# A yellow and red palm tree image flanking the college of the desert icon. Image result for college of the desert logoChemistry 1A

# Syllabus

## Course Title & Course/Section Numbers

GEN CHEMISTRY I : CH-001A / 6225

Units 5

## Term

Spring 2020

## Class Days/Times

Section 6225: Lecture M and W / 5:15-7:20 PM

Lab TH : 5:15 - 8:20 PM

## Class Location (Building/Room)

Lecture (MSTC/153)

Lab (MSTC/205)

## Instructor

Dr. D. Mayo

## Contact Information

* Email: damayo@collegeofthedesert.edu

## Office Hours / Location

All office hours are held in my office **S-7**

Monday-8-9:00am, 3-4:00pm

Tuesday-8-9:00am

Wednesday- 3-5:00pm

Thursday- By apt.

Friday- By apt.

## Course Description

## This is the first course of a two-semester sequence covering the basic principles and concepts of chemistry with emphasis on chemical calculations. Inorganic chemistry is stressed, and the material includes a discussion of atomic structure, chemical bonding, molecules, reaction types, states of matter, and the properties of solutions. The laboratory part of the course complements the lectures and includes qualitative analysis.

## Course Pre-requisites, Co-requisites or Advisories

* Prerequisites: CH 003 - Introductory General Chemistry or 1 year of high school chemistry and MATH 012 - Pre-calculus

## Student Learning Outcomes

1. Analyze data using stoichiometric calculations to draw plausible conclusions.
2. Relate the macroscale phenomena of daily life to microscale atomic concepts.
3. Apply chemical terminology to provide explanations of observed chemical phenomena.
4. Perform laboratory experiments using modern chemical equipment safely and accurately.
5. Identify the essential parts of a problem and formulate a coherent and empirically valid strategy for solving the problem.

## Course Objectives

1. Describe atomic structure to the level of atomic orbitals and explain the relationship to periodicity
2. Distinguish between different types of chemical bonds.
3. Describe the shapes of molecules in terms of valence bond theory, hybrid orbitals,and molecular orbitals.
4. Solve problems in stoichiometry.
5. Recognize and analyze the different varieties of chemical reactions, including balancing REDOX equations.
6. Describe the kinetic molecular theory of matter, states of matter, and use the gas laws in calculations.
7. Analyze the properties of solutions and perform relevant calculations.

## Required Materials

* Lecture text:

Chemistry, Structure and Properties by Nivaldo J. Tro, second edition, Publisher Pearson ISBN: 10: 0134293932 or ISBN 13: 978-0134293936

* Lab text: Laboratory Manual for Principles of General Chemistry, 10e, Beran, J.A. Publisher J. Wiley ISBN: 978-1-118-62151-6
* Supplemental Materials:
  + 3’’ notebook
  + 4 Scantrons (882E) / Long Green
  + 3X5 index cards
  + Scientific (non-programable) calculator
* Access to the internet is required for this course.

## Graded Components

* Homework/Assignments: 5%
* Participation/Professionalism: 5.0%
* Quizzes: 15.0%
* Lab: 20.0% (You must get a 60.0% in lab to pass the course)
* 4 Exams: 10.0% each (Total: 40%)
* Final Exam: 15.0 %

## Graded Components

### Participation/Professionalism

Participation points will be awarded for active discussion in class, coming to class on time and online activities before/after class. Students are expected to notify the instructor of any anticipated absences or late/missed assignments *prior* to the due dates by phone or email. Excused absences still count toward the three “missing” labs. Vacation or work conflicts are not considered excusable.

Class meetings start as listed on the schedule. Conversations should end at that time, and you should be prepared to commence taking notes. If you arrive late, please enter quietly through the back door of the classroom. Keep cell phones silenced for the duration of the class. One of the goals of this class is to prepare students to be successful professionals. Professionalism points will be lost for class room disruptions (Examples: cell phones, talking in class)

### Homework

Homework will be assigned weekly and collected.

### Lab

The lab report grade represents the student’s entire performance for a given day. This means that attendance, attitude, cleanliness, efficiency, comprehension, organization, calculations, and answers to prelab/postlab questions are all accounted for in the score for an individual lab report. Experiments will be performed in groups of two. Each group is expected to carry out the entire experiment with no outside collaboration, unless directed otherwise, and every student within a group is expected to take part in performing the experiment. Lab reports shall be turned in one week after the experiment is performed.

### Quizzes

Four quizzes shall be given this semester. They will be short, covering recent material. Quizzes serve as a way to show both the student and instructor which areas warrant additional study/review in preparation for the next exam.

### Exams

There will be **NO** make-up examinations. Exams missed for any reason will result in a score of zero. Confirmed illness will be handled by the instructor on an individual basis as it relates to absence on the day of an exam.

### Final Exam

The final exam will be comprehensive. There are no make-ups.

## Grade Weights or Point System

* F = 0% - 59.9%
* D = 60.0% - 69.9%
* C = 70.0% - 79.9%
* B = 80.0% - 89.9%
* A = 90.0% - 100%

## Instructor Drop Policy

Regular attendance in lecture and laboratory is **mandatory**. It is at the instructor’s discretion to drop a student for excessive absences. This includes not showing up on time for the first day of class or missing three or more classes during a semester.

## Instructor Late Policy

If an assignment is late, 20% of the assignments value will be deducted per day (weekend days are counted singly).

## Academic Integrity

All students are expected to do their own work. This does not preclude collaboration and group study, but it does mean that anything put to paper and turned in is expected to come from the student named on the paper. Cheating, or anything that can be construed as cheating (hint: if you find yourself wondering whether it counts as cheating, it does) will result in forfeit of grade for that activity.

There will be no inter-student communication during in-class quizzes and exams; any comments or questions are to be directed towards the instructor. Laboratory experiments will often be done in pairs, but each student is expected to record their own data throughout the experiment. This means that, for example, “observations” are to be made and recorded at the time of the actual observation. It is not acceptable for one partner to take notes throughout and the other partner to copy everything at the end of lab; such practices will result in a significantly reduced grade for that report for both partners.

In accordance with College of the Desert’s Student Code of Conduct, cheating and plagiarism will not be tolerated. Incidents of cheating and/or plagiarism will result in a failing grade on the work and a report filed with the Office of Student Life.

## Classroom Conduct

Students are required to be respectful to the instructor and their fellow students before, during and after class/lab.

# Emergency Evacuation Plan

In the event of an emergency evacuation during class that requires evacuation of the building, please leave the class immediately, but calmly. Our class will meet in the football field, at which point the instructor will take a headcount to make sure everyone has exited the building safely. If you are a student with a disability who may need assistance in an evacuation, please see me during my office hours as soon as possible so we can discuss an evacuation plan.

## Disabled Students Programs and Services

College of the Desert views disability as an important aspect of diversity, and is committed to providing equitable access to learning opportunities for all students. Disabled Students Programs and Services (DSPS) is the office that collaborates with students with disabilities to provide reasonable accommodations. Please contact the DSPS office at (760) 773-2534, [dspsinfo@collegeofthedesert.edu](mailto:dspsinfo@collegeofthedesert.edu), or visit CSSC Room 101 for more information. Once registered with DSPS, students will be provided with a DSPS Faculty Notification Letter that can be shared with faculty.

## Additional Student Resources

* Library Services, Tutoring and Counseling can all be accessed through your student Canvas website at: [MyCOD](http://collegeofthedesert.edu/pages/mycod.aspx) (<http://collegeofthedesert.edu/pages/mycod.aspx>)
* Internet Links and Resources

## Important Dates

* (Feb 3): Last day to ADD
* (Feb 3): Last day to DROP and qualify for a refund
* (Feb 9): Last day to DROP without a “W”
* (Apr 24): Last day to DROP with a “W”
* (May 20 W:6:00pm): Final Exam

## Tentative Lecture and Assignment Schedule

All lectures and assignments may be modified at the instructor’s discretion. Please see CANVAS for all current and upcoming events and assignments.

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| --- | --- | --- | --- |
| Week | Day:  Friday | Lab # | Lab Description |
| 1 | Jan. 30 | Safety | Introduction, Laboratory Safety,  Measurements and Significant Figures ( Dry Lab 1A-D) |
| 2 | Feb. 6 | Exp. 1 | Pages 51-58 |
| 3 | Feb. 13 | Exp. 11 | Periodic Table (A, B1,E3 ( E1, E2 instructor demos)) pages 149-160 & Atomic Structure DL3 A,B,C pages 161-169 |
| 4 | Feb. 20 | Exp. 5 | Percent water in a hydrated salt. Pages 85-90. |
| 5 | Feb. 27 | Exp. 7 | Empirical Formula, A & C pages 115-122 |
| 6 | Mar. 5 | DL3D | Molecular Structure page 170 & build molecular models |
| 7 | Mar. 12 | Exp. 20 | Alkalinity of a water source, A,B,C,D pages 245-254 |
| 8 | Mar. 19 | Exp.20 | Calculations of the titration results |
| 9 | Mar. 26 | Exp. 6 | Acids, bases, and salts, pages 103-114 |
| 10 | Apr. 2 | Handout | Spec 20 Lab |
| 11 | **Apr.**  **9** |  | No lab |
| 12 | Apr.  16 | Exp. 13 | Molar Volume of CO2, pages 181-188 |
| 13 | Apr. 23 | Exp. 25 | Calorimetry Part A+B  pages 293-304 |
| 14 | Apr. 30 | Exp. 25 | Calorimetry Part C + Graphing  pages 293-304 |
| 15 | May 7 | Exp. 14 | Molar Mass of a solid, pages 189 – 198 |
| 16 | May 14 |  | Clean up the lockers / Lab Practical |
| 17 |  |  | FINAL |

## Lab Schedule

The lab schedule may be modified at the instructor’s discretion. Please see CANVAS for all upcoming labs. Labs **will not** always be in the same order as the lab manual.

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| --- | --- | --- | --- |
| Week # | Days | Chapter # | Lecture Description |
| 1 | Jan. 27/29 | 0 & 1 | Units, Measurement + Atoms |
| 2 | Feb. 3/5 | 2 | The Quantum Mechanical Model of the Atom |
| 3 | Feb. 10/12 | 3 | Periodic Properties of the Elements |
| 4 | Feb. 17 (No class)  /Feb 19 | 3 | **Exam #1** |
| 5 | Feb. 24/26 | 4 | Molecules and Compounds |
| 6 | Mar. 2/4 | 5 | Chemical Bonding I |
| 7 | Mar. 9/11 | 6 | Chemical Bonding II |
| 8 | Mar. 16/18 | 7 | Chemical Reactions / **Exam #2** |
| 9 | Mar. 23/25 | 7 & 8 | Solutions and Aqueous Reactions |
| 10 | Mar. 30  Apr. 1 | 10 | Gases |
| 11 | Apr.  6/8 | 9 | No Lecture |
| 12 | Apr.  13/15 |  | Thermochemistry |
| 13 | Apr. 20/22 | 11 | Thermochemistry / **Exam #3** |
| 14 | Apr. 27/29 | 13 | **Liquids, solids and Intermolecular Forces** |
| 15 | May 4/6 | 13 | Solutions |
| 16 | May 11/13 |  | **Exam #4** / Final Review |
| 17 |  |  | Final |

## Lecture schedule