

**PITTSBURG STATE UNIVERSITY
COLLEGE OF ARTS AND SCIENCES
DEPARTMENT OF Chemistry**

Chem 215-01: General Chemistry I

Spring 2019

**Course Intended for Partial Fulfillment of the Pitt
State Pathway Curriculum**

LECTURE: 8:00-8:50 AM MWF; 102 Yates

INSTRUCTOR and EMAIL: Dr. K. Siam: ksiam@pittstate.edu

OFFICE: 307 Yates Hall Room 301

OFFICE HOURS: MWF 10:00 AM-12:00 PM or By Appointment

PITT STATE PATHWAY

Pitt State Pathway Mission Statement: The Pitt State Pathway curriculum serves as the heart of the university education by fostering interdisciplinary competencies that typify the educated person. It is designed to facilitate the development of key proficiencies including communication and information literacy. The *Pitt State Pathway* curriculum provides a transformational experience that challenges students to think creatively and critically, and to immerse themselves in the productive examination of humans in their global setting. By encouraging the development of skills that promote life-long learning, the Pitt State Pathway fosters a sense of personal responsibility, an appreciation of diversity, and an understanding of interconnectedness in our truly global society.

Essential Study to be covered in this course: Natural World within a Global Context

Biological, physical, and chemical systems form the context for life. Students need to understand how these systems work, how these change naturally, and how these can change as a result of human activities. The implications of these changes are essential for long-term decision-making. In this course we will:

- Analyze physical and chemical systems;
- Evaluate the implications of changes that result from interactions between natural and human systems.

Companion Element to be covered in this course: Scientific Inquiry

The scientific method is the systematic approach to understanding the world around us. Through experimentation and hypothesis testing, students will apply analytical skills and appropriate methods of scientific inquiry (i.e. qualitative and quantitative) to solve a variety of research questions. In this course we will:

- Compose* appropriate research questions and hypothesis, drawing from experts, reliable sources, or previously collected data.
- Collect, synthesize, and analyze data from multiple sources;
- Draw logical conclusions, assessing for gaps and weaknesses, and addressing potential consequences and implications

Communicate results using appropriate delivery methods or formats.

TEXT: “Chemistry” by Nivaldo J. Tro, Fourth Edition with the Modified MasteringChemistry Card. The best way to buy the text is as the loose-leaf form in a package with the Modified Mastering Card from the PSU bookstore. To save money you can buy the ebook package with the Modified Mastering Card from the PSU bookstore.

ONLINE HOMEWORK: Homework will be carried out and graded through CANVAS using the “Modified MasteringChemistry Card” You are required to buy this resource and use it for the first homework due during the second week of class. The homework will be accessed through **My Lab & Mastering** on CANVAS.

COURSE DESCRIPTION: CHEM 215 is an introduction to calculations, atomic structure, atomic periodicity, molecular bonding, chemical reactions, and gases. An introductory course for students planning a science major.

PREREQUISITES: Students must have a score of at least 20 on the math portion of the ACT or they must have passed either CHEM 105 or MATH 113. CHEM 216 General Chemistry Laboratory is a corequisite (or prerequisite) although it is a separate course. If you drop CHEM 215 any time during the semester, you are required to drop the CHEM 216 lab and vice versa.

CANVAS: Power Point slides used in class will be available on “CANVAS”. The syllabus, test keys, quiz keys, test grades and quiz grades will be posted on CANVAS. Grade averages calculated by CANVAS are only approximate—official averages will be determined at the end of the course.

Natural World within the Global Context: Level of Student Learning = Milestone II

Analyze physical and chemical processes and how human activities alter them

Scientific Inquiry: Level of Student Learning = Milestone II

Upon completion of the course, you should be able to:

- Solve problems in chemistry and perform the analysis of scientific data using numerical methods.
- Articulate and utilize the laws of multiple proportions, Gas laws, Hess’s Law, etc.
- Understand the basic properties of the elements and compounds.

Student will apply the scientific methods to a problem. Students will compare tools of analysis and communicate results

Certain fundamental skills will be used throughout this course and the associated laboratory course. As a result, you should attain some degree of mastery in each of the following areas:

1. Vocabulary and basic mathematical concepts of chemistry.
2. SI units, both fundamental and derived, and their conversions.
3. Graphing data and mathematical relations: producing, interpreting, and using math as a tool.

4. Modeling and predicting: Develop and improve abilities for abstraction, analysis, and pictorial intuition.
5. Problem solving in chemistry.
6. Scientific method: Examine methods and insights by which knowledge has grown in chemistry and science in general.
7. Empirical techniques: Gather and analyze data, synthesize, observe, and draw conclusions.
8. Applications to real life situations: Comprehend physical components and their relation to the universe.
9. Organizing principles of chemistry: laws, methods, and history of thought in the sciences.
10. A humanistic and integrated view of man, science, society, and nature as exemplified by chemistry.

Methods of Assessment:

Students will be assessed using various techniques including: homework, exams, and in-class work. Students will describe, explain and analyze items, principles, and processes related to learning outcomes. (Milestone II)

GRADES: Grades will be based on 4 one-hour exams, quizzes, a final exam, attendance, and homework problems. Quizzes should be expected on the day homework assignments are due. The quizzes are designed to see how well you understood the homework assignment.

4 Hour Exams	45 %
Quizzes.....	15 %
Homework.....	15 %
Attendance	5 %
Final Exam.....	20 %

Your final course grade will be based on the following scale:

85 to 100 percent.....	A
70 to 84.9 percent.....	B
55 to 69.9 percent.....	C
40 to 54.9 percent.....	D

ATTENDANCE: Your attendance will be recorded at various times and this attendance record will be used to determine 5% of your grade. Absences will be considered excused only for documented illness or exceptional circumstances which generally must be reported prior to the absence. Absences for university sponsored events must be reported as early in the semester as possible. Absences will be considered unexcused if there appears to be any delay in reporting the reason for the absence. Make-up exams may be given for excused absences. No make-up quizzes will be offered but the quiz average may be adjusted for an excused absence.

ACADEMIC HONESTY: Academic dishonesty on any exam, quiz, or assignment will result in an “F” for the exam, quiz, or assignment. A second offense will result in a grade of “F” or “XF” for the course. In all cases, proper due process consistent with the “Code of Students’ Rights and Responsibilities” will be followed.

The PSU Academic Honesty and Integrity policy is found online at

http://catalog.pittstate.edu/contentm/blueprints/blueprint_display.php?bp_listing_id=162&blueprint_id=124&sid=1&menu_id=7980

SYLLABUS SUPPLEMENT: The PSU Spring 2019 syllabus supplement may be found online at:

https://www.pittstate.edu/registrar/_files/documents/syllabus-supplement-spring-2019-updated-10-5-18-.pdf

CALCULATORS and CELL PHONES: Everyone should have a basic scientific calculator that carries out basic math, trig, and log operations but has limited memory (about \$10). This calculator can be used on all quizzes and exams. The use of advanced calculators (or computers) with graphing or alphabet capabilities should not be used on quizzes or exams. Calculators cannot be shared during a quiz or exam unless approval is obtained from the instructor. Cell phones may not be used during a quiz or test—you may be asked to leave your cell phone in the front of the room during a test. No smart watches or any other electronic device for communication, photography, data storage, etc. are allowed during any quiz or test.

TENTATIVE SCHEDULE:

Week	Dates	Chapter/Exam	
1	Jan 14--18	1	
2	Jan 23--25	2	
3	Jan 28--Feb 1	2	
4	Feb 4--8	3	
	Feb 8	Exam 1	(Friday)
5	Feb 11--15	3	
6	Feb 18--22	4	
7	Feb 25—Mar 1	4	
8	Mar 4--8	5	
	Mar 8	Exam 2	(Friday)
9	Mar 11--14	Spring Break	
10	Mar 18—22	5	
11	Mar 25--29	5,6	
12	April 1--5	6	
	April 5	Exam 3	(Friday)
13	Apr 8--12	6	
14	Apr 15--19	7	
15	April 22--26	8	
	Apr 26	Exam 4	(Friday)
16	Apr 29—May 3	9,10	

*Final Exam (Wednesday, May 8, 8:00 to 9:50)**

*Do not make travel plans that interfere with this date. Everyone is expected to take the exam at the scheduled time.