

Pittsburg State University
CHEMISTRY 106: Introductory Chemistry Laboratories
Spring 2018

Instructor: Dr K Mijares **Email:** best done through Canvas (Chem 106) email.
Office: Heckert-Wells 105-B **Office Hours:** Posted at the end of this syllabus, outside my office and on Canvas or can be made by appointment.

SECTION	INSTRUCTOR	TIME	ROOM
106-01	Dr Mijares	Tuesday 2:00-3:50pm	HW 119
106-02	Dr Mijares	Tuesday 4:00-5:50pm	HW 119
106-03	Dr Mijares	Wednesday 9:00-10:50pm	HW 119
106-04	Dr Mijares	Wednesday 11:00-12:50pm	HW 119

Required Lab Manual and other materials:

- *Introduction to Chemistry Lab Manual (Available in the PSU Bookstore)*

Course description:

This course covers Basic chemistry and its relationship to everyday experiences. This course is designed to reinforce and highlight concepts that are covered in the lecture (Chem 105) as well as the role of chemistry to everyday life. The course is for non-science majors and applied health majors. Throughout the semester you will be asked to work in small groups to solve a given problem, for this reason it is important to have a good attendance and to be prepared for laboratories. The experiments are designed to stimulate and reinforce communication in a scientific context. Groups may be assigned by the instructor and is subject periodic change throughout the semester. If you are unable to make it to lab, please give advance notice to your instructor and lab partner. This syllabus is subject to change depending on our progress during the semester.

Pre-requisite/Co-requisite:

Chem 106 is a prerequisite/co-requisite to Chem 105 (Introductory Chemistry). If you drop CHEM 105 during the semester, you are also required to drop the CHEM 106 lab and vice versa.

Content to be covered and Anticipated Learning Outcomes:

- Utilize the language and communication commonly used in context of this field.
- Recognize and use Atomic Composition, Measurements, Matter and Chemical Composition.
- Recognize and draw Lewis dot structures and determine their 3D (electron and molecular geometry using VSEPR Theory. Including different types of inter-atomic and molecular bonding present in a molecule.
- Demonstrate an understanding and concepts involved with the naming of ionic, covalent compounds, chemical formulas and write the chemical formulas/structures from a given chemical name.
- Demonstrate the ability to recognize common quantitative concepts (moles, molar mass, molecular weights, Avogadro's number) associated with calculating amounts of elements and compounds.
- Demonstrate the ability to recognize molecular formulas of compounds and be able to translate them into molar mass from names and structures for ionic, covalent and simple organic compounds.

- Demonstrate an understanding and determine balanced chemical equations and utilize these for stoichiometry. To be used for balancing chemical equations and conduct *mass* to *mole* and mole to mass conversions using these balanced chemical equations.
- Demonstrate an understanding and determine the energy associated with a chemical reaction (atom up approach).
- Demonstrate an understanding and recognize the concepts involved in basic electrochemistry (i.e. REDOX reactions, voltaic cells, galvanic cells and electrochemical half-cells)
- Determine and identify the relationships between acids and bases with strong and weak electrolytes. As well as the ability classify a chemical as an electrolytic solution, solutes from non-electrolytic solutions and measure the pH scale used to distinguish between strong and weak acids and bases.
- Demonstrate the relevance of temperature relative to molecular potential and kinetic energy to chemical reactions.

Safety in the Lab:

It is very important that you observe safety in the lab, you are not only responsible for your own personal safety around the equipment and chemicals but also for the safety of your colleagues and lab instructor/assistants. Part of this preparation and safety in the labs include reading through the designated experiment in the lab manual as well as preparing a short pre-lab summary (paragraph) over the designated experiment (see Announcement in Canvas for further details). The instructor may send you home if you are unprepared/unsafe for lab.

With this in mind, you will be required to **always wear goggles** in the lab while glassware and chemicals are in use (even while washing dishes or cleaning your work area). If students are repeatedly found not wearing goggles or refusal to wear goggles in lab can result in an automatic zero for the lab experiment and dismissal from that experiment.

Appropriate clothing in lab includes protective goggles (as designated by the Chemistry Department), long pants (the equivalent of jeans to cover legs; capris are not acceptable), sleeved T-Shirt/Shirt only (no sleeveless t-shirts/shirts), footwear must cover the entire feet (no slippers or flip-flops or Birkenstocks® or Crocs®). Students wearing inappropriate clothing or without appropriate goggles will be asked to leave and may return to the lab period when they are wearing appropriate clothing and goggles. Repeated disregard for safety can result in a zero and dismissal from the lab and/or from the course.

Part of being in a laboratory environment is being aware of your surroundings, please be safe and courteous to your fellow students in the lab.

Helping you succeed in Introductory Chemistry Lab:

- **Lab worksheets:** Each student must submit a completed lab worksheet at the end of each lab period. Failure to do so will result in zero points for that lab.

ACADEMIC HONESTY:

Academic dishonesty on any lab or quiz will result in an “F” for the quiz and lab may result in an overall “F” grade and you may be dropped from the course. Quizzes and exams are individual work and not group work. The instructor may send the student home if you are unprepared/unsafe for lab. Repeated disregard for safety in the lab may result in the student being dropped from this course.

GRADES and ASSESSMENT:

- All lab worksheets are to be handed in at the end of the lab period for grading unless otherwise instructed.
- The lowest scoring lab report will be dropped at the end of the semester.
- There are no Extra Credits or Final Exam in this class.

Grades:

A > 90 %

B > 80 %

C > 70 %

D > 60 %

F < 60%