

# Syllabus

## I. General Information

Instructor:	Dr. Piotr Filipczak
Phone/Email:	505-925-8876 / <a href="mailto:pfilipczak@unm.edu">pfilipczak@unm.edu</a>
In-Person Office Hours:	Tuesday and Thursday, 1:00 pm to 3:00 pm and Wednesday, 10:30 am to 11:30 am
Office Number:	VAAS 132A
Course Section:	502
Meeting Room:	VAAS 133
Meeting Time:	Monday and Wednesday. 1:30 pm to 2:45 pm

## II. Course Description

Prerequisite: MATH 1220 or MATH 1230 or MATH 1240 or MATH 1430 or MATH 1440 or MATH 1510 or MATH 1520 or MATH 2530 with a grade of C or higher, or a math placement score that qualifies the student.

Co-requisite: CHEM 1215L

This course is intended to serve as an introduction to General Chemistry for students enrolled in science, engineering, and certain pre-professional programs. Students will be introduced to several fundamental concepts, including mole, concentration, heat, atomic and molecular structure, periodicity, bonding, physical states, stoichiometry, and reactions.

## III. Resources

- "Chemistry, Atoms First" 2e from OpenStax (*textbook*).
- Canvas (*learning management system for communication, grades entry, resources navigation and selected assignments*).

## IV. Student Learning Outcomes

1. Use dimensional analysis, the SI system of units and appropriate significant figures to solve quantitative calculations in science.
2. Explain the structure of atoms, isotopes and ions in terms of subatomic particles.
3. Understand the differences between physical and chemical changes to matter, and utilize the IUPAC system of nomenclature and knowledge of reaction types to

describe chemical changes, predict products and represent the process as a balanced equation.

4. Apply the mole concept to amounts on a macroscopic and a microscopic level and use this to perform stoichiometric calculations including for reactions in solution, gases and thermochemistry.

5. Apply the gas laws and kinetic molecular theory to relate atomic level behavior to macroscopic properties.

6. Describe the energy conversions that occur in chemical reactions and state changes, relating heat of reaction to thermodynamic properties such as enthalpy and internal energy, and apply these principles to measure and calculate energy changes in reaction.

7. Use different bonding models to describe formation of compounds (ionic and covalent), and apply knowledge of electronic structure to determine molecular spatial arrangement and polarity.

8. Analyze how periodic properties (e.g. electronegativity, atomic and ionic radii, ionization energy, electron affinity, metallic character) and reactivity of elements results from electron configurations of atoms.

## V. Course Requirements

This is a 16-week, face-to-face course with the following requirements:

**Attendance:** In-person participation is required in this course. Student who missed 15% of a class time (which stands for 5 meetings) may be dropped by the instructor with a W, F or D (depending on the stage of the course).

### **Technology & Computer Requirements:**

- Dependable computer
- Reliable internet connection
- Computer speakers
- Reliable web browser
- Microsoft Suite (PowerPoint and Word)
- Adobe Flash Player

## VI. Students Evaluation Criteria

Type of Assignment:	Points per Assignment:	Total Points in this Category:	Contribution to the Final Grade:
Homework (8x)	20 pts	160 pts	20.0%
Quizzes (8x)	20 pts	160 pts	20.0%
Partial Exams (3x)	100 pts	300 pts	37.5%
Final Exam (1x)	200 pts	180 pts	22.5%
<b>Total</b>	<b>NA</b>	<b>800 pts</b>	<b>100.00%</b>

- **Homework:** Open-book assignments to be completed at home.
- **Quizzes:** Closed-book assignment to be completed in class. One lowest score will be dropped from the final grade.
- **Partial Exams:** To be completed in class on days indicated in the course schedule. All three exams count.
- **Final Exam:** To be completed in class during the final week of the course.
- **Extra Credit:** Practice final exam, which will be administrated online via Canvas in the second last week of the course, is the only extra credit opportunity that will contribute up to 5% of student's final grade.

### 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

## VII. 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 Canvas: either as announcement posted in the course content, or as an email sent to all students via Canvas, or both. Thus, keep in mind to (i) log in to your Canvas 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 Canvas 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.

**Communication on Change in Modality:** The university may direct that classes move to remote delivery at any time to preserve the health and safety of the students, instructor and community. Please check your email and your UNM Learn site regularly for updates about our class, and please check <https://bringbackthepack.unm.edu> regularly for general UNM updates about COVID-19 and the health of our community.

**COVID-19 Health and Awareness:** For anyone who has [symptoms of COVID-19](#), regardless of your vaccination status, please remain at home and quarantine until your symptoms clear for at least 24 hours. If you develop symptoms at work, you should notify your supervisor and return home and quarantine until your symptoms clear for at least 24 hours. If you test positive for COVID:

- Notify your supervisor and exit campus if you are on campus.

- You do not need to get an additional PCR test if you have had a positive at-home rapid test.
- Next, please isolate at home for five (5) days.
  - The day that you became symptomatic OR tested positive (whichever comes first) is counted as "Day 0". You will then count five days starting on the next day and can return to work on day 6 *as long as you do not have symptoms and are fever-free for 24 hours without medicine.*
- If you have no symptoms after five (5) days, you can return to work but must wear a 3-ply or better medical/health procedure mask when around others for **five (5) more days**.
- To prevent the spread of COVID, please inform anyone you have recently had close contact with and encourage them to get tested, monitor for symptoms, and reduce exposure to other people.

**Support:**

- Student Health and Counseling (SHAC) at (505) 277-3136. If you are having active respiratory symptoms (e.g., fever, cough, sore throat, etc.) AND need testing for COVID-19; OR If you recently tested positive and may need oral treatment, call SHAC.
- LoboRESPECT Advocacy Center (505) 277-2911 can offer help with contacting faculty and managing challenges that impact your UNM experience.

**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>.

**UNM-Valencia Tutoring Services:**

Tutoring is available to you in math, science, writing, and other subjects through the Learning Commons: Tutoring Services - Learning Center and Writing Center. In person

tutoring and Zoom tutoring are available in these centers in the LRC (the building that also has the library). For writing, tutoring through email is also available.

Making use of tutoring is a fantastic way to use your resources and set yourself up to learn deeply and well in your courses.

To schedule an appointment, please go to: [Learning Commons Bookings](#). If you are making an email appointment with the Writing Center, email your draft to [tutor@unm.edu](mailto:tutor@unm.edu) after you fill out the form above.

If you have difficulty with the scheduling link above, would like an appointment in a subject not listed at that link, or have a question, email [tutor@unm.edu](mailto:tutor@unm.edu). You will receive a response during business hours Monday through Friday. The webpage, with more details about available hours, is here: [Learning Commons Tutoring webpage](#). At UNM Albuquerque, you may contact: [Center for Academic Program Support \(CAPS\)](#).

## VIII. Course Schedule

Week	Date	Topic	Assignments
1	8/19 8/21	Matter, Measurement, and Math	
2	8/26 8/28	Atoms and Elements	H#1 Q#1
3	9/2 – No Class 9/4	Chemical Compounds	H#2, Q#2
4	9/9 9/11	Types of Chemical Reactions	<b>Exam #1</b>
5	9/16 9/18	Reaction Stoichiometry	
6	9/23 9/25	Solutions	H#3 Q#3
7	9/30 10/02	Gases	H#4 Q#4
8	10/7 10/9	Thermochemistry (i)	<b>Exam #2</b>
9	10/14 10/16	Thermochemistry (ii)	
10	10/21 10/23	Quantum Mechanics	H#5 Q#5
11	10/28 10/30	Periodic Properties of the Elements	H#6 Q#6
12	11/4 11/6	Lewis Theory (i)	<b>Exam #3</b>
13	11/11 11/13	Lewis Theory (ii)	Q#7
14	11/18 11/20	VSEPR Theory and Molecular Geometry	H#7 Q#8
15	11/25 11/27	Advanced Theories of Bonding	H#8 Q#9
16	12/2 12/4	Course Review	PFE
17	12/11, 1:30 pm to 3:30 pm	<b>In-Person Final Exam</b>	

H – Homework, Q – Quiz, PFE – Practice Final Exam