

Lecture: CHEM 111.02
Recitation/Lab: CHEM 111.02A, CHEM 111.02B, CHEM 111.02C
Introductory Chemistry I
Fall 2022

Instructor: Dr. Maria V. Schiza, Ph.D.
Office: Caputo Hall 219
Office Phone #: 717-871-7437
e-mail: maria.schiza@millersville.edu (best way to be reached!)

Meeting Times: **Lecture:** M W F 11:00-11:50 am – **Roddy 149 – Dr. Schiza**
Recitation/Lab:
Tuesday - Section A:
Recitation: 8:00-8:50 am – **Roddy 153 - Dr. Schiza** / Lab: 9:00-10:50 am - **Caputo 328 - Dr. Lyman Rickard**
Tuesday – Section B:
Recitation: 1:10-2:00 pm – **Roddy 153 - Dr. Schiza** / Lab: 2:10-4:00 pm - **Caputo 328 - Dr. Michael Elioff**
Wednesday - Section C:
Recitation: 2:00-2:50 pm – **Roddy 153 - Dr. Schiza** / Lab: 3:00-4:50 pm - **Caputo 328 - Dr. Michael Elioff**

Office Hours: **Office Hours: in person-Caputo 219**
Mon, Wed: 9-10:30 am & Thu, Fri: 9-10 am
Alternative times can be scheduled by appointment or virtually through Zoom.

Welcome to CHEM 111:

I would like to welcome you all to CHEM 111 – Introductory Chemistry !! I am very excited to start this semester and meet and interact with you in-person. As you all know we are leaving in an unusual time and we should all try to do our best to protect our health and the health of others. Please follow the University guidelines regarding the pandemic and masking. If you have any symptoms related to the virus, please stay at home and notify your instructors as soon as possible. I will remain flexible and work with you to ensure optimal learning for successful completion of the course.

Required Course Materials:

- **Textbook (free):** is available in web view (recommended) and PDF for **free** online at the following webpage: <https://openstax.org/details/books/chemistry-2e>
You can also choose to purchase it on iBooks or get a print version via the campus bookstore or from OpenStax on Amazon.com. You can use whichever formats you want. Chemistry, 2e from OpenStax, Print ISBN 194717262X, Digital ISBN 1947172611
Online Homework/Quiz Code (\$): Aktiv Chemistry Activation F42, Author & Publisher: Aktiv Learning, Inc. Cost per Code: \$42.00 (purchased online - directly from the company)
ISBN# 978-1-955404-45-7 established by the Publisher for the Fall 2022 semester.
- **Calculator:** Scientific calculator capable of performing logarithmic (log, ln) and exponential (10^x , e^x , y^x) functions.
- **Regular access to Desire to Learn/Brightspace (D2L):** <https://millersville.desire2learn.com> and university email

Required Laboratory Materials:

- **Safety Glasses/Goggles for the laboratory:** can be purchased in the bookstore or Caputo 330
 - **Laboratory Notebook:** can be purchased in the bookstore (bound/quadrille based)
-

Course Description and Learning Objectives:

CHEM111 is the first semester course of General Chemistry (followed by CHEM112) for students majoring in chemistry as well as biology, earth sciences and physics. Learning the material covered in CHEM111 provides students with a foundational understanding of scientific principles needed in future studies in any field of science. Students who successfully complete CHEM111 should have a fundamental understanding of chemical stoichiometry, atomic structure, ideal gas behavior, chemical energy, intermolecular forces, covalent and ionic bonding, and properties of liquids, solutions, and solids.

Chapters 1 through 11 are covered in CHEM111.

Learning Outcomes: Upon the completion of CHEM 111 students should have an understanding of:

1. properties of atoms, molecules, and the various states of matter
2. the atomic structure and the periodicity of elements in the periodic table
3. the idea of a mole and the use of chemical stoichiometry
4. precipitation reactions, acid/base reactions, and redox reactions
5. the "gas laws" governing the physical/chemical behavior of gases
6. chemical reactions that involve energy flow
7. simple quantum mechanical treatments of atoms and molecules
8. current bonding models for simple inorganic and organic molecules in order to predict structures and important bonding parameters
9. how to predict molecular geometries of selected molecular species
10. properties of solids, liquids and solutions and intermolecular forces

Tentative Lecture Schedule - CHEM 111 – Fall 2022:

Chapter	Module	Assessment/Comment
Essential Ideas -Chapter 1	Module 1: Properties of Matter	<p align="center">Graded Online Homework</p> <p align="center">Graded Online Quizzes (every other week)</p> <p>Graded Exam 1 (the exam date will be announced a week in advance - material examined from modules 1-6)</p>
	Module 2: Measurements	
Atoms, Molecules, and Ions – Chapter 2	Module 3: Atomic Theory	
	Module 4: Elements and Compounds	
Composition of Substances and Solutions – Chapter 3	Module 5: The Mole	
	Module 6: Aqueous Solutions	
Stoichiometry of Chemical Reactions – Chapter 4	Module 7: Chemical Equations	<p align="center">Graded Online Homework</p> <p align="center">Graded Online Quizzes (every other week)</p> <p>Graded Exam 2 (the exam date will be announced a week in advance - material examined from modules 7-14)</p>
	Module 8: Reaction Stoichiometry	
Gases – Chapter 9	Module 9: Gas Laws	
	Module 10: Gas Stoichiometry	
	Module 11: The Kinetic- Molecular Theory	
Thermochemistry – Chapter 5	Module 12: Introduction to Energy	
	Module 13: Calorimetry	
	Module 14: Enthalpy	

Electronic Structure and Periodic Properties of Elements – Chapter 6	Module 15: Electromagnetic Energy / Bohr Model of the Atom	<p align="center">Graded Online Homework</p> <p align="center">Graded Online Quizzes (every other week)</p> <p align="center">Graded Exam 3 (the exam date will be announced a week in advance - material examined from modules 15-21)</p>
	Module 16: Quantum Theory	
	Module 17: Periodic Properties	
Chemical Bonding and Molecular Geometry – Chapter 7	Module 18: Ionic and Covalent Bonding	
	Module 19: Lewis Structures	
	Module 20: Molecular Structure and Polarity	
Advanced Theories of Covalent Bonding – Chapter 8	Module 21: Advanced Theories of Covalent Bonding	
Liquids and Solids – Chapter 10	Module 22: Intermolecular Forces	<p align="center">Graded Online Homework</p> <p align="center">Graded Online Quizzes (every other week)</p>
	Module 23: Phase Changes	
	Module 24: The Solid State of Matter	
Solutions and Colloids - Chapter 11	Module 25: Solubility	
	Module 26: Colligative Properties	
CUMMULATIVE FINAL EXAM – All modules covered	Friday, December 9th, 8-10 am	

LECTURE: (750 pts)

Graded ONLINE Homework: There will be ten (10) online homeworks based on material covered in class. Graded online homework will be assigned regularly through the Aktiv Chemistry platform.

Graded ONLINE Quizzes: There will be seven (7) online quizzes. Those will be based on previous covered material in lecture. Completing assigned homework/textbook practice problems/worksheets/handouts related to the lecture material is very helpful with mastering the material and performing well in quizzes and exams. The quizzes will be given on Fridays through the Aktiv Chemistry platform, every other week. There will be no quiz the first week of classes or the last week of classes.

Graded IN-CLASS Exams: There will be three (3) exams and one (1) cumulative final. Those will be based on covered material from the lecture as indicated by the modules. All exams will be given in person.

RECITATION:

Recitation sessions are dedicated to a) mastering the lecture material, b) problem solving. Practice problems will be assigned from the textbook and additional worksheets/handouts which will be posted in D2L. Such problems will be discussed and solved during recitation.

LAB: (250 pts)

The lab is 250 pts of the course. All labs/experiments and all assignments need to be completed to pass the course. At least 60% of the points need to be earned in the lab in order for those points to be added to the overall course points. If you cannot attend a scheduled lab for reasons in the University-Approved Guidelines, please contact your lab instructor as soon as possible to arrange an alternate time.

Total Points for the course = 750 + 250 = 1000 pts

Tentative Laboratory Schedule:
FALL 2022 – CHEM 111 Lab Schedule

Tuesday Labs (Morning 111.02A and Afternoon 111.02B)

	Title of Experiment	Experiment #
Aug 23	Measurements and Density – Part II	Exp 1 / Safety in the Chemistry Lab & Check-In
Aug 30	Formula and Composition of a Hydrate – Part A	Exp 2 (2 Weeks)
Sep 6	Formula and Composition of a Hydrate – Part B	Exp 2
Sep 13	Identification of Common Chemicals	Exp 6 (2 Weeks)
Sep 20	Identification of Common Chemicals	Exp 6
Sep 27	Titration of Acids and Bases - Part B	Exp 7
Oct 4	Gravimetric and Volumetric Analysis - Part A & B	Exp 8 (2 Weeks)
Oct 11	Fall Recess / No Lab	
Oct 18	Gravimetric and Volumetric Analysis - Part C	Exp 8
Oct 25	Evaluation of the Gas Law Constant	Exp 10
Nov 1	Thermochemistry: Heat of Reactions	Exp 11
Nov 8	Spectrophotometric Analysis of Aspirin – Part B	Exp 12 (2 Weeks)
Nov 15	Spectrophotometric Analysis of Aspirin – Part C	Exp 12
Nov 22	Lab Final - based on Experiment 6	Timed test/Check-out
Nov 29	Molecular Models and Covalent Bonding / Theoretical Lab	Exp 13 (done in a reserved classroom)

Wednesday Lab (Afternoon 111.02C)

	Title of Experiment	Experiment #
Aug 24	Measurements and Density – Part II	Exp 1 / Safety in the Chemistry Lab & Check-In
Aug 31	Formula and Composition of a Hydrate – Part A	Exp 2 (2 Weeks)
Sep 7	Formula and Composition of a Hydrate – Part B	Exp 2
Sep 14	Identification of Common Chemicals	Exp 6 (2 Weeks)
Sep 21	Identification of Common Chemicals	Exp 6
Sep 28	Titration of Acids and Bases - Part B	Exp 7
Oct 5	Gravimetric and Volumetric Analysis - Part A & B	Exp 8 (2 Weeks)
Oct 12	Gravimetric and Volumetric Analysis - Part C	Exp 8
Oct 19	Evaluation of the Gas Law Constant	Exp 10
Oct 26	Thermochemistry: Heat of Reactions	Exp 11
Nov 2	Spectrophotometric Analysis of Aspirin – Part B	Exp 12 (2 Weeks)
Nov 9	Spectrophotometric Analysis of Aspirin – Part C	Exp 12
Nov 16	Lab Final - based on Experiment 6	Timed test/Check-out
Nov 23	Thanksgiving break / No Lab	
Nov 30	Molecular Models and Covalent Bonding / Theoretical Lab	Exp 13 (done in a reserved classroom)

COURSE POLICIES:**Class and Recitation Attendance:**

Students are expected to attend all lectures and recitations. Students are responsible for all material covered. It is the responsibility of the student to master the material covered. If you need to be excused for a valid reason, please **notify me in advance** in order to arrange the make-up of any missed work. In unexpected cases (illness, death in the family), contact me **as soon as possible** by e-mail or phone within the week of the absence. Any make-up quiz or exam conducted outside the schedule may differ in form or exact content from the regularly scheduled quiz or exam. Making up missed work is at the discretion of the instructor, as long as proper and validated excuse is presented. **A grade of 60% is required in lecture and recitation to pass the course.**

Laboratory Attendance:

Students **must attend lab every week**. Students **need to complete all laboratories assignments/lab reports**. **A grade of 60% in lab is required to pass the course**. Making up missed lab work is at the discretion of the lab instructor.

Academic Honesty:

Students are expected to conduct all CHEM111 work in an honest and ethical manner. Cheating on coursework bypasses the learning process and will **NOT** be tolerated. Anyone caught cheating will be assigned a score of zero on the work. **ALL work is individual**. Habitual academic dishonesty will be penalized to the maximum.

Cooperative Environment:

Students with any special concerns about CHEM111 are welcome to approach me about them. Together, we can address each particular situation. Resources available include the Office of Learning Services and Tutoring Center (Lyle Hall).

Grading**Lecture:**

Assigned Online Homework (15 points each)	10	150 points
Online Quizzes (15 points each)	7	105 points
In-Class Exams (100 points each)	3	300 points
In-Class Final (195 points)	1	195 points
	Lecture subtotal	750 points

Lab:

will be graded by the lab instructors (Dr. Rickard & Dr. Elioff):

Lab subtotal	250 points
---------------------	-------------------

Total for the class: 750 + 250 = 1000 points

Note

A grade of 60% is required in lab to pass the course. A grade of 60% is required in lecture and recitation to pass the course.

Note

Class participation will be taken into consideration during final grading.

Note

To pass CHEM 111, you must have a passing grade in the lecture/recitation component (at least D-). Grade of C- or better is required to enroll in CHEM 112. (Grade of C or better is required to enroll in CHEM 112 for chemistry majors).

Grading Scale:

Grade	Percentage
A	92-100
A-	90-91.9
B+	88-89.9
B	82-87.9
B-	80-81.9
C+	78-79.9
C	72-77.9
C-	70-71.9
D+	68-69.9
D	62-67.9
D-	60-61.9
F	< 60

Available Tutoring:

The tutoring options for the Fall 2022 semester are as follows:

Chemistry Peer Learning Hours - available In-Person:

- Tues. 6 – 8 pm in Roddy 256
- Wed. 2 – 4 and 6 – 8 pm in Roddy 256
- Thur. 2 – 4 and 6 – 8 pm in Roddy 256
- Sat. 12 – 3 pm in McNairy Library 118

They will start on the first Saturday after classes start (8/27).

You can attend any of these sessions at any time with no need to sign-up. Please think of these hours as a place to work on your chemistry where support is available and not just wait until you fall behind in a course. Please contact Dr. Dan Albert for further information:

Daniel.albert@millersville.edu

Title IX Statement

*Millersville University and its faculty are committed to assuring a safe and productive educational environment for all students. In order to comply with the requirements of Title IX of the Education Amendments of 1972 and the University's commitment to offering supportive measures in accordance with the new regulations issued under Title IX, the University requires faculty members to report to the University's Title IX Coordinator incidents of sexual violence shared by students. The only exceptions to the faculty member's reporting obligation are when incidents of sexual violence are communicated by a student during a classroom discussion, in a writing assignment for a class, or as part of a University-approved research project. **Faculty members are obligated to report to the person designated in the University [Protection of Minors policy](#) sexual violence or any other abuse of a student who was, or is, a child (a person under 18 years of age) when the abuse allegedly occurred.***