NAU NORTHERN ARIZONA UNIVERSITY

Course Title: CHM 199 Special Topics
Term: Summer 2023
Instructor: TBA
Course Credit: 3
Mode of Instruction: Online

Course Description:

In this course, special topics related with basic chemistry will be introduced. Chemical concepts will be used to explain aspects of science, medicine, environmental and engineering issues. Specific topics cover the nature of matter, elements and compounds, molecules and ionic compounds, atomic structure, chemical reactions and chemical bonding. By the end of the course, successful students will be able to demonstrate a basic understanding of the structure and properties of chemical systems.

Course Prerequisites:

N/A

Learning Outcomes:

By the end of the course, the student should be able to:

A. Become familiar with the scope, methodology, and application of modern chemistry and learn to appreciate its ability to explain the physical world.

B. Understand the basic structure of the atom and its subatomic particles.

C. Name ionic and covalent compounds using the rules for nomenclature of inorganic compounds.

D. Generalize the analytical and quantitative skills gained in this course and apply them in more advanced course.

Course Material:

Raymond Chang, *General Chemistry: The essential Concepts*, 5th edition, The McGraw-Hill Companies, Inc. Pres, 200

Evaluation:

- 4 Labs [20%]
- 2 Homework [20%]
- Final Lab Report [10%]
- Mid-term Exam [20%]
- Final Exam [30%]

Description of the Evaluation tasks:

Assignment/ Essay/ ... : During the term, students will be required to finish several evaluation tasks within due date. All the tasks are linked with specific course topics/outcomes and will adequately assess students' competence and learning outcomes. Students are encouraged to meet with instructor about these tasks at any point.

Mid-term/ Final Exams/ Quiz/... : There may be periodic quizzes given at the beginning of lecture sessions; the feedback from these quizzes will monitor the progress of the learners and help to set learning priorities. There will be mid-term exam/ final exam for the course. They are the basic criteria for the evaluation of students' learning outcomes and final grade.

Grading Policy:

Students are supposed to finish each online lecture. Prior to each class, students should finish the required readings. During the class time, students are encouraged to make use of all relevant online course resources and communicate with the instructor. Students' grades

are accumulated based on the cumulative evaluations.

Students' letter grade will be assigned according to the following scale:

A+ 90-100	A 85-89	A- 80-84
B+ 77-79	B 73-76	B- 70-72
C+ 67-69	C 63-66	C- 60-62
D+ 57-59	D 53-56	D- 50-52
F < 50		

Academic Integrity:

Students must strictly adhere to the university's academic integrity rule; and all essays, exams and any other form of academic assignments must adhere to these rules. Any form of plagiarism, cheating, or misappropriation of materials will be considered a violation of academic integrity and will be punishable by the university.

Withdrawal from the Course(s):

Students will be able to apply for a transfer or withdrawal within 3 days of the starting date of the course. If a withdrawal is applied for within 3 working days, the tuition fee will be fully refunded. After 3 days, the tuition fee will not be refunded. If a withdrawal is applied for in the first two weeks, it will be recorded as W (Withdraw) on the course transcript. After this initial two-week period, the class will be recorded as F (Fail).

Tentative Schedule:

1	Basic Atomic Theory
2	Molecules and Ions
3	Stoichiometry

4	Elements and Compounds **Lab 1**
5	Molecules and Ionic Compounds **Homework 1**
6	Gases
7	Chemical Composition
8	Energy Relationships in Chemical Reactions **Lab 2**
9	The Electronic Structure of Atoms
10	Chemical Bonding I
11	Chemical Bonding II
12	**Midterm Test**
13	Atomic Orbitals
14	Organic Chemistry
15	Intermolecular Forces
16	Liquids and Solids **Lab 3**
17	Chemical Kinetics **Homework 2**
18	Chemical Equilibrium
19	Acids and Bases: Properties and Examples
20	Acid-Base Equilibria and Solubility Equilibria **Lab 4**
21	The Chemistry of Coordination Compounds
22	The Chemistry of Coordination Compounds
23	Nuclear Chemistry
24	**Final Lab Report**
25	**Final Exam**