

## Online College Chemistry III (Remote)

CH 123 – Spring 2021

**Lecture CRN: 43435** Remote (All materials will be uploaded to Moodle every week)  
Q&A session (*Optional*): Mondays 1-1:50 pm via Zoom

**Lab CRN: 43650** Remote (Lab materials will be uploaded to Moodle every week)

**Lab CRN: 43651** Remote (Lab materials will be uploaded to Moodle every week)

**Instructor:** Omid Sadeghi, PhD

**Contact:** [Sadegho@linnbenton.edu](mailto:Sadegho@linnbenton.edu)

**Office Hours:** Fridays 2 – 3 pm (via Zoom)

### Course Information:

This is the third 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 acid-base equilibrium, buffers, ionic equilibrium, thermodynamics, electrochemistry, and organic chemistry.

### Online Class and Participation

This course will be delivered remotely. All the course materials will be posted to Moodle every week. Students need to manage time to complete watching lecture videos and completing problem sets whatever day and time works best for them. The recommendation is that students should complete each chapter section within the timeline that is set on our course schedule in order to be on track (see the last page of this syllabus).

The course schedule is a guideline of a time frame that tells you when you need to complete each task. The lesson modules are flexible. You are welcome to complete all of them ahead of time, all in one day, or spread them out throughout the week. That is up to you. Do whatever works best for you. **However, the deadline for homework, lab reports, and exams are fixed.**

### Student Learning Outcomes:

1. Solve scientific problems with quantitative methods regarding acid-base equilibrium, buffers, ionic equilibrium, thermodynamics, and electrochemistry.
2. Apply chemical principles related to acid-base equilibrium, buffers, ionic equilibrium, thermodynamics, electrochemistry, and organic chemistry.
3. Work safely in a laboratory environment while observing and accurately recording measurements related to chemical phenomena.

## Minimum Requirements:

Prerequisite: CH 122, CH 202, or CH 222 with a grade of C or better.

## Workload Expectation:

Students taking chemistry courses are expected to work a minimum of 3-4 hours of work per week outside of class for every credit hour. Examples of outside work include reading, review lecture materials, study time, practice problems, homework assignments, and doing lab assignments.

## Required Course Materials:

Access Code for Knewton Alta Online Homework (*The access code from last term works.*)  
For your first time using Knewton Alta online homework platform, please access homework via Moodle. By clicking one of the homework assignments, the Knewton Homework will prompt you to enter access code. You can purchase this access code online through Knewton website or LBCC bookstore. Knewton Alta offers a grace period on payment; for most courses, this is 14 days from the first day of the term. You can also choose a monthly payment option as well.

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

7 lab reports (the lowest will be dropped)	6 x 10 pt.	=	60 pt.
6 Homework	6 x 20 pt.	=	120 pt.
Chapter exams (the lowest will be dropped)	5 x 70 pt.	=	350 pt.

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**Total** = **530 pts (100%)**

**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. **Your grade in the course is assigned based on your performance on the assessments, final exam, homework, labs, etc.; your letter grade will NOT be assigned based on the instructor's subjective opinion of your effort in the course.**

### Live Q&A Sessions:

A live Q&A session will be held every Monday at 1– 1:50 pm. You can access this session via zoom link on Moodle. We will use these live Q&A sessions to talk about labs, answer questions about the lecture/lab, work on the problems that you are struggling with, and address any other concerns. *Participation is totally optional but highly encouraged.* These meetings will be recorded and posted on Moodle.

### Exam Policies:

For this course, there will be no cumulative final exam. The chapter exams will be used to evaluate your understanding of the materials that you learn from each chapter similar to the Learning Assessments from last term. See the schedule to find out the timing for exams. Similar to the Learning Assessments last term, the chapter exams will be available for students from Friday, 8 AM to Sunday 11:59 pm. However, once you start the exam, you will have a limited time (TBD based on each exam) to complete it.

*Any academic dishonesty during any exams including cheating, using websites, and obtaining help from other people that are not permitted, will result in a score of ZERO for the exam!*

### 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 site. 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 answers, the system makes the assumption that you have not mastered a particular topic; therefore, it will throw more problems at you. So start the HW after reading and understanding the topic.

*For late homework, students can turn in completed assignments after the due date up to 2 days late. However, there is a **20% penalty** from the completed score per day late.*

### Laboratory Exercise:

The laboratory experience is a vital part of this course. The labs are remote and the videos/data for each lab will be posted every week to Moodle. Students are expected to complete each laboratory at the scheduled time. **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 four reports you will not receive a passing grade for the course.** The deadlines will not be extended so please plan accordingly! The report should be submitted to the lab instructor through Moodle. The report must be in PDF format which can be accomplished using 'Adobe Scan', 'CamScanner', 'Google Drive' or any other free app for making PDFs. The text of the report can be typed if you like. You can either hand-write your calculations (preferred) or use an equation editor. Please do not type equations using normal text.

### 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 information on Moodle)<sup>[1]</sup><sub>[SEP]</sub>
2. Ask questions during Q&A sessions<sup>[1]</sup><sub>[SEP]</sub>
3. Science Help Desk

### **Science Help Desk:**

If you need help in any physics or chemistry course, you should “drop by” the Physical Science Desk, now offered online! The Help Desk is staffed approximately 20 hours per week. Please visit the Science Help Desk web page ([click here](#)) for details and hours.

### **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](mailto: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 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**

**\*\*Note:** I reserve the right to change the schedule due to unforeseen circumstances. You will be given notice of relevant changes in class, through a Moodle Announcement, or through LBCC e-mail.

All homework and lab assignments are due by 11:59 pm on the date indicated on the schedule.

### **Chapter 14** Acids and Bases

- 14.1 – Definitions of Acid and Base
- 14.2 – Acid and Base Strength and Their Molecular Structures
- 14.3 – Acid Ionization Constant
- 14.4 – Autoionization of Water, pH, and pOH
- 14.5 – Base Ionization Constant
- 14.6 – pH and pOH Calculations for Strong Acids and Strong Bases
- 14.7 – pH and pOH Calculations for Weak Acids and Weak Bases
- 14.8 – The Acid-Base Properties of Salts

### **Chapter 15** Neutralization Reaction, Buffers, and Titrations

- 15.1 – Neutralization Reaction
- 15.2 – Buffers
- 15.3 – Titrations and pH curves

**Chapter 16** Precipitation and Aqueous Ionic Equilibrium

- 16.1 – Precipitation Reactions
- 16.2 – Solubility Equilibria and the Solubility Product Constant
- 16.3 – Coupled Equilibria

**Chapter 17** Thermodynamics

- 17.1 – Spontaneous and Nonspontaneous Processes
- 17.2 – Entropy and the Second & Third Laws of Thermodynamics
- 17.3 – Gibbs Free Energy

**Chapter 18** Electrochemistry

- 18.1 – Redox Reactions
- 18.2 – Spontaneous Redox Reactions – Galvanic (or Voltaic) Cells
- 18.3 – Electrode and Cell Potentials
- 18.4 – Batteries and Fuel Cells
- 18.5 – Nonspontaneous Redox Reactions – Electrolysis
- 18.6 – Potential, Free Energy, and Equilibrium

**Chapter 19** Organic Compounds

- 19.1 – Organic Compounds
- 19.2 – Structural Representations
- 19.3 – Isomerism
- 19.4 – Hydrocarbons
- 19.5 – Nomenclature of Hydrocarbons
- 19.6 – Functional Groups

\*\*Note 1: I reserve the right to change the schedule due to unforeseen circumstances. You will be given notice of relevant changes in class, through a Moodle Announcement, or through LBCC e-mail.

\*\*Note 2: This is a suggested plan for study to help you stay on track. Except for the deadlines for HW, lab reports and exams, you can change others to fit your schedule.

Week No.	Mon.	Wed.	Fri.	Assignments
<b>1</b> (3/29-4/2)	14.1-14.2	14.3	14.4-14.5	No lab this week
<b>2</b> (4/5-4/9)	14.6	14.7	14.8	Lab 1: pH of Acids, Bases and salts (Due 4/11) Ch14 Knewton HW (Due 4/11) <b>Ch14 Exam (available 4/9-14/11)</b>
<b>3</b> (4/12-4/16)	15.1	15.2	15.3	Lab 2: Buffers (Due 4/19) Ch15 Knewton HW (Due 4/18) <b>Ch15 Exam (available 4/16-4/18)</b>
<b>4</b> (4/19-4/23)	16.1	16.2 pt1	16.2 pt2	Lab 3: Acid content in vinegar (Due 4/25)
<b>5</b> (4/26-4/30)	16.3	17.1	17.2 pt1	Lab 4: Acid content in fruit juice (Due 5/2) Ch16 Knewton HW (Due 5/2) <b>Ch16 Exam (available 4/30- 5/2)</b>
<b>6</b> (5/3-5/7)	17.2 pt2	17.3 pt1	17.3 pt2	Lab 5: Determine $K_{sp}$ (Due 5/10) Ch17 Knewton HW (Due 5/10) <b>Ch17 Exam (available 5/7- 5/9)</b>
<b>7</b> (5/10-5/14)	18.1	18.2	18.3	Lab 6: Thermodynamics (Due 5/16)
<b>8</b> (5/17-5/21)	18.4	18.5	18.6	Ch18 Knewton HW (Due 5/23) <b>Ch18 Exam (available 5/21- 5/23)</b>
<b>9</b> (5/24-5/28)	19.1	19.2	19.3-19.4	Lab 7: Electrochemical Cells (Due 5/30)
<b>10</b> (5/31-6/4)	Memorial Day	19.5	19.6	No lab this week Ch19 paper HW (Due 6/4) <b>Ch19 Exam (available 6/4- 6/6)</b>