

College Chemistry I

CH 121 – Fall 2019

CRN: 20364 M – F 8:00 – 8:50 AM (NSH 210)

CRN: 20362 M – F 11:00 – 11:50 AM (T 215)

Instructor: Dr. Ommidala Pattawong

Contact: pattawo@linnbenton.edu

Office: Madrone Hall 209

Office Hours: after lecture or by appointment

Course Information:

The first of a three term college chemistry sequence for students in human performance, certain health occupations programs, agriculture, animal science, and fisheries and wildlife. This sequence is for students who have had no previous training in chemistry and whose program of study requires only a one-year sequence of college chemistry. Topics include atomic theories, development of atomic structure, electron configurations, periodic properties, bond formations, nomenclature, chemical bonding, chemical equations, and chemical quantities. Entering students are expected to have a working knowledge of high school algebra and scientific notation. Students are advised to investigate and understand the degree requirements at the university where they intend to transfer. (Note - this sequence is not equivalent to General Chemistry. CH 121 does not fulfill the Baccalaureate Core requirements at OSU, however the next two courses in the series, CH 122 and CH 123, fulfill Baccalaureate Core requirements at OSU.) CH 121, CH 122, CH 123 must be taken in order.

Student Learning Outcomes:

1. Differentiate the historical developments leading to the development of atomic theory and the Periodic Table.
2. Solve scientific problems with quantitative methods using dimensional analysis and/or algebra regarding unit conversions, properties of light, energy of photon, transition energy, and stoichiometry.
3. Apply chemical principles associated with chemical and physical changes and properties of matter, quantum theory, electron configurations, periodic properties, bond formations, nomenclature, chemical bonding, and chemical reactions.

Minimum Requirements:

MTH 095 Intermediate Algebra with a [grade of 'C'](#) or better

Workload Expectation:

The college has determined that a student taking chemistry course spends a minimum of 3 – 4 hours of work per week outside of class for every credit hour for self-study. Examples of outside work include reading, [reviewing](#) lecture materials, study time, [working](#) practice problems, and [doing](#) homework assignments.

Required Course Materials (Available for you to purchase at the bookstore):

1. Access Code for Knewton Alta Online Homework
2. Chemistry 121 Lecture Manual
3. Non-graphing/non-programmable Scientific Calculator (TI 30xa). Students will be required to use a non-graphing/non-programmable scientific calculator for quizzes and/or exams.

Attendance and Classroom Decorum:

Class attendance and participation are very important to be successful in the learning of chemistry. Students are encouraged to attend class regularly, on time, and engage in activities and/or discussions. Cell phone use is distracting to others and is not allowed in the classroom. If you need to use cell phone, please step outside the classroom. The use of a laptop computer during lecture class is approved for CH 121 lecture material only, i.e. lecture is not a time to do homework.

Grade Assessments:

Your grade will be assigned based on your performance in the following areas:

4 Learning Assessments	4 x 75 pt.	=	300 pt.	(50%)
Final Exam			150 pt.	(25%)
Best 12 out of 13 In-Class Activities	12 x 7 pt.	=	84 pt.	(14%)
Best 6 out of 7 HWs	6 x 10 pt.	=	60 pt.	(10%)
HW Log			6 pt.	(1%)
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Total			600 pt.	

Course Grade:

Assignment of course grades will follow an approximate breakdown of

- A = 90-100% Excellent Work
- B = 80-89% Good Work
- C = 70-79% Average Work
- D = 60-69% Poor Work
- F = 0-59% Failing Work

An incomplete grade (I) may be given at the discretion of the instructor. However, a student must have a passing grade at the time an incomplete is assigned.

Learning Assessments (LAs):

The LAs are designed to evaluate student's understanding of the materials that they have learned from the previous weeks. Each LA is worth 75 points. Total of 300 points can be earned from LAs.

Exam Policies:

All exams/assessments are given in class. Exam must be taken at the scheduled time unless prior arrangement is made. Students who have conflicts with exam days due to other College functions, illness, or family emergencies must contact the instructor prior to the exam. Documentation of the College function, illness and/or family emergency must be provided to schedule a make-up exam. Any academic dishonesty during any exams including cheating, using electronic devices, cell phones, lecture materials, or books that are not permitted, will result in a score of ZERO for the exam!

The final exam is comprehensive. You may bring one 3" x 5" notecard with notes on both sides to the final exam. A missed final exam will receive a score of zero. ***If a student's final exam percentage is higher than the average of learning assessment scores, then the final exam percentage will be scaled and used to replace the lowest learning assessment score.***

Exam Re-Grade Request:

All exam re-grade requests will be re-graded for accuracy and compared against a photocopy of the originally graded exam. Note: Arithmetic errors will be corrected immediately and are not considered re-grade requests.

In-Class Activities:

A student's participation and engagement are essential parts of learning. In this course, students are encouraged to attend every lecture and participate in the in-class activities that sometimes involve demonstrations, worksheets, and/or fun activities. A total of 84 points can be earned through in-class activities. Each in-class activity is worth 7 points. The in-class activities are designed as an active learning approach. *Your twelve highest scores will be used to determine your total in-class activities score.*

Online Homework:

To succeed in chemistry, like learning a foreign language, you should study and practice every day. As material is covered you will find the problems are easier to work and not as time consuming as if they are attempted just before the due date. Refer to the schedule for homework due dates. You can access **Knewton Alta Online Homework** via Moodle. Each homework assignment is worth 12.5 points. *Your six highest scores will be used to determine your total homework score.* Homework is due by 11:59 pm on the dates listed in the lecture schedule.

NOTE: This homework is adaptive to each learner. If you don't get consecutive [correct](#) answers, the system will think that you have not mastered a particular topic; therefore, it will throw more problems at you. If this happens, please get help from your instructor to avoid frustration.

For late homework, students can turn in completed assignments after the due date up to 2 days late. However, [there will be 5% penalty per day late.](#)

For your first time doing homework, the Knewton Alta Online Homework will prompt you to enter [an access code](#). You can purchase this access code online or at the LBCC bookstore. Knewton Alta offers a grace period on payment; for most courses, this is 14 days from the first day of the term.

Homework Log:

[For any homework problems that require calculations, you will need to show your work in a notebook. This is your Homework Log to keep throughout the term. The work should be](#) presented in a clear and organized manner [so that you can](#) review your work, prepare for exams, and allow me to follow your thought process easily when you need help with your homework. The Homework is worth 6 points.

Extra Credit:

1. *Homework Completion:* If you complete all of the online homework assignments, the points from your lowest homework will be used as extra credit.
2. *Mini Exam Reflection:* Students who submit the exam reflection for their mini exam 1 and 2 are eligible for 4 extra credit points (2 points for each exam correction). The exam reflection will give you a chance to reflect on your exam performance and, more importantly, on the effectiveness of your exam preparation. The exam reflection will be given in class as well as posted on Moodle. You will answer the questions sincerely for these extra credits. Please see course schedule for the exam reflection deadline.
3. *Strategies for Success Workshop:* This workshop is organized by the College Skills Zone. You will learn and practice the organizational strategies, study strategies, effective textbook reading, and efficient test preparation. These skills are important in order to be successful in college, especially in chemistry class. Students, who attend this 50-minute workshop any time before [the](#) mini exam 2 are eligible for 5 points extra credit. To redeem points, please bring the stamped attendance form to me.

Resources:

Your success is very important to me! I encourage you to seek help from one or more of the following resources:

1. Instructor office hours (see the front page for days, times and locations)
2. Ask questions during lecture (or immediately before/after lecture)
3. Science Help Desk
4. Academic Support (<http://linnbenton.edu/future-students/academic-support/>)

Science Help Desk:

The Science Help Desk is located on the first floor of Madrone Hall in the atrium area. The Help Desk is staffed approximately 20 hours per week. Hours of the Help Desk are posted in the Help Desk area and throughout Madrone Hall.

Roadrunner Resource Center for Basic Needs:

Any student who has difficulty affording tuition, course materials, hygiene materials, food, who lacks a safe and stable place to live, who needs transportation, and believes this may affect their performance in the course, is urged to contact the [Roadrunner Resource Center](#) for support (Resources@linnbenton.edu).

Center for Accessibility Resources:

LBCC is committed to inclusiveness and equal access to higher education. If you have approved accommodations through the Center for Accessibility Resources (CFAR) and would like to use your accommodations in the class, please talk to your instructor as soon as possible to discuss your needs. If you believe you may need accommodations but are not yet registered with CFAR, please visit the [CFAR Website](#) for steps on how to apply for services or call [\(541\) 917-4789](tel:5419174789).

Tips for Success:

- Attend every lecture, and lab session, and come prepared!
- Review lecture notes after lecture; clarify confusing points immediately; use your notes to guide your studying
- Doing homework problems regularly
- Form a study group; take turns “teaching” each other concepts/problems
- Repeat homework and/or worksheet problems until you can do them quickly, without looking at any notes OR answer keys

Drop/Withdraw Policy:

If you are withdrawing from the class you must file a Schedule Change Form with Registration or use WebRunner. If you formally drop the class by Monday of the second week of the term, you will receive a tuition refund. If you withdraw after the Monday of the second week of instruction through the seventh week a ‘W’ will show up on your transcript. No withdrawals are allowed after the end of the seventh week. An instructor may not assign a “W” grade.

If you received financial aid or veteran’s benefits PLEASE talk with associates at the appropriate office to determine what effects on eligibility dropping a course will have. Don’t jeopardize your eligibility!! You can contact the Financial Aid Office by calling (541) 917-4850 or by visiting the Financial Aid Office in Takena Hall.

If you stop attending the course without formally withdrawing you will continue to accumulate grades (zeroes for all assignments not turned in) and will receive the grade assigned by the instructor. You will also be held accountable for all charges on your account.

Academic Integrity:

“An instructor has the right to issue a grade of F for the course in which the instructor has reason to believe the student has cheated. A student has the right to appeal such action in accordance with the Students’ Rights, Responsibilities and Conduct Policy.” The preceding statement is Administrative Rule No. 7030-02.

LBCC Comprehensive Statement of Nondiscrimination:

LBCC prohibits unlawful discrimination based on race, color, religion, ethnicity, use of native language, national origin, sex, sexual orientation, gender, gender identity, marital status, disability, veteran status, age, or any other status protected under applicable federal, state, or local laws. For further information see Board Policy P1015 in our Board Policies and Administrative Rules.

Changes to the Syllabus:

I reserve the right to change the contents of this syllabus due to unforeseen circumstances. You will be given notice of relevant changes in class, through a Moodle Announcement, or through LBCC e-mail.

Course Content

Chapter 1 – Essential Ideas in Chemistry

- 1.1 Chemistry in Context
- 1.2 Phases and Classification of Matter
- 1.3 Properties and Changes
- 1.4 Measurements: Numbers, Units, and Uncertainty
- 1.5 Dimensional Analysis

Chapter 2 – Atomic Structure

- 2.1 Modern Atomic Theories and The Discovery of Subatomic Particles
- 2.2 Atomic Structure and Atomic Mass

Chapter 3 – Development of Electronic Structure of Atoms

- 3.1 Light as Wave – Electromagnetic Spectrum
- 3.2 Light as Particle – Quantized Energy and Photon
- 3.3 The Bohr Model
- 3.4 Development of Quantum Theory
- 3.5 Quantum Numbers and Shapes of Orbitals

Chapter 4 – Electron Configurations and Periodic Properties of Elements

- 4.1 How Electrons Occupy Orbitals
- 4.2 Electron Configurations of Atoms
- 4.3 The Periodic Table
- 4.4 The Periodic Trends

Chapter 5 – Bond Formations and Nomenclature

- 5.1 Types of Chemical Bonds
- 5.2 Determination of Chemical Composition
- 5.3 Determination of Chemical Formulas
- 5.4 Formula Mass, Molecular Mass, and Molar Mass
- 5.5 Ionic Compounds – Formulas and Names
- 5.6 Molecular Compounds – Formulas and Names

Chapter 6 – Chemical Bonding

- 6.1 Lewis Model
- 6.2 Valence Shell Electron Pair Repulsion Theory (VSEPR)
- 6.3 Valence Bond Theory (VBT)
- 6.4 Molecular Orbital Theory (MOT)

Chapter 7 – Chemical Equations and Chemical Quantities

- 7.1 Writing and Balancing Chemical Equations
- 7.2 Reaction Stoichiometry
- 7.3 Limiting Reactant, Theoretical Yield, and Percent Yield

Lecture Schedule

****Note:** This schedule of topics, homework due dates, and exam dates is subject to change.
All homework assignments are due by 11:59 pm on the date indicated in the lecture schedule.

Week No.	Mon.	Tues.	Wed.	Thurs	Fri.
1 (9/30-10/4)	Introduction Syllabus 1.1-1.2	1.3 -1.4	1.4	1.4	1.5
2 (10/7-10/11)	1.5 <i>Ch1 HW due</i>	2.1-2.2	2.2 <i>HW Log due</i>	2.2	LA 1
3 (10/14-10/18)	3.1 – 3.2 <i>Ch2 HW due</i>	3.2-3.3	3.3-3.4 <i>Self Reflection 1 Due</i>	3.5	3.5
4 (10/21-10/25)	4.1 – 4.2 <i>Ch3 HW due</i>	4.2-4.3	4.4	4.4	LA 2
5 (10/28-11/1)	4.4 <i>Ch4 HW due</i>	5.1	5.1 – 5.2 <i>Self Reflection 2 Due</i>	5.2 – 5.3	5.3
6 (11/4-11/8)	5.4 <i>Ch5/1 HW due</i>	5.5	5.5 – 5.6	5.6	LA 3
7 (11/11-11/15)	No Class <i>Ch5/2 HW due</i>	6.1	6.1	6.1	6.2
8 (11/18-11/22)	6.2 <i>Ch6/1 HW due</i>	6.2	6.3	6.3	LA 4
9 (11/25-11/27)	6.3 <i>Ch6/2 HW due</i>	6.4	6.4	<i>No Class</i>	<i>No Class</i>
10 (12/2-12/6)	7.1 <i>Ch6/3 HW due</i>	7.1-7.2	7.2-7.3	7.3	REVIEW <i>Ch7 HW due</i>

Learning Assessments:

LA 1 covers materials in chapter 1.

LA 2 covers materials in chapter 2 and 3.

LA 3 covers materials in chapter 4 and 5 part 1.

LA 4 covers materials in chapter 5 part 2 and 6 part 1.

Final Exams:

For 8 AM Section: Wednesday, December 11th 8:00 – 9:50 AM in NSH 210

For 11 AM Section: Monday, December 9th 10:00 – 11:50 AM in T 215