

**College Chemistry III**

CH 123 – Summer 2021 (5 credits)

**Lecture CRN: 15867** Mondays: 10:30 – 11:50 AM (via Zoom)**Lab CRN: 15992** Remote (Lab materials will be uploaded to Moodle every week)**Instructor:** Dr. David Rogow**Contact:** [rogowd@linnbenton.edu](mailto:rogowd@linnbenton.edu)**Office Hours:** Wednesdays 1 – 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.

**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:**

Prerequisites: MTH 111 College Algebra and CH 122 College Chemistry with a grade of "C" or better. Corequisite: CH 123L College Chemistry III Lab.

**Workload Expectation:**

The college has determined that a student taking a 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.

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**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 123 Lecture Manual (Students order a hard-copy from the LBCC book store)
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.

**Course Format:** Lecture will be synchronous and the lab will be asynchronous. Synchronous means you are required to attend the virtual lecture (Mondays 10:30 – 11:50 am) via Zoom. However, the lab will be asynchronous, meaning you will work on each lab during the week on your own time.

**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. This includes online Zoom meetings as a replacement for lecture.

**Grade Assessments:**

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

Laboratory Exercises	6 × 10 pts.	= 60 pts.	(20 %)
Knewton online Homework	6 × 10 pts.	= 60 pts.	(15 %)
Learning Assessments	3 × 50 pts.	= 150 pts.	(65 %)

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Total			270 pts.
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**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 50 points. A total of 150 points can be earned from LAs.

### **Learning Assessment Policies:**

All Learning Assessments are taken on Moodle. Assessments must be taken within the scheduled time unless prior arrangement is made. Students who have conflicts with assessment days due to other College functions, illness, or family emergencies must contact the instructor prior to the assessment. Documentation of the College function, illness and/or family emergency must be provided to schedule a make-up assessment. Any academic dishonesty during any assessment including cheating, posting questions on answer websites (Chegg, CourseHero, etc...), or using materials that haven't been approved, will result in a score of ZERO for the assessment, and possibly further disciplinary action.

The final assessment is not comprehensive (only covers chapters 18 & 19). A missed final assessment will receive a score of zero.

### **Laboratory Exercises**

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 five 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 by converting a Microsoft Word document into a .pdf, or 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 or use an equation editor. Please do not type equations using normal text.

### **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. Be sure to start early and not try to do the online homework right before it is due to avoid frustration; work on it early and often.

*For late homework, students can turn in completed assignments after the due date up to 2 days late. However, there will be a 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. You can also pay when you click on the assignment. If you have already purchased access to the Knewton online homework, it is valid for one year.

**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
3. Science Help Desk
4. Academic Support (<http://linnbenton.edu/future-students/academic-support/>)

**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 earned. 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.

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**Course Content**

- 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

**Course 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 this schedule.

<b>Week No./Dates</b>	<b>Textbook Sections</b>	<b>Learning Assessments (LAs)</b> <i>Thurs. 8 am - Fri. 8 pm</i>	<b>Assignments/Due Dates</b> <i>Assignments due by 11:59 pm on due date (Lab Reports/Pre-Labs due Wed.)</i>
<b>1</b> (6/28-7/2)		14.1-14.4	<b>No Lab This Week</b>
<b>2</b> (7/5-7/9)		14.5-14.8	<b>Lab 1:</b> pH of Acids, Bases, & Salts <i>(Due 7/14)</i> <i>Pre-Lab 1 Due 7/7</i>
<b>3</b> (7/12-7/16)		15.1-15.3	<b>Lab 2:</b> Buffers <i>(Due 7/28)</i> <i>Pre-Lab 2 Due 7/14, Lab 1 Due 7/14</i> <b>CH-14 HW due</b> <i>(Due 7/14)</i>
<b>4</b> (7/19-7/23)	16.1-16.2	<b>LA1 (CH-14,15)</b> <i>7/22-7/23</i>	<b>No Lab This Week</b> <b>CH-15 HW due</b> <i>(Due 7/21)</i>
<b>5</b> (7/26-7/30)		16.3, 17.1-17.2	<b>Lab 3:</b> Acid Content in Vinegar <i>(Due 8/4)</i> <i>Pre-Lab 3 Due 7/28, Lab 2 Due 7/28</i>
<b>6</b> (8/2-8/6)		17.3, 18.1-18.2	<b>Lab 4:</b> Acid Content in Fruit Juice <i>(Due 8/18)</i> <i>Pre-Lab 4 Due 8/4, Lab 3 Due 8/4</i> <b>CH-16 HW due</b> <i>(Due 8/4)</i>
<b>7</b> (8/9-8/13)	18.3-18.5	<b>LA2 (CH-16,17)</b> <i>8/12-8/13</i>	<b>No Lab This Week</b> <b>CH-17 HW due</b> <i>(Due 8/11)</i>
<b>8</b> (8/16-8/20)		18.6, 19.1	<b>Lab 5:</b> Thermodynamics <i>(Due 8/25)</i> <i>Pre-Lab 5 Due 8/18, Lab 4 Due 8/18</i>
<b>9</b> (8/23-8/27)		19.2-19.4	<b>Lab 6:</b> Electrochemical Cells <i>(Due 9/1)</i> <i>Pre-Lab 6 Due 8/25, Lab 5 Due 8/25</i> <b>CH-18 HW due</b> <i>(Due 8/25)</i>
<b>10</b> (8/30-9/3)	19.5-19.6	<b>LA3 (CH-18,19)</b> <i>9/2-9/3</i>	<b>No Lab this Week</b> <i>Lab 6 Due 9/1</i> <b>CH-19 HW due</b> <i>(Due 9/1)</i>