

Chemistry I Lab Syllabus

CHEM 2111

Course Description

The TEL Library Chemistry Lab course provides a comprehensive introduction to the laboratory study of chemistry. In this course, students will learn about lab safety and explore topics like the metric system and the scientific method. Students will apply foundational concepts such as the classification of matter, atoms, molecules and ions, the structure of atoms, chemical equations, and solutions, among others, to hands-on home lab and simulation activities. Students will complete 14 mastery assignments with lab activities including three formal lab reports. This course can be taken either after or with a three-hour chemistry lecture course.

Course Outcomes

- Identify and practice lab safety including the proper use of lab tools.
 - Determine and evaluate the appropriate elements of a scientific experiment.
 - Execute the steps of an experiment, and evaluate and explain the findings.
 - Analyze the results of an experiment to determine if the steps of the scientific process or any scientific assumptions have been violated.
 - Evaluate scientific scenarios and apply concepts learned in the lecture course and explored in the lab activities to the scenarios while employing critical thinking skills.
 - Write a lab report explaining your findings in an experiment.
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Course Materials

All readings and materials necessary to complete required exercises are provided within the course platform. Links to additional, optional resources on external websites are also provided for each lesson in the Lesson Toolbox.

Required Lab Materials

1. Metric Ruler
2. Digital or Physical Notebook
3. Rock Salt
4. Crushed Ice
5. Pair of Gloves

6. Gallon Ziploc Bags
 7. Quart Ziploc Bags
 8. Heavy Whipping Cream
 9. Sweetened Condensed Milk
 10. Vanilla Extract
 11. Measuring Cups of Different Sizes (Example: ½ cup and ¼ cup)
 12. Measuring Pitcher (or any container that has measurements on it and can hold more than one cup of liquid)
 13. Scissors
 14. Kitchen Scale or Balance Scale
 15. Small Paper Clips
 16. Large Paper Clips
 17. 4 Sunscreens in Various SPF
 18. 4 Different Types of Colored Candies (Example: m&ms, gummy bears, skittles, jelly beans)
 19. Brown Paper Bag
 20. Any Four Types of Dried Beans (Example: dried lima beans or dried black beans)
(If beans are not available, different sized paper clips or popcorn kernels and popped popcorn can be used.)
 21. 8 Clear Cups or Jars that Hold at Least 8 oz of Liquid
 22. Table Salt
 23. Epsom Salt
 24. Sugar
 25. Baking Soda (NaHCO_3)
 26. Water
 27. Timer
 28. Vinegar
 29. Coffee, Tea, or Hot Chocolate
 30. 2 Mugs
 31. Thermometer
 32. 2 Glass Test Tubes (or similar)
 33. Bunsen Burner or Sterno
 34. Distilled Water
 35. Bulb
 36. Bulb Holder
 37. Wire
 38. Toothpicks
 39. 6 Large Foam Balls (Alt: Use playdough to form balls)
 40. 15 Small Foam Balls (Alt: Use playdough or marshmallows)
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Course Length

This is a self-paced course allowing students to learn according to their personal schedules. Overall, it is estimated that the course will take approximately 102 hours to complete.

It is recommended that students work through the course at a comfortable pace that allows regular, incremental (daily and/or weekly) progress. If assistance is needed with scheduling time in this course, students may refer to the pacing guide provided in the course documents, located on the course page. Please note, there is no penalty for late assignments as this is a self-paced course. However, if a student is enrolled in a TEL course through a school or institution, s/he is required to finish the course according to the academic calendar of the respective school or institution.

Prerequisite(s)

2103 Chemistry I - Can be taken simultaneously with this course.

Students should also have a strong understanding of algebra. It is highly recommended that students complete Algebra I at the high school level at minimum.

Minimum Passing Grade

To earn college credit for this course, students must earn a minimum average grade of 70% or higher. If a high school student receives less than 70% in this course, it is up to the school offering the course to grant high school credit for its completion.

Grading Policies

Grade Weighting

Assignment Category	Number	Grade Percentage
Participation (CYKs, CEEs, and Discussions)	9 CYKs 1 CEE 2 Discussions	5%
Mastering Chemistry Lab Quizzes	11	40%
Mastery Assignment Lab Reports	3	35%
Course Exam	1	20%

Assignment Grading Descriptions

Assignment Category	Description
Participation (CYKs, CEEs, and Discussions)	<p>Check Your Knowledge (CYK) - Multiple choice quizzes that are autograded. Students may take these as many times as desired to practice for module quizzes. Students receive full credit for attempting a CYK quiz but must complete it at least once to earn participation credit.</p> <p>Critical Evaluation Exercise (CEE) - An example paragraph from an essay or project in the course. Students in the course will be asked to evaluate this paragraph using the provided rubric as the grading criteria. Once students evaluate the sample paragraph, they will be given feedback as to why or why not an expert would evaluate the sample paragraph in the same way.</p> <p>Discussions - Twice in the course, students will be prompted with a case study in which they will have to select the best solution to the given problem. Students will be prompted to defend their selection using evidence from the materials learned in the course and will be asked to analyze and evaluate other solutions developed by their peers. At the end of the course, students will be asked to complete a Reflective Evaluation Survey to reflect on their experiences in the student interaction hub and evaluate their participation.</p>
Mastery Assignment Lab Reports	Rubric-based lab report assignments that allow students to apply concepts in the course. Assignments are aligned to course outcomes and require the student to spend extra time developing, reviewing, and revising their assignments prior to submission. Students are encouraged to seek out feedback from peers and experts to fully develop their assignments. Students are also encouraged to self-evaluate their work using the rubrics provided.
Mastering Chemistry Lab Quizzes	Unit quizzes created to help students understand how to evaluate and analyze case-based scenarios and problems that would commonly appear in the subject area. Questions are more difficult, scenario focused questions that require students to synthesize information they have learned between the lecture and lab course. Students may use notes and refer back to lessons using a separate browser or the printable versions of lessons. Quizzes are not timed. Students may take these only once.
Course Exam	Proctored, multiple-choice exam that is auto-graded. Students may take this only once.

Assignment Schedule

Assignment	Module Due
Mastery Assignment 1: Mastering Lab Safety Quiz	1
Mastery Assignment 2: Mastering Chemistry Lab Quiz	2
Mastery Assignment 3: Mastering Chemistry Lab Quiz	3
Chemistry LabMastery Assignment 4: Lab Report	4
Mastery Assignment 5: Mastering Chemistry Lab Quiz	5
Mastery Assignment 6: Mastering Chemistry Lab Quiz	6
Mastery Assignment 7: Mastering Chemistry Lab Quiz	7
Mastery Assignment 8: Mastering Chemistry Lab Quiz	8
Mastery Assignment 9: Mastering Chemistry Lab Quiz	9
Chemistry Lab Mastery Assignment 10: Lab Report	10
Mastery Assignment 11: Mastering Chemistry Lab Quiz	11
Chemistry Lab Mastery Assignment 12: Lab Report	12
Mastery Assignment 13: Mastering Chemistry Lab Quiz	13
Mastery Assignment 14: Mastering Chemistry Lab Quiz	14

Course Policies

Academic Integrity Policy

TEL students are expected to practice academic integrity. If it is determined that a student has failed to comply with the Academic Integrity Policy, the issue(s) in question will be addressed by TEL, and subsequent action will be taken.

Cheating

TEL students are expected to refrain from acts of cheating. Examples of cheating include, but are not limited to the following:

- Accessing or attempting to access unauthorized course material(s)
- Providing or attempting to provide unauthorized course material(s) to another person
- Using or attempting to use study aids during an academic exercise or examination
- Copying or attempting to copy another person's work
- Allowing another person to copy or attempt to copy your work
- Allowing someone else to complete your work
- Completing or attempting to complete someone else's work

Plagiarism

TEL students are expected to produce original work and refrain from acts of plagiarism. Examples of plagiarism include, but are not limited to the following:

- Copying someone else's work word-for-word
- Adopting someone else's ideas and presenting them as your own
- Using someone else's original work without acknowledging or citing the source

TEL instructors and instructional staff will use plagiarism detection software to check writing assignments for plagiarism.

Appropriate Use of Technology

TEL students are expected to use technology appropriately. Examples of the misuse of technology include, but are not limited to the following:

- Bypassing or attempting to bypass proctoring services
- Using or attempting to use unauthorized technology devices for examinations
- Providing or attempting to provide system credentials to an unauthorized person

Action in Response to Academic Misconduct

Students who knowingly and willingly engage in academic misconduct will be subjected to disciplinary action. Issues brought to or discovered by TEL will be evaluated on a case-by-case basis. Action stemming from the result of an inquiry may include, but is not limited to the following:

- Issuance of an Academic Integrity Warning
- A grade reduction for the assignment or examination in question
- A zero for the assignment or examination in question
- Dismissal from the course

Grade Discrepancies

Students who wish to appeal a grade to the Academic Services Team must [submit this form](#) to start the appeals process. Upon the receipt of the appeal, the following process will be enacted:

1. Grade appeals will be submitted to an alternative, qualified member of our instructional staff. Specific grade discrepancies will be escalated to the Director of Academics for the re-evaluation of the assignment, rubric, and correct answers. The Academic Services Team will conduct a thorough investigation using all evidence provided from the rubric, assignment instruction, notes from the original instructional staff member, and other relevant outsourced information. Academic integrity appeals will be submitted to the Appeal Committee, consisting of TEL's Director of Academics, Director of Curriculum, and Director of Instructional Support.
2. The Appeal Committee will evaluate the appeal and all documented evidence. In the case of grade discrepancies, an evaluation of the student's awarded grade will be determined in accordance with the proper policies/standards outlined in the course syllabus.
3. The Academic Services Team will receive the Appeal Committee's assessment and forward this information to the student.
 - a. Once the Academic Services Team provides a response to the disputed grade, the student will have the option to accept or to decline. If the student chooses to decline the response, the student's original grade will stand. If the student accepts the response, the grade will be changed, provided that the grade is different from the original grade.
 - b. In the case of an academic integrity appeal, the student can either accept the assessment and subsequent action or they can restart the course.

Exams

In this course, students will take their midterm and final examinations online. These exams are proctored through MonitorEDU. This service provides live online exam proctoring and support. This service records the student's computer webcam, speakers, and desktop during the exam. **Students must use TEL's exam-proctoring solution, or have exams proctored by a school official (approved by TEL), to receive credit for the course.**

A Student Quick-Guide will be provided on how to use this service in the exam modules.

Technical Requirements

This course is delivered 100% online, and students are required to have access to a computer, laptop, or web-capable mobile device — along with consistent access to the Internet — to access course material and complete assignments.

Required technology:

- Desktop or portable computer, including Windows PC, Macintosh OS, or Chromebook (tablets, cell phones, and iPads are not supported)
- Working built-in or external webcam, speakers, and microphone
- Internet speed must be at least 2 Mbps download and 2 Mbps upload. Hot spots are not recommended. Test Internet speed at: <http://www.speedtest.net>.

To access detailed information about the minimum hardware requirements necessary to take full advantage of TEL courses, visit the course home page.

Disability Services Statement

TEL is committed to providing equitable student access to course content and materials by providing reasonable accommodations for all persons with disabilities. TEL also complies with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990. Students who need special accommodations must make their requests by contacting the TEL Support Team to coordinate reasonable accommodations upon registration and before the course begins. Students over the age of 18 taking college-level courses require a 504 for special accommodations.

Any student seeking to request academic accommodations on the basis of a documented disability should contact the TEL Support Team at disabilityservices@tellibrary.org to coordinate reasonable accommodations.

Course and Technical Support

Questions about course requirements, technical issues, or other issues while taking this course can be directed to the TEL Support Team via the Red Question Mark Widget button at the bottom right of each course page. The TEL Support Team will prioritize the request and respond accordingly.
