

College Chemistry II

CH 122 – Winter 2020

Lecture CRN: 33543 M, W 12:30 – 1:50 PM (MH 208)
F 1:00 – 1:50 PM (MH 208)

Lab CRN: 33857 T 8:00 – 10:50 AM (MH 206)
Lab CRN: 33858 T 12:00 – 2:50 PM (MH 206)

Instructor: Dr. Ommidala Pattawong

Contact: pattawo@linnbenton.edu

Office: Madrone Hall 209

Office Hours: after lecture or by appointment

Course Information:

The second 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 thermochemistry, gases, liquids, solids, intermolecular forces, solutions, chemical kinetics, and chemical equilibrium.

Student Learning Outcomes:

1. Solve scientific problems with quantitative methods regarding thermochemistry, gases, molarity, bonding, phase changes, colligative properties, chemical kinetics, and chemical equilibrium.
2. Apply chemical principles related to intermolecular attractions of pure substances and solutions, properties of gas, liquid, and solid, phase transitions, colligative properties, chemical kinetics, and chemical equilibrium.
3. Work safely in a laboratory environment while observing and accurately recording measurements related to chemical phenomena.

Minimum Requirements:

Prerequisites: MTH 111 College Algebra and CH 121 College Chemistry with a grade of "C" or better.
Corequisite: CH 122L College Chemistry II Lab.

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 writing lab reports, 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 (The access code from last term works.)
2. Chemistry 122 Laboratory Manual
3. Bound Laboratory Notebook with numbered pages and carbonless copies.
4. 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.

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

Lab coat Personal safety goggles

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 122 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:

Laboratory Exercises	9 x 10 pt.	=	90 pt.	(15%)
Homework	6 x 10 pt.	=	60 pt.	(10%)
Learning Assessments	4 x 75 pt.	=	300 pt.	(50%)
Final Exam			150 pt.	(25%)
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.

Laboratory Exercise

The laboratory experience is a vital part of this course. Students are expected to attend the laboratory at their scheduled time. Failure to complete the laboratory work or to hand in all of the assigned laboratory reports may result in a lowered grade. **You must receive at least 70% of the total lab points in order to pass the course regardless of passing the lecture. Also, if you miss more than three labs or turn in fewer than five reports you will not receive a passing grade for the course.** No make-up labs will be given.

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 10 points. 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.

Extra Credit:

1. *Lab Exercise Completion:* If you turn in ALL of your lab exercises, your lowest lab score will be dropped, and it will be used as extra credit.
2. *Self Reflection:* Students who submit the self-reflections are eligible for total of 6 extra credit points (3 points for each reflection). The self-reflection will give you a chance to reflect on your exam performance and, more importantly, on the effectiveness of your exam preparation. The self-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 self-reflection deadline.

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:

The instructor reserves 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 8 – Thermochemistry

- 8.1 Nature of Energy and the First Law of Thermodynamics
- 8.2 Thermal Energy, Temperature, and Heat
- 8.3 Measuring Heat
- 8.4 Enthalpy - Heat of Reaction (ΔH_{rxn})
- 8.5 Measuring Enthalpy from Calorimetry
- 8.6 Measuring Enthalpy from Hess's Law
- 8.7 Measuring Enthalpy from Standard Enthalpies of Formation

Chapter 9 – Gases

- 9.1 Pressure
- 9.2 Simple Gas Laws
- 9.3 The Kinetic Molecular Theory
- 9.4 The Ideal Gas Law and Its Applications
- 9.5 Mixtures of Gases and Partial Pressure
- 9.6 Gas Stoichiometry

Chapter 10 – Solids, Liquids & Their Intermolecular Forces

- 10.1 Intermolecular Forces
- 10.2 Properties of Liquids
- 10.3 Phase Transitions
- 10.4 Phase Diagrams

Chapter 11 – Solutions

- 11.1 Types of Solutions
- 11.2 Formation of Solutions and Dissolution Process
- 11.3 Electrolytes
- 11.4 Factors that Affect Solubility
- 11.5 Concentration Units
- 11.6 Dilution of Solution
- 11.7 Colligative Properties

Chapter 12 – Chemical Kinetics

- 12.1 Chemical Reaction Rate
- 12.2 Factors Affecting Reaction Rate
- 12.3 Collision Theory
- 12.4 Differential Rate Laws
- 12.5 Integrated Rate Laws
- 12.6 Reaction Mechanisms

Chapter 13 – Chemical Equilibrium

- 13.1 Concept of Dynamic Equilibrium
- 13.2 Reaction Quotient (Q) and Equilibrium Constant (K)
- 13.3 Chemical Equations and Equilibrium Constant Relation
- 13.4 Equilibrium Calculations
- 13.5 Le Chaterlier's Principle

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.	Fri.
1 (1/6-1/10)	Introduction Syllabus 8.1-8.2	<i>Lab 1: Safety Activities</i> 8.3	8.4	8.5
2 (1/13-1/17)	8.6 – 8.7	<i>Lab 2: Scientific methods & Tools</i> Ch8 HW due	9.1 – 9.2	LA 1
3 (1/20-1/24)	No Class	<i>Lab 3: Periodic trends</i> Ch9 Part 1 HW due	9.3 – 9.4	9.4 – 9.5
4 (1/27-1/31)	9.5 – 9.6	<i>Lab 4: Energy Content of Fuels</i> Ch9 Part 2 HW due	10.1	LA 2
5 (2/3-2/7)	10.2 – 10.3	<i>Lab 5: Gases</i> Ch10 Part 1 HW due	10.3 – 10.4	11.1 – 11.2
6 (2/10-2/14)	11.3 – 11.4	<i>Lab 6: Chroma. in Fruit Juice Analysis</i> Ch10 Part 2 HW due Ch11 Part 1 HW due	11.5 – 11.6	LA 3
7 (2/17-2/21)	No Class	<i>Lab 7: Instant Cold & Hot Packs</i> Ch11 Part 2 HW due	11.7	11.7
8 (2/24-2/28)	12.1	<i>Lab 8: Colligative Properties</i> Ch11 Part 3 HW due	12.2 – 12.3	LA 4
9 (3/2-3/6)	12.4	<i>Lab 9: Clock Reaction</i> Ch12 Part 1 HW due	12.5	12.6
10 (3/9-3/13)	13.1 – 13.2	<i>Lab 10: Le Chatelier's Principle</i> Overview 13.5 Ch12 Part 2 HW due	13.3 – 13.4	13.5 Ch13 HW due 3/15

Learning Assessments:

LA 1 covers materials in chapter 8
LA 2 covers materials in chapter 9
LA 3 covers materials in chapter 10
LA 4 covers materials in chapter 11

Final Exams (Cumulative):

Wednesday, March 18th 1:00 – 2:50 PM in MH 208