

Syllabus

I. General Information

Instructor:	Dr. Piotr Filipczak
Email:	pfilipczak@unm.edu
Phone Number:	505-925-8876
Office Number:	VAAS 132A
Office Hours:	Monday, 12:00 pm to 2:00 pm Tuesday, 10:30 am to 2:00 pm Wednesday, 1:30 pm to 2:00 pm
Course Section:	501
Meeting Room:	VAAS 128 (Lab), VAAS 129 (Lecture)
Meeting Time:	Lab: Monday, 8:30 am to 10:29 am Lecture: Monday and Wednesday, 10:30 am to 11:45 am

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*).
- Blackboard (*learning management system for communication, grades entry, resources navigation and assignments*).

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.

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.
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 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) will be dropped by the instructor with a W, F or D (depending on the stage of the course). Exceptions may be made for documented medical reasons including COVID-19.

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 March 13th (spring break) 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 (5x)	20 pts	100 pts	12.50%
Quizzes (5x)	20 pts	100 pts	12.50%
Lab Reports (10x)	10 pts	100 pts	12.50%
Partial Exams (3x)	100 pts	300 pts	37.50%
Final Exam (1x)	200 pts	200 pts	25.00%
Total	NA	800 pts	100.00%

- **Homework:** To be completed online via Blackboard. One lowest score will be dropped from the final grade.
- **Quizzes:** To be completed online via Blackboard. One lowest score will be dropped from the final grade.
- **Lab Manuals:** To be completed in person during laboratory meetings. Two lowest scores 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 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:

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|------------------|----|
| ○ 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 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.

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>.

Introduction to Chemistry Lecture and Laboratory for Non-Majors, Spring 2022

Wk	Date	Topic	Assignment
1	1/17-1/23	Essential Ideas and Math	H#1
2	1/24-1/30	Atoms, Molecules, and Ions	Q#1, L#1
3	1/31-2/6	Chemical Bonding	H#2, L#2
4	2/7-2/13	Composition of Substances and Solutions (i)	Q#2, L#3
5	2/14-2/20	Composition of Substances and Solutions (ii)	Exam #1 , L#4
6	2/21-2/27	Stoichiometry of Chemical Reactions (i)	H#3, L#5
7	3/28-3/6	Stoichiometry of Chemical Reactions (ii)	Q#3, L#6
8	3/7-3/13	Gases	H#4
9	3/14-3/20	Spring Break	
10	3/21-3/27	Thermochemistry (i)	Q#4, L#7
11	3/28-4/3	Thermochemistry (ii)	Exam #1 , L#8
12	4/4-4/10	Intermolecular Forces and Physical States (i)	H#5, L#9
13	4/11-4/17	Intermolecular Forces and Physical States (ii)	Q#5, L#10
14	4/18-4/24	Solutions and Colloids	H#6, L#11
15	4/25-5/1	Acids and Bases	Q#6, L#12
16	5/2-5/8	Course Review	Exam #3 , PFE
FINAL WEEK	5/9 10:30 am - 12:30 pm	In-Person Final Exam	

VIII. Course Schedule

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