Chemistry 130

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Course Objectives
The goal of Chemistry 130 is to provide the student with a foundation in the basic principles of chemistry, skills in problem solving and critical thinking thus, preparing the student for further study in chemistry. The topics include (but are not limited to) the periodic table, atomic structure and theory, chemical bonding, chemical reactions, stoichiometry, gas laws, and nomenclature.

Important Enrollment Information:
If you are in section #0479 lecture meeting MW 9:35-11:00 AM in Chem214 you **MUST** also be enrolled in one of the following three lab sections:

- **Section: #0621**, Tuesday 1:20-4:30 PM, Chem 129
- **Section: #0341**, Thursday, 11:10-2:30 PM, Chem 129
- **Section: #0482** Thursday, 2:30-5:40 PM, Chem 129

Class Policies and Philosophy on Learning and Teaching

**Students with Disabilities:** A student with a verified disability may be entitled to appropriate academic accommodations. Please contact your instructor or the Disabled Students’ Center for further information.

**Classroom Conduct and the Right to Education:** All students have the right to fair and equal education without bias or discrimination. Inappropriate behavior towards other students or the instructor will not be tolerated. Please observe the following courtesies at all times:

- Please mute your pagers and phones while in class*.
- When your instructor is speaking, please refrain from talking to your neighbors—the noise is distracting and disruptive.
- Please do not gather your books in preparation for leaving the class until your instructor has concluded class—again the noise is distracting and disruptive to others.
- When working with other class members, please be encouraging, positive, and helpful. Be sensitive to the feelings of others. Please avoid criticism and teasing or joking that might be hurtful to others.

* Notify the instructor before class if you must leave your cell phone or pager on.

**Attendance and Dropping:** Attendance is absolutely critical to understanding the material to be covered in chemistry. In addition, there will be in-class activities and participation in these is crucial to your grade. If you are absent, please obtain information about the class and any notes from another student. Missing four or more class hours may result in you being dropped from the class. It is your responsibility to formally withdraw from the class through Admissions and Records should you decide you no longer wish to be enrolled.

**Academic Honesty:** I fully support Orange Coast College's belief that academic honesty is a cornerstone of the educational community. To that end, I expect academic honesty of my students. Students who bring unauthorized material to a test or copy from another's test will receive a zero on that test. Removal of reserve materials from the LRC is considered an act of academic dishonesty. Doing your homework in groups is encouraged, however copying someone else's homework or allowing someone else to copy your homework is considered an act of academic dishonesty.

**Succeeding in Chemistry:** Chemistry is a subject that requires active learning to master. You must come to class and then apply the principles you have learned by working though many problems. Often, it will take many attempts at a problem to solve it. Remember, a good rule is to set aside eight to twelve hours per
week to do your homework assignments and to complete other study and learning tasks. Do not allow yourself to fall behind in your work because catching up before a test is an extremely difficult task.

**Succeeding in Chemistry (Continued)**
It will help you understand the lectures if you come to class prepared- read the sections to be covered before you come to that lecture. I have assigned homework problems for you to do, but be aware that you may need to spend time solving extra problems to master certain topics. In summary, you should:

1. Read all material before coming to class.
2. Come to all classes.
3. Do not fall behind.
4. Complete all homework problems punctually.
5. Complete all handouts and review exercises.
6. Work extra problems if necessary.
7. Learn definitions and understand concepts.

**Getting Help:**
1. Tutoring is available at the Tutoring Center.
2. Extra practice and review: Use the reviews and chapter tests at the end of each chapter for extra practice and review.
3. Study groups: Get together with other class members and form a study group which meets regularly to do homework and study.
4. Your instructor: E-mail and office hours.

**Class Meetings**
M, W 9:35-11:00 AM, Chem 214

**Lab Meetings**
Section: #0621, Tuesday 1:20-4:30 PM, Chem 129
Section: #0341, Thursday, 11:10-2:30 PM, Chem 129
Section: #0482 Thursday, 2:30-5:40 PM, Chem 129

**Text**
2) WebAssign Access Code

**Other Necessities**
Calculator, access to a computer that is connected to the internet (this is available to you here at OCC), WebAssign access code.

**Website**
Important information and quizzes will be posted on the website for this class. If you do not have access to a computer at home, you can use the computer lab that is on campus to access the web-page.

**Prerequisite**
Intermediate Algebra with a grade of “C” or better.

**Exams (65%)**
Three exams will be given during the semester and will account for 45% of your final grade. In addition, there will be a final exam at the end of the semester that will be worth 20% of your final grade. Please be aware of the following tentative exam dates. Mark them in your calendar, and be sure that you don't schedule any conflicting event. Exams may be given early to students if the circumstances warrant. Please see me at least one week before the scheduled exam date if you wish to take an exam early. Please note that there are no make-up exams.

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<td>Final</td>
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**Final Exam:** May 25, 9:35-11:00 AM Chem 214
Homework and WebAssign (15 % of your grade!)

**Homework:** There are 14 Homework assignments that will be collected at the beginning of each lab as outlined in the schedule. **No late homework is accepted.** Full credit is given if all problems are completed and work is clearly shown. **No credit is given for answers only.** You must show all work for numerical problems to receive credit for your homework. The completion of every homework assignment is essential to your success in this class. Chemistry is a "learn by doing" subject. Do not allow yourself to fall behind in your work. Catching up before a test or quiz is an extremely difficult task.

**WebAssign Online Quizes:** There will be weekly on-line homework quizzes. The quizzes will be posted on the class webpage (WebAssign link) and will be posted weekly. **These are essential for your success in this course!**

**Labwork (20%)**

There will be a total of 14 experiments and/or worksheets during the semester. The hands on experience is a must for understanding the lecture material, so I do not drop any lab grades. It is very important to be on time for labs since I use the first few minutes to explain procedures and safety issues. In addition, during the semester there will be unannounced **pre-lab quizzes** covering the material on the prelab assignments. I will use the beginning of each lab period to touch up on lectures material, go over the experiment and cover the prelab assignments. Most labs will have worksheets to keep you busy throughout the lab period and are due at the end of the lab. All experiments must be completed during the allotted time and cannot be taken home. Labs are critical for understanding material, and if you miss more than two labs, the highest grade you can get is a “C”. **If you miss more than three labs, you will automatically receive a failing grade.**

**Grading**

During the semester there will be 3 exams worth 150 points each, a 200 point final exam, 15 homework assignments and ~15 homework quizzes (100 pts), and 14 lab experiments (250 pts). I guarantee the following grading scale:

- 90 - 100%  A  Tests:  45%
- 80 – 89%  B  Final Exam  20%
- 70 –79%  C  Homework + Quizzes:  15%
- 60 – 69%  D  Labs:   20%
- 0 – 59%   F    Total:   100%

**Tentative Homework Assignments**

**Chapter 1:** 4, 9, 10, 12.
**Chapter2:** 7, 10, 14, 15, 17, 18, 20, 23, 25, 26, 30, 31, 33, 36, 37, 42, 44, 52, 54, 56, 64, 66, 70, 72-76, 80, 82, 92, 94, 96, 98, 106, 116, 152, 157.
**Chapter 3A:** 1-8, 11-26, 28-35, 36, 50, 53, 56, 84, 85.
**Chapter 3B:** 37-39, 41, 43, 44, 45-50, 52, 54, 57-58, 60, 63, 64, 66, 68, 70, 72, 74, 75, 76, 78, 81, 82, 83, 84.
**Chapter 4:** 6-13, 5, 7-12, 14-22, 23, 24-32, 33-36, 38, 39, 40, 41, 42-48, 51, 58, 59, 61, 76.
**Chapter 5:** 7-13, 15-17, 21, 23, 25, 28-35, 36, 37, 39, 43, 44, 47, 49, 53, 55, 57, 60, 63, 69, 95.
**Chapter 6:** 1-8, 11-16, 17, 18, 20, 22-24, 30, 32, 36, 37, 40, 42, 46, 50-52, 54-56, 60, 62, 64, 66, 67, 71, 76, 78, 81, 82, 84, 85, 93, 122-124.
**Chapter 7:** 1-8, 9-12, 16, 20, 18, 20, 22, 24, 30, 32, 36, 37, 40, 42, 46, 50-52, 54-57, 60, 62, 64, 66, 67, 71, 76, 78, 81, 82, 84, 85, 93, 122-124.
**Chapter 8:** 1-4, 6 balance, 9, 10, 12, 13, 14, 16, 17, 18, 20, 22, 24 grams instead of moles, 25, 30, 31, 32, 35, 36, 37, 41-43, 46, 48, 51, 54, 58, 59-62, 64, 65, 67, 69, 90, 91.
**Chapter 9:** 1-4, 6 balance, 9, 10, 12, 13, 14, 16, 17, 18, 20, 22, 24 grams instead of moles, 25, 30, 31, 32, 35, 36, 37, 41-43, 46, 48, 51, 54, 58, 59-62, 64, 65, 67, 69, 90, 91.
**Chapter 10:** 1-4, 6, 8-12, 16, 20-24, 30, 32, 36, 37, 40, 42, 46, 50-52, 54-57, 60, 62, 66, 67, 71, 76, 78, 81, 82, 84, 85, 93, 122, 124.
**Chapter 11:** 1-4, 6 balance, 9, 10, 12, 13, 14, 16, 17, 18, 20, 22, 24 grams instead of moles, 25, 30, 31, 32, 35, 36, 37, 41, 43, 46, 48, 51, 54, 58, 59-62, 64, 65, 67, 69, 70, 72, 77-80, 82, 95, 96, 100, 102, 107, 112.
**Chapter 12:** 1-4, 6 balance, 9, 10, 12, 13, 14, 16, 17, 18, 20, 22, 24 grams instead of moles, 25, 30, 31, 32, 35, 36, 37, 41, 43, 46, 48, 51, 54, 58, 59-62, 64, 65, 67, 69, 70, 72, 77-80, 82, 95, 96, 100, 102, 107, 112.
**Chapter 13:** 1-8, 10, 12-18, 20, 22, 24, 26, 29, 31-33, 35-39, 41-50, 52-54, 56, 57, 58-62, 63-66, 69-77, 80-83, 85, 86.
**Chapter 14:** 3, 5-7, 12-14, 16-18, 20, 22, 23-30, 32, 34, 37, 39-42, 44, 45-50, 52, 54, 56, 62, 63, 64, 68, 70, 72, 77-80, 82-86, 88, 90-92, 94, 96, 102, 121-142.
**Chapter 15:** 1-4, 6-10, 12-14, 16-22, 23, 25, 26, 27, 33, 36, 37, 50, 52, 55, 56, 58, 61, 63, 64, 69, 73, 74, 98, 99, 106, 115, 121.
**Chapter 16:** 2, 3, 7, 8, 11, 12, 14, 15, 20, 21, 22, 24, 29, 31, 32, 33, 34, 35, 38, 41, 42, 46, 47, 49, 50, 53, 58, 59, 63, 64, 66, 73-75, 84, 85.
**Chapter 17:** 4-7, 10, 12, 14, 17-19, 21-24, 27, 33, 34, 36, 37, 42, 43, 45, 46, 47, 50, 54, 57, 59, 60, 62, 65, 67, 69, 74, 94, 95, 100, 102, 106.
# Tentative Syllabus

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<th>Topic</th>
<th>Assignment Due</th>
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| 1      | 1/31            | Introduction  
Ch. 1: Scientific method  
Ch. 2: Scientific Notation, Significant Figures |       |
|        | 2/2             | Ch. 2: Temperature, and Density, Dimensional Analysis  
Labs* | Lab Check-In; Safety; Introduction to Lab Techniques;  
Significant Figures worksheets |
| 2      | 2/7             | Ch. 2: Continuation of Dimensional Analysis  
Ch. 3: Matter, physical and chemical properties and changes, mixtures, Separation |       |
|        | 2/9             | Ch. 4: The Structure of the Atom, Elements, Atomic Theory  
Labs | Safety Quiz  
Lab #1: Metric Measurements,  
Dimensional Analysis Worksheet |
| 3      | 2/14            | Ch. 4: Isotopes, The Periodic Table, Ions  
Ch. 5: Nomenclature Naming Type I, II, and III Binary Compounds |       |
|        | 2/16            | Ch. 5: Nomenclature – Naming polyatomic compounds, and acids  
Labs | Lab #2: Density,  
Nomenclature Worksheet |
| 4      | 2/21            | SCHOOL HOLIDAY |       |
|        | 2/23            | Ch. 6: Chemical reactions, chemical equations, balancing equations  
Review For Exam I  
Labs | Worksheets |
| 5      | 2/28            | Exam I: Chapter 1, 2, 3, 4, 5  
Ch. 7: Predicting Reactions, Solid Formations, Aqueous Solutions | HW Ch. 4 |
|        | 3/2             | Labs | Lab #3: Periodic Trends  
Prelab # 3  
HW Ch. 5 |
| 6      | 3/7             | Ch. 7: Acid/ Base Reactions, Oxidation-Reduction Reactions, Classifying Reactions |       |
|        | 3/9             | Ch. 8: Counting by Weighing, Atomic Masses, Mole, Molar Mass  
Labs | Lab #4: Conductivity  
Prelab # 4  
HW Ch. 6, 7 |
| 7      | 3/14            | Ch. 8: Percent Composition, Formulas and Compounds, Empirical and Molecular Formulas |       |
|        | 3/16            | Ch. 9: Stoichiometry, Limiting Reactants, Percent Yield  
Labs | Lab #5: Chemical Reactions  
Prelab # 5  
HW Ch. 8 |
| 8      | 3/21            | Ch. 9: Continuation of Stoichiometry, Limiting Reactants, Percent Yield  
Ch. 10: EM Radiation, Energy Levels of Hydrogen, Bohr Model |       |
|        | 3/23            | Ch. 10: Wave Mechanical Model, Hydrogen Orbitals and the Wave Model  
Labs | Worksheets: The Mole, Classifying Reactions, Stoichiometry, Electron Configurations  
HW Ch. 9 |

**SPRING BREAK**
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<td>Ch. 11: Bonds, Electronegativity, Bond Polarity, Electron Configurations, Ionic Bonds</td>
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<td>Ch. 12: STP, Pressure, Boyle’s Law, Charles’s Law, Avogadro’s Law, The Combined Gas Law</td>
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<td>Ch. 13: Intermolecular Forces, Phase Changes, Vapor Pressure</td>
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<td>Ch. 13: Heating and Cooling Cures, Heats of Fusion and Vaporization</td>
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