Chemistry 151 Hybrid; CRN:23111; Fall 2017
Instructor: Daniel Evans, Ph.D.
Day/Time/ Place: Tuesday 9:00 am – 12:05 pm (Lab)
Course Length: 16 weeks
Office Hours: BONH 312 (after lab)
Phone: 818-472-8039
E-mail: 1drdan@gmail.com or devans@canyons.edu

4 units: UC and CSU transferable
UC credit limitation: CHEM 110 and 151 combined, maximum credit, one course
Grading: Letter Grade
Prerequisite: Math 060, or its equivalent as determined by COC Assessment Center

Welcome to Preparatory General Chemistry 151, a one semester preparatory course for CHEM 201. CHEM 151 offers you an intensive foundation in problem solving, basic atomic theory, stoichiometry, nomenclature, states of matter, and solution chemistry. Laboratory experiences will reinforce principles and concepts learned in lecture and online. You will work with glassware and equipment found in modern chemistry labs. Students that need a non-major chemistry course should take CHEM 110.

Even though CHEM 151 is considered an Introductory or Preparatory course, it is an intense class with a fast pace. We will be covering about one chapter in the book per week. It is extremely important that you participate (discussions, homework, quiz’s, and lab) on a regular basis, not participating for one week can result in you being dropped from the course.

The best advice for this course is to set up a study group with your classmates as soon as possible. Use the tutors in MESA and the TLC. Stay up with the reading and assigned work – the semester goes by very quickly.


Required Materials: Chemistry 151 : Laboratory Manual
Laboratory goggles
MasteringChemistry.com account (Course ID: Chem151Fall16)
(comes included with new book or purchased separately)

First day of Class: Tuesday August 22, Lab in BYKH 304 (9:00 am – 12:05 pm). If you do not show up this day, you will be dropped. If you are on the waitlist and want to add, please show up this day. Waitlisted students who are present are given preference over students higher on the waitlist, but not present.
**Canvas access:** Please log into Canvas by visiting http://cv.canyons.edu by the first scheduled date of our course. Login information and helpful guides are provided on the website.

If you have not logged into a Canvas course before, I strongly urge you to log in to the portal before the first day of class, in case of complications or technical problems. Better to get those resolved well in advance. I also recommend that you take advantage of the Canvas Help guides or tutorial. Become familiar with the tools and techniques in Canvas to make your interaction with the platform easier for you.

The link to canvas is on the Canyons.edu site with this circular symbol on the link.

- For assistance with Canvas, go to the Distance Learning Canvas help page: https://www.canyons.edu/Offices/DistanceLearning/Pages/CanvasAccess.aspx

**HARDWARE:** You must have daily access to a PC (not just a phone) equipped with reliable online access. This includes access during times when COC computer labs are closed, i.e., you cannot rely only upon COC computer access. PLEASE NOTE: Technical difficulties, such as loss of internet access, a broken computer, or “my dog ate my hard drive”, will NOT be accepted as excuses for failing to complete the required assignments.

**EMAIL:** You must have and use your Canyons email address. This will be your primary form of contact and you should get used to checking it daily, including the week before class starts.

**Internet Browsers:** If a website is not working properly, try a different browser. Internet Explorer, may be the least reliable, Firefox and Google Chrome may be the most reliable, Navigator may be somewhere between. Browsers come with plug-ins; such as Flash, and more, these may also need to be updated.

**COURSE DESCRIPTION**
A preparatory course for Chemistry 201. Provides basic foundation in problem solving, atomic theory, stoichiometry, nomenclature, states of matter, and solution chemistry. Laboratory enforces principles learned in lecture and emphasizes the development of skills in measurement and observation. UC credit limitation: CHEM-110 and 151 combined, maximum credit, one course. Students in need of a non-major general education course in chemistry are recommended to take Chemistry 110 (Introductory Chemistry). This course will cover chapters 1-14 in the textbook.

**Student Learning Outcomes (SLO’s):**
Student Learning Outcomes for Lecture:
The student will be able to:
1. Analyze chemical problems and chemical reactions according to stoichiometric methodology.
2. Examine the forms and states of matter, the structure of the atom, arrangement of electrons, and how this relates to the organization of the periodic table.
3. Differentiate between the essential features of covalent and ionic bonding.

**Student Learning Outcomes for Laboratory:**
The student will be able to:
1. Investigate chemical reactions with chemicals, scientific glassware, and instruments in a precise, accurate, and safe manner.
2. Analyze chemical data, including graphical manipulation, and formulate meaningful conclusions based on the chemical data.

**Course Objectives**

**Lecture Objectives:** To provide a basic foundation and preparation in chemistry by being able to:
1. Use the metric system to express values, convert within the metric system, and convert between the metric system and the English unit system.
2. Apply significant figure, scientific notation rules, and indicate the units when performing calculations involving mass, energy, temperature, heat capacity, length, time, volume, pressure, quantity (mole), area, and density.
3. Classify pure substances according to its properties as atom, element, or compound and into pure substance or mixtures based on its composition.
4. Distinguish between chemical or physical properties and changes.
5. Explain transformations between the phases of matter, the energetics of phase changes, and endothermic and exothermic reactions, and compare the properties of liquids and solids with those of gases.
6. Relate the basic concepts presented in the Kinetic Molecular Theory of gases to the behaviors and properties of gases.
7. Apply Charles’s Law, Avogadro’s Law, Boyle’s Law, the Combined Gas Law, the Ideal Gas Law, and Dalton’s Law of Partial Pressures to solve gas-related problems.
8. Graph or interpret graphs that show the relationships presented Charles’s Law, Avogadro’s Law, and Boyle’s Law.
10. Identify and describe properties of the subatomic particles (protons, neutrons, electrons) for any given element, including isotopes and common notations for isotopes, and draw an atom illustrating placement of subatomic particles.
11. Use the Periodic Table of the Elements to identify an element based on its classification as metal, nonmetal, metalloid, by common group names (Halogens, Alkali, Alkaline Earth, Transition Metal, Noble Gas), and by given Period and Group number.
12. Use the Periodic Table of Element to explain trends in atomic size and metallic properties.
13. Write the formulas for common ions of the elements based on their location in the Periodic Table.
14. Write the electronic configurations for elements and ions and identify valence electrons.
15. Write chemical names and formulas for common salts, molecular compounds, acids, and bases according to the nomenclature rules.
16. Write and balance chemical reaction equations, including complete and net ionic equations for reactions such as acid-base reactions, precipitation reactions, gas-forming, decomposition, and combination.
17. Apply the fundamental skills in stoichiometric problems, such as mole-mass, molemolecule, mole-mole, and mole-volume, mass-mass, volume-pressure, mass-volume conversions.
18. Determine limiting reactant and percent yields based on initial quantities of reactants.
19. Recall the different parts of a solution, how to prepare unsaturated, saturated and supersaturated solution, and how to calculate molarity and mass percent composition.
20. Draw Lewis structures for ionic and covalent molecules, identify the shape, bond angles,
determine polarity of molecules and identify intermolecular forces.
21. Explain acid-base behavior, including dissociation of, and calculating pH.
22. Identify oxidation-reduction reactions, and determine oxidation number.
23. Define and describe the distinguishing characteristics of equilibrium, Le Chatelier’s Principle, and write the expression for equilibrium constants.

**Laboratory Objectives:** To enforce principles learned in lecture and emphasize the development of skills in measurement and observation by being able to:

1. Distinguish between chemical and physical changes by investigating the behavior, properties, and reactivity of common chemicals, such as acids, bases, salts, and gases.
2. Use correctly the common scientific glassware and instruments needed for volumetric and gravimetric data acquisition.
3. Synthesize, separate, and isolate chemical substances; and prepare solutions.
4. Draw meaningful conclusions based on manipulating and graphing experimental data.

**Course Flow:**
We only meet once a week for lab. We will have our tests during these times, and we will be doing some worksheets during these times also. And, of course, I will answer any questions and help with any problems during the lab times.

Outside of lab, I am available after lab in BONH 312. I also will respond to emails, texts, and we can schedule a video meeting using either Facebook, Google, or Skype. Also questions can be posted on discussion boards on Canvas and other students, in addition to myself, can post answers. (Participation credit will be given for posting questions or answers on these discussion boards).

Pages on Canvas will guide us through the material for this course. These pages will provide summary materials for each topic. Additional reading/studying from the textbook is strongly encouraged, and powerpoint presentations for each chapter will be provided. A study guide will be posted for each chapter, which states clearly the expectations of what we should know and be able to do for each topic. Videos are also provided, so you can read, listen/watch. Then when you have a question for more clarity, post it on Canvas, email or text me, or bring it to lab.

Starting with the study guide, there are several sets of worksheets posted on Canvas along with Canvas practice questions. Some of these worksheets may be used during the lab period. The answers to all of them will be posted before the tests. These questions come from the same database as the test questions. So the more of these that you do and understand, the better you will do during the tests.

There is required homework and quiz’s that are hosted at [www.MasteringChemistry.com](http://www.MasteringChemistry.com). Access for this site comes with the purchase of a new book, or it can be purchased separately on the website.

**Special Needs:** If you are a student with special needs and require additional assistance for this course specific to your circumstances, please contact the Tutoring, Learning & Computing Center (TLC). Click the link provided or call them at 661-362-3351. They also have offices at both the Valencia and Canyon Country campuses.

**Timeline:**
There is a new discussion each week. The first discussion is an introduction, the remainder of
the discussion are chapters. The discussion is to share information, ask questions, answer
questions, advise which are the best or worst videos. Make the participation on these
discussion boards pertinent/relevant. I expect some participation in each new discussion group
by each Sunday. The posts need to be useful and pertinent to receive credit.

Mastering Chemistry homework will be due each Monday.
Mastering Chemistry quiz will be due each Thursday.
Lab is each Tuesday. We will complete a lab and/or worksheet each day. They will be turned in
on that day.

A Typical Day:
- Go over the material on Access.
- Read the chapter in the textbook or ebook (Tro).
- Do the practice questions
- Start working on the assigned online homework (Sapling/Mastering Chemistry)
- Complete unfinished assignments.
- Read over the upcoming lab assignment and complete pre-lab questions and procedure
  outline prior to starting the lab. Finish the post-lab questions.
- At the end of each day review and organize your notes, and get ready for the next
  section.

Grading Policy
Your grade will be determined on the basis on your performance on quizzes, exams, and the
laboratory (there is no separate lab grade). Your final grade will be based on the total points as
follows (these are approximate values). It is your responsibility to regularly come to class. It is
your responsibility to come to class prepared by reading ahead of time and ready to take notes.
Classes speed by, you must read and work on problems EVERY day to keep up.

Midterm Exams: 40%
Lab: 20%
Final Exam: 15%
Homework (MasteringChemistry) 10%
Quizzes (MasteringChemistry) 10%
Participation (Canvas): 5%

Final (15%)
The final is comprehensive. You can have on single-sided sheet of notes.

Midterm EXAMS (40%)
There will be 3 midterm exams. Bring a scantron for the tests. Your lowest exam score will be replaced by the final
exam score, if higher. No make-ups will be allowed unless I hear from you within a day of the actual exam time and
accept your excuse. You must contact me if you will miss an exam by leaving a message on voice mail 818-472-8039
or e-mail, 1drdan@gmail.com.

LAB GRADE/ Experiments (20%)
Labs are required to get a passing grade in the course. If you miss more than three labs, you may be dropped from the course! It's worth making up labs. If you miss a lab it may be possible to make it up in another Chem 151 class during the same week (have the make-up professor initial your report). All lab scores will be used to determine your final grade. **You may work in teams of 2 people or maximum 3 people unless specified otherwise.** Lab reports are due the day of the lab. If for any reason I give permission for you to take a lab home to finish, you have to get my initials on your data sheet before you leave lab. Labs will be graded on accuracy of calculations, proper use of significant digits and units, and demonstration of conceptual understanding. **Wear Eye Protection in Lab**

**QUIZZES (10%)**
There will be online quiz's on each chapter (on MasteringChemistry.com). The main purpose for the quizzes is to see where your weak areas are in the material and to prepare you for the problem exams.

**Homework (10%)**
Homework is online at MasteringChemistry.com. The course ID is Chem151Fall17. If you score 75% on homework you will receive 100% for that assignment. If you score less than 75%, you will receive the score that you earned.

**Participation (5%)**
Participation in Canvas discussion groups. These groups are to encourage students to interact with each other, ask each other questions, provide answers to other students, recommend which videos are superior or inferior.

**Grade Scale**
Your Grade will be based on an adjusted total and the percentages computed and graded as follows: 90-100% = A; 80-89.9% = B; 70-79.9% = C; 55-69.9% = D; less than 55% = F. **There are no "W" grades given by the instructor.** For your grade point sake, be sure to officially drop any class which you stop attending; otherwise, your grade will be an automatic failure.
If you need extra help outside of class time, make an appointment with me. Also, I would appreciate notice when you cannot make it to class for a couple days.

**Suggestion:** This is a fast-paced class that is very easy to get left behind. Try to keep up each day with your studying and quizzes. If you have problems, contact me. I check my e-mail regularly and am always available to help you during this course.

**Note:** I strictly adhere to the college's academic dishonesty policies found in the course catalog. Cheating will not be tolerated!
Additional Resources

**Distance Learning**
Check out the [Distance Learning website](#) for more information on a variety of topics that can help you be a successful online student such as: exam proctoring, learning styles, computer skills, and tips for student success. If this is your first online course, feel free to take our [online learning readiness assessment](#) to assess your skills.

**The Learning Center (TLC)**
The TLC provides FREE tutoring resource to COC students including:
- Face-to-face & ONLINE tutoring
- Testing Center: offers test proctoring services for courses that have required proctored exams
- Study Jam Review Sessions
- Computers with over 300 software programs
For more information visit the [TLC Website](#).

**Disabled Students Program & Services (DSPS)**
College of the Canyons DSPS provides educational services and access for eligible students with documented disabilities who intend to pursue coursework at COC. A variety of programs and services are available which afford eligible students with disabilities the opportunity to participate fully in all aspects of the college programs and activities through appropriate and reasonable accommodations. For more information on their services visit the [Disabled Students Program & Services website](#).

**Online Counseling**
The Counseling Department offers appointments online. You can schedule an appointment by visiting the [Online Counseling website](#). Counselors can help you map out a plan to reach your educational goals as well as advise you on course selection and registration.