

CHEM 112L: Chemistry II Laboratory

Location:	Evening
Address:	1001 Rogers Street Columbia, MO 65216
Section:	19FALL2/CHEM/112L/AEV
Semester Credit Hours:	2
Class Day(s) and Time(s):	Monday, Wednesday 7:45 PM - 10:25 PM from October 21, 2019 to December 14, 2019

☰ Syllabus Contents

- Course Information
- Textbooks
- Technology Requirements
- Course Learning Outcomes
- Grading
- Schedule of Due Dates
- Assignment Overview
- Course Outline
- Additional Resources
- Columbia College Policies & Procedures

📘 Course Information

Catalog Description

An experimental introduction to the physical and chemical properties of matter to complement CHEM 112.

Prerequisites: CHEM 112 or concurrent enrollment; CHEM 111L with a grade of C or higher. Additional lab fee applicable to main campus day offerings.

Additional Notes

No class will be held on Wednesday, November 27 due to the Thanksgiving Day holiday. A mandatory makeup class will be held on Friday, November 22 at the regular scheduled time.

📖 Textbooks

As part of TruitionSM, students will receive their course materials automatically as described below.

- ☐ Hayden-McNeil Specialty Products. (2013). *Life Sciences Spiral Bound 70-Set (1st)*. Hayden McNeil. *Physical Book*

Bookstore Information

Visit <https://www.ccis.edu/bookstore.aspx> for details.

eText Information

If a course uses an eText, (see textbook information above) the book will be available directly in Desire2Learn (D2L) seven days before the session begins, if registered for courses prior to that date. Upon first login to VitalSource, students should

use their CougarMail email address; alternate email addresses cannot be used. More information about how to use the VitalSource platform, including offline access to eTexts, can be found in D2L.

Physical Course Materials Information

Students enrolled in courses that require physical materials will receive these materials automatically at the shipping address on file with Columbia College. Delivery date of physical materials is dependent on registration date and shipping location. Please refer to confirmation emails sent from Columbia College for more details on shipping status.

Returns: Students who drop a class are responsible for returning any physical course materials that were shipped. To initiate a return, visit [Ingram Returns](#) to generate a pre-paid return label. Materials from dropped courses must be returned within 30-days of receipt. **Failure to return physical items from a dropped course will result in a charge to the student account for all unreturned items.**

Note: Students who opt-out of having their books provided as part of [TuitionSM](#) are responsible for purchasing their own course materials.

Technology Requirements

THIS IS A TECHNOLOGY-ENRICHED COURSE WHICH COMBINES IN-SEAT INSTRUCTION WITH ONLINE LEARNING.

Participation in this course will require the basic technology for all classes at Columbia College:

- A computer with reliable internet access
- A web browser
- Acrobat Reader
- Microsoft Office or another word processor such as Open Office

For more information, see [technical requirements](#).

Course Learning Outcomes

1. Demonstrate laboratory safety.
2. Use laboratory techniques to collect data to test hypotheses.
3. Use mathematical/graphical skills to analyze experimental data.
4. Utilize the chemical principles of thermodynamics, equilibrium, electrochemistry, and kinetics to solve chemical problems.
5. Effectively communicate the results and significance of laboratory experiments

Grading

Grading Scale

Grade	Points	Percent
A	900 - 1000	90-100%
B	800 - 899	80-89%
C	700 - 799	70-79%
D	600 - 699	60-69%
F	0 - 599	0-59%

Grade Weights

Assignment Category	Points	Percent
Data Analysis	390	39%
Prelab quizzes	325	32%
Midterm Laboratory Report	100	10%
Laboratory Final	150	15%
Laboratory Notebook Evaluation	35	4%
Total	1000	100%

 Schedule of Due Dates

Week 1

Assignment	Points	Due
Lab Orientation, Laboratory Math, Notebooks, Graphing	55	one week
Determination of Vapor Pressure	55	one week

Week 2

Assignment	Points	Due
Colligative Properties	55	one week
Using Gas Chromatography for the Separation of Mixtures	55	one week

Week 3

Assignment	Points	Due
Chromatographic Determination of the Enthalpy of Vaporization	55	one week
Chromatographic Determination of Thermodynamics Relationships for Substituted Hydrocarbons	55	one week

Week 4

Assignment	Points	Due
Le Chatlier's Principle	55	one week
Titrations of Strong Acids and Strong Bases	55	one week
Laboratory Report	100	end of week four

Week 5

Assignment	Points	Due
Determination of Phosphoric Acid in Soda	55	one week
Redox Titration of Vitamin C	55	One week

Week 6

Assignment	Points	Due
Metal Complex Spectroscopy	55	one week

Week 7

Assignment	Points	Due
Metal Complex Kinetics	55	one week
Radiochemistry	55	one week

Week 8

Assignment	Points	Due
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Total Points: 1000

 Assignment Overview

Assignments

Laboratory experience is a key component of chemistry. Your course grade is determined principally by your performance in lab. In addition to attending weekly labs, a pre-lab quiz will be due the day of the lab and a report will be due the following week. A tentative schedule of experiments has been included on the course calendar below. Note: only your 13 best labs scores will be included in the calculation of your grade. As such, no makeup labs will be given and only one lab period can be missed without harming your grade.

13 x 65 = 845 points

Midterm Laboratory Report

Your lab report is worth 100 points and is graded based on the rubric available on the class website. Your lab report will be due after four weeks and submitted through D2L. No late laboratory reports will be accepted. • Revisions: you will be able to rewrite the laboratory report based on the feedback provided. Doing so you will be able to earn back half of the points you have lost. These will be due a week after the graded lab reports have been returned.

Examinations

A final exam will be given during the final meeting and will focus on the analysis and interpretation of data from the laboratories conducted over the course of the semester. You will also need to submit your laboratory notebook at this time. More details about the exam and grading of your notebook will be provided in lab.

Laboratory Final 150 points

Notebook Evaluation 35 points

Course Outline

Click on each week to view details about the activities scheduled for that week.

Week 1:

Lab Orientation, Laboratory Math, Notebooks, Graphing

Safety quiz and math worksheet due in one week.

Determination of Vapor Pressure

Lab quiz due before lab and report due in one week

Week 2:

Colligative Properties

Using Gas Chromatography for the Separation of Mixtures

Week 3:

Chromatographic Determination of the Enthalpy of Vaporization

Chromatographic Determination of Thermodynamics Relationships for Substituted Hydrocarbons

Week 4:

Le Chatlier's Principle

Titration of Strong Acids and Strong Bases

Laboratory Report

Your lab report is worth 100 points and is graded based on the rubric available on the class website. Your lab report will be due end of week four and submitted through D2L. No late laboratory reports will be accepted. • Revisions: you will be able to rewrite the laboratory report based on the feedback provided. Doing so you will be able to earn back half of the points you have lost. These will be due a week after the graded lab reports have been returned.

Week 5:

Determination of Phosphoric Acid in Soda
Redox Titration of Vitamin C

Week 6:

Metal Complex Synthesis
Metal Complex Spectroscopy

Week 7:

Metal Complex Kinetics
Radiochemistry

Week 8:

Review

Clean up, check out of drawers, and review for final

Final exam

A final exam will be given during the meeting and will focus on the analysis and interpretation of data from the laboratories conducted over the course of the semester. You will need to submit your laboratory notebook at this time. More details about the exam and grading of your notebook will be provided in lab.

Laboratory Final 150 points

Notebook Evaluation 35 points

+ Additional Resources

Online databases are available at library.ccis.edu. You may access them using your CougarTrack login and password when prompted.

Technical Support

If you have problems accessing the course or posting your assignments, contact your instructor, the Columbia College Technology Solutions Center, or the D2L Helpdesk for assistance. If you have technical problems with the VitalSource eText reader, please contact VitalSource. Contact information is also available within the online course environment.

- Columbia College Technology Solutions Center: CCHelpDesk@ccis.edu, 800-231-2391 ex. 4357
- D2L Helpdesk: helpdesk@d2l.com, 877-325-7778
- VitalSource: support@vitalsource.com, 1-855-200-4146

Online Tutoring

SmarterThinking is a free online tutoring service available to all Columbia College students. SmarterThinking provides real-time online tutoring and homework help for Math, English, and Writing. SmarterThinking also provides access to live tutorials in writing and math, as well as a full range of study resources, including writing manuals, sample problems, and study skills manuals. You can access the service from wherever you have a connection to the Internet. I encourage you to take advantage of this free service provided by the college.

Access SmarterThinking through CougarTrack at [Students -> Academics -> Resources](#).

The policies set forth in the [Policy Library](#) are the current official versions of College policies and supersede and replace any other existing or conflicting policies covering the same subject matter. For more information on policies applicable to students, see [Student Policies](#). For more information on policies applicable to the entire Columbia College community, see [College-Wide Policies](#).

Students are expected to read and abide by the College policies. Policies of particular interest to students include, but not limited to the following:

- Graduate Grading Policy
- Undergraduate Grading Policy
- Registration Policy and Procedures
- Withdrawal Policy
- Alcohol and Other Drugs Policy
- Family Educational Rights and Privacy Act (FERPA)

Additional Policies:

Academic Integrity and Plagiarism

Academic integrity is a cumulative process that begins with the first college learning opportunity. Students are responsible for knowing and abiding by the [Academic Integrity Policy and Procedures](#) and may not use ignorance of either as an excuse for academic misconduct. Additionally, all required papers may be submitted for textual similarity review to Turnitin.com for the detection of plagiarism. All submitted papers may be included in the Turnitin.com reference database for the purpose of detecting plagiarism. This service is subject to the Terms and Conditions of Use posted on the Turnitin.com site.

Disability Resources

If you have a disability that requires an accommodation, please speak with the instructor and consult the [Student Accessibility Resources](#) office. Student Accessibility Resources staff will determine appropriate accommodations and will work with your instructor to make sure these are available to you. To find additional information, see our [ADA and Section 504 Policy for Students](#).

Notice of Non-Discrimination and Equal Opportunity:

The College has a process through which students, faculty, staff and community members who have experienced or witnessed incidents of discrimination, harassment, or retaliation on the basis of protected status, can report their experiences to a College official. For more information, see our [Non-Discrimination and Equal Opportunity Policy and Complaint Resolution Procedure](#).

Title IX and Sexual Misconduct

The College is committed to addressing the issues of discrimination, harassment and sexual misconduct in the educational and workplace landscape and will continue to modify policies, procedures and prevention efforts as needed. For more information, see the College's [Title IX and Sexual Misconduct Policy](#).

Course Policies and Procedures:

Attendance Policy

Columbia College students are expected to attend all classes and laboratory periods for which they are enrolled.

For classes with an online component, attendance for a week includes submitting any assigned online activity. Assigned activities are scheduled prior to the course commencing. Assigned activity due dates are subject to change based on actual course progression and will be adjusted as necessary. Attendance for the week is based upon the date work is submitted. A class week is defined as the period of time between Monday and Sunday (except for week 8, when the work and the course will end at 11:59 PM Central Time on Saturday.) The course and system deadlines are based on the Central Time Zone.

Students are directly responsible to instructors for class attendance and work missed during an absence for any cause. If absences jeopardize progress in a course, the College reserves the right to drop or withdraw students from classes. For additional information, see the Administrative Withdrawal for Non-Attendance heading in the [Withdrawal Policy](#).

CougarMail

All students are provided a CougarMail account when they enroll in classes at Columbia College. You are responsible for monitoring email from that account for important messages from the College and from your instructor.

Students should use email for private messages to the instructor and other students. The class discussions are for public messages so the class members can each see what others have to say about any given topic and respond.

Late Assignment Policy

All classes rely on participation and a commitment to your instructor and your classmates to regularly engage in the reading, discussion and writing assignments. You must keep up with the schedule of reading and writing to successfully complete the class.

No late assignments will be accepted without the prior approval of the instructor.

Acceptance of a late assignment is at the discretion of the instructor.

Make-up examinations may be authorized for students who miss regularly-scheduled examinations due to circumstances beyond their control. Make-up examinations must be administered as soon as possible after the regularly scheduled examination period and must be administered in a controlled environment.

Student Conduct

All Columbia College students, whether enrolled in a land-based or online course, are responsible for behaving in a manner consistent with Columbia College's **Student Conduct Code** and **Acceptable Computing Use Policy**. Students violating these policies or any other College policy will be referred to the office of Student Affairs and/or the office of Academic Affairs for possible disciplinary action. The Student Code of Conduct, the **Student Behavioral Misconduct Policy and Procedures**, and the Acceptable Computing Use Policy can be found in the Policy Library at ccis.edu/policies. The adjunct faculty member maintains the right to manage a positive learning environment all students must adhere to the conventions of online etiquette when enrolled in a course with an online component.