CH 111 – Introduction to Chemical Principles 4 credits
MW 12:00-13:20, F 12:00-12:50 CRN:11227

1 Vital Info

Instructor – Mark Lonergan (Professor)

Assistant – Donald Clayton (graduate teaching fellow)

Description (from catalog) – Chemical concepts for students in health care, biological applications, and environmental studies. Topics include atomic structure, solutions, acids, bases, stoichiometry, equilibrium, biomolecules, and organic functional groups. Lecture, demonstration.

Flipped Fridays – The first six Friday classes of the term will be flipped. You will watch an online presentation and answer questions on Canvas BEFORE coming to class. In class, you will work in groups to solve problems based on the online material.

Assessment Wednesdays – Every Wednesday except for the first and the day before Thanksgiving, there will be an in-class quiz or exam. There will also be an exam on the Monday before Thanksgiving (see schedule).

Office Hours – Room 107 Klamath Hall. Mark: M 4pm, W 8am, and F 1pm. Don: Tu noon and 4 pm.

Prerequisite – MATH 95. I will expect that you are proficient with logarithms, exponents, scientific notation, fractions and solving simple algebraic equations.

Textbook – The course will use a *subset* of the chapters from the 6th edition of McMurry, Castellion, Balantine, Hoeger, and Peterson, Fundamentals of General, Organic, and Biological Chemistry. There are at least two options by which you can acquire this material:

1. Purchase the chapters as a customized text (ISBN: 1256338869) available both new and used only at the University bookstore. I will use this customized text in the future so you should be able to sell it back to the bookstore at the end of the term. Note that new texts come with Mastering Chemistry an online tutorial and homework system, but this is NOT required for the course.
2. Purchase the entire book (**6th edition**, ISBN: 0136054501), new or used, from a book seller.

Additional Required Materials – i>clicker**2** and a basic scientific calculator. See below for more detail.

2 Communication and Canvas

This course will use the Canvas course management system (canvas.uoregon.edu). If you need to communicate with Mark or Don, please send emails through the canvas site as this will help us be more responsive. Lecture notes, exam results, and other course materials will be posted to the Canvas site. **All email communication regarding the course will go through the Canvas site and/or your uoregon account. Please check your uoregon email regularly.**

3 Student expectations

I expect that students in this class will treat others with respect, and be engaged in (see study guide) and take responsibility for their own education. I also expect that students will abide by the Student Conduct Code.

4 Assessment

Grading Scale – Grades will be assigned on the following scale (pluses and minuses will be assigned within these ranges based primarily on examination, not quiz or extra credit, scores).

$\geq 90\%$	A^+,A,A^-	80%-90%	B^+,B,B^-	67%-80%	C^+,C,C^-	55%-67%	D	$\leq 55\%$	F

Graded elements and weighting:

Item	
Unit 1/2 Exam	20%
Unit 3/4 Exam	20%
Comprehensive Final	40%
Quizzes (Highest 5 scores)	20%

In Class Exams and Quizzes (see schedule) – Every Wednesday except for the first and the Wednesday before Thanksgiving, there will be a quiz or exam. In addition, there will be a comprehensive final at the end of the term. Your quiz score will be based on the highest five scores out of seven quizzes. Make-up or early exams/quizzes will not be given. Notify Professor Lonergan as soon as possible if you will miss an exam or quiz due to an authorized and unavoidable University event.

Homework – Not directly graded, but many exam and quiz questions will follow closely from the homework.

Extra Credit – *Non-flipped classes* – You can earn up to 2.0 percentage points of extra credit toward your final grade through i>clicker2 participation. Participation will be graded on the fraction of clicker questions you respond to beginning the second week of the class. Your lowest two days of clicker scores will be dropped. *Friday flipped classes* – You can earn up to 1.0 percentage points of extra credit toward your final grade based on activities related to flipped Friday classes. Extra credit will be based on the number of correct responses to Canvas screencast quiz questions and in-class clicker questions. Your lowest week score will be dropped.

5 Course policies and procedures

Academic Honesty – Academic dishonesty in any form will not be tolerated. All work submitted in this course must be your own and produced exclusively for this course. Any incident of academic dishonesty will result in an automatic failure (grade of F) for the course and be noted in student disciplinary records. Additional sanctions may be imposed as described in the Student Conduct Code.

Accessible Education – Any student with a documented disability, who may anticipate needing accommodations in this course, should arrange to meet with Mark during the first week of class. Please request that a counselor at the Office of Accessible Education send a letter verifying the disability. The testing center fills up quickly so requests need to be submitted early in the term.

Calculator policy – An *simple*, *inexpensive* scientific calculator is required for use during exams/quizzes. The calculator should be capable of square roots, logarithms, scientific notation operations, and have a y^x key. You may **NOT** use calculators that can be programmed, communicate with other devices, store text, produce graphs, or that make noise. Examples of acceptable calculators are the Texas Instruments TI-30Xa, Casio FX-260, Sharp EL-501WBBK (all are under $15). Violation of the calculator policy will result in academic sanctions.

Computers In Class – Students wishing to use a computer during class are asked to sit in the upper section above the railing to minimize distraction to other students.

Tutoring – The Department of Chemistry provides contact information for private tutors. For more information, visit the Chemistry office in room 91 Klamath Hall.

Exam/quiz policies and procedures Scratch paper and exam/quiz sheets will be provided. You are required to bring the following to each exam/quiz: No. 2 pencils with eraser, approved calculator (see section above), i>clicker2 and student identification card. These cards may be checked at anytime during the exam/quiz or when you turn in your exam/quiz. Note the following policies regarding exams and quizzes.

1. YOU WILL BE PENALIZED 10% IF YOU DO NOT HAVE A **CANVAS REGISTERED** i>clicker2 TO RECORD YOUR ANSWERS
2. All exams/quizzes are closed book/closed note.
3. You may not receive assistance from others during the examination.
4. Once an exam begins, you will not be allowed to leave until you have submitted your exam for grading (if this presents a problem please notify the instructor in advance).
5. Seats will be assigned. You are required to sit in the seat matching the number on your exam/quiz. Please ask when receiving your exam if you need a left-handed seat.
6. Baseball caps or brimmed hats must be removed or turned backwards.
7. Wireless communication devices, including cellphones, must be turned off.
8. Headphones and unauthorized earpieces must be removed.
9. All personal materials must be put away under your seat.

Classroom response system: i>clicker2 and CANVAS registration – The course will use i>clicker2s, which are available at the UO bookstore. To register your i>clicker2, follow the "i>clicker" link on the sidebar of the navigation site. **IMPORTANT:** Registering on the i>clicker2 website (www.iclicker.com) is NOT CAVNAS REGISTRATION AND IS THE WRONG PLACE TO REGISTER YOUR i>clicker2.

6 Homework and Vocabulary – How to succeed in this course!

Homework – Working problems is the best way to learn chemistry. It is essential that you diligently complete the assigned problems and *critically* evaluate your own performance using the answer keys that will be provided. Use office hours to get help!

If you have trouble with a particular problem, work similar problems. The problems in the book are well organized so that closely related problems can generally be found. *Students that do well on tests are generally able to solve the homework problems in random order (so there is not context to guide problem solving) and without referring to the text, notes, or asking for assistance in any way (mimicking the test environment).*

Vocabulary – Chemistry can be like learning a new language and so vocabulary is important. At the end of each chapter in a sidebar next to the summary, there are lists of key words that you should be able to define.

Chemistry is a cumulative topic. Start studying now. DO NOT FALL BEHIND!

Approximate Course Schedule (Exam and quiz dates are firm)

Note special review dates before exams.

week	date	topic
Week 1		*Unit 1: Chemistry's Building Blocks.*
	9/28	1. What is chemistry? The atom and the elements.
	9/30	2. Physical quantities and Significant Figures
	10/02	3. Calculation and conversions (flipped).
Week 2	10/5	4. Matter and Chemical Compounds
	10/7	5. Periodic Table. **Quiz 1**
	10/09	6. Electronic structure of the Atom (flipped).
Week 3	10/12	7. Electron configuration and the Periodic Table.
		Unit 2: Holding it together. Chemical compounds
	10/14	8. Ion formation and Ionic bonds. **Quiz 2**
	10/16	9. Ionic charges and compounds (flipped).
Week 4	10/19	10. Molecules and Covalent Compounds
	10/21	11. Drawing Lewis structures. **Quiz 3**
	10/23	12. Shapes of Molecules, VSEPR, (flipped)
Week 5	10/27	TBA
	10/28	**Unit 1/2 Exam (Review: Tu 10/27, 7pm, 123 Pac)**
		Unit 3: Transformations. Chemical Reactions
	10/30	13. Chemical Equations (flipped)
Week 6	11/2	14. The Mole & Mass/number Relationships.
	11/4	15. Mass/Number Relations and Chemical Reactions (Stoichiometry)**Quiz 4**
	11/6	16. Spontaneity and Reactions (flipped).
Week 7	11/09	17. Rates of Chemical Reactions.
	11/11	18. Chemical Equilibrium. **Quiz 5**
		Unit 4: Chemistry in Water. Solutions.
	11/13	19. Intermolecular Forces and Solutions.
Week 8	11/16	20. Concentration and Dilution of Solutions
	11/18	21. Acids and Bases **Quiz 6**
	11/20	22. Acid Strength
Week 9	11/23	**Unit 3/4 Exam (Review: Su 11/22, 7pm, 123 Pac.)**
	11/25	23. pH
	11/27	Thanksgiving Holiday - No Class
Week 10		*Unit 5: Molecules of Life. Organic Compounds.*
	11/30	24. Organic Compounds and Functional Groups.
	12/2	25. Drawing and Naming Organic Compounds **Quiz 7**
	12/4	26. TBA
	12/10	**Compreshensive Final, Thursday @ 10:15a**

See study guide for homework and reading assignments.