

CHEM 1515 - General Chemistry 1

Summer 2026 Syllabus, Section 01, CRN 30053,

Credit hours: 3

Instructor

Ali Abbaspourtamijani

Professional Qualifications:

Industrial Experience as a Senior Scientist 2022

Postdoctoral Research Associate, Brown University 2020

Postdoctoral Research Associate, University of Iowa 2017

Ph. D., Chemistry, Wake Forest University 2016

Master's, Chemistry, University of Tehran 2009

Bachelor's, Chemistry, Sharif University of Technology 2006

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Preferred Contact Method: Email or Course Blackboard Account Messaging System

Communication Expectations:

In-person, by email, through course blackboard account, during the support hours, or by appointment

How to Refer to me:

Dr. Ali

Course Description

1515. General Chemistry 1. An introduction to the fundamental principles of chemistry, including measurement and calculation; chemical stoichiometry; the properties of gases; atomic and molecular structure; bonding; thermochemistry; and periodic properties. Intended for majors in the natural sciences and engineering. Three hours lecture. Prereq.: "C" or better in CHEM 1501 or equivalent; "C" or better in MATH 1513 or "C" or better in MATH 1510. Coreq.: CHEM 1515L; CHEM 1515R if major or repeating CHEM 1515. 3 s.h.

Course Readings

Group	Title	Author	ISBN
Required	Chemistry: A Molecular Approach	Nivaldo J. Tro	
Required	Course Notes	Dr. Ali	
Required	Class Notes	Dr. Ali	
Required	Scientific Calculator	N/A	

- I can and do occasionally work out examples (either in the notes or in class) or discuss topics that I find relevant to this course but are not directly from the above reference book. Although I will quiz you about those specific topics and examples or similar ones, I will not quiz you about the books or any other resources those additional examples are from.
- I will post notes on Blackboard regarding the main topics covered in the course. Those notes will have examples. I will also go over some examples and notes in class. However, the examples covered in class will not necessarily be exactly the same as the examples covered in posted notes. In fact, the two may be very different. I will, however, ask questions in exams that are from posted notes, examples covered in class, and of course the book itself as well as any other example I find relevant to the course. As such, I recommend that students attend classes all the time, in order to succeed in the course. All course posted notes can be found on blackboard after each chapter is completed in class. As mentioned above, these notes can and will be different than the class notes. I therefore suggest students attend classes regularly to ensure exposure to the course materials.
- Scientific calculator (capable of calculating roots, logarithms, exponential notation). The calculator must be unprogrammable.

The course readings are subject to change in the event of extenuating circumstances, research developments, current events, and/or to ensure better learning.

Schedule of Topics and Assignments

Day	Date	Reading(s)	Proposed Topic	Due/To Prepare for Class
Mon	6/29	Chapter 1	Introduction, Significant Figures (Sig. Fig.) Scientific Method, Matter, Temp., Density	Chapter 1
Wed	7/1	Chapters 1,2	Units, Dimensional Analysis Structure of the Atom, Protons, Neutrons, Electrons, Periodic Law, Table	Chapters 1,2
Fri	7/3	-	University Closed	-
Mon	7/6	Chapters 2,3	Ions, Atomic Mass, Molar Mass, Chemical Bond Chemical Bond, Chemical Formula, Nomenclature	Chapters 2,3
Wed	7/8	Chapters 3,4	Nomenclature, Reaction Reaction, Balancing, Stoichiometry, Limiting, %Yield	Chapters 3,4
Fri	7/10	Chapters 1,2,3,4	Exam 1	Chapters 1,2,3,4
Mon	7/13	Chapters 5,6	Solutions, Electrolytes, Molarity Gases	Chapters 5,6
Wed	7/15	Chapter 6	Gases, Gas Laws, Ideal Gases Gas Density, Mole Fraction, Partial Pressure	Chapter 6
Fri	7/17	Chapters 6,7	Kinetic Theory, Effusion, Diffusion, Real Gases Thermochemistry, System	Chapters 6,7
Mon	7/20	Chapter 7	System, Enthalpy, Endothermic, Exothermic Calorimetry, Heats of Reaction	Chapter 7
Wed	7/22	Chapter 7	Hess's Law, Standard Heat of Formation	Chapter 7
Fri	7/24	Chapters 5,6,7	Exam 2	Chapters 5,6,7
Mon	7/27	Chapter 8	Light, Electromagnetic Radiation H-atom, Bohr Atomic Model, Quantum numbers	Chapter 8
Wed	7/29	Chapter 8	Quantum Numbers, Orbitals Electron Configurations, Aufbau, Periodic Properties	Chapter 8
Fri	7/31	Chapter 9	Ions, Periodic Trends, Bonding Lewis Symbols, Polarity, Electronegativity, Octet Rule	Chapter 9
Mon	8/3	Chapter 10	Octet Rule, Lewis Structures Lewis Structures, Formal Charge	Chapter 10
Wed	8/5	Chapter 10	Resonance Formal Charge Rules	Chapter 10
Fri	8/7	Chapters 8,9,10	Exam 3	Chapters 8,9,10
Mon	8/10	Chapter 11	VSEPR Theory, Geometry Geometry, Valence-Bond Theory, Hybridization	Chapter 11
Wed	8/12	Chapter 11	Hybridization Molecular Orbital Theory	Chapter 11
Fri	8/14	Chapters 1,2,3,4,5,6,7,8,9,10,11	FINAL EXAM (COMPREHENSIVE), 12 p.m. – 2 p.m.	Chapters 1,2,3,4,5,6,7,8,9,10,11

The course schedule, policies, procedures, and assignments in this course are subject to change in the event of extenuating circumstances, by mutual agreement, and/or to ensure better learning.