



SEMESTER

Life and Natural Sciences Department School of Science, Technology, Engineering, and Mathematics

Program Name: Chemistry
Course Name: General Chemistry 1 - Laboratory
Course Number: CHM121 **Section:** BXX
Meeting Day(s) & Time(s):
Credits: 5 (combined lecture and lab)
Contact Hours: 3
Text: *Signature Laboratory Series: CHM 121 Laboratory Manual*, Cengage Learning, 2009.
Instructor Name:
Office Location:
Office Hours:
Owens CC Email:**
Phone:
Additional Contact:

CATALOG DESCRIPTION: The first semester of a two-semester sequence, the course gives students a solid foundation in general chemistry. Topics include measurement, structures of atoms, molecules and ions, inorganic chemical nomenclature, chemical reactions and stoichiometry, acid-base, and oxidation-reduction reactions, gases and the kinetic-molecular theory, thermochemistry, electronic structure, periodicity, chemical bonding and molecular geometry. Lab work reinforces basic principles and emphasizes analytical techniques. (Fulfills Science Elective requirement in Art and Sciences program). Students retaking this course must repeat both the lab and lecture.

COREQUISITES: None

PREREQUISITES: MTH070 or MTH096 or equivalent and CHM095 or CHM111 or equivalent

TEXTBOOKS and MATERIALS:

- *Signature Laboratory Series: CHM 121 Laboratory Manual*, Cengage Learning, 2009.
- *General Chemistry with OWL Access*, 11th Edition; Ebbing, Darrell D. and Gammon, Steven D., Cengage Learning, 2017.
- Scientific calculator

*Your **print book, e-book, or access code** required for class can be accessed through the Owens Community College e-Campus Bookstore by accessing the online link, called “Find Books” on the course schedule for each course section.*

GENERAL INFORMATION

Course Objectives

By completing this course, the student should be able to understand the principles of:

- measurement
- atomic, ionic and molecular structure
- properties of matter, chemical bonding and nomenclature
- temperature and heat as related to kinetic molecular theory and thermochemistry
- molar and mass relationships of chemical reactions and the equations that describe them (i.e., stoichiometry)
- physical and chemical behavior of solids, gases, liquids and solutions
- oxidation-reduction reactions
- theory regarding acids, bases and neutralization reactions
- periodicity
- molecular geometry

Laboratory Objectives

This laboratory is associated with the lecture portion of CHM121. Students should be able to demonstrate comprehension of: the metric system, calculate density, predict formulas and name inorganic compounds, balance equations, calculate percent composition, empirical formula, and molecular formula, solve stoichiometry and molarity problems, predict molecular geometries using VSEPR theory and more.

***Please refer to lecture syllabus for all learning outcomes and competencies**

COURSE RULES

Attendance

Attendance is taken at each laboratory session. If you are more than 30 minutes late for a laboratory you will not be permitted to attend that session. During the first 30 minutes your instructor covers the basic information necessary to successfully complete the laboratory, mandatory safety issues, precautions, and location of needed materials. After the session has begun, for safety purposes, your instructor needs to be working with all students, not covering

the information for those students who are late. Therefore, if you are more than 30 minutes late, you will not be permitted to attend the laboratory and will be counted absent. You are encouraged to obtain missed information from other students in the laboratory. You will not be permitted to submit laboratory assignments for sessions in which you have been counted absent. To achieve success in this course, laboratory attendance is critically important. It is necessary to be present in order to get direct attention from the instructor on course material. Students cannot learn the laboratory material without this practical experience, and the practical experience will be a large portion of the laboratory exams. Student attendance in the laboratory is also vital for accreditation and registry exams for all the technologies.

- You must be registered for the laboratory section that you are attending. Non-registered persons are not permitted in the laboratory.
- There are no make-up laboratory sessions.
- You will not receive any points for any of the work from a missed laboratory session.

Safety

- **Eating, drinking and smoking are not permitted in the laboratory.**
- You must be registered for the laboratory section which you are attending. Non-registered persons are not permitted in the laboratory.
- Appropriate apparel is required in the laboratory at all times, including; cotton shirts, jeans, proper foot covering, proper shoes, etc.
- Loose clothing, shorts, sandals, open-toed shoes are not permitted.
- Full covering laboratory aprons are available as needed.
- More about apparel will be discussed at the first laboratory meeting.
- **Safety goggles MUST BE WORN while experiments are being conducted. The laboratory instructor will announce when goggles may be removed. The appropriate eyewear must be splash goggles, which are provided to each student. NO impact glasses are to be worn at any time.**

Student Responsibilities

- Read the laboratory assignment and appropriate lecture material prior to each laboratory session. It is recommended that a laboratory notebook be kept to record observations, experimental results, and instructor notes.
- Be on time and use the full laboratory period.
- Turn in all work as assigned, ask questions, and participate in each activity.
- **CLEAN UP:** Be certain that your area of the laboratory table is properly cleaned after use. Wash and return all glassware and other instruments to the proper areas. Check the sink to be sure that it is clear of all glassware and trash.

GRADING

The laboratory grade will be based on assignments and exams.

12 Assignments (20 points each)	240 points
Exam 1	55 points
Exam 2	55 points
Total	350 points

IMPORTANT: You must earn no less than 210 points (60%) out of the 350 total possible laboratory points to pass the entire course. If you do not earn at least 210 laboratory points, you will receive an (F) letter grade for the entire course.

There is NO provision for EXTRA CREDIT to be given beyond the designated points for each laboratory exam and activity.

Assignments

An assignment will consist of pre- and post-questions from the experiment modules as well as a procedural flow chart and a written description of the procedure for each specific experiment. See the attached weekly schedule.

Assignments are due when indicated by the instructor. Late assignments will receive a 10% grade deduction for each day late. Any assignment over 1 week late will receive a zero (0%) grade. Laboratory assignments will not be accepted at the Life and Natural Sciences Department offices.

You will not be permitted to submit or to receive credit for a laboratory assignment in a session in which you have been counted absent.

Exams

The 2 exams consist of approximately 25-30 questions and a total of 55 points per exam.

The exam questions will be comprised from material covered in the laboratory manual, experiments, and laboratory lectures. Exams will include the following types of questions: multiple-choice, practical application, fill-in the blank, calculations, and short essay.

- Exam 1 will cover Activities 1 to 6
- Exam 2 will include material from the remaining Activities
- Exam 2 is NOT comprehensive

Open book and open notes are not permitted for an exam.

During exams, unauthorized use of a phone, tablet, e-watch or any other electronic device is prohibited. Use of these devices during an exam, could result in forfeiture of exam points.

Each exam can only be taken once.

Contact your instructor immediately if you miss a scheduled exam.

A student missing an exam chooses one of the following options:

- Take a **DIFFERENTLY FORMATTED** makeup exam on date assigned by instructor.
- Not take the exam and receive 0 points.

A student missing Exam 1 has one week from date of the missed exam to make up the exam.

A student missing Exam 2 has two days from date of the missed exam to make up the exam.

No assignments will be accepted at the Toledo Campus Life and Natural Sciences Department office

- There are NO make-up laboratory sessions.
- You cannot receive points for any work from a missed laboratory session.
- All work must be each student's own effort.
- No photocopied reproductions will be accepted.

Laboratory sections do not award letter grades, only point totals. The laboratory points earned are totaled and forwarded to your lecture instructor. This point total is scaled and added to the lecture point total. The final grade for the course is determined from points earned in both lecture and laboratory. See your lecture syllabus for the course grading summary and letter grade scale.

ACTIVITIES

Activity 1	Tech #316	Safety Video, Laboratory Techniques - Filtration
Activity 2	Prop #375	Separating Components of a Ternary Mixture
Activity 3	Anal #492	Paper Chromatography of Food Dyes
Activity 4	Anal #479	Determining Formula of an Ionic Hydrate
Activity 5	Reac #480	Sequence of Chemical Reactions: Transforming Cu ⁺⁺
Activity 6	Stoi #398	Empirical Formula - Compound containing Mg and O
Activity 7	Synt #341	Synth Strontium iodate monohydrate, Exam 1
Activity 8	Ther #346	Enthalpy of Neutralization
Activity 9	Anal #416	Percent of Sodium hypochlorite in Commercial Bleach
Activity 10	Strc #345	The Visible Atomic Spectrum of Hydrogen
Activity 11	Anal #359	Spectrophotometric Analysis Permanganate Ion
Activity 12	Strc #409	Molecular Geometry and Bonding
Activity 13		Exam 2

Academic Support

Disability Services Resource Center: If you have a disability or acquire one, you may be entitled to receive reasonable accommodations intended to assure you an equal opportunity to participate in and benefit from the program. To receive more information or to register for accommodations, please contact the Disability Resource Center at 567-661-7007, email disability@owens.edu, visit <https://www.owens.edu/disability/>, or stop by College Hall 124.

Tutoring Services: Owens Community College offers academic tutoring and assistance in a variety of subjects including: accounting, computing, economics, mathematics, science, and writing. For more information go to: <https://www.owens.edu/successcenters/>.

Counseling Services: Counseling Services provides assistance to students experiencing personal, educational, interpersonal/relationship, family, social, or psychological difficulties. If you feel you may benefit from this service, please contact them at counselingservices@owens.edu. More information is at <https://www.owens.edu/counseling/>.

Campus and Community Connections: The Center for Campus and Community Connections (College Hall 151) is a walk-in office created to provide retention support through resource stability initiatives and community connections. Go here for more information: <https://www.owens.edu/connection/> or contact connections@owens.edu

Owens Library: The Owens Library offers two locations (Toledo and Findlay) as well as online resources. For more information visit <https://www.owens.edu/library/>.

Students can find more information on campus resources, student support, student life, and security at this [link](#).

General Information

Student Code of Conduct: All students are expected to follow Owens Community College's [Student Code of Conduct](#), which includes academic honesty, encompassing plagiarism. See the [Board Policy](#) for more information.

Anti-Discrimination and Harassment & Title IX/Sexual Misconduct: All students, faculty, and staff are expected to follow Owens Community College's [Anti-Discrimination and Harassment Policy](#) and the College's [Title IX Policy](#)/Sexual Misconduct Procedures and Guidelines. The College strictly prohibits and will not tolerate harassment, discrimination, intimidation, or hostile/offensive working or learning environments.

Religious Accommodations: A student seeking an accommodation for an absence permitted under Ohio's Testing Your Faith Act must provide the instructor with a written email notice with the specific dates for an absence, and must do so not later than fourteen (14) days after the first day of instruction. Alternative accommodations are not retroactive, and no academic penalty will be imposed for an absence under the policy*. The request for an alternative accommodation will be kept confidential. Students with questions about a religious accommodation under Ohio's Testing your Faith Act may contact the College's Office of Academic Affairs: provost@owens.edu. The policy may be found on the Owens website: [3358:11-2-63 Accommodation](#) for a Student Absence for the Observance of Religious Beliefs and Practices Policy

Document Collection: Throughout the semester, your instructors may ask for a variety of assignments including tests and/or quizzes for student learning of institutional general education competencies or program assessment. Please save all your class materials until the end of the semester.

Classroom Admittance: OCC classes shall only be attended by the officially registered OCC students or perspective students, instructor of record, guest lecturer, or substitute. Visitors are not permitted to be in the classroom and should not be invited to attend or participate in the class. See [FERPA](#) regulations for more information.

Use of AI Tools: This course requires you to complete various assignments that assess your understanding and application of the course content. You are expected to do your own work and cite any sources you use properly. You are not allowed to use any artificial intelligence (AI) tools, such as chatbots, text generators, paraphrasers, summarizers, or solvers, to complete any part of your assignments. Any attempt to use these tools will be considered academic misconduct and will be dealt with according to the university's academic integrity policy. Students are expected to complete all work independently and without the assistance of AI-generated content. If you have any questions about what constitutes acceptable use of AI tools, please consult with the instructor *before* submitting your work.

SEMESTER Master Laboratory Schedule

Laboratory Schedule

Laboratory Section DAY	Laboratory Section DAY	Laboratory Section DAY
Activity 1 - DATE	Activity 1 - DATE	Activity 1 - DATE
Activity 2- DATE	Activity 2- DATE	Activity 2- DATE
Activity 3- DATE	Activity 3- DATE	Activity 3- DATE
Activity 4- DATE	Activity 4- DATE	Activity 4- DATE
Activity 5- DATE	Activity 5- DATE	Activity 5- DATE
Activity 6- DATE	Activity 6- DATE	Activity 6- DATE
Activity 7- DATE	Activity 7- DATE	Activity 7- DATE
Activity 8- DATE	Activity 8- DATE	Activity 8- DATE
Activity 9- DATE	Activity 9- DATE	Activity 9- DATE
Activity 10- DATE	Activity 10- DATE	Activity 10- DATE
Activity 11- DATE	Activity 11- DATE	Activity 11- DATE
Activity 12- DATE	Activity 12- DATE	Activity 12- DATE
Activity 13- DATE	Activity 13- DATE	Activity 13- DATE