

# Syllabus

## I. General Information

Instructor:	Dr. Piotr Filipczak
Phone Number:	505-925-8876
Email:	<a href="mailto:pfilipczak@unm.edu">pfilipczak@unm.edu</a>
Office Hours:	Wednesday (On-Campus) and Thursday (via Zoom), 12:00 pm to 12:45 pm
Office Number:	VAAS 132A
Course Section:	501
Meeting Room:	VAAS 13
Meeting Time:	On-Campus: Tuesday, 12:00 pm to 1:15 pm Online Content: available via Blackboard

## 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, a Molecular Approach" by Nivaldo J. Tro, 5<sup>th</sup> edition, Pearson (*textbook*).
- Mastering Chemistry, Pearson (*online platform for homework and quizzes*).
- Blackboard (*learning management system for communication, online lectures, grades entry, resources navigation and exams*).

#### 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 course is conducted in a hybrid mode with both face-to-face and online components. In addition to on-campus meetings, asynchronous online lectures followed by weekly online activities (*homework, quizzes and exams*) are scheduled (*see section VIII 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 **3** out of 16 on-campus meetings or **5** out of 27 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 24<sup>th</sup>, 2021 (end of the 8<sup>th</sup> week of the course) may be dropped by the instructor with a W.

**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:	Percentage of the Final Grade:
Homework (10x)	15 pts	150 pts	21.4
Quizzes (10x)	15 pts	150 pts	21.4
Partial Exams (3x)	80 pts	240 pts	34.3
Final Exam (1x)	160 pts	160 pts	22.9
<b>Total</b>	<b>NA</b>	<b>700 pts</b>	<b>100%</b>

- **Homework:** To be completed online via Mastering Chemistry. One lowest score will be dropped from the final grade.
- **Quizzes:** To be completed online via Mastering Chemistry. One lowest score will be dropped from the final grade.
- **Partial Exams:** To be completed online via Mastering Chemistry. All three exams count.
- **Final Exam:** To be completed online via Blackboard during the final week of the course as indicated in the course schedule. No make-up opportunity.
- **Extra Credit:** Practice final exam, which will be administrated online via Blackboard 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>

**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.

**UNM Administrative Mandate on Required Vaccinations:** All students, staff, and instructors are required by [UNM Administrative Mandate on Required Vaccinations](#) to be fully vaccinated for COVID-19 as soon as possible, but no later than September 30, 2021, and must provide proof of vaccination or of a UNM validated limited exemption or exemption no later than September 30, 2021 to the [UNM vaccination verification site](#). Students seeking medical exemption from the vaccination policy must submit a request to the [UNM verification site](#) for review by the UNM [Accessibility Resource Center](#). Students seeking religious exemption from the vaccination policy must submit a request for reasonable accommodation to the [UNM verification site](#) for review by the [Compliance, Ethics, and Equal Opportunity Office](#). For further information on the requirement and on limited exemptions and exemptions, see the [UNM Administrative Mandate on Required Vaccinations](#).

**UNM Requirement on Masking in Indoor Spaces:** All students, staff, and instructors are required to wear face masks in indoor classes, labs, studios and meetings on UNM campuses, see [masking requirement](#). Vaccinated and unvaccinated instructors teaching in classrooms must wear a mask when entering and leaving the classroom and when moving around the room. When vaccinated instructors are able to maintain at least six feet of distance, they may choose to remove their mask for the purpose of increased communication during instruction. Instructors who are not vaccinated (because of an approved medical or religious exemption), or who are not vaccinated yet, must wear their masks at all times. Students who do not wear a mask indoors on UNM campuses can expect to be asked to leave the classroom and to be dropped from a class if failure to wear a mask occurs more than once in that class. With the exception of the limited cases described above, students and employees who do not wear a mask in classrooms and other indoor public spaces on UNM campuses are subject to disciplinary actions.

**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.

**Acceptable masks and mask wearing in class:** A two-layer mask that covers the nose and mouth and that is cleaned regularly is acceptable, as are disposable medical

masks, KN95, KF94, FFP1 and FFP2 masks. A face shield is not sufficient protection. It is vital that you wear your mask correctly, covering your nose and mouth. Removing your mask for an extended period to eat or drink in class violates the university mask requirement and endangers others.

**Consequences of not wearing a mask properly:** If you don't wear a mask, or if you do not wear a mask properly by covering your nose and mouth, you will be asked to leave class. If you fail to wear a mask properly on more than one occasion, you can expect to be dropped from the class. If you insist on remaining in the classroom while not wearing a mask, class will be dismissed for the day to protect others and you will be dropped from the class immediately.

The instructor will try to have a few disposable masks available in the classroom on a first-come, first-served basis.

**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](mailto: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](http://oeo.unm.edu)). For more information on the campus policy regarding sexual misconduct, see: <https://policy.unm.edu/university-policies/2000/2740.html>.

## VIII. Course Schedule

Wk	Date	Topic	Assignments
1	8/24	Matter, Measurement, and Problem Solving	H#1, Q#1
2	8/31	Atoms and Elements	H#2, Q#2
3	9/7	Molecules, Compounds, and Chemical Equations	H#3, Q#3
4	9/14	Chemical Reactions and Chemical Quantities	<b>Exam #1</b>
5	9/21	Introduction to Solutions and Aqueous Reactions (i)	H#4, Q#4
6	9/28	Introduction to Solutions and Aqueous Reactions (ii)	H#5, Q#5
7	10/5	Gases	H#6, Q#6
8	10/12	Thermochemistry (i)	H#7, Q#7
9	10/19	Thermochemistry (ii)	<b>Exam #2</b>
10	10/26	The Quantum-Mechanical Model of the Atom (i)	H#8, Q#8
11	11/2	The Quantum-Mechanical Model of the Atom (ii)	H#9, Q#9
12	11/9	Periodic Properties of the Elements	H#10, Q#10
13	11/16	Chemical Bonding I: Lewis Theory	H#11, Q#11
14	11/23	Chemical Bonding II: VSEPR Theory (i)	–
15	11/30	Chemical Bonding II: VSEPR Theory (ii)	<b>Exam #3</b>
16	12/7	Final Course Revision	PFE
17	12/13 – 12/16	<b>Online Final Exam via Blackboard</b>	

Wk – Week of the Course, H – Homework, Q – Quiz, PFE – Practice Final Exam