Department of Chemistry and Biochemistry, CEFNS
CHM 151: GENERAL CHEMISTRY I
Spring 2022
Sections 2 and 3 – Instructor: Dr. Tony Hascall

[Updated 1/27/22 – Changed date of Exam 2 and added a quiz]

<table>
<thead>
<tr>
<th>Section</th>
<th>Time</th>
<th>Room</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>002:</td>
<td>Monday, Wednesday, Friday 11:30 a.m.–12:20 p.m.</td>
<td>Science and Health (#36), Room 211</td>
<td>4</td>
</tr>
<tr>
<td>003:</td>
<td>Monday, Wednesday, Friday 12:40–1:30 p.m.</td>
<td>Science and Health (#36), Room 211</td>
<td>4</td>
</tr>
<tr>
<td>Holidays: Monday 1/17 (Martin Luther King Day) and 3/14-18 (Spring Break)</td>
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</tr>
</tbody>
</table>

Office: Building 36 (SHB), Room 329
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Webpage: http://jan.ucc.nau.edu/~ah476

At the time of writing, it is NAU policy that masks be worn at all times during classes and in-person office hours.

Failure to attend class and participate in Chem101 during the first two weeks of class, or to complete the Math Review assignment in Achieve by the deadline (Friday January 14th) without notifying the instructor will result in you being administratively DROPPED from the course.

Office Hours: Tuesday 2:00 – 3:00 p.m., Thursday 1:00 – 2:00 p.m. and Friday 10:00 – 11:00 a.m. (Office hours can be in-person or remote. You can drop by my office during the above times, or you can send an email to set up a Zoom session, or schedule an appointment to meet outside these times.)

Recitations: Wednesday 2:20 – 3:10 pm, and Thursday 2:45 – 3:35 p.m., 1-credit hour (CHM 151R) ALL students are encouraged to enroll in OR simply attend recitation. It is informal and the goal is to review and amplify lecture material while working problems. Recitation is not required.

Supplemental Instruction: The SI program is designed to provide academic assistance to all students in certain introductory courses. Xiaoxi Zhong (xz235@nau.edu) is the SI leader for this class. The times and locations of SI sessions will be announced the first week of the semester.

Peer Assistants: Mandy Kentera, Mia Marotti, Hannah McNamara, Anna Mellin

Prerequisites: One year of high school chemistry and MAT 108 or MAT 114 w/ a grade of C or better or Math Placement Test Results (ALEKS 50+) or International Exchange Student Group

Mode of instruction: Blended

Required Materials: ◆ Textbook: Interactive General Chemistry Macmillan Learning, 2019
◆ Achieve system. You will use Achieve to access the textbook for the class, complete pre-lecture reading assignments and quizzes, as well as homework assignments and review quizzes. Achieve can be accessed using the link in BbLearn (https://bblearn.nau.edu)
◆ Chem101. You must purchase an access code from the bookstore, or directly from Chem101. Enroll in Chem101 using the link in BbLearn and bring your device to each class to work assignments.
◆ Scientific Calculator. A basic model (available at stores for ~ $20) is best. It must handle scientific notation and fractional exponents.

Reading, Pre-lecture & Homework: It is of great importance that you read the text, actively listen to pre-lectures/take notes, & do homework as assigned. Much learning takes place outside of class. Showing up to every lecture (which you are required to do) does not guarantee a passing grade. You must come to class prepared, participate during class, & repeatedly practice outside of class.

Time Expectations: A typical student will need to spend a minimum of 2 hours studying for every credit hour. That’s an average MINIMUM of 8 hours of studying each week for this 4-unit class (in ADDITION to the “online” hour of lecture outside of class each week). This number will vary
depending on skill and the material covered that week. Weeks with exams will require more time. You should organize your schedule to study in small time blocks (< 1 hour each) throughout the week. Studying in groups is highly recommended. Homework that relates to material covered in a particular lecture should be tackled as soon as possible.

A suggested outside of class schedule for this course:

a. ~20 minutes each day to work on portions of that week’s homework (may require more than 2 hours each week).

b. A minimum of 60 minutes each week to work through the recitation worksheet and check your solutions.

c. A couple hours each week to read & listen to assigned material (in bits, throughout the week). You may want to re-read after the topic is covered in class but reading is NOT studying (studying=working problems, explaining, summarizing…)

d. A couple hours to work with classmates, the SI, and/or a tutor each week.

e. A couple hours each week to work on the quiz OR rework recitation/exam/quiz/homework/etc. for exam preparation.

GRADING POLICY

Your final grade in the class will be based on a total of 1000 points, calculated as follows:

<table>
<thead>
<tr>
<th>Item</th>
<th>% of Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Three midterm exams – scaled to 120 points each</td>
<td>36</td>
</tr>
<tr>
<td>Final exam – 200 points</td>
<td>20</td>
</tr>
<tr>
<td>Online homework (Achieve) – 140 points</td>
<td>14</td>
</tr>
<tr>
<td>Quizzes (Achieve) – 140 points</td>
<td>14</td>
</tr>
<tr>
<td>Pre-lecture activities (Achieve) – 60 points</td>
<td>6</td>
</tr>
<tr>
<td>Participation/Attendance (Chem101) – 100 points</td>
<td>10</td>
</tr>
</tbody>
</table>

Letter grades will be calculated as follows. The percentages below represent “guaranteed” grades. These grade cut-offs may be lowered slightly, but will not be made higher than what is listed. Any lowering of the cutoffs will be minimal and completely at the instructor’s discretion. When deciding whether to “bump up” a student’s grade for a percentage less than one of the cutoffs below, the student’s exam scores will be the main factor considered.

A ≥ 90%  B ≥ 80%  C ≥ 65%  D ≥ 50%  F < 50%

If it is important for you to obtain a certain grade in order to maintain good academic standing, keep a scholarship, be accepted to graduate or professional school etc..., then you should be working hard in the class the whole semester in order to earn the needed grade. We will do everything we can to help you be successful in the course, but ultimately it is up to you. Please do not come to the instructor at the end of the semester to “beg” for a certain grade. Such requests will not be considered.

Note: in the event of an extraordinary circumstance, including, but not limited to, an exam being cancelled due the campus being closed, the instructor reserves the right to modify the above grading scheme to one more appropriate for the new circumstances.

Please be aware that a grade of “C” or higher in CHM 151 is required in order to enroll in CHM 152.

Participation: Questions and assignments will be given in class on your electronic device using Chem101. You must attend class in order to do Chem101 work for credit. Answers to Chem101 questions submitted on paper will not be accepted. Grades for Chem101 will be assigned based on 80% for participation, and the remaining 20% for answering questions correctly. If you miss class for a valid reason (it must be an institutional excuse or documented illness) and inform the instructor, the assignments done in that class can be reopened for you to complete on your own time. Otherwise, if you forget your device or miss class, the points cannot be made up, but your three lowest participation days will be dropped.

Attempting to obtain participation points for another student who is not in class is cheating. If you are caught doing Chem101 work for another student, or helping a student to obtain credit for Chem101 work done
outside of class, you **both** will receive a 0% for your participation grade for the **entire semester**. If you are caught cheating a second time, you will receive an “F” for the course.

**Pre-lecture Assignments:** Before most class meetings, one or more sections of the textbook and an online lecture will be assigned to watch asynchronously, and a short quiz on the material will be due on **Achieve** by 11:00 am on the day of each class. These are time-sensitive activities intended to prepare you for class, so they **may not be taken late** (please don’t ask for an extension!). But to make up for occasional missed assignments, a bonus of 5 points will be added to your pre-lecture activity percentage at the end of the semester, up to a maximum total score of 100%.

**Homework:** Success in this class requires skill at problem solving. For this reason, **online homework** will be assigned each week through the **Achieve** system. Homework will generally be due on **Thursday nights**. There will be two types of homework assignments: **Learning Curve** adaptive assignments and “traditional” problem sets. The points will be set to make the total number of points for the homework the same each week. You must reach the target score on each **Learning Curve** assignment by the deadline (no late submissions) in order to receive credit for it, otherwise you will receive a **zero** (the system gives no partial credit). The other homework assignments are intended to deepen your understanding of the material. These questions allow multiple attempts, with small penalties for wrong answers. Please make use of the available hints and feedback—there is no deduction for using them! Homework questions may be submitted up to a week after the deadline, but they will be subject to a late penalty of 10% per day they are late. In calculating your final grade, the **week with your lowest homework score of the semester will be dropped**.

**Online Quizzes:** There will be online quizzes most weeks, except the weeks when there is an exam. Each quiz is intended to test the material from the most recent homework assignment. There will be no hints or feedback given. After you open a quiz, there will be a time limit to complete it. When you finish the quiz, your results will be shown and you will be given the option to re-take the quiz multiple times. Your highest score will be counted. Quizzes will generally be due **Friday nights**. Plan ahead! If you know that you will be busy at the deadline, take the quiz early. If you do not complete a quiz by Friday night, there will be a two-day grace period until Sunday night. **No extensions will be given after that!** Your **lowest quiz score** of the semester will be dropped.

**Homework Notebook:** It is strongly suggested that you keep a homework notebook for this class, in which solutions to all homework problems are neatly and logically recorded. This will help you in your studying since you will be able to review the steps that you followed in solving a problem. When you attend an SI session, or an office hour, please bring your homework notebook.

**In-Class Exams:** Three 50-minute exams will be given in class, on the dates shown on the schedule. Each exam will **concentrate** on the material covered since the previous exam. The format of the exams will include multiple choice, short answer questions and calculations. The **final exam** will be comprehensive and all multiple choice. It must be taken at the scheduled time (10:00 a.m. to 12:00 noon on **Tuesday, May 3rd**).

If you cannot attend class in-person and have to miss an exam due to a quarantine or another documented medical reason or institutional excuse, you may be able to make up the exam if it can be taken before the exams are passed back to the rest of class (see make-up policy below). If the test cannot be made up in a timely manner, then the average of your other two exams will be counted as your score for the missed test.

Students may be assigned seats for the exams. In addition, you may be asked to change your seat during an exam for Academic Integrity reasons. Failure to sit in the seat assigned to you will result in your exam not being graded and you will receive a score of **zero** for the exam.

**Communication:** Check BbLearn and the class webpage **OFTEN** for announcements and class handouts. Email is the best way to contact me (antony.hascall@nau.edu). **Do NOT use the messages feature on BbLearn to contact me.** Use your NAU email account. Please include in your messages a subject indicating your section of CHM 151, an appropriate salutation, grammatically acceptable text, and a closing. Messages lacking these elements may be ignored! Please be aware that I **am not allowed to discuss grades by email.** I will sometimes send important announcements by email to the whole class, so please check your NAU email account frequently.

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**Internet / Phone Policy:** Students will NOT use phones, laptops, etc., in class for non-course related activities. All devices will be kept SILENT. Research in CHM 151 & 152 (and other courses) clearly shows a negative link between in-class cell phone use and course grade. Texting and driving kills and yet people still do it! Please, help us help you be successful in this course and turn your phone OFF and put it away!

**Academic Integrity:** The university’s academic integrity policy will be followed (https://policy.nau.edu/policy/policy.aspx?num=100601). If you are caught plagiarizing and/or cheating on an assignment, you will receive 0% for that assignment. If you are caught cheating a second time, or are caught cheating on the final exam, you will receive an “F” for the entire course. Examples of cheating include, but are not limited to, copying another student’s exam, using any unauthorized material to help answer test questions or attempting to receive participation credit for a class you did not attend. All violations of academic integrity will be documented with the university.

*Having a cellphone, smart watch or any other web-enabled device on your person during an exam will be considered a violation of academic integrity and will result in a score of zero for that exam.*

**Learning Portfolio:** Students are strongly encouraged to retain their exams and other work as evidence that they developed skills in scientific inquiry, critical thinking and quantitative analysis. Additionally, keeping your old work provides a record in case of errors in grade recording!

**No make-ups will be given for missed quizzes or exams** (except for institutional excuses). One of the complaints of students, instructors, and administrators concerning university education is that it lacks relevance. One of the relevant features of chemical information is that it is often “timed.” That is, if it is late or missing, it is worthless. Therefore, missed quizzes and exams count as zeroes. Documentable illnesses/emergency will be considered on an individual basis. Emergencies must be documented by the Office of the Dean of Students, who will issue notifications for inpatient hospitalization, death in the immediate family, or another serious personal crisis. Remember, the absence must be documentable. If you have an institutional excuse or other valid reason, contact the instructor in advance to arrange how the missed test will be made up. If the instructor was not notified in advance, a zero will be recorded. Please note that routine medical or dental appointments are NOT an acceptable reason for missing an exam.

*The information contained in this syllabus, other than this course’s grade and attendance policies, may be subject to change with reasonable advance notice.*
Class Schedule: Note the important dates given here. Please see the class webpage (http://jan.ucc.nau.edu/~ah476/CHM151Schedule.html) for a more detailed schedule including planned topics to be covered each class. Any changes to the schedule will be posted online at that page. [Changes made 1/27/22 shown in red]

<table>
<thead>
<tr>
<th>Week</th>
<th>Dates</th>
<th>Chapter(s) Covered</th>
<th>Tests</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1/10-14</td>
<td>1</td>
<td>none</td>
<td>Math Review assignment due Friday night</td>
</tr>
<tr>
<td>2</td>
<td>1/17-21</td>
<td>2,3</td>
<td>Quiz 1 due Friday</td>
<td>No class Monday; Thurs is last day to add/drop classes</td>
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<tr>
<td>3</td>
<td>1/24-28</td>
<td>3</td>
<td>Quiz 2 due Friday</td>
<td></td>
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<tr>
<td>4</td>
<td>1/31-2/4</td>
<td>4,5</td>
<td>Quiz 3 due Friday</td>
<td></td>
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<tr>
<td>5</td>
<td>2/7-11</td>
<td>5</td>
<td>Exam 1 Friday</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>2/14-28</td>
<td>4,5</td>
<td>Quiz 4 due Friday</td>
<td></td>
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<tr>
<td>7</td>
<td>2/21-25</td>
<td>6</td>
<td>Quiz 5 due Friday</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>2/28-3/4</td>
<td>8</td>
<td>Quiz 6 due Friday</td>
<td></td>
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<tr>
<td>9</td>
<td>3/7-11</td>
<td>8</td>
<td>Exam 2 Wednesday</td>
<td></td>
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<tr>
<td>10</td>
<td>3/14-18</td>
<td></td>
<td>Spring Break</td>
<td>Quiz 7 Due Sunday (3/20)</td>
</tr>
<tr>
<td>11</td>
<td>3/21-26</td>
<td>9,10</td>
<td>Quiz 8 due Friday</td>
<td>Monday is the last day to withdraw (CEFNS usually will not grant a late drop petition)</td>
</tr>
<tr>
<td>12</td>
<td>3/28-4/1</td>
<td>10,11</td>
<td>Quiz 9 due Friday</td>
<td></td>
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<tr>
<td>13</td>
<td>4/4-8</td>
<td>11,7</td>
<td>Quiz 10 due Friday</td>
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<tr>
<td>14</td>
<td>4/11-15</td>
<td>7,12</td>
<td>Quiz 11 due Friday</td>
<td></td>
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<tr>
<td>15</td>
<td>4/18-22</td>
<td>12</td>
<td>Exam 3 Friday</td>
<td></td>
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<tr>
<td></td>
<td>4/25-29</td>
<td>13</td>
<td>Quiz 12 due Sunday</td>
<td>End of Term Week (CLASS AS USUAL! i.e. there’s still homework etc…)</td>
</tr>
</tbody>
</table>

Final Exam: Tuesday May 3rd, 10:00 a.m. – 12:00 noon

Resources for Student Success
Successful university students take advantage of services and resources designed to boost learning and achievement. NAU recommends that you begin with:

- **Supplemental Instruction**: https://in.nau.edu/academic-success-centers/supplemental-instruction/ Attendance at these course specific sessions has proven to increase grades & reduce D’s and F’s.
- **Academic Success Centers**: https://in.nau.edu/academic-success-centers/ All students are encouraged to take advantage of free academic support offered by the Academic Success Centers (ASC) including individual tutoring, peer academic coaching, the math achievement program and supplemental instruction. The ASCs have two locations in the Union Fieldhouse, room 252, on north campus and in DuBois Center, room 140, on south campus. Additional academic support resources are also available through other campus partners including, the Lumberjack Math Center, the Writing Commons and Cline Library. A more complete list of campus-wide resources is available on the ASC website.
- **Guide to Student Resources**: https://in.nau.edu/academic-affairs/guide-to-student-resources/ Information about various NAU student resources provided by the Office of Academic Affairs
- **F2S** https://in.nau.edu/f2s-outreach/ provides messages to keep you academically on track – when you get a message take action!

**Best Practices for Success:**
- Take the pre-lectures and their quizzes seriously. These assignments will help you learn the material and prepare you for class.
- Attend EVERY class meeting. Attendance/class participation is part of your grade. Students who attend class and participate in a meaningful manner earn much higher grades.
- We will practice peer learning in class. I will pose questions to answer using Chem101. Take this seriously and think thoughtfully and analytically about the problem. Form ideas and be prepared to discuss the material in a group. Contribute to and participate actively in your group.
- Come to class prepared and ready to focus on and work on the material. Do not come to class if you plan to send text messages to your friends, surf the web, talk about non-class related matters, etc.
- DO THE HOMEWORK. You cannot do well in this course if you do not do ALL the homework problems and earn an 80+% homework average.
- Review your lecture notes shortly after class.
- Form a study group. Working in groups outside of class on homework and other material is encouraged.
- Read the text as assigned.
- Work the example and practice problems from the text as assigned in the pre-lecture assignments.
- Attend Supplemental Instruction (SI) sessions.
- Attend the Recitation section for the course.
- Attend help sessions/office hours as needed.
- Prior to the hour exams, complete (i.e. WORK & ANSWER EACH QUESTION) “practice” exams posted in Bb Learn.
- Realize that we are all in this endeavor together. Be respectful towards me, the peer assistants, and your fellow classmates. Help your classmates succeed in this course because teaching them improves your understanding. Do not do anything in or out of class that detracts from you or your classmates learning experience.
- Take advantage of the many class resources that are available to you.
- Strive to develop a true love of learning.
- STUDY, STUDY, STUDY (this means work problems, NOT reading notes) on a regular basis throughout the semester. Do NOT take a break from this course!

Course Purpose
CHM 151 is the first semester of a 1-year sequence appropriate for pre-professional science and engineering majors. As a liberal studies course, CHM 151 provides a foundation in chemistry – the science of change. The course addresses the following liberal study themes and essential skills:

Themes:
Environmental Consciousness. Chemical change is of key importance in understanding the behavior of the Earth’s hydrosphere and atmosphere. The chemical and physical properties of gases, liquids and solids are presented in CHM 151. The student learns to name chemical compounds, recognize periodic trends of the elements and predict the product of chemical reactions. With this background, students can begin to interpret the physical and chemical processes of the natural world. Topics that illustrate these processes include aqueous reactions (critical for understanding water quality) and combustion processes (critical for understanding heat release to the atmosphere). Students will learn to associate these processes with their effect on the environment.

Technology and its Impact. Chemistry has a profound impact on the technological developments of the 20th and 21st centuries. Many chemical discoveries have improved the quality of life (drugs, laser technologies and the semiconductor industry) while others have threatened it (CFCs and pesticides). Whenever possible, this course will illustrate how modern technology has been influenced by the fundamental science taught in CHM 151.

Essential Skills:
Scientific Inquiry: Chemistry is an empirical science. What is taught in CHM 151 represents knowledge that has been acquired over the past 3 centuries through application of the scientific method, a systematic approach to research. Scientific theories will be examined in light of this process, which includes the formulation of a hypothesis, observations, symbolic representation of data, interpretation and conclusions.
Quantitative Analysis: Quantitative Analysis is at the root of the physical sciences. Specific skills the student will learn include writing and balancing chemical equations, dimensional analysis, and the application of algebra in the quantification of chemical change.

Critical Thinking: Successful chemical problem solving requires the ability to follow a logical, sequential thought process, understand abstract and symbolic language, discriminate between relevant and superfluous data and question underlying assumptions about cause and effect relationships.

Course Outcomes (linked to theme and skills)
Following successful completion of this course, students will be able to:

1. Distinguish between chemical and physical processes (Critical Thinking, Scientific Inquiry)
2. Utilize mathematical skills to solve chemical problems in mass relationships and stoichiometry (Quantitative Analysis)
3. Determine the solubility, concentrations and ionic properties of compounds dissolved in aqueous solutions (Quantitative Analysis)
4. Use standardized symbols to represent atoms, molecules, ions and chemical reactions (Scientific Inquiry)
5. Describe intermolecular forces which influence the properties of gases, liquids and solids (Critical Thinking, Quantitative Analysis)
6. Predict atomic structure, chemical bonding or molecular geometry based on theoretical models and results of empirical studies (Critical Thinking, Scientific Inquiry)
7. Apply chemical principles to the understanding of the physical and natural world (Critical Thinking, Scientific Inquiry)
8. Recognize the influence of chemical change in environmental situations and its impact on technology (Environmental Consciousness/Technology and its Impact)

Assessment of Outcomes (linked to themes and skills)
Student learning outcomes will be evaluated using examinations, quizzes and/or homework. These evaluation methods will test the student’s knowledge of scientific principles, their ability to identify and solve problems, and their ability to analyze scientific data. Quiz and exam questions will require students to:

2. Analyze data presented in graphs or tables, theoretical models, or results from empirical studies to draw correct hypotheses or conclusions (Scientific Inquiry, Critical Thinking)
3. Perform multi-step calculations using appropriate equations and formulas (Quantitative Analysis, Critical Thinking)
4. Identify proper symbolic representation of atoms, molecules, ions and chemical reactions (Scientific Inquiry)
5. Determine the products and heat exchange of chemical reactions (Quantitative Analysis, Critical Thinking)
6. Based on the physical properties of gases, liquids and solids deduce the nature of the underlying intermolecular forces (Critical Thinking, Scientific Inquiry)
7. Apply your knowledge to the chemistry of the natural world/environment. Exams, quizzes and/or homework will include questions that link acquired chemical knowledge to environmental scenarios (e.g. the ion concentration of a lake, the heat released by burning fossil fuels, or the moles of CFCs in the atmosphere) (Environmental Consciousness/Technology and its Impact)

CHM 151 Lecture Topics
We will cover most of the topics in Chapters 1-13 of the Interactive General Chemistry textbook:

I. Introduction & Atomic Structure
   Ch. 1: Measurement, and Problem Solving  Atoms and Molecules, Classification of Matter, Physical and Chemical Changes, Units and Reliability of Measurements, Problem Solving for Chemistry.
   Ch. 2: Atoms and the Periodic Table  Atomic Theory, Early Experiments, Structure of the Atom, The Periodic Table, Atomic Mass

II. Chemical Reactions & Stoichiometry
   Ch. 3: Compounds and the Mole  Chemical Bonds, Chemical Formulas and Molecular Models, Elements and Compounds, Naming Compounds and Writing Formulas – Ionic and Molecular, Molar Mass, The Mole Concept (grams to moles to atoms), Molar mass of a compound, Converting from Grams to Moles to Molecules, Percent Composition, Determining Empirical and Molecular Formulas.
Ch. 4: Chemical Reactions and Aqueous Solutions Writing and Balancing Chemical Equations, Electrolytes/Nonelectrolytes, Solubility, Precipitation Reactions, Writing Chemical Equations – Molecular, Ionic, Net Ionic, Acid-Base Reactions, Oxidation-Reduction Reactions.

Ch. 5: Stoichiometry Amounts of Products and Reactants (Stoichiometry), Limiting Reagent, Theoretical Yield, Percent Yield, Molarity, Dilutions, Solution Stoichiometry, Titrations.


III. Electronic Structure and Periodic Properties


IV. Chemical Bonding

Ch. 10: Covalent Bonding Types of Chemical Bonds, Lewis Dot Symbols, Lewis Structures, Resonance, Formal Charge, Exceptions to the Octet Rule, Electronegativity and Bond Polarity, Bond Energies and Bond Lengths.

Ch. 11: Molecular Shape and Bonding Theories VSEPR, Molecular Shapes, Polar and Nonpolar Molecules, Valence Bond Theory, Hybridization of Atomic Orbitals, Hybridization in Molecules Containing Double and Triple Bonds, Delocalized Electrons.

V. States & Properties of Pure Matter


VI. Solutions

Ch. 13: Solutions Types of Solutions, Energetics of Solution Formation, Factors Affecting Solubility, Concentration Units, Colligative Properties, Freezing Point Depression, Boiling Point Elevation, Osmotic Pressure, Colligative Properties of Electrolytes.
University Policies

The following is a statement of NAU policies. The latest version can be viewed at: https://nau.edu/university-policy-library/wp-content/uploads/sites/26/Syllabus-Policy-Statements.pdf

COVID-19 REQUIREMENTS AND INFORMATION

Additional information about the University’s response to COVID-19 is available from the Jacks are Back! webpage located at https://nau.edu/jacks-are-back.

SYLLABUS POLICY STATEMENTS

ACADEMIC INTEGRITY

NAU expects every student to firmly adhere to a strong ethical code of academic integrity in all their scholarly pursuits. The primary attributes of academic integrity are honesty, trustworthiness, fairness, and responsibility. As a student, you are expected to submit original work while giving proper credit to other people’s ideas or contributions. Acting with academic integrity means completing your assignments independently while truthfully acknowledging all sources of information, or collaboration with others when appropriate. When you submit your work, you are implicitly declaring that the work is your own. Academic integrity is expected not only during formal coursework, but in all your relationships or interactions that are connected to the educational enterprise. All forms of academic deceit such as plagiarism, cheating, collusion, falsification or fabrication of results or records, permitting your work to be submitted by another, or inappropriately recycling your own work from one class to another, constitute academic misconduct that may result in serious disciplinary consequences. All students and faculty members are responsible for reporting suspected instances of academic misconduct. All students are encouraged to complete NAU’s online academic integrity workshop available in the E-Learning Center and should review the full Academic Integrity policy available at https://policy.nau.edu/policy/policy.aspx?num=100601.

COURSE TIME COMMITMENT

Pursuant to Arizona Board of Regents guidance (ABOR Policy 2-224, Academic Credit), each unit of credit requires a minimum of 45 hours of work by students, including but not limited to, class time, preparation, homework, and studying. For example, for a 3-credit course a student should expect to work at least 8.5 hours each week in a 16-week session and a minimum of 33 hours per week for a 3-credit course in a 4-week session.

DISRUPTIVE BEHAVIOR

Membership in NAU’s academic community entails a special obligation to maintain class environments that are conducive to learning, whether instruction is taking place in the classroom, a laboratory or clinical setting, during course-related fieldwork, or online. Students have the obligation to engage in the educational process in a manner that does not interfere with normal class activities or violate the rights of others. Instructors have the authority and responsibility to address disruptive behavior that interferes with student learning, which can include the involuntary withdrawal of a student from a course with a grade of “W”. For additional information, see NAU’s Disruptive Behavior in an Instructional Setting policy at https://nau.edu/university-policy-library/disruptive-behavior.

NONDISCRIMINATION AND ANTI-HARASSMENT

NAU prohibits discrimination and harassment based on sex, gender, gender identity, race, color, age, national origin, religion, sexual orientation, disability, or veteran status. Due to potentially unethical consequences, certain consensual amorous or sexual relationships between faculty and students are also prohibited as set forth in the Consensual Romantic and Sexual Relationships policy. The Equity and Access Office (EAO) responds to complaints regarding discrimination and harassment that fall under NAU’s Nondiscrimination and Anti-Harassment policy. EAO also assists with religious accommodations. For additional information about nondiscrimination or anti-harassment or to file a complaint, contact EAO located in Old Main (building 10), Room 113, PO Box 4083, Flagstaff, AZ 86011, or by phone at 928-523-3312 (TTY: 928-523-1006), fax at 928-523-9977, email at equityandaccess@nau.edu, or visit the EAO website at https://nau.edu/equity-and-access.

TITLE IX

Title IX is the primary federal law that prohibits discrimination on the basis of sex or gender in educational programs or activities. Sex discrimination for this purpose includes sexual harassment, sexual assault or relationship violence, and stalking (including cyber-stalking). Title IX requires that universities appoint a “Title IX
Coordinator” to monitor the institution’s compliance with this important civil rights law. NAU’s Title IX Coordinator is Elyce C. Morris. The Title IX Coordinator is available to meet with any student to discuss any Title IX issue or concern. You may contact the Title IX Coordinator by phone at 928-523-3515, by fax at 928-523-0640, or by email at elyce.morris@nau.edu. In furtherance of its Title IX obligations, NAU will promptly investigate and equitably resolve all reports of sex or gender-based discrimination, harassment, or sexual misconduct and will eliminate any hostile environment as defined by law. Additional important information about Title IX and related student resources, including how to request immediate help or confidential support following an act of sexual violence, is available at https://in.nau.edu/title-ix.

ACCESSIBILITY
Professional disability specialists are available at Disability Resources to facilitate a range of academic support services and accommodations for students with disabilities. If you have a documented disability, you can request assistance by contacting Disability Resources at 928-523-8773 (voice), 928-523-6906 (TTY), 928-523-8747 (fax), or dr@nau.edu (e-mail). Once eligibility has been determined, students register with Disability Resources every semester to activate their approved accommodations. Although a student may request an accommodation at any time, it is best to initiate the application process at least four weeks before a student wishes to receive an accommodation. Students may begin the accommodation process by submitting a self-identification form online at https://nau.edu/disability-resources/student-eligibility-process or by contacting Disability Resources. The Director of Disability Resources, Jamie Axelrod, serves as NAU’s Americans with Disabilities Act Coordinator and Section 504 Compliance Officer. He can be reached at jamie.axelrod@nau.edu.

RESPONSIBLE CONDUCT OF RESEARCH
Students who engage in research at NAU must receive appropriate Responsible Conduct of Research (RCR) training. This instruction is designed to help ensure proper awareness and application of well-established professional norms and ethical principles related to the performance of all scientific research activities. More information regarding RCR training is available at https://nau.edu/research/compliance/research-integrity.

MISCONDUCT IN RESEARCH
As noted, NAU expects every student to firmly adhere to a strong code of academic integrity in all their scholarly pursuits. This includes avoiding fabrication, falsification, or plagiarism when conducting research or reporting research results. Engaging in research misconduct may result in serious disciplinary consequences. Students must also report any suspected or actual instances of research misconduct of which they become aware. Allegations of research misconduct should be reported to your instructor or the University’s Research Integrity Officer, Dr. David Faguy, who can be reached at david.faguy@nau.edu or 928-523-6117. More information about misconduct in research is available at https://nau.edu/university-policy-library/misconduct-in-research.

SENSITIVE COURSE MATERIALS
University education aims to expand student understanding and awareness. Thus, it necessarily involves engagement with a wide range of information, ideas, and creative representations. In their college studies, students can expect to encounter and to critically appraise materials that may differ from and perhaps challenge familiar understandings, ideas, and beliefs. Students are encouraged to discuss these matters with faculty.