

Spring 2022 Chemistry for Health Occupations: Introduction to General Chemistry (CH 112)

Lecture (CRN 41882)

- **Online lectures (Moodle):** Follow class schedule strictly for each lesson
- **Virtual review sessions (Zoom):** 3 – 3:50 PM on Monday
- **In-person final exam (MH 206):** 3 – 4:50 PM on Monday of week 11

Laboratory (CRN 41882)

- **In-person lab (MH 206):** 3 – 4:50 PM on Wednesday
- **In-person exams (MH 206):** 3 – 4:50 PM on Wednesday of week 4 and 7

Lecture Instructor: Dr. Ommidala Pattawong (pattawo@linnbenton.edu)

- **Office Hours:** By appointment via <https://koalendar.com/e/meet-with-ommidala-pattawong>

Lab Instructor: Dr. David Rogow (rogowd@linnbenton.edu)

- **Office Hours:** 11 AM – 12 PM on Monday via Zoom (The Zoom link will be posted on Moodle.)
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Course Information:

Introductory topics in inorganic chemistry selected to prepare students entering Nursing, Emergency Medical Technician, Radiation Technician, and related Health Occupations programs.

Online Class and Equipment Recommendation

Our class this term is an online class. The online video lessons are posted on Moodle. Students need to manage time to complete watching lecture videos and completing problem sets 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.

LBCC is encouraging students to obtain the equipment you will need in order to be successful in online classes. Please see the list of equipment below. Students who cannot afford these resources can contact the [Roadrunner Resource Center](#) about funding.

- A computer
- A stable internet connection
- A speaker
- A web camera
- A microphone
- A scanner or a device that can take pictures

Online Participation and Workload Expectation:

Even though our lecture is online, and everything is provided for you, this doesn't mean that you can just watch videos and think you can pass the class. You are still expected to participate in the course by reading textbook, practicing problems, jotting down notes, and completing homework. The amount of in class work for this 5-credit course is about 6 hours per week. The amount of outside class work recommended by the college for a 5-credit course is about 15 hours per week. Students will need to manage schedule and time for chemistry accordingly. Examples of outside work include writing lab reports, reading, reviewing lecture materials, study time, working practice problems, and doing homework assignments.

My recommendation for you is to block out about 3 – 4 hours a day to do chemistry, so that you won't feel overwhelmed.

Student Learning Outcomes:

1. Solve mathematical problems using dimensional analysis.
2. Categorize and identify the different components of matter.
3. Solve stoichiometry problems using dimensional analysis.
4. Analyze the Periodic Table to explain atomic structure, chemical bonding, nomenclature, and properties of matter.
5. Differentiate between states of matter and solve chemical problems involving the different states of matter.
6. Explain and solve problems involving solution chemistry.
7. Explain and solve problems involving reaction rates, equilibrium, and acids and bases.

Minimum Requirements:

Prerequisite: MTH 095 with a grade of C or better.

Required Course Materials:

- Lecture outline packet (to be used along with lecture videos)
- Textbook: THE BASICS OF GENERAL, ORGANIC, AND BIOLOGICAL CHEMISTRY Version 2.0; Ball, Hill, and Scott, FlatWorld, 2018
- Alta access code (online homework) – see pg. 3 for instructions to set-up/purchase Alta access
- Scientific calculator
- Full lab goggles with indirect vents

Grade Assessments:

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

Course overview & syllabus quiz	10 pt.	= 10 pt. (2%)
Lab Assignments	8 x 20 pt.	= 160 pt. (30%)
Homework	10 x 15 pt.	= 150 pt. (28%)
3 Exams	3 x 70 pt.	= 210 pt. (40%)
Total		= 530 pt. (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 not negotiable and will be assigned based on your performance on the exams, homework, labs, etc.; your letter grade will NOT be assigned based on the instructor's subjective opinion of your effort in the course.**

Virtual Review Sessions:

Zoom review sessions are on Monday from 3 – 3:50 PM. Students access the zoom link from Moodle. These sessions are designed to help students preparing for exams, reviewing materials, and address any concerns. My hope is that even though the lectures are online, my students will still feel confident and prepared entering into the exams.

Exam Policies and Expectations:

Three in-person exams throughout the term will be used to evaluate your understanding of the materials. The exams must be taken on the scheduled date 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. **Failing to take the exam on the scheduled date will result in a score of zero.**

Students take exams in Madrone Hall 206 on Wednesday of week 4 and 7 from 3 – 4:50 PM and Monday of week 11 from 3 – 4:50 PM.

You are allowed to bring one 3" x 5" notecard with notes on both sides (*example problems are not allowed in a notecard – 15% penalty will be applied if any*), pens/pencils, eraser, and a non-graphing/non-programmable scientific calculator to the exams. 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!

Exams are designed for everyone who studies and keeps up with the lecture materials to be able to complete the exams within the exam time limit. If you are struggling to complete the exams, it indicates that you are not prepared and have not mastered the essential chemistry skills yet. If this happens to you, please reach out to me as soon as possible, so that we can discuss study strategies and exam taking strategies for future exams.

Laboratory Exercise

The laboratory experience is a vital part of this course. **The first lab is mandatory to get you ready with lab safety and future lab expectations.** Students are expected to attend the laboratory at their scheduled time. Failure to complete the laboratory work or to hand in all the assigned laboratory reports may result in a lowered grade. Students must read lab manual and answer pre-lab questions prior to the lab. Without doing so, students are not allowed to do labs. Late arrival to lab(s) will not be permitted to do the lab(s). No make-up labs will be given. Note: Regarding future prevalence of COVID, we cannot change modality of the lab unless instructed to do so by LBCC. Our labs will always meet in person.

You can miss up to two in-person labs and have sample data supplied in order to complete the post-lab assignments. However, students will receive a deducted 15% penalty from the completed scored. Additional missed lab sessions will result as a 0 for the post-lab assignment. Contact your lab instructor to discuss missed in-person labs.

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. You can access Knewton Alta for the online Homework via Moodle site. Each chapter homework is worth 15 points. Homework is due by 11:59 pm on the dates listed on the schedule.

For late online homework, students can turn in completed assignments after the due date up to 7 days late. However, students will receive a deducted 5% penalty from the completed scored per day late.

For late paper homework, students will receive a score of zero once the solution is released.

For the last homework, late submission will be accepted until 6/5/2022 because all homework scores will need to be compiled by the end of week 10.

Instructions to Sign Up for Knewton (ONLY access via Moodle!):

1. Log into Moodle and navigate to the CH 112 course.
2. Click on one of the homework assignments. By doing this, it will redirect and launch Knewton's website.
3. Click **Purchase** and then choose **One-Time Purchase** or **Redeem Access Code**. The access codes are available at the bookstore. There is also an option to get courtesy access for 14-days.

****NOTE:** If you have technical issues with Knewton, you can use the feedback button, the online chat, or email support@knewton.com. **The Knewton support team is almost always faster and better able to resolve issues than your instructor.**

Extra Credit:

1. *First Class Attendance:* If you joint the zoom meeting and answer exit ticket on the first day of class, you will receive 5 points of extra credit.
2. *Exams:* There will be 5 points of extra credit embedded in each exam.
3. *Homework Completion:* If you complete all the chapter homework assignments, the lowest points from your chapter homework will be used as extra credit.
4. *Optional Course Feedback:* This course feedback will be available in Moodle under “Week 10” section, “Week 10 To Do List”. This survey is NOT the same survey sent by LBCC. This anonymous survey is worth 5 points.

Science Help Desk:

The Science Help Desk is a drop-in help in chemistry, physics, geology, and astronomy courses. The in-person Science Help Desk is located on the first floor of Madrone Hall in the atrium area. The remote Science Help Desk is offered via Zoom. You can find hours of the Science Help Desk at the Learning Center website at <https://www.linnbenton.edu/student-services/library-tutoring-testing/learning-center/science-support.php>

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).

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. 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 17 Chemistry, Matter, and Measurement

- 17.1 – What is Chemistry?
- 17.2 – The Classification of Matter
- 17.3 – Measurements
- 17.4 – Scientific Notation
- 17.5 – Significant Figures
- 17.6 – Units
- 17.7 – Converting Units

Chapter 1 Elements, Atoms, and the Periodic Table

- 1.1 – The Elements
- 1.2 – Atomic Theory
- 1.3 – The Structure of Atoms
- 1.4 – Nuclei of Atoms
- 1.5 – Atomic Masses
- 1.6 – Arrangements of Electrons
- 1.7 – The Periodic Table

Chapter 2 Ionic Bonding & Simple Ionic Compounds

- 2.1 – Two Types of Bonding
- 2.2 – Ions
- 2.3 – Formulas for Ionic Compounds
- 2.4 – Ionic Nomenclature
- 2.5 – Formula Mass

Chapter 3 Covalent Bonding & Simple Molecular Compounds

- 3.1 – Covalent Bonds
- 3.2 – Covalent Compounds:
Formulas & Names
- 3.3 – Multiple Covalent Bonds
- 3.4 – Characteristics of Covalent Bonds
- 3.5 – Characteristics of Molecules
- 3.6 – Introduction to Organic Chemistry

Chapter 4 Introduction to Chemical Reactions

- 4.1 – The Law of Conservation of Matter
- 4.2 – Chemical Equations
- 4.3 – Quantitative Relationships Based on
Chemical Equations
- 4.4 – Some Types of Chemical Reactions
- 4.5 – Oxidation-Reduction (Redox) Reactions
- 4.6 – Redox Reactions in Organic Chemistry
and Biochemistry

Chapter 5 Quantities in Chemical Reaction

- 5.1 – The Mole
- 5.2 – Atomic and Molar Masses
- 5.3 – Mole-Mass Conversions
- 5.4 – Mole-Mole Relationships in Chemical
Reactions
- 5.5 – Mole-Mass and Mass-Mass Problems

Chapter 6 Energy and Chemical Processes

- 6.1 – Energy and Its Units
- 6.2 – Heat
- 6.3 – Phase Changes
- 6.4 – Bond Energies and Chemical Reactions
- 6.5 – The Energy of Biochemical Reactions

Chapter 7 Solid, Liquids, and Gases

- 7.1 – Intermolecular Interactions
- 7.2 – Solids and Liquids
- 7.3 – Gases and Pressure
- 7.4 – Gas Laws

Chapter 8 Solutions

- 8.1 – Solutions
- 8.2 – Concentrations
- 8.3 – The Dissolution Process
- 8.4 – Properties of Solutions

Chapter 9 Acids and Bases

- 9.1 – Arrhenius Definition
- 9.2 – Brønsted-Lowry Definition
- 9.3 – Water: Both an Acid and a Base
- 9.4 – The Strengths of Acids and Bases
- 9.5 – Buffers

Chapter 10 Nuclear Chemistry

- 10.1 – Radioactivity
- 10.2 – Half-Life
- 10.3 – Units of Radioactivity
- 10.4 – Uses of Radioactive Isotopes
- 10.5 – Nuclear Energy

CH 112 Course Schedule – Spring 2022

Follow this schedule to complete each task.

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

All the lab assignments are due at the beginning of labs.

Week No.	Mon.	Wed.				Fri.
1 (3/28-4/1)	Live Session	Lab 1: Safety Activities				Chapter 17 Chapter 1
	Chapter 17	Due	Safety & Syllabus Quiz			
2 (4/4-4/8)	Live Session	Lab 2: Density & Scientific Method				Chapter 2
	Chapter 1	Due	Pre-lab 2	HW Ch. 17&1		
3 (4/11-4/15)	Live Session	Lab 3: Formulas and Nomenclature Workshop				Chapter 3
	Chapter 3	Due	Pre-lab 3	Post-lab 2	HW Ch. 2	
4 (4/18-4/22)	Live Session	<i>In-Lab Exam Chapter 17, 1, 2, 3</i>				Chapter 4
	Chapter 3	Due	Post-lab 3		HW Ch. 3	
5 (4/25-4/29)	Live Session	Lab 4: Chemical of Household Compounds				Chapter 5
	Chapter 4	Due	Pre-lab 4	HW Ch. 4		
6 (5/2-5/6)	Live Session	Lab 5: Stoichiometry				Chapter 6
	Chapter 5	Due	Pre-lab 5	Post-lab 4	HW Ch. 5	
7 (5/9-5/13)	Live Session	<i>In-Lab Exam Chapter 4, 5, 6</i>				Chapter 7
	Chapter 7	Due	Post-lab 5		HW Ch. 6	
8 (5/16-5/20)	Live Session	Lab 6: Energy Content of Foods				Chapter 8
	Chapter 8	Due	Pre-lab 6	HW Ch. 7		
9 (5/23-5/27)	Live Session	Lab 7: Intermolecular Forces				Chapter 9
	Chapter 9	Due	Pre-lab 7	Post-lab 6	HW Ch. 8	
10 (5/30-6/3)	<i>Holiday</i>	Lab 8: Acids, Bases, and Buffers				Chapter 10
		Due	Pre-lab 8	Post-lab 7 Post-lab 8	HW Ch. 9	
11 (6/6-6/10) <i>Final Week</i>	Final Exam In-Lab Chapter 7,8,9,10 (3-4:50 PM)					