

COURSE TITLE: CH 201 Chemistry for Engineering Majors I**CREDITS:** 5**LABORATORY (VIRTUAL / IN-PERSON):****LAB INSTRUCTOR:** Chris Maierle, Ph.D.**EMAIL:** maierlc@linnbenton.edu**VIRTUAL OFFICE HOURS (TENTATIVE):****To be determined: Please fill out the office hour poll to cast your vote for office hour times!**

Thursdays 8:00 AM to 10:20 AM in MH 214 (CRN 33859)

Thursdays 11:00 AM to 1:20 PM in MH 214 (CRN 33863)

Thursdays 2:00 PM to 4:20 PM in MH 214 (CRN 33861)

Labs alternate weekly between in-person and virtual by group, see lab instructor for details.**LECTURE (VIRTUAL / ONLINE):**

VIRTUAL Lecture Tuesdays 9-9:50 AM (CRN: 30601) or,

VIRTUAL Lecture Tuesdays 10-10:50 AM (CRN: 30600)

And 3 hours weekly ONLINE lecture (see course page for schedule and links to lectures)**INSTRUCTOR:** Brian Reed, Ph.D.**EMAIL:** reedb@linnbenton.edu (best method of contact)**OFFICE:** IA-204 (not used this term)**PHONE:** 541-917-4622 (office line checked once weekly)**VIRTUAL OFFICE HOURS (TENTATIVE):****To be determined: Please fill out the office hour poll to cast your vote for office hour times!**

*And by appointment though ZOOM (contact via email to schedule)

INSTRUCTOR WEBSITE:Go to www.linnbenton.edu. Click **MyLB**, click **Instructor Websites**, click [Reed, Brian](#).

Science Help Desk: In addition to instructor office hours the Science Help Desk is an excellent resource! 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.

Course Description:

The first of a two-term sequence of selected chemistry topics for pre-engineering students. Designed specifically to provide engineering majors a fundamental understanding of chemical reactions and scientific measurement. This course will introduce students to principles, laws and equations that govern our understanding of chemical combination.

Prerequisite:

MTH 111: College Algebra with a grade of "C" or better.

Course Outcomes:

Upon successful completion of this course, students will be able to:

1. Solve engineering-related scientific problems with quantitative methods using dimensional analysis and/or algebra regarding unit conversions and stoichiometry including solution stoichiometry.
2. Solve engineering-related scientific problems with quantitative methods using dimensional analysis and/or algebra regarding gas laws, thermochemistry, and electronic transitions.
3. Apply chemical principles associated with chemical and physical changes and properties of matter, atomic theory, Periodic Table development, nomenclature, chemical reactions, and stoichiometry.
4. Apply chemical principles associated with thermochemistry, behavior of gases, and quantum theory.
5. Work safely in a laboratory environment while observing and accurately recording measurements related to chemical phenomena.

Required Materials:

- Textbook: *Chemistry: The Molecular Nature of Matter and Change, 8th Ed.*, Silberberg (The older 4th, 5th, 6th, or 7th editions are also acceptable, and are relatively inexpensive)

The bookstore carries the e-book version of the text, but you may be able to find a hard copy of an older edition for much less money.

- Personal Safety Goggles (available through the bookstore and required for lab)
- A Carbonless Lab Notebook
- A Non-graphing/non-programmable Scientific Calculator

Optional Materials:

-Lab coat

Quizzes:

Throughout the term several quizzes will be given. These will be focused on practical application of the course material to solving both qualitative and quantitative problems. This term the quizzes will be administered remotely with an emphasis on clear communication of the problem-solving approach.

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. Keep in mind a typical science course requires 2-3 hrs of work per week for every credit hour in order to become proficient with the material.

Refer to the schedule for homework due dates and times. Late homework will not be accepted unless arrangements are made prior to the due date. Solutions to the homework sets will be available shortly after the due date. Each problem will be checked for a reasonable attempt at solving, and be graded

not only the solution, *but the effective communication of the solution process.*

Laboratory Reports:

Lab reports are due by 11:59 PM the day of YOUR next lab session after the completion of the experiment. Late lab reports receive a 10% per day mark down. Your lowest lab report score is dropped. You must receive at least 70% of the total lab points in order to pass the course regardless of passing the lecture. No make-up labs will be given. 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. This is a lab-based class and in order to pass the course you must pass the laboratory component.

Prelab Questions:

Be sure to check the syllabus for which lab is assigned for a particular week. Most lab experiments will have prelab questions. Many of these questions are designed to emulate the laboratory experiment that is about to be performed. By answering these questions BEFORE the lab period students are able to understand and perform the experiment more effectively. Prelab are due **by 11:59 PM the day before the lab**. The prelab assignments are worth from one to five points of the lab report grade. No late prelabs are accepted.

Grading:

Lecture		
Quizzes	4 x 40	160 pts.
Homework Sets	Best 8 of 9 x 20	160 pts.
Final Exam		80 pts.
Lab		
Laboratory Reports	Best 9 of 10 x 20	180 pts.
Total		580 pts.

90-100% A, 80-89.9% B, 70-79.9% C, 60-69.9% D, < 59.9% F

Extra Credit: If you complete all the labs, your lowest score will be used as extra credit.

Expectations:

I expect that my students will be involved in class. This includes being present, asking questions and participating in discussions. You should come to class prepared (this means you should bring your book, paper and pencil, a calculator, and anything else you might need). No grade will be assigned for attendance in lecture, but to do well in this course it is expected that you will attend ALL class meetings. If a situation arises that makes it necessary to miss a class, it is the student's responsibility to obtain notes from a peer.

I expect you to be respectful of everyone in the class, in word as well as behavior. Along these lines, I ask that you turn off your cell phone during class and put it away so as to avoid causing a distraction. If you need to leave class for any reason, please do so quietly.

HOW TO BE SUCCESSFUL IN THIS CLASS

- Attend class.
- Be prepared for class by reading the textbook chapters or other materials when assigned. Classroom experiences will be richer for you when you have background information about the subject.
- Review the syllabus and learn policies and procedures for this class. Understand your rights and responsibilities as a student and as a class member.
- Learn how to ask clarifying questions and how to be a coach for your classmates.
- When confused, challenged, frustrated or having an “aha” moment, visit the instructor during their virtual office hours.
- Be engaged and challenge yourself. You will get out of this class what you put into it.

Course Evaluations:

Student feedback is important to improve this course and to help the instructor know how to adjust teaching methods. Your feedback is taken seriously and does influence future versions of the course. The Student Evaluations of Teaching (SETs) are anonymous, and links to the evaluations will be emailed to your student email account after the 5th week of the term. I encourage you take this opportunity to provide constructive feedback on the class. Thank you in advance for your input!

Academic Integrity:

It is understandable that you will discuss your homework and other assignments with your classmates and that is fine, but you are expected to write up your own results, whether it is on paper or using a spreadsheet or other program. I assume that you are ethical and honest. However, if there is an incident of academic dishonesty (cheating), which includes sharing computer files, you will receive a score of zero for that assignment/test and the incident will be reported to the college administration for possible further disciplinary action. If there is a second offense, you will receive a grade of F for the course and the incident will be reported to the college administration with a recommendation for disciplinary action.

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.

Nondiscrimination and Non-Harassment:

Linn-Benton Community College is committed to providing an atmosphere that encourages individuals to realize their potential. We embrace diversity and inclusion of all persons. The college prohibits unlawful discrimination based on race, color, religion, ethnicity, use of native language, national origin, sex, sexual orientation, marital status, disability, veteran status, or age in any area, activity or operation of the college. In addition, the college complies with related federal, state, and local laws (Civil Rights, Disability & Rehabilitation Acts, Veterans Acts).

LBCC is committed to providing equal opportunity in all of its programs, policies, procedures, and practices, and the college shall promote equal opportunity and treatment through application of this policy and other college efforts designed for that purpose. For further information see Administrative Rule No. 1015-01 at <http://po.linnbenton.edu/BPsandARs/>

Center for Accessibility Resources:

You should meet with your instructor during the first week of class if

- You have a documented disability and need accommodations,
- Your instructor needs to know medical information about you, or
- You need special arrangements in the event of an emergency.

If you believe you may need accommodation services, please contact the Center for Accessibility Resources (541) 917-4789. If you have documented your disability, remember that you must make your request for accommodations through the Center for Accessibility Resources Online Services web page every term in order to receive accommodations.

Veterans and active duty military personnel with special circumstances are welcome and encouraged to communicate these, in advance if possible, to the instructor.

Students Rights, Responsibilities, and Conduct Policy:

LBCC students have rights: the right to free speech, the right to assemble, the right of a free press, etc. LBCC students also have responsibilities to their community: the responsibility to participate and engage in class, the responsibility to advocate for their needs (ask for help), the responsibility to support a respectful teaching and learning environment, the responsibility to treat all persons with respect, the responsibility to be truthful and honest in all work and communications, and the responsibility to follow staff directions, local, state, and federal laws. Rights and responsibilities balance together to create the best learning environment. For example, while you have free speech in the café or courtyard, in class the instructor decides whose turn it is to talk and what the topics for conversation will be. Students are free to believe what they believe, but instructors may require students to learn and recite concepts, principles, or theories for a class even if the student does not believe those concepts. You play a role in creating a positive community at LBCC. Please review your rights and responsibilities at this link: www.linnbenton.edu/go/studentrights.

If you believe a student is violating your rights, ask to be treated with respect. If that does not resolve the situation, report to Associate Dean Dr. Lynne Cox, Takena 107. If you believe a faculty member or LBCC employee is violating your rights, please report to Human Resources, Scott Rolen, CC-108.

In cases of immediate danger, report to Public Safety, Red Cedar Hall (RCH-119), 541-926-6855. (We encourage all students to enter this Public Safety phone number into their cell phone.)

Personal Empowerment Through Self-Awareness:

LBCC is launching a new training called “Personal Empowerment Through Self-Awareness.” This training is an online video series on dating, sexual consent, and on preventing sexual violence or partner violence. Every student has a right and healthy learning climate. Every new student is required by federal law to complete this training to learn how to safeguard yourself and others from sexual assault. We ask students to watch for email notification and to ensure that they complete this new training. (For example, do you know the number one date rape drug? It’s not what you think! Check out the training.) This online series reviews federal and Oregon law and is designed for your safety. The training will also direct you how to report dating, sexual, or partner violence to LBCC officials.

Note: The instructor reserves the right to make changes to the course syllabus and schedule.

CH201 Winter 2021 Tentative Schedule

Virtual

in person

Weekly Schedule	Lecture – Tuesday (Zoom) Quizzes on Fridays except final	Lab - Thursday Prelab Assignment: Wed. 11:59pm Postlab Assignment: next week lab time	Homework Due by 11:59 PM via email on date listed
Week 1 1/4-1/8	Chapter 1 – 1.1, 1.3, 1.4, 1.5 Chapter 2 – 2.1, 2.9	Group A and B: both Virtual Lab Safety Assignments (2) Lab 1 Graphing Tutorial (no prelab)	HW #1 Due Tuesday (1/12)
Week 2 1/11-1/15	Chapter 2 – 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8	Group A – Lab 2 Separate Mixture + SF Group B – Lab 3 Density Graphing	HW #2 Due Tuesday (1/19)
Week 3 1/18-1/22	Chapter 2 – 2.7, 2.8 Chapter 3 – 3.1, 3.2, 3.3 Quiz #1	Group A – Lab 3 Density Graphing Group B – Lab 2 Separate Mixture + SF	HW #3 Due Tuesday (1/26)
Week 4 1/25-1/29	Chapter 3 – 3.4 Chapter 4 – 4.1, 4.3	Group A – Lab 4 Moles + EF Group B – Lab 5 Hydrates + nomenclature	HW #4 Due Tuesday (2/2)
Week 5 2/1-2/5	Chapter 4 – 4.4, 4.2, 4.5, 4.6 Quiz #2	Group A – Lab 5 Hydrates + nomenclature Group B – Lab 4 Moles + EF	HW #5 Due Tuesday (2/9)
Week 6 2/8-2/12	Chapter 4 – cont. Chapter 5 – 5.1, 5.2, 5.5	Group A – Lab 6 AB Titrations Group B – Lab 7 Chemical Reactions	HW #6 Due Tuesday (2/16)
Week 7 2/15-2/19	Chapter 5 – 5.3, 5.4, 5.6 Quiz #3	Group A – Lab 7 Chemical Reactions Group B – Lab 6 AB Titrations	HW #7 Due Tuesday (2/23)
Week 8 2/22-2/26	Chapter 6 – 6.1, 6.2, 6.3, 6.4	Group A – Lab 8 Thermo titration Group B – Lab 9 Simulated Gas Law	HW #8 Due Tuesday (3/2)
Week 9 3/1-3/5	Chapter 6 – 6.5, 6.6 Chapter 7 – 7.1, 7.2 Quiz #4	Group A – Lab 9 Simulated Gas Law Group B – Lab 8 Thermo titration	HW #9 Due Wednesday (3/10)
Week 10 3/8-3/12	Chapter 7 – 7.2, 7.3, 7.4	Group A & B – both virtual Lab 10 Atomic Spectra Extra Credit CH201 Review	
Week 11 3/15-3/9	Final Exam will be given on Tuesday, March 16th. See course page for details.	No in-person meeting Last lab submission: Due Wednesday, 3/17 by 11:59 PM	

NOTE: This schedule is set up to reflect the topics and pacing that would be covered if held in-person. The virtual lecture on Tuesdays, and the Labs on Thursdays are the only scheduled meetings. The remainder of the material will be delivered as a series of recorded lectures.

This schedule of topics, homework due dates, and quiz dates are tentative, and subject to change at the instructor's discretion.