LECTURE learning activity, and arrive at class fully prepared to actively participate in the learning process.

2. **Participate**

You'll then come to class, with your CHM 103 Skills Practice Book and Turning Technologies QT Response device in hand, ready to take notes (as we review the new concepts), ask and/or answer questions (as we discuss applications of those concepts), and practice the new skills (as we work selected problems from the Skills Book).

3. **Practice**

Since growing your brain requires more extensive problem-solving practice outside of class, you'll follow up your lecture participation by completing homework assignments.

You'll want to start with the OWLv2 homework system, as the OWL online assignments are designed to help you both learn and practice the new skills. OWL provides hints and feedback, and lets you skill-drill on a particular problem set as many as ten times before you submit the completed assignment. Remember: more skills practice = greater brain growth.

After you finish up the OWL assignments, you can continue your skills practice with additional learning resources: the practice exam problems in your Skills Book, as well as the within-chapter Learning Checks and End-of-Chapter Exercises in your textbook.

The MindTap Reader online version of your Seager textbook makes it convenient to work the within-chapter and end-of-chapter problems, since the solutions to the Learning Checks and even-numbered End-of-Chapter Exercises are available as pull-down menu items directly beneath the problem statement.
Since brain growth requires both quantity and quality of skills practice, you (and your study partners) can get help as needed from your instructor, your Supplemental Instruction (SI) Leader, a Chemistry Teaching Assistant (TA) in the Pastore 215 Help Office, or a walk-in chemistry tutor at the Academic Enhancement Center (AEC) in Roosevelt Hall.

You’ll want to identify several study partners in your lecture section. In the event of an absence, you should make plans to immediately get copies of lecture notes from one (or more) of your study partners.

After you’ve worked the pre-lecture activities and reviewed your study partner’s lecture notes (and relevant portions of the Skills Book and textbook), you’re welcome to bring your written list of questions to your instructor’s office to discuss the concepts/skills that were demonstrated in the missed class.

You CANNOT afford to fall behind. Every NEW concept will build on skills that you should have previously MASTERED.

Lecture Work Items:

1. Sakai Skill Checks and Assignments

The Sakai Lecture Prep Lessons tool is the key to your preparation for lecture, your active participation in each class session, and then your post-lecture skills practice.

- The Lecture Prep Lessons will guide your study efforts by stepping you through the “Prepare – Participate – Practice” learning process.

- The Skill Checks will probe at your pre-lecture understanding of key concepts, and push you to think carefully about the new skills you’re learning.
  - Each Skill Check will consist of a set of “pooled” questions – this means that a fixed number of questions will be selected at random from a larger pool each time you open the Skill Check. So after you’ve completed (and received credit for) a Skill Check, you can re-open it four more times, to answer a different set of questions, until you’re confident you’ve maximized your learning, and can answer each question correctly.
  - You must stay on time and on track in completing the Skill Checks, as each will have a “due date” corresponding to the timing of that topic in the course (9:00 AM on the morning we discuss that topic in class), and a “retract date” corresponding with the next Lecture Exam. The due dates of missed Skill Checks will not be extended.
  - Prior to the due date, you’ll have up to five attempts to take and submit a Skill Check. Your highest score will be recorded in the Sakai Gradebook. After each submission, you should go to the Skill Checks area of Sakai to study the feedback provided: the questions, the answers you submitted, the correct answers, and an explanation of each answer. As many of the Skill Check questions are included in the Multiple Choice Practice Exams in the Skills Book, many students record notes on the feedback in their Skills Book.
  - After the due date, but before the retract date, students who have not previously attempted a missed Skills Check will have only one opportunity to take it, and that score will be recorded in the Sakai Gradebook.

- The Assignment associated with each Lecture Prep Lesson provides the means for you to directly (and confidentially) communicate to me the particular concepts/skills you feel confident about, those you find challenging or confusing, as well as your plans to practice (and get help with that practice), so you can grow your brain, meet the challenges, and master the skills. Each carefully written and submitted Assignment will add to your Sakai % score.

- Each student’s Sakai % score is the ratio: total points the student has earned in Sakai (Skill Check + Assignment) / the number of Skill Check points it’s possible to earn.

2. Turning Technologies QT Response Device and Account

The Turning Technologies QT Response card provides the means for you to participate actively in each class meeting. To receive credit for this participation, you’ll need to obtain both a “clicker” and Turning Account license, and register your device at our CHM 103 course Sakai site. You must bring your clicker with you each time you come to class, regularly check your clicker’s battery life (and replace the battery as needed), and confirm that your clicker is set at the correct channel for the Pastore 124 main lecture hall (Channel 44).

Students should expect that each class meeting will open with one or more clicker questions based on the Lecture Prep Lesson in Sakai, and that additional questions will be asked at appropriate intervals throughout the class period. For each clicker question asked, you will receive one point for attempting to answer the question, and a second point if your answer is correct.
Each student’s Clicker % score is then the ratio: total clicker points the student has earned / the number of clicker points it’s possible to earn.

3. **OWLv2 (Online Web Learning) System**

The OWLv2 (Online Web Learning) System was designed to help students both learn and practice the skills needed for success in their chemistry course.

There are three types of OWL assignments: 1) Mastery assignments (with pooled, algorithmic questions), 2) Non-Mastery Multimedia Activities (with tutorials and/or videos), and 3) End-of-Chapter problems.

The Mastery assignments require that you answer a certain number of questions correctly out of a Group (usually two out of three). The questions are pulled at random from a larger pool of questions each time you “Retry the Group.” You’ll have one “submission” for each OWL assignment, but up to ten attempts to complete each question within the assignment before you submit the completed assignment for credit. This means you can cycle through a Group of questions – or choose to “Save and Exit” the assignment (and return to it later) – as many as ten times.

Your objective should NOT be to click through assignments until each question shows the “green check” of a correct response. It should be to carefully work your way through each assignment – trying to learn as much as you can. This may mean working some of the more challenging Mastery questions several times, to draw new questions from the pool and get additional skills practice. You’ll want to take full advantage of OWL’s ability to provide both skills practice opportunity and instant feedback on how you’re progressing in building the needed skills.

Since this homework is intended as a key part of your learning and skills practice, the assignments can be worked in student study groups and/or with help from a tutor.

You must stay on track and on time with your OWL homework, as each assignment will have a “Due Date” (corresponding to the timing of that topic in the course), and an “Unavailable Date” (corresponding with an exam or other course milestone). As long as you’ve started an assignment prior to the its date, you can continue working on that assignment until the unavailable date; however a 25% late penalty will apply. Due dates of missed OWL assignments will not be extended.

Mastery and End-of-Chapter OWL assignments are required; the Non-Mastery Multimedia Activities are extra credit. A student’s OWL% score is the ratio: total points the student has earned (required + extra credit) / the number of required points it’s possible to earn.

4. **Lecture Exams and Comprehensive Final Exam**

Lecture exams are likely to have a variety of question types, including multiple-choice, short-answer, structure drawing, problem solving, and essay.

Exam questions will come directly from the content presented and discussed in both class and the course Sakai site. Exam questions likely to be similar to the Skill Check questions in Sakai, the problems in the OWL online study system, the recommended problems in the Seager textbook, and the practice exam questions in your Skills Book.

Students should commit to working as many of these problems as possible as practice for the exams. The goal is to become confident, competent and efficient at analyzing and solving problems. The students who get the MOST practice solving problems tend to have the greatest success in science and math courses.

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

**CHM 103 Computational Strategy: Steps you should perform when working a CHM 103 Problem**

1. Interpret (translate) the word problem by identifying (recording) the variables or relationships that are given, and those that are unknown.

2. If a mathematical formula is needed to solve the problem, identify the appropriate formula (e.g., PV = nRT) and indicate it on your paper. If no mathematical formula is required, use dimensional analysis to map the pathway to solving the problem.

3. When using a mathematical formula, rearrange the formula algebraically to solve for the unknown. Substitute in all given numerical values with units. (Numerical values have no meaning without units.) When using dimensional analysis, systematically follow the units through the problem, to ensure each unit relationship is correct and is used correctly.
4. Carefully check the units all the way through the problem to ensure the calculation is set up correctly. Don’t assume 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, you’ve made an error setting up the calculation. Go back and look for that error! You’ll be able to catch and prevent frustrating and costly mistakes if you take the time to check your units.

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

5. Carefully consider the numerical value and unit of your final 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? A smaller number? If the value doesn’t seem reasonable, 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. Enter 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**.

   **Your PRIMARY goal in working a chemistry 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.**

**Additional Study Help Resources**

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

  While classes are generally where new information gets introduced, Supplemental Instruction is where students can go from seeing to doing, by working with classmates and a student SI leader.

  **Why go?** Sessions are 90 minutes and SI leaders structure the time to give students opportunities to ask questions, work through example problems step by step, and clarify and reinforce concepts by teaching each other in small groups. Because SI makes applying concepts to problems easier, students who regularly attend generally have an easier time doing homework, keeping up with the class, and studying for exams.

  **Schedules:** Check the AEC website (uri.edu/aec) for the most up-to-date schedules of where and when sessions for your course take place, and attend as you are able. There is no sign-up required to attend SI. While you can choose how often you go, we know that students will get the most out of SI if they attend on a consistent basis.

  **Note:** SI leaders do NOT hold review sessions during the week that an exam is given. Students are encouraged to attend SI sessions on a regular basis to stay on top of the material. During exam weeks, students are encouraged to bring specific questions about past material to their instructor’s office hours or the Pastore 215 Help Office, or to walk-in tutoring hours at the AEC (see tutoring services description below).

  - **Chemistry Walk-In Tutoring at the Academic Enhancement Center (AEC)**

    The chemistry walk-in center is staffed with trained tutors prepared to guide you through difficult course content. Tutoring is less structured than our SI sessions; students should generally come to tutoring when they have specific questions. Some students like to work on homework in our walk-in centers, knowing there are tutors nearby to whom they can ask questions as needed, and it is a great opportunity to meet other students taking similar courses. Check the AEC website (uri.edu/aec) for the most up-to-date schedules of when the walk-in center is open, and feel free to stop by during any of those hours – no appointment needed!

  - **Academic Coaching at the Academic Enhancement Center (AEC)**

    Coaching is available to all students for all subjects. Students meet 1-1 with an academic coach once per week for 30 minutes each session, and receive tailored coaching to improve their overall academic success. This may include strengthening time management, learning to combat procrastination, implementing efficient and effective studying methods, improving your test-taking, etc. Not sure what your need is? Come set up an appointment and we can help you figure things out! To make an appointment, stop by the AEC’s reception area on the 4th floor of Roosevelt Hall, or call the desk at **401-874-2367**.

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

    The Chemistry Help Office is a place where students can gather to study and work problems, either alone or in small groups, and get help on an as-needed basis -- from Drs. Brittain, Geldart, or McGregor, or one of the Chemistry Graduate Student Teaching Assistants who staff the office during the week. Some of the most successful students in chemistry
courses are those who become "regulars" in the Help Office, preferring to study there, rather than in their dorm room, the AEC, or the Library. They set up camp, bring their breakfasts and/or lunches, and work practice problems – on paper or online, using their own laptop or one of the two desktop computers available in the Help Office – and get help as needed.

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 available via a link in your CHM 103 Sakai site.

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

Office Hours: My office hours are posted on the CHM 103 Sakai site, as is a link to my Google Calendar class/meeting schedule. In general – an appointment is not needed during a professor’s posted office hours. CHM 103 students are welcome to check my class/meeting calendar, and stop by at time when I’m available. Students may also request an appointment at a particular day/time.

As my faculty office is accessed through the Chemistry TA Help Office, students who simply stop by Pastore 215 can often get their questions answered by a Teaching Assistant or one of the other chemistry lecturers if I’m unavailable.

Email: Please understand that because I have responsibility for three different chemistry courses – all with high enrollments – 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 your instructor, a 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 CHM 103 Skills Book
- Your notebook of worked homework problems and lecture notes
- The scientific calculator you use to work problems
- For help with the OWLlv2 online homework – send an email message from within that particular assignment, then bring your laptop (or hand-written notes and/or a screen print that clearly indicate that assignment and question).
- And the most important item – your written list of specific questions and/or your goals for the help session.

Important Fall Semester Deadlines

- Last day of e-Campus open add period: Tuesday, September 15th
- Last day of e-Campus add with permission number: Tuesday, September 22nd
- Last day for students to drop courses via e-Campus with no transcript designation: Wednesday, September 30th
- Last day for students to drop courses via e-Campus (with drop designated on transcript): Wednesday, October 21st
- Mid-term Progress Reports posted in e-Campus: Tuesday, October 22nd

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 University Student Handbook, and is summarized here:

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 or properly attributed to its source.
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 such as calculators, computers, or cell phones 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, request conduct action, or recommend that the student fail the course.
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<th>MONDAY</th>
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| 1     | 9/7: **No Classes – Labor Day Holiday** | 9/9: Course Information  
Ch 1: Matter, Measurements, and Calculations | 9/11: Ch 1: Matter, Measurements, and Calculations |
| 2     | 9/14: Ch 1: Matter, Measurements, and Calculations | 9/16: Ch 1: Matter, Measurements, and Calculations | 9/18: Ch 1: Matter, Measurements, and Calculations |
| 4     | 9/28: Ch 2: Atoms and Molecules | 9/30: Ch 3: Electronic Structure and the Periodic Law  
*Last day for e-Campus Drop (no W)* | 10/2: Ch 3: Electronic Structure and the Periodic Law |
| 5     | 10/5: Ch 3: Electronic Structure and the Periodic Law | 10/7: Ch 4: Forces Between Particles | 10/9: Ch 4: Forces Between Particles |
| 6     | 10/12: Ch 4: Forces Between Particles | 10/14: Ch 4: Forces Between Particles | 10/16: EXAM 2 |
| 7     | 10/19: Ch 4: Forces Between Particles | 10/21: Ch 4: Forces Between Particles  
Ch 5: Chemical Reactions  
*Last day e-Campus Drop (with W)* | 10/23: Ch 5: Chemical Reactions |
| 11    | 11/16: Ch 7: Solutions and Colloids | 11/18: Ch 7: Solutions and Colloids | 11/20: Ch 8: Reaction Rates and Equilibrium |
| 12    | 11/23: Ch 8: Reaction Rates and Equilibrium | 11/25: Ch 8: Reaction Rates and Equilibrium | 11/27: **No Classes – Thanksgiving Day Holiday** |
*Last Day of Class* |
| 15    | 12/14: **Reading Day** | 12/16: **Final Exams** | 12/18 **Final Exams** |

*Final Exam for CHM 103-004: Saturday, December 19th at 8:00 AM in the Pastore 124 main lecture hall*