

Abilene Approval Chart for Curriculum Changes

A = Approve I = Information Item R = Respond in Writing

Course Number CHEM 113 or Degree Plan(s) _____

State the requested change and reason. A memo may be attached if more space is

necessary.

This request is to add CHEM 113, Introductory Chemistry, to the Life and Physical Sciences Menu

Indicate the requested change.

	Change to a Course	Dept./School ¹	College	Dean	TEC	UGEC	AUAC/Grad	Provost	President
1.	Title (description unchanged)	A	A	A	I	–	I	I	I
2.	Description (not affecting content)	A	A	A	I	–	I	I	I
3.	Course term(s)	A	I	A	I	–	I	I	I
4.	Content (change of course outcomes)	A	A	A	I	–	I	A	I
5.	Number of hours (lecture, lab, contact)	A	A	A	A	–	A	A	I
6.	Course number within the hundred	A	A	I	I	–	I	I	I
7.	Course number beyond the hundred	A	A	A	A	–	A	A	I
8.	Prerequisites	A	A	A	I	–	I	I	I
9.	Course fee(s)	A	–	A	–	–	–	A	I
10.	From U to G or G to U	A	A	A	A	–	A	A	I
11.	Cross-list course	A	A	A	A	–	A	A	I
12.	Department of record	A	A	A	A	–	A	A	I
13.	Close a course	A	A	A	A	–	A	A	I
14.	New course (includes combining or splitting courses)	A	A	A	A	–	A	A	I

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	Change to the University Requirements (All Campuses)	Dept./School¹	College	Dean	TEC	UGEC	AUAC/Grad	Provost	Faculty	President	Trustees
1.	University Requirements — Change course outcomes of an included course ²	A	A	A	–	A	–	A	–	A	–
2.	University Requirements — Add or drop a required course from the University Requirements ²	A	A	A	–	A	–	A	A	A	–
3.	University Requirements — Add or drop a course from a menu within the University Requirements ²	A	–	–	–	A	–	A	–	A	–
4.	University Requirements — Change hours within a menu in the University Requirements ²	A	A	A	–	A	–	A	A	A	–
	Change to Catalog Information (for Campus)										
1.	General Requirements for Bachelor's Degrees and Associate's Degrees	–	–	–	–	–	A	A	A	A	–
2.	Policies governing academic probation and suspension	–	–	–	–	–	A	A	A	A	–
3.	Requirements for graduating with honors	–	–	–	–	–	A	A	A	A	–
	Change to a Degree Plan Proposed by Faculty or College										
5.	Educational Program — Revise ³	A	A	A	A	–	A	A	–	A	–
6.	Educational Program — Adopt/change admission requirements	A	A	A	A	–	A	A	–	A	–
7.	Educational Program — Add ³	A	A	A	A	–	A	A	A	A	I
8.	Educational Program — Discontinue	A	A	A	A	–	A	A	A	A	I
9.	GPA — Revise program-required GPAs	A	A	A	A	–	A	A	–	A	–
10.	Minor — Revise	A	A	A	I	–	I	I	–	I	–
11.	Minor — Add	A	A	A	A	–	A	A	–	A	–
12.	Minor — Discontinue	A	A	A	A	–	A	A	–	A	–
13.	Degree — Add	A	A	A	A	–	A	A	A	A	I
14.	Degree — Discontinue	A	A	A	A	–	A	A	A	A	I
	Change to a Degree Plan Proposed By Provost										
15.	Educational Program — Discontinue	R	–	R	A	–	A	A	A	A	I
16.	Minor — Discontinue	R	–	R	A	–	A	A	–	A	–
17.	Degree — Discontinue	R	–	R	A	–	A	A	A	A	I

¹ When an academic unit does not have a council, the UGEC and/or UUAC will serve as its academic council, depending on the nature of the issue.

² Courses that satisfy ACU's University Requirements will normally have lower-level numbering, be free of prerequisites and co-requisites, appeal to more than one or two majors, and "not narrowly focus on those skills, techniques, and procedures specific to a particular occupation or profession" (SACS 2.7.3). Departments may request exceptions to the first three criteria.

³ For undergraduate majors, a minimum of 30 hours is required. These programs must have a minimum of 6 elective hours, unless the requirements of external accrediting bodies make it impossible.

Department/School Chair(s)	
	9/6/2022
_____ <i>Signature</i>	_____ <i>Approval date</i>
_____ <i>Signature</i>	_____ <i>Approval date</i>

College Academic Council(s)	
_____ <i>Signature</i>	_____ <i>Approval date</i>
_____ <i>Signature</i>	_____ <i>Approval date</i>

Dean(s)	
_____ <i>Signature</i>	_____ <i>Approval date</i>
_____ <i>Signature</i>	_____ <i>Approval date</i>

Teacher Education Council	
_____ <i>Chair's signature</i>	_____ <i>Approval date</i>

University General Education Council	
_____ <i>Chair's signature</i>	_____ <i>Approval date</i>

Abilene Undergraduate Academic Council	
_____ <i>Chair's signature</i>	_____ <i>Approval date</i>

Graduate Council	
_____ <i>Chair's signature</i>	_____ <i>Approval date</i>

Provost	
_____ <i>Signature</i>	_____ <i>Approval date</i>

Faculty	
_____ <i>Chair of Faculty Senate</i>	_____ <i>Approval date</i>

President	
_____ <i>Signature</i>	_____ <i>Approval date</i>

Application for Life and Physical Sciences Menu

Guidelines For All General Education Courses

1. All general education courses must be 100-level or above.
2. General education courses should present a breadth of knowledge, not focusing on skills, techniques, and procedures specific to a particular occupation or profession.
3. Individual courses will fulfill only a single general education requirement.
4. Courses free of prerequisites are preferred. Applications to add courses with prerequisites must provide additional evidence that the course contributes to a student's breadth of knowledge and is not specific to a particular occupation or profession.
5. Each course may appear on a maximum of two menus that accept applications (arts and humanities, cultural literacy, life and physical sciences, and social and behavioral sciences).

Life and Physical Sciences Description

Courses within this domain use the methods and models of the natural sciences to describe, explain, and predict phenomena in the physical world; they employ empirical evidence, scientific principles, and interactions among natural phenomena to understand the world around us.

Instructions

Complete this form and submit it with a course syllabus and approval chart to the University General Education Council. Faculty submitting an application should be prepared to perform annual assessment for their course. The assessment will be conducted with the rubric included in this course application.

Subject code, course number, and title of course:	CHEM 113 - Introductory Chemistry
Terms offered:	Fall, Spring, Summer
Catalog description:	Fundamental concepts of atomic structure; chemical reactions of acids, bases, and salts; behavior of solids, liquids, and gases; and solutions are presented to students of nursing and agriculture.
Course prerequisites:	ACT math score of 21 or above; or MATH SAT (prior to March 1, 2016) score of 550 or above; or MATH SAT (after March 1, 2016) score of 570 or above; or credit for MATH 120 or above.
Cross-listed courses: *Note: Many gen ed courses are cross-listed between the Abilene and Dallas campuses.	CHMO 113

Other general education menus on which the course appears or you are applying for:	N/A
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Prerequisites

The council understands that many of the courses on this menu will have corequisites and that the second course in a sequence may also have a prerequisite.

1. Is the course a lower-division (100- to 200-level) course in astronomy, biology, chemistry, physics, agricultural science, environmental science, or geology?

☒ Yes ☐ No

If yes, continue to 2. If no, please explain how this course meets the description of life or physical sciences above. Applications for courses originating in other disciplines will be considered.

2. Does the course have more than one prerequisite and/or more than one corequisite?

☐ Yes ☒ No

If no, continue to 3. If yes, please explain why an exception should be made to include this course in the Life and Physical Sciences menu.

3. If the course has prerequisites, provide evidence that the course contributes to a student's breadth of knowledge. Also provide evidence that the course content is not specific to a particular occupation or profession (200 words or less).

This course is an introductory level chemistry course. The prerequisite is to help ensure that students are able to carry out the low level mathematical manipulations required for this chemistry course. The mathematics prerequisite is the same as the minimum university mathematics requirement.

Relevant Outcomes

- C2: Analyze quantitative data, published writing, or observable phenomena to draw informed conclusions.
- C3: Interpret mathematical and/or logical models such as formulas, graphs, tables and schematics, and draw inferences from them; and
- C4: Integrate new data into their existing knowledge.

Describe how the course meets the C2 outcome (100 words or less).

Analyzing information from a variety of sources and drawing conclusions is central to chemistry. Throughout Introductory Chemistry, students analyze data and phenomena in a variety of ways including analyzing nutritional data to find the caloric content of food, analyzing information about the various elements and compounds to learn to categorize

them, and predicting strong and weak acids and bases based on presented values. The skill of learning to use data and phenomena can then be extended to new information when it is presented.

Describe how the course meets the C3 outcome (100 words or less).

In Introductory Chemistry, students are required to solve many types of chemical problems utilizing mathematical models. Students use mathematical models in dimensional analysis when converting between units and predicting the amount of product formed in a reaction. They use the Periodic Table throughout the semester to identify periodic trends, determine numbers of subatomic particles, and calculate mathematical problems involving mass and balanced chemical equations. In these two examples as well as the numerous other ways students are using models in Introductory Chemistry, students are then able to make predictions and to infer different conclusions for observable real-life chemical phenomena.

Describe how the course meets the C4 outcome (100 words or less).

Students utilize tools introduced throughout the course to solve new problems and to make predictions. Students have to integrate what they learn in class with their prior knowledge, often overcoming misconceptions, to then apply their knowledge and skills to these new problems. The difference between heat and temperature is one example of this. Provided with data, students begin to process that heat and temperature are different and moving forward, utilize this knowledge in making predictions regarding the temperature of materials with different specific heat capacities and solving mathematical problems to determine the change in heat or energy of a substance.

Outcomes assessment should occur within one or two exams/assignments. Please indicate which exams or assignments will be used for each outcome. Provide assignment prompts if available.

Area to Be Assessed	Assessment Artifact
Outcome C2	Final Exam
Outcome C3	Final Exam
Outcome C4	Final Exam

Please use the following rubric to perform assessment each year.

Student Learning Outcome C2

Students will be able to:	Shortcomings	Meets Expectations	Points of Excellence
Analyze data to draw conclusions	Lacks sufficient analysis of data or published writing.	Analyzes data and/or published writing in an effective manner.	Analyzes data and/or published writing in an exemplary manner.

Student Learning Outcome C3

Students will be able to:	Shortcomings	Meets Expectations	Points of Excellence
Interpret mathematical and/or logical models such as formulas.	Little to no demonstrated ability to interpret relationships and/or data in models.	Demonstrates ability to interpret relationships and/or data in models.	Exceptional ability to interpret relationships and/or data in models.

Student Learning Outcome C4

Students will be able to:	Shortcomings	Meets Expectations	Points of Excellence
Integrate new data into their existing knowledge	Shows little to no grasp of new information and/or does not demonstrate adequate connection to previous learning.	Grasps new information and makes connections to previous learning.	Exceptional grasp of new information and/or demonstrates outstanding ability to connect to previous learning.

Attendance Policy: Because of the nature of the subject and size of the class, this is primarily a lecture course. Attendance is expected and required. The professor may drop a student from the class who has more than **9** absences (excused and unexcused). Roll will be taken in the form of a sign-in sheet. If you are tardy, please see the professor after class to assure that you were counted as present (do not chase the roll sheet). Absences will be excused for illness with accompanying doctor's note, death in the family, school sanctioned trips, or other reasons approved by the instructor. The university policy for school sanctioned absences is attached.

Course Learning Objectives

After completing this course students will:

1. Describe the basic nature matter.
2. Use quantitative and critical skills to solve problems.
3. Understand the impact of chemistry on daily life.

Course Requirements:

Homework: Problems from each chapter will be assigned from Mastering Chemistry implemented through Canvas (click on the "Course Materials" link in the right-hand course navigation). Due dates will be given in Canvas. All homework will be turned in online. **The student is ultimately responsible for issues with technology.** When there are difficulties, the student should reach out to technology support listed in Course Resources.

Quizzes Ten quizzes will be given during the semester, generally on Fridays. Quizzes will be based upon assigned homework, material covered in lecture, and assigned reading. The quiz will be given at the beginning of the period and will be collected after 10 minutes. If you arrive late to the quiz, you will only have until the 10 minutes given to everyone else is up. The two lowest quiz scores will be dropped. **Quizzes will not be made up if you are absent or arrive after the quiz has been given. Since two quizzes will be dropped, quizzes will not be made up for excused absences.** If more than two quizzes are missed for excused absences, the problem will be dealt with on an individual basis.

Exams: Four exams will be given during the semester. Attendance is required at exams. The professor must be notified **BEFORE** the exam if you will not be able to attend. Make-up exams will only be given for excused absences (see attendance policy.)

Final: The final exam will be comprehensive. The final will be on Thursday, December 15 from 2:00-3:45 PM.

Grading:**Summary of Activities:**

4 Exams	60%
Final	15%
Quizzes	15%
<u>Homework</u>	<u>10%</u>
Total	100%

Grade Distribution:

A	90%
B	80%
C	70%
D	60%
F	Below 60%

Groups: Students will be assigned to groups which will generally consist of 4 students each. Groups are for the purpose of studying, doing homework, and working in teams for in class assignments. Groups will sit together in class. Students are not required to participate in a group. Your group will not have a negative effect on your grade, unless you do not participate. (See Participation.) It can however have a positive effect. The average of the group members' individual scores on the three exams and the final can raise the grade by the corresponding amount.

Exam Average	Raised
C	0.5 %
B	1.0 %
A	1.5 %

Electronic Devices: Please bring your Smart Phone, Tablet, or laptop to class, but make sure they are in silent mode (OFF during testing). Your participation grade will be impacted if a device is used for something besides class activities. Students are not allowed to wear headphones during class. **No phones or smart watches will be allowed on student desks during quizzes or exams.**

Academic Integrity: Academic integrity is defined as academic work completed as assigned for each class by the individual or group responsible for the work. Violations of academic integrity and other forms of cheating involve the intention to deceive, mislead, or misrepresent and therefore, are a form of lying. Such actions are contrary to behavioral norms that flow from the nature of God. Academic misconduct includes, but is not limited to, the following: 1) Failure to give credit to sources used in a work in an attempt to present the work as one's own, 2) Submission of papers or projects obtained from another source (e.g., research service or club paper file) as one's own, 3) Falsifying information orally or in writing, and 4) Receiving, giving, or using unauthorized aid on an examination or quiz.

The first instance of academic misconduct will result in a 0 for the assignment. A second incident will result in an F in the course. Additionally, the department chair, Dean of the College of Arts and Sciences, and the Dean of Student Life will be notified. See the full university policy, including how to appeal a decision, by following this link:

<https://www.acu.edu/community/offices/administrative/office-of-the-provost/academic-integrity-policy/overview.html>

The Americans with Disabilities Act (ADA): Abilene Christian University is dedicated to removing barriers and opening access for students with disabilities in compliance with ADA and Section 504 of the Rehabilitation Act. The Alpha Scholars Program facilitates disability accommodations in cooperation with instructors. In order to receive accommodations, you must be registered with Alpha Scholars Program, and you must complete a specific request for each class in which you need accommodations. If you have a documented disability and wish to discuss academic accommodations, please call the Alpha Scholars Program office directly at 325-674-2667.

Dress Code: Students should conform to the dress code as outlined in the Student Handbook. Students wearing inappropriate attire will be asked to leave class.

Tentative Schedule Fall 2022:

Monday	Tuesday	Wednesday	Thursday	Friday
August 29 Week 1 - Intro (sci not, sig figs)	30	31	Sept. 1 Homework 1 Due	2 Week 1 Quiz
5 Week 2 - Conversion factors, Percent and Density	6	7	8 Homework 2 Due	9 Week 2 Quiz
12 Week 3 - Matter, Temperature, and Energy Tutoring 4-7 PM in Hal 332	13 Tutoring 4-7 PM in Hal 332	14 Tutoring 3-6 PM in Hal 332	15 Homework 3 Due	16 Week 3 Quiz
19 Week 4 - Energy and Nutrition, Specific Heat and Changes of State Tutoring 4-7 PM in Hal 332	20 Tutoring 4-7 PM in Hal 332	21 Tutoring 3-6 PM in Hal 332	22 Homework 4 Due	23 EXAM 1
26 Week 5 - Elements and Periodic Table Tutoring 4-7 PM in Hal 332	27 Tutoring 4-7 PM in Hal 332	28 Tutoring 3-6 PM in Hal 332	29 Homework 5 Due	30 Week 5 Quiz
October 3 Week 6 - Electron Energy Levels and Periodicity Tutoring 4-7 PM in Hal 332	4 Tutoring 4-7 PM in Hal 332	5 Tutoring 3-6 PM in Hal 332	6 Homework 6 Due	7 Week 6 Quiz
10 Week 7 - Ions and Ionic Compounds Tutoring 4-7 PM in Hal 332	11 Tutoring 4-7 PM in Hal 332	12 Tutoring 3-6 PM in Hal 332	13 Homework 7 Due	14 Week 7 Quiz

Monday	Tuesday	Wednesday	Thursday	Friday
17 Week 8 - Covalent Compounds Tutoring 4-7 PM in Hal 332	18 Tutoring 4-7 PM in Hal 332	19 Week 8 Quiz Tutoring 3-6 PM in Hal 332	20 Homework 8 Due	21 FALL BREAK
24 Week 9 - Chemical Reactions Tutoring 4-7 PM in Hal 332	25 Tutoring 4-7 PM in Hal 332	26 Tutoring 3-6 PM in Hal 332	27 Homework 9 Due	28 EXAM 2
31 Week 10 - The Mole and Chemical Reactions Tutoring 4-7 PM in Hal 332	November 1 Tutoring 4-7 PM in Hal 332	2 Tutoring 3-6 PM in Hal 332	3 Homework 10 Due	4 Week 10 Quiz
7 Week 11 - Solutions and Solubility Tutoring 4-7 PM in Hal 332	8 Tutoring 4-7 PM in Hal 332	9 Tutoring 3-6 PM in Hal 332	10 Homework 11 Due	11 Week 11 Quiz
14 Week 12 - Concentration Tutoring 4-7 PM in Hal 332	15 Tutoring 4-7 PM in Hal 332	16 Tutoring 3-6 PM in Hal 332	17 Homework 12 Due	18 EXAM 3
21 Week 13 - Chemical Equilibrium Tutoring 4-7 PM in Hal 332	22	23 Thanksgiving Break	24 Thanksgiving Break	25 Thanksgiving Break
28 Week 14 - Acids and Bases Tutoring 4-7 PM in Hal 332	29 Tutoring 4-7 PM in Hal 332	30 Tutoring 3-6 PM in Hal 332	December . 1 Homework 13 Due	2 Week 14 Quiz
5 Week 15 - Acids, Bases, pH Tutoring 4-7 PM in Hal 332	6 Tutoring 4-7 PM in Hal 332	7 Tutoring 3-6 PM in Hal 332	8 Homework 14 Due	9 EXAM 4
12	13	14	15 Final Exam 2:00-3:45 PM	16

