

Syllabus

I. General Information

Instructor:	Dr. Piotr Filipczak
Phone Number:	505-925-8876
Email:	pfilipczak@unm.edu
Office Hours:	Monday (On-Campus) and Wednesday (via Zoom), 1:00 pm to 2:00 pm
Office Number:	VAAS 132A
Course Section:	502
Meeting Room:	VAAS 129 (Lecture), VAAS 128 (Lab)
Meeting Time:	On-Campus: Monday, 9:00 am to 10:15 am (Lecture) and 10:30 am to 12:30 pm (Lab) Online Lecture: available via Blackboard

II. Course Description

Prerequisite: ACT =>22 or SAT =>510 or MATH 1215 or MATH 1220 or MATH 1240 or MATH 1430 or MATH 1440 or MATH 1510 or MATH 1520 or MATH 2530.

This course covers qualitative and quantitative areas of non-organic general chemistry for non-science majors and some health professions. Students will learn and apply principles pertaining, but not limited to, atomic and molecular structure, the periodic table, acids and bases, mass relationships, and solutions. The laboratory component introduces students to techniques for obtaining and analyzing experimental observations pertaining to chemistry using diverse methods and equipment.

III. Resources

- "Chemistry, Atoms First" 2e from OpenStax (*textbook*).
- Chem 101 (*online platform for assignments and quizzes*).
- Blackboard (*learning management system for communication, online lectures, grades entry, resources navigation and exams*).

IV. Student Learning Outcomes

Lecture Student Learning Outcomes:

1. Use the different systems of measurements and perform conversions within the same system of measurement and between different systems of measurements.

2. Identify elements from their name or symbol, use the periodic table to describe reactivity patterns of elements and to predict compound formation.

3. Describe the basic structure of an atom using subatomic particles, and apply these concepts to nuclear reactions.

4. Describe ion formation and the difference between covalent and ionic compounds. Name and write formulas for ionic and simple molecular compounds.

5. Write and balance chemical reactions. Use balanced reactions in stoichiometric calculations.

6. Describe the differences between the solid, liquid and gas phases. Use the gas laws in calculations, and apply these laws to everyday situations.

7. Explain different types of energy, and how energy is released or absorbed in a reaction.

8. Describe acid and base behavior.

9. Explain the intermolecular attractive forces that determine physical properties; apply this knowledge to qualitatively evaluate these forces and predict the physical properties that result.

10. Explain the intermolecular attractive forces that determine physical properties; apply this knowledge to qualitatively evaluate these forces and predict the physical properties that result.

Laboratory Student Learning Outcomes:

1. Practice concepts associated with laboratory safety, including the possible consequences of not adhering to appropriate safety guidelines.

2. Demonstrate the computational skills needed to perform appropriate laboratory-related calculations to include, but not be limited to determining the number of significant figures in numerical value, solving problems using values represented in exponential notation, solving dimensional analysis problems, and manipulating mathematical formulas as needed to determine the value of a variable.

3. Perform laboratory observations (both qualitative and quantitative) using sensory experience and appropriate measurement instrumentation (both analog and digital).
4. Record quantitatively measured values to the correct number of significant figures and assign the correct units.
5. Master basic laboratory techniques including, but not limited to weighing samples (liquid and solid), determining sample volumes, measuring the temperature of samples, heating and cooling a sample or reaction mixture, decantation, filtration, and titration.
6. Draw appropriate conclusions based on data and analyses.
7. Present experimental results in laboratory reports of appropriate length, style and depth, or through other modes as required.
8. Determine chemical formulas and classify different types of reactions.
9. Relate laboratory experimental observations, operations, calculations, and findings to theoretical concepts presented in the complementary lecture course.

V. Course Requirements

This course is conducted in a hybrid mode with both face-to-face and online components. In addition to 13 on-campus meetings (both lectures and labs), 16 online lectures followed by weekly online activities (*homework or quiz*) are scheduled (see *section VII of the syllabus for details*). Thus, the following requirements apply to both face-to-face and online components of the course.

Attendance: Students enrolled in the course are obligated to attend at least **85%** of face-to-face meetings and complete at least **85%** of online activities. Thus, missing **2** out of 13 on-campus meetings or **3** out of 16 online activities will result a failing grade. Students who missed **15%** of the course will be dropped by the instructor with a W, F or D (depending on the stage of the course). **One** justified absence may be accepted by the instructor **ONLY** in the case of documented medical emergency, or in other special circumstances if communicated to the instructor in advance.

Performance: Students must collect at least 73% of the possible points in order to complete the course with a passing grade. In order to minimize the risk of receiving F or D grades, students who collected less than 50% of the possible points by October 11th, 2020 (end of the 8th week of the course) may be dropped by the instructor with a W.

VI. Students Evaluation Criteria

Type of Assignment:	Points per Assignment:	Total Points in this Category:	Percentage of Overall Grade:
Homework (7x)	10 pts	70 pts	11.65
Quizzes (7x)	10 pts	70 pts	11.65
Lab Reports (13x)	30 pts	210 pts	35.00
Midterm Exam (1x)	100 pts	100 pts	16.70
Final Exam (1x)	150 pts	150 pts	25.00
Extra Credit (1x)	30 pts	30 pts	(5% equivalent)
Total	NA	600 pts	100%

Note: All evaluations will be executed online either via Blackboard (*partial and the final exams*) or Mastering Chemistry (homework and quizzes).

Grading scale:

- 100 or higher: A+
- 94-99.99: A
- 90-93.99: A-
- 87-89.99: B+
- 83-86.99: B
- 80-82.99: B-
- 77-79.99: C+
- 73-76.99: C
- 70-72.99: C-
- 60-69.99: D
- below 60: F

VI. Course Policies

Academic Integrity: All homework, quizzes and exams in this course must be completed by students as their original and individual work. No group work is allowed when it comes to completing assignments. While taking quizzes and exams, only resources listed by the instructor (such as non-graphing calculator, scratch paper, periodic table etc.) are allowed. Use of any other resources such as but not limited to textbooks, unauthorized internet websites, personal notes are forbidden. Plagiarism or cheating is not tolerated. Any instance of this will result in a grade of zero for that assignment. For more details on academic integrity violation examples, please see the UNM Academic Dishonesty Policy: <https://policy.unm.edu/regents-policies/section-4/4-8.html>.

Compliance and Safety: Students must read, understand and obey safety rules while present in chemical laboratory. That will be documented by signing safety contract during the first on-campus meeting. Student who does not obey the safety rules and brings the risk on himself/herself and/or on colleague students, may be suspended from the class by the instructor at any time of the course with the consequent non-passing grade.

Communication: Instructor will do his best to follow original schedule of this course. However, because of the element of unpredictability caused by ongoing COVID-19 pandemic, some modest changes to the course design such as exact number of assignments, face-to-face meetings or other aspects of the course cannot be completely ruled out. Whenever the modification is applied, it will always be implemented to favor students' success in the course, and will be announced by the instructor as soon as possible. It is the student's responsibility, however, to pay attention to the instructor's communications, and in case of any confusion or conflict, communicate back ASAP. All information important to the course will be passed to students via Blackboard: either as announcement posted in the course content, or as an email sent to all students via Blackboard, or both. Thus, keep in mind to (i) log in to your Blackboard account REGULARLY (at least two times per week) and (ii) remember that all email correspondence will take place via student's @unm.edu address which is associated with your Blackboard account (correspondence via other email addresses is not allowed).

Disruptive Behavior: Disruptive behavior will not be tolerated and can lead to being dropped from the course at the instructor's discretion. No "guests" will be allowed unless they are explicitly invited to attend the class by the instructor.

Students with Disabilities: If you have a documented disability, the Equal Access Services office will provide me with a letter outlining your accommodations. I will then discuss the accommodations with you to determine the best learning environment. If you feel that you need accommodations, but have not documented your disability, please contact Yolanda Pino, the coordinator for Equal Access Services at 925-8910 or pinoy@unm.edu.

Equal Opportunity and Non-Discrimination: In an effort to meet obligations under Title IX, UNM faculty, Teaching Assistants, and Graduate Assistants are considered "responsible employees" by the Department of Education. This designation requires that any report of gender discrimination which includes sexual harassment, sexual misconduct and sexual violence made to a faculty member, TA, or GA must be reported to the Title IX Coordinator at the Office of Equal Opportunity (oeo.unm.edu). For more information on the campus policy regarding sexual misconduct, see: <https://policy.unm.edu/university-policies/2000/2740.html>.

VII. Course Schedule

Week	On-Campus Meeting Date	Topic	Online Assignments
1	08/17/2020	Math you'll need to know (1.4 – 1.6, Appendix B)	Homework #1
2	08/24/2020	Atoms, Molecules, and Ions (2.1 – 2.4)	Quiz #1
3	08/31/2020	Electronic Structure and Periodic Properties of Elements (3.1 – 3.7)	Homework #2
4	Labor Day – No Meeting	Chemical Bonding and Molecular Geometry (4.1 – 4.6)	Quiz #2
5	09/14/2020	Composition of Substances and Solutions (6.1 – 6.4)	Homework #3
6	09/21/2020	Stoichiometry of Chemical Reactions (7.1 – 7.4)	Quiz #3
7	09/28/2020	Gases (8.1 – 8.5)	Homework #4
8	10/05/2020	Thermochemistry (9.1 – 9.4)	Quiz #4
9	10/12/2020	Liquids and Solids (10.1 – 10.6)	Midterm Exam
10	10/19/2020	Solutions and Colloids (11.1 – 11.4)	Homework #5
11	10/26/2020	Kinetics (17.1 – 17.7)	Quiz #5
12	11/02/2020	Fundamental Equilibrium Concepts (13.1 – 13.4)	Homework #6
13	11/09/2020	Acid-Base Equilibria (14.1 – 14.7)	Quiz #6
14	11/16/2020	Equilibria of Other Reactions Classes (15.1 – 15.2)	Homework #7
15	NO MEETING	Electrochemistry (16.1 – 16.3)	Quiz #7
16	NO MEETING	Course Review	Practice Final Exam
FINAL WEEK	12/07/2020 - 12/10/2020	Online Final Exam via Blackboard	N/A