SCOTTSDALE COMMUNITY COLLEGE
A MARICOPA COMMUNITY COLLEGE

Course Information

- **Semester & Year:** Spring 2026
- **Course Title:** Fundamental Chemistry with Lab
- **Course Prefix & Number:** CHM130AA
- **Section Numbers:** 22956 with Lab Section 22957
- **Credit Hours:** 4
- **Start Date:** Lecture & Lab start Tuesday 1/20/2026
- **End Date:** 5/15/2026
- **Room Number:** NS-314
- **Meeting Days:** Tuesdays & Thursdays
- **Meeting Times:** 12:30 - 3:10 pm
- **Class Format:** In-Person

Instructor Information

- **Instructor:** Philip Root, BAE Chemistry, MNS Physics, Arizona State University
- **Email:** philip.root@scottsdalecc.edu
- **Phone:** 480-423-6196 (office); 480-900-7697 (text)
- **Office Location:** NS-131

- **Office Hours:** This semester I will hold **student** office hours at the times & days listed below. Student office hours are a time when you can come to ask me for help with specific questions, or they can be a time to talk more generally about the course or your field of interest. Please come prepared with what you would like to discuss!

  To meet with me during these hours, just stop by my office! If indicated, or if you cannot make it to my normally scheduled times because you have a conflict, please just message me via canvas or email to schedule a different time to meet (depending on availability :-)

Mon/Wed:	**NS131: 11:00 am - 12:00 pm, NS131: *After 3:10 pm by appointment**
Tu/Th:	**NS318: 8:30 - 9 am; NS131: *After 3:10 pm by appointment**
Fridays:	**NS-131 (my office) or Google Meet. *Time/availability varies: please email me to schedule a meeting time :-)**

Course Description

A survey of the fundamentals of general chemistry. Emphasis on essential concepts and problem solving techniques. Basic principles of measurement, chemical bonding, structure and reactions, nomenclature, and the chemistry of acids and bases. Preparation for students taking more advanced courses in chemistry.

The course format is In Person. Please view your CHM130AA Welcome Letter here!

Prerequisites

- A grade of C or better in [(CHM100, or high school algebra, or MAT140 or higher, or an EdReady-Quantitative Reasoning, Algebra and Statistics score of 70 or higher, or an EdReady-College Algebra score of 80 or higher) and (RDG100, or RDG100LL, or higher, or eligibility for CRE101 as indicated by appropriate reading placement)], or permission of the Instructor, or Department or Division Chair.

Course Competencies

There are a total of 11 course competencies that students should be able to perform by the end of CHM130AA.

1. Employ fundamental chemistry terminology, symbols, and formulas.
2. Draw connections between fundamental chemistry phenomena and observations.
3. Use theories to predict structure and behavior of chemical compounds.
4. Predict the properties of matter based on the materials' classifications and structure.
5. Perform fundamental chemistry calculations involving scientific measurements.
6. Predict the qualitative outcomes as matter undergoes physical and chemical transformations.
7. Calculate quantitative characteristics of matter related to properties and composition.
8. Predict the quantitative outcomes as matter undergoes physical and chemical transformations.
9. Demonstrate safe laboratory conduct.
10. Manipulate scientific equipment.
11. Summarize experimental findings.

A full list of the course competencies and the course outline are available here.

General Education & Institutional Learning Outcomes

General Education provides foundational learning experiences that contribute to academic and career success. It is reflected in Scottsdale Community College's Institutional Learning Outcomes: Arts & Humanities Awareness, Career Readiness, Critical Thinking and Problem Solving, Effective Communication, Information Literacy, and Social Responsibility.

Students who take CHM130AA will learn about important principles of general chemistry, which relate to critical thinking and problem solving. Students will also enhance their communication and career readiness skills.

Program Learning Outcomes

Credit-bearing courses at Scottsdale Community College can count toward the completion of a degree or certificate program. Each program has Program Learning Outcomes, which are learned assets that students can claim to have acquired by completing their academic or occupational program at SCC. Program Learning Outcomes can be found on the Degrees and Certificates page of the SCC Website. For each degree, look under "What You'll Learn."

This course is a General Education course that is foundational to many degree programs and a key component of the Arizona General Education Curriculum (AGEC) certificate program. This course fulfills a Natural Sciences (Quantitative) - [SQ] requirement for the AGEC.

This course most directly applies to the Associate in Science, Emphasis in Chemistry with the following Program Learning Outcomes:

- Construct qualitative and quantitative models to draw conclusions concerning physical and chemical phenomena.
- Using a fundamental understanding of scientific inquiry, solve problems within the discipline of chemistry.
- Design experiments and collect data, using appropriate technology and equipment.
- Analyze and interpret data, using technology as appropriate.
- Report data, results, and analysis and the experimental processes used to generate those data in formal and informal settings.
- Design a procedure that promotes safety and manages risk in a laboratory setting.
- Demonstrate professional and ethical behavior appropriate to the chemistry discipline.
- Analyze real world problems and synthesize real world solutions applying chemistry theory and principles.
- Collaborate with diverse individuals and groups to solve problems.
- Effectively communicate in an articulate, respectful, ethical and culturally responsive manner.
- Apply relevant knowledge, skills, and habits of mind to seek career opportunities in the field.

Texts and Course Materials

1. COURSE MANUAL: No textbook is required for this course!!! Instead, a Course Manual, including class and lab activities, will be distributed during the first week of the semester. An electronic version will also be available on Canvas. You are responsible for keeping this packet in a 3-ring binder and bringing the appropriate handouts to class each day.

   Note: Scientific Readings & additional resources (including links to openly licensed textbooks) will be provided via Canvas. There is NO required textbook for you to purchase for this course!

2. THREE RING BINDER: A 3-ring binder in which to keep the Course Manual (unit materials and lab handouts).

3. COMPOSITION BOOKS: You will need **two** bound composition books for this course. Plain composition books can usually be purchased for $1-$2.

   a. **The Class/Lab Notebook**: your class/lab notebook is a place for you to jot down ideas, notes for your future self, and record data from class and laboratory activities *during* class

   b. **The Reflection Journal**: This notebook is used *outside* of class (**NOT** during class), and is a place for your personal reflections on how you are growing and what you are learning each week. More info on Reflection Journals is available in Canvas.

4. SCIENTIFIC CALCULATOR: A scientific calculator is one that allows you to enter and display numbers in scientific notation. If you need to purchase one, you can find a good one for less than $15. Graphing calculators are also permitted during class, but may not be used on exams. Ask me for advice if you need it.

5. GOGGLES: We will provide you with protective eyewear for use during the class. At the end of the class, you will return the eyewear in undamaged condition. If you fail to return the eyewear or the eyewear is excessively scratched or damaged from mishandling, you will be charged a $7.00 replacement fee.

   **SCC is not responsible for damaged clothing or jewelry.*

6. CANVAS: We will use the Canvas Learning Management System (LMS) for a variety of purposes. Please familiarize yourself with the site and our Course in Canvas. Log in at: https://learn.maricopa.edu/login

Course Policies

The following are policies specific to this course. Students are also responsible for the college policies included on the Student Regulations page of the Maricopa Community College District website.

Participation & Group Work Policies:
Individual participation and engagement is a requirement for both you as students, and me as the instructor! We are both expected to come to class prepared. If a student comes unprepared, their work and their entire group will be impacted. Please expect to be active and engaged, and do not expect a lecture style of instruction during this course. If you are interested in more information, please consult the research article, "Large-scale comparison of science teaching methods sends clear message."

In addition, we will mostly work in student groups during class time. When you as students collaborate, you practice essential skills: communication, leadership, teamwork, and a variety of important executive functions. Students are expected to work together, assist each other, and present ideas to groups and the class. I understand that group work is demanding and rigorous, requires social skills, and introduces a level of interdependency that might make you anxious. So instead of grading this work, we will focus on fostering and developing these skills, helping you improve your Career Readiness.

Cheating and Plagiarism Policy:
I encourage students to work together when doing homework and labs; however, I would not expect your solutions to be identical. There will at times be group assignments in which I expect only one solution or project. Discussing and sharing ideas is different from copying. Cases of cheating or plagiarism (as defined in the SCC Student Handbook) will not be tolerated and I will pursue the strongest punishment allowed by the College. This is not limited to any student who submits copied/plagiarized work, but also to the student that supplies the material. I will punish both the copier and the person they copy equally, as both are equally guilty. If in doubt, just say No when someone asks to use your work!!!

Cell Phone Policy:
There will be times that you will use your cell phone to research a topic in class or lab, or to communicate with each other during live online group discussions. Appropriate use is understood and acceptable. However, personal or social use of cell phones in lecture is a distraction and, in the lab, is a danger. I will ask you to leave the lab or lecture hall for personal use of cell phones, both texting or talking.

Late Work Policy:

- Due dates are posted in Canvas. Email the instructor immediately if you notice any issues/mistakes with a due date, as instructors are human and also make mistakes.
- You are encouraged to still complete assignments late for feedback and learning. Partial credit can be earned for late assignments IF you contact your instructor to discuss the issue.
- *Any late work must be completed prior to each midterm exam to receive any partial credit.*

Exam Absence Policy:

- If you are going to miss an exam due to an excused absence, you must inform the instructor at least 2 weeks prior and include documentation.
- If you miss an exam for an unexpected reason, you must contact the instructor within 24 hours of the exam, and when able, provide appropriate documentation.
- If you do not contact your instructor within 24 hours after the exam ends, you may be given a 0% for that exam and you may be withdrawn from the course (with grade of W or Y, depending). A valid excuse with written documentation is needed to make up an exam.
- ***All exams must be taken to avoid being withdrawn from the course.***

Withdrawal Information:
If you must withdraw from the course, see the Withdrawal Policy information located in the **College Policies & Student Services page** found in the First Steps module of your Canvas course.

**Notes:* *Deadline to withdraw without instructor approval: End of Week 7*

Final Deadline to withdraw: End of Week 14 (requires instructor approval)

Attendance Policy

Attendance is required for this course! Attendance will be recorded for all class and lab sessions. To be considered in attendance:

- Engage in breakout sessions / group work: You will often work together in breakout session groups, allowing you to converse with your group and at times, your instructor. Converse with your group and actively use whiteboards and any other idea sharing technology!
- Engage in whole class discussions: Participate and share ideas, questions, and concerns with the instructor and/or the class.

Failure to follow these guidelines results in an absence, even if you attended class.

Student or Instructor Illness Considerations
If you physically miss any class it is **your** responsibility to contact the instructor and make up the work. I am not inclined to give make-ups on quizzes or exams, unless you have a valid excuse with written documentation and you have spoken with me beforehand.

- If you show up late to the lab, you will miss key procedural and safety information and will not be permitted to participate in that day's lab.
- If you have 3 absences that are not considered "official absences," I have the option to withdraw you (with grade of W or Y, depending).
- If you are absent for an exam, please see the above exam absence policies.

If your instructor is ill and cannot attend class, updates and announcements will be provided in Canvas, Maricopa email, or other class communication channels prior to class that day if possible.

If you have any special needs or considerations related to attendance, contact your instructor immediately. I understand that life is happening all around us. So just notify me before or as soon as possible if something comes up in your life or if you have concerns that attendance will be an issue. I will work with students who will work hard to learn.

Instructional Contact Hours and Minimum Course Expectations

Instructional contact hours are the weekly time students spend directly learning with their instructor or course activities. These activities include, but are not limited to, lectures, discussions, labs, group work, and viewing recordings. Instructional contact hours vary by course; refer to the MCCCD course bank for your course's details.

Minimum course expectations include the number of hours students are expected to spend outside of class (weekly) completing coursework. Students are encouraged to use the Time Management Calculator to help estimate their weekly time commitment for classes.

Course Technologies

View the Accessibility Statements & Privacy Policies of the technologies used in this course. The SCC Help Desk provides students with a primary point of contact within SCC for college-supported technology services and technical assistance.

Maricopa Systems
This course uses key Maricopa systems for course management and communication.

- Canvas Learning Management System
- Student Maricopa Gmail Account
- Maricopa Open Educational Resource Learning System (MOER)

Synchronous Communication Tools
This course may implement the use of web conferencing and/or other synchronous course tools.

- Google Meet

Streaming Media/Audio/Video Tools
This course uses webcasting, lecture capture systems, YouTube, and/or other streaming media services.

- YouTube

Student Assignment Tools
This course requires students to participate in or submit assignments using desktop or cloud-based applications.

- Google Products
- Graphical Analysis

Generative Artificial Intelligence (AI) Policy

The World Economic Forum defines generative AI as “a category of artificial intelligence (AI) algorithms that generate new outputs based on the data they have been trained on. Unlike traditional AI systems that are designed to recognize patterns and make predictions, generative AI creates new content in the form of images, text, audio, and more.”

Some examples of generative AI tools include but are not limited to: ChatGPT, Google Bard, Microsoft Copilot, Stable Diffusion, GrammarlyGo, and Adobe Firefly.

Some Generative Artificial Intelligence (AI) Allowed in Specific Circumstances

There are situations and contexts within this course where you may be permitted to use generative AI tools. Specific guidelines are provided below. If you are unsure if the tool or website you are using is a generative AI tool or if it is permitted on a specific assignment, please contact the instructor for further clarification before submitting your work.

AI tools may **NOT** be used when completing the following assignments[1]:

- Learning Journal Reflections
- In Class Assessments (i.e. Exams)

If you wish to try using AI tools, they may be used when completing Lab Work and Homework assignments (worksheets). If you choose to use an AI tool, you will need to provide the following in the assignment:

- Indicate what you used the AI tool for
- Clearly indicate what content and/or work the AI provided
- Provide an analysis or critique of the content and/or work the AI tool provided

Grading Standards & Practices

Grade Scale*:

Letter Grade	Range
A	89.0 – 100%
B	78.0 – 88.9%
C	67.0 – 77.9%
D	50.0 – 66.9%
F	<50.0%

***Note:** The grading scale is **not** the typical “10 point scale” so that you don’t have to ask for your grade to be rounded up. For example, if you want to earn an A, shoot for an overall 90%, that way if you end up at an 89.4, your grade is still above an 89 and is an A. However, anything below an 89, or any other cut-off percentage, will not be rounded up.

[1] See the following section on Grading Standards & Practices for information on assignment categories

Assignment Categories (weighted):

Category	Weight
Homework	5%
Quizzes	10%
Lab Work	15%
Reflection Journal	10%
Exams	60%

***Note:** Please visit your Canvas course page for specific assignments.

Explanation of Assessment Categories:

Homework (5%) & Quizzes (10%) will normally be assigned at the end of each class, and due dates will be posted in Canvas. Just an FYI - you will be submitting all assignments - homework, quizzes, labs, etc. - via Canvas. It is a simple task to take pictures of your pages and upload them on Canvas. We will talk about this procedure in the first week.

Lab Work (15%): One of your composition books will be used as a class and lab notebook. The goal is to help you develop the skill of keeping a professional lab notebook, and to record meaningful ideas during both class and lab discussions. (This is often helpful for you later as you complete Reflection Journals, see next section for more ;-)

Lab Report forms and post lab work will normally be started during class. Since many of the experiments will not require the full lab time, OR you may have to wait for other students to finish so a discussion can take place, you ARE allowed to complete post lab work during class. It is obviously acceptable to turn in a hand written lab report, however please ensure that the information is organized and legible, as I will return any reports that are too hard to read with a zero. If there is not time, or you choose not to complete the post lab work in class, lab reports will be due by the following class meeting.

Lab Practical Exam: At the end of the semester you will also complete a Lab Practical Exam. This is a "practical" assessment, meaning you will be assessed on your practical lab skills. The assessment will be completed individually, requiring you to both perform calculations and execute actual lab procedures.

Spring 2026 Lab Practical: Th 5/7

Reflection Journal (10%): Your *other* composition book will be used exclusively as a Reflection Journal. The goal of journal reflections is to honestly and authentically reflect on your learning each week, so that you can apply the concepts when needed.As a reward for completing these weekly journals, you will be allowed to use the learning journal on your exams this semester! See Canvas for more information!

Exams (60%): There will be 3 midterm exams spread through the semester with no make-up exams allowed. Exams will assess both Lecture and Lab material. Exams will be every 4-6 weeks, although this is subject to change depending on the needs of the class.

Tentative Exam Dates (subject to change): Th 2/19, Th 4/2, Tues 4/28

Exams are typically administered during class time through Canvas. **Any navigating away from the Canvas Exam to a different browser window, to your computer desktop, or any other app (as noted by Canvas or Respondus) will result in a "0" for individual questions and/or the entire exam.**

***Nomenclature Quiz:** In addition, all students in CHM130 at SCC must pass a quiz to ensure understanding of the particle nature of matter, naming, and formulas. This quiz may be taken once a day at the **Natural Sciences Tutor Center (NS-107)** until you achieve a minimum passing score of 16 out of 20. In the gradebook, the Nomenclature Quiz is worth 50 points in the Exam category. A passing score (16/20) receives full credit (50 pts).

The deadline for passing the quiz is the end of Week 13, F 4/15

***Final Exam**: There will also be a comprehensive final exam during finals week, assessing all the material from the class. The percentage obtained from the final exam will be used to replace your lowest unit exam. The final is not an optional exam.

Final Exam Date (subject to change): Tues 5/12

Student/Instructor Interaction

In this course, you can expect regular and substantive interaction (RSI) that aligns with Scottsdale Community College's mission to provide challenging and supportive learning experiences and the US Department of Education's requirement for regular and substantive interaction (RSI) for online courses. My commitment to your success includes the following:

- Being available during regularly scheduled student support hours as stated in the syllabus.
- Providing group or individual feedback regularly in class and on assignments.
- Promptly responding to student questions about the course sent via email or the Canvas inbox.
- Monitor your academic progress and communicate concerns, as needed.

Response Time

I prefer that you contact me via the Canvas Conversations (Inbox Messaging) feature within Canvas whenever possible. The second choice of communication is via direct email.

Students can expect a response time of **24-48 hours** for the instructor to respond to messages sent via the Canvas Learning Management System or @maricopa.edu email. While I will not guarantee that I will respond to inbox messages or emails during the weekend, it is likely that I will, so please do not wait if you have a question!

Students can expect assignments to be graded within **one week** of the assignment's due date.

Tutoring

SCC's tutors are available online to help with your courses. You may work with an SCC tutor remotely using Google Meet, your phone, or email. Visit the SCC Tutoring & Learning Centers page for detailed information on the five learning center's hours and procedures.

If you need to work with a tutor outside regular hours, online and hybrid students now have access to a 24/7 online tutoring service called Brainfuse. To access Brainfuse and begin working with a tutor, visit the SCC Online Tutoring Services Through Brainfuse page.

MCCCD Policies

MCCCD is committed to providing a safe, fair, and accessible environment for all students. This includes laws such as the ADA and Title IX, which protect against discrimination. These statements explain your rights, available support, and where to go for help or more information. Please review the following policies:

Classroom Accommodations for Students with Disabilities

Addressing Incidents of Title IX Sexual Harassment

Students are responsible for the information contained in this syllabus, the Syllabus page in your Canvas course and the **College Policies & Student Services** page found in the First Steps module of your Canvas course. Students will be notified by the instructor of any changes in course requirements or policies.