

General Chemistry I

CHEM 0110 and CHEM 0410

Instructor: Dr. Tricia Shepherd

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What you need to buy

Required Textbook: *Chemistry: A Guided Inquiry Third edition* (Kendall Hunt). ISBN 979-8-3851-9687-6. Print versions will be available at the Bookstore on Fifth. This customized text is *not* available through online stores.

Textbook: [Chemistry 2e OpenStax](#). Online and pdf download free; if you prefer a hard copy you can purchase the text in print.

Homework system subscription ALEKS (McGraw Hill). *Inclusive access:* You can link to it directly

Lab information: Available through the Canvas page of your lab recitation section, which is different from this page. (You will need to purchase **goggles** and **lab coat**. See bookstore information for specifications.)

Scientific calculator You will need one for assessments and labs in addition to in-class use.

Course structure

This course has three major components,

- Whole class meetings
- Recitations
- Laboratory

Everyone attends the whole class meetings ("classes"), which are scheduled at the times listed at the top of the syllabus. If you are enrolled in **CHEM 0110**, you complete all three components of the course: class, recitation, and lab. If you are enrolled in **CHEM 0410**, you *do not* take the laboratory component of the course but *do* attend both class and recitation.

Recitation and laboratory are scheduled together as one block of time, back-to-back, in the same room. Recitation is the first hour of the scheduled time block, and the actual lab experiment is the last three hours of the time. There are different TAs for the recitation and laboratory, and they will explain their different roles to you.

Whole class meetings

We will meet to actively explore the concepts in General Chemistry. Much of our time will be spent in working in teams engaged in Process Oriented Guided Inquiry Learning (POGIL) activities. Whole class discussion will follow. In-class questions (TopHat) throughout will also support your active engagement. Graduate and undergraduate teaching assistants will help answer questions in class.

Recitation and laboratory

Recitation is an opportunity for you to ask questions and practice your chemistry skills in a smaller group (24 students) with a teaching assistant (TA). You will complete the course's assessments at the beginning of recitation, so recitation attendance is mandatory.

Laboratory is required for all CHEM 0110 enrolled students. Due to the organizational complexity, the laboratory runs somewhat independently from the lecture. The details of the expectations of the laboratory course will be explained by the Directory of the General Chemistry Labs (Dr. Tamika Madison). The lab involves pre-lab preparation, completing the in-person lab experiment, and a lab write-up.

Grading

Grades will be calculated based on total points and will be assigned according to the following tables:

Grade	Range	>=
A	100 to	91
A-	<91 to	89
B+	<89 to	87
B	<87 to	81
B-	<81 to	79
C+	<79 to	77
C	<77 to	71
C-	<71 to	69
D+	<69 to	67
D	<67 to	61
D-	<61 to	59
F	<59	

Assignments are weighted by group:

Group	Weight
ALEKS Assignments	10%
Objective 0.0	0%
Objective 1.1	4.62%
Objective 1.2	4.62%
Objective 1.3	4.62%
Objective 2.1	4.62%
Objective 2.2	4.62%
Objective 2.3	4.62%
Objective 3.1	4.62%
Objective 3.2	4.61%
Objective 3.3	4.61%
Objective 4.1	4.61%
Objective 4.2	4.61%
Objective 4.3	4.61%
Objective 5.1	4.61%
ACS Exam	5%
Participation	5%
Lab	20%
Total	100%

Scores for each category will be posted on Canvas in [Grades](#) as soon as they are available. Each area is described in more detail below.

Learning Objectives and Assessments

Learning Objectives. The course has 13 sets of learning objectives, expressed at 4 levels of complexity from lower-level thinking to higher-level thinking. The learning objectives are listed in the [Modules](#) of the course. The learning objectives are listed for four levels of content mastery, Level 1: Retrieval, Level 2: Comprehension, Level 3: Analysis, and Level 4: Knowledge Utilization.

Growth-oriented Testing. You will have assessments each week at the beginning of your recitation section. Each assessment will have four questions aligned with the learning objectives, one for each level. Each assessment item is graded on a proficient – not proficient basis. Proficient answers demonstrate mastery of the essential learning objective. Answers do not need to be perfect to be awarded proficiency! You will have up to three attempts for each assessment, and your highest score on any attempt will count towards your grade. The schedule of assessments is laid out in the calendar.

The number of proficient responses is mapped to a percentile score as follows: Each Retrieval and Comprehension question is awarded 30 percent for an attempt (proficient or not); all levels are also awarded 10 percent for a proficient response.

Level	Score	Points (out of 10)
Retrieval	Proficient	4
	Not proficient, attempted	3
Comprehension	Proficient	4
	Not proficient, attempted	3
Analysis	Proficient	1
	Not proficient	0
Knowledge Utilization	Proficient	1
	Not proficient	0

For example, each row of the table shows a potential student score on an assessment and its corresponding percentile grade.

Retrieval	Comprehension	Analysis	Knowledge Utilization	Percentile
proficient	proficient	proficient	proficient	100
proficient	proficient	proficient	not proficient	90
proficient	proficient	not proficient	not proficient	80
proficient	not proficient (attempted)	not proficient	not proficient	70
not proficient (attempted)	not proficient (attempted)	not proficient	not proficient	60

MAKEUP Assessments. If you cannot attend a recitation and lab session, you must coordinate with your TAs to complete a makeup session and complete an appropriate assessment. More than 2 make up sessions per term require instructor approval. Failure to organize an appropriate make-up with your TA will result in a 0 on that assessment attempt.

REGRADES—Request a regrade through the Gradescope platform right away (< 7 days). If you feel that a assessment item was not graded accurately, you may request a re-grade. Leave a comment using the "regrade" feature and describe your rationale.

Additional Platforms and Tools

Course Home-page (Canvas)

- All materials needed for the course will be posted on Canvas.
- You can get to Canvas through “my.pitt.edu”.

- Please consult Canvas before you ask questions about the course, due dates, assignments, etc. If something is on Canvas and you ask me for the info by email, I will simply refer you back. If you have already looked and you still have a question, explain the issue.
- If something is supposed to be posted and it is missing, use the Canvas Inbox to message me, and I will get it up asap.

Homework System (ALEKS, McGraw Hill)

Homework will be assigned through the ALEKS learning system.

Access Instructions

1. Find the link to ALEKS content in the Navigation bar on the left or in the Modules tab (on left below Syllabus).
2. Follow the instructions.
3. Select your access option and continue to your assignment page.
4. You are now enrolled in the course and can access future assignments through the links on the course page.

The philosophy behind ALEKS

ALEKS is a web-based, artificially intelligent assessment and learning system. It adapts to each student's individual knowledge and learning needs, to provide a personalized learning experience. ALEKS provides you questions for each course topic until you have demonstrated that you have mastered the ideas. You can attempt each topic as many times as you need, and full explanations are provided to each problem.

ALEKS Initial Knowledge Check

Before accessing the first assignment, you will take an Initial Knowledge Check. Your performance on this knowledge check does not affect your grade. It is just a pre-assessment to determine what you already know so you don't have to "re-learn" this content. The result of your Initial Knowledge Check is what ALEKS uses to create your own individualized learning path to work through the content of this course

Your Path

After you complete this initial knowledge check, you will "Start your path." ALEKS will identify the topics you are most ready to learn aligned with content introduced in class. A group of topics or "module" is assigned to be completed each week. Each ALEKS module is available at least one week prior to the due date (generally Monday at midnight). For each topic, you must answer a number of questions correctly before "learning" a topic. The exact number varies but it is about 5 or three-in-a-row. On average, you should expect to spend at least 2-3 hours to complete a single module. If you do not learn a topic by the module due date, that topic remains in your ready to learn queue. You can still learn it before the end of the course and that learning is reflected in the pie progress part of the grade.

Additional Knowledge Checks

Throughout the semester, ALEKS will assign a "Knowledge Check" While a knowledge check does not affect your grade, they must be completed before you can start the next module. These knowledge checks are designed to see how well you are retaining previous completed topics. When you correctly answer a question for a past assigned topic, ALEKS assumes you have "mastered" this topic. If additional practice on a topic is needed, the topic will appear in your ready to learn queue. It is very typical to have topics not mastered on a Knowledge Check.

ALEKS grade

The grade from ALEKS has two parts. Half of your grade is based on the number of topics completed for a module by the due date. The second half is your overall progress learning topics over the semester – your "pie progress." When you learn a topic before the due date for that module, you receive full credit for it, regardless the number of attempts and independent of whether you answer the question correctly on a following Knowledge Check. The score for each module is based on the proportion of topics learned by the due date. The pie progress is based on the proportion of topics you have learned by the end of the course.

Due dates

Unless otherwise stated, ALEKS assignments will be due each week on Monday at midnight. The learning modules will be available for at least one week prior to the due date.

Technical Support

If you are having trouble registering for or accessing ALEKS, please contact ALEKS Customer Support. Live Chat, email, and phone support are available 7 days a week.

Website: <https://www.aleks.com/support>. [Links to an external site.](#) Phone: 800-258-2374 (Sun 4pm–1am; M–Th 7am–1am; F 7am–9pm). When contacting a support agent, you will receive a case number. It will be important to save this case number to assist with any additional follow up or documentation. You can check that your computer meets the system requirements by [going here](#) [Links to an external site.](#)

Class Participation (TopHat)

We will use the student response system TopHat (link in the left navigation sidebar) to collect your thoughts during class. Use the links in the left column to access the course's TopHat page. Technology in the classroom is sometimes unreliable. Each student is given a ~30% buffer on the TopHat scores to account for all connectivity issues responding to TopHat questions in the classroom.

Gradescope

We will use [Gradescope](#) [Links to an external site.](#) in the scoring and returning of assessments. When the first assessment is scored, you will receive an email explaining how to review your graded work.

Getting Help

There are many resources for additional help. Please use them.

Prof. Shepherd

- Office Hours, Canvas message (Inbox, left), and by appointment

Teaching Assistants (TAs):

- Recitations
- By appointment
- Email

TAs are also taking classes so please respect their requests regarding when/how to contact them.

[Departmental Tutoring: List of free and non-free tutors.](#)

[Study Lab](#) provides tools and resources for you to discover the most efficient and effective ways for you to study. Experiment with strategies to customize a plan that works for you. Explore how you can study smarter, not harder, and make the most of your time at Pitt.

[Navigate Student](#) To make an appointment with a tutor, you will need to download a mobile app called [Navigate Student](#).

The Internet: Lectures, problems, and videos are widely available on the web.

Peers: Work with your classmates!

Respect in the classroom

I welcome everyone to my class, and everyone will be treated with respect by me, the teaching assistants, and all students. My belief in mutual respect and personal integrity guide me to help students from all backgrounds and identities feel welcomed and well-served by this course. If there are aspects of the design, instruction, or your experiences within this course that you feel are acting as barriers to your full participation or achievement, in any way, please bring them to my attention as soon as possible so that we can do better.

Additionally, the University of Pittsburgh does not tolerate any form of discrimination, harassment, or retaliation based on disability, race, color, religion, national origin, ancestry, genetic information, marital status, familial status, sex, age, sexual orientation, veteran status or gender identity or other factors as stated in the University's Title IX policy. The University is committed to taking prompt action to end a hostile environment that interferes with the University's mission. For more information about policies, procedures, and practices, visit the [Civil Rights & Title IX Compliance web page](#).

Other policies

Letters of Recommendation: If you want a useful letter of recommendation at the end of the term, it is imperative that you go out of your way to make sure I know who you are. If you anticipate needing a letter in the future, arrange to make such a request by the end of the term—requesting a letter a year later is not as useful as I may not remember as many details then.

Religious Observances: I will make every effort to avoid conflicts between scheduled activities, such as exams, and religious observance dates. Please inform me as soon as possible if you identify such a conflict, and I will work with you to resolve it.

G-Grades: In the case extenuating personal circumstances that prevent a student from completing the assigned work, a G-Grade will be granted if the student has taken the three hourly exams with a combined passing grade on them, and has regularly attended the lectures,

recitation, and the lab. To arrange for a G-grade, a contract must be negotiated and signed with the Professor prior to the due date for current course grades. The work must be completed within one year.

Academic Integrity: Students in this course will be expected to comply with the [University of Pittsburgh's Policy on Academic Integrity](#). Any student suspected of violating this obligation for any reason during the semester will be required to participate in the procedural process, initiated at the instructor level, as outlined in the University Guidelines on Academic Integrity. This may include, but is not limited to, the confiscation of the examination of any individual suspected of violating University Policy. To learn more about Academic Integrity, visit the [Academic Integrity Guide](#)[Links to an external site.](#) for an overview of the topic.

Disability Services: If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact both your instructor and [Disability Resources and Services](#) (DRS), 140 William Pitt Union, (412) 648-7890, drsrecep@pitt.edu, (412) 228-5347 for P3 ASL users, as early as possible in the term. DRS will verify your disability and determine reasonable accommodations for this course.

Counseling and Mental Health Center

There are many helpful resources available on campus and an important part of the college experience is learning how to ask for help. If you or anyone you know experiences any academic stress, difficult life events, or feelings like anxiety or depression, we strongly encourage you to seek support. <https://www.shrs.pitt.edu/student-life/counseling-and-other-services>

Date	In-Class Activity
27-Aug T	Syllabus & CA 1.1 Atomic Composition
29-Aug Th	CA 1.1 Atomic Mass
3-Sep T	CA1.2 Chemical Formulas
5-Sep Th	CA 1.2 Chemical Names
10-Sep T	CA 1.3 Chemical Eqns CA 1.3 Limiting Reagent
12-Sep Th	CA 1.3 Solutions

17-Sep	T	CA 2.1 Solubility CA 2.1 Aqueous Rxns
19-Sep	Th	CA 2.1 Redox Rxns
24-Sep	T	CA 2.2 Heat Transfer
26-Sep	Th	CA 2.2 Enthalpy Changes
1-Oct	T	CA 2.3 Enthalpy of Reaction & Cycles
3-Oct	Th	CA 2.3 cont. & CA 3.1 Coulomb's Law
8-Oct	T	CA 3.1 Shell Model & Periodic Trends
10-Oct	Th	CA 3.2 Electromagnetic Radiation
15-Oct	T	Fall Break
17-Oct	Th	CA 3.2 Photoelectron Spectroscopy CA 3.2 Electron Configuration
22-Oct	T	CA 3.3 Atomic Spectrum of H CA 3.3 Electron Spin
24-Oct	Th	CA 3.3 Electronic Structure
29-Oct	T	CA 4.1 Lewis Dot Model

		CA 4.1 Bond Order
31-Oct	Th	CA 4.1 Best Lewis
5-Nov	T	CA 4.2 Molecular Structure
7-Nov	Th	CA 4.2 Valance Bond & MO Theory
12-Nov	T	CA 4.2 Electronegativity
14-Nov	Th	CA 4.3 Partial Charge CA 4.2 Molecular Polarity
19-Nov	T	CA 5.1 Ideal Gases
21-Nov	Th	CA 5.1 Kinetic Molecular Theory
26-Nov	T	
28-Nov	Th	Thanksgiving
3-Dec	T	CA 5.1 Intermolecular Forces
5-Dec	Th	CA 5.1 Phase Changes
10-Dec	T W	ACS Exam Final