IMPERIAL VALLEY COLLEGE

Chemistry 100 (Introduction to Chemistry) Syllabus and Schedule

Basic Course Information

Semester:	Fall 2025	Instructor Name:	Dr. Alto Benedicto
Course Title & #:	Chemistry 100 (Hybrid)	Email:	alto.benedicto@imperial.edu
CRN #:	10493	Webpage (optional):	N/A
Classroom:	Room 2716 (Lab is in-person)	Office #:	2779
Class Dates:	Aug 11 to Dec 6, 2025	Office Hours:	MWTh 6:30 am – 7:30 am (Zoom); T 5:50 pm – 6:30 pm (Rm 2716); W 6:10 pm – 6:30 pm (Rm 2716)
Class Days:	Tutor available (see page 5)	Office Phone #:	(760) 355-5751
Class Times:	Lec (asynchronous online); Lab (T 6:30 – 9:40 pm)	Emergency Contact:	(Dept Secretary (760) 355-6155
Units:	4	Class Format/Modality:	Asynchronous Hybrid

Course Description

Elementary principles of general inorganic chemistry with an introduction to organic and biochemistry. Previous science background is recommended but not required. This course is designed for non-science majors and students who need only a one-semester general chemistry course, and also for students entering paramedical and allied health fields, and industrial applications such as power plants. This course will satisfy the prerequisite for CHEM 200. (C-ID: CHEM 101) (CSU, UC credit limited. See a counselor.)

Course Prerequisite(s) and/or Corequisite(s)

Intermediate Algebra or appropriate placement as defined by AB705.

Student Learning Outcomes

Upon course completion, the successful student will have acquired new skills, knowledge, and or attitudes as demonstrated by being able to:

1. Solve chemical problems using modern atomic theory (ISLO 2, ISLO 4)
2. Perform chemical experiments in a scientific manner, using proper techniques, analysis, and safety equipment. (ISLO 2, ISLO3, ISLO4)

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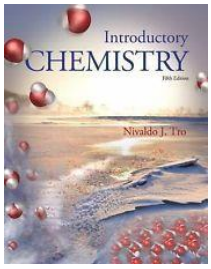
Course Objectives

1. calculate English and metric unit conversions and measurements using dimensional analysis.
2. write symbols for elements and know common ionic charges.
3. derive and write formulas and names for chemical compounds.
4. write and balance common chemical equations and identify reaction types.
5. solve stoichiometric problems, including their solutions using dimensional analysis.
6. describe atomic structure including isotopes, periodicity and molecular structure in terms of subatomic particles.
7. identify types of energy and calculate specific heat; identify energy involved in change of state including heat of vaporization and predict behaviors in cooling curves; calculate caloric and nutritional values of various foods.
8. describe gas behavior and solve problems involving the various gas laws.
9. identify the type of intermolecular forces existing between molecules, and its effect on macroscopic property of the substance.
10. calculate solution concentration of various types including dilutions.
11. define the three basic concepts (Arrhenius, Bronsted-Lowry and Lewis) of acids and bases and perform titration experiments and calculate pH.
12. use Le Chatelier's Principle to predict the shift in the direction of the reactants/products
13. determine the oxidant/reductant and balance redox equations.
14. describe nuclear processes and write nuclear equations using the subatomic particles involved and identify health factors and risks involved.

Textbooks & Other Resources or Links

1. *Introductory Chemistry*, by Nivaldo J. Tro (Custom Edition for IVC. Prentice-Hall Publishing, 5th Ed, **ISBN:** 1269713876)



NOTE: There is a SHORTENED ONLINE version at https://chem.libretexts.org/Bookshelves/Introductory_Chemistry/Map%3A_Introductory_Chemistry_(Tro)

2. Chemistry 100 Laboratory Manual available at **IVC Chemistry/STEM Club** ($20) Free access to LABSTER simulations.
3. ~~Eight (8) Scantron Sheets Form No. 882-E (submitted on the second day of class) and pencil~~
4. safety goggles ($5); needed on second class day), non-programmable scientific calculator ($15 - $25), close-toed shoes
5. registration with Macmillan Learning Achieve for online HW ($50) – requires credit card.
   You can register by going to our course in Canvas, and then clicking Macmillan Learning (located on left margin) while INSIDE our Canvas course, and follow instructions.
6. free access to "Online Tutoring" seven days a week (online tutoring with a live person in California) via Canvas

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Course Requirements and Instructional Methods

1. Attendance and remaining during the entire class period is mandatory for Chem 100 Lab Classes. A Lab roll call will be initiated by the instructor within the first 5 minutes of Lab class. If you are sent out during class (e.g., failure to obey safety rules such as wearing Safety Goggles, etc.), you will be marked absent.
2. There are **no make-up Exams or Lab Classes**. A score of **zero (0)** will be recorded unless the absence is attributed to representation of official college functions. It is the student's responsibility to show proof of such function **prior** to the date of absence.
3. During the Exam, the only things allowed are: **pencil, nonprogrammable calculator, and I.D.** You will be supplied with a Periodic Table and a Scantron. You may use the Exam Questionnaire as scratch paper. The Exam Questionnaire, Periodic Table, and Scantron are to be submitted at the end of the Exam. **Possession of electronic devices (phones, iPad, programmable calculator, etc.) during Exam is considered cheating** and will be dealt with according to IVC policy.
4. Each student is REQUIRED to **buy the Chem 100 Lab Manual** and to **sign up for online homework (HW) no later than the second day of class**. Personal laptop is highly encouraged for online HW during Lab Class.
5. **Due dates for Online HWs are found in the Class Schedule of Topics (see last page).** For technical assistance beyond the instructor, call Macmillan Technical Support at 1-800-936-6899. Also, there's online tutoring with a live person in **Online Tutoring** (embedded inside Canvas).
6. Prior to the start of Lab Class, read the relevant experiment and answer any Pre-Lab Questions. **Pre-Lab Questions sheet should be torn from the Lab Manual and submitted to the Instructor within two (2) minutes from start of Lab Class to gain full points**. So, tear out the relevant Pre-Lab sheets before coming to class, and don't be late!!!
7. Before leaving the Lab Class, make sure the **instructor has signed** your Lab Data Sheet. Data should be recorded in **ink**. Cross-out mistakes with a single strike-through line. **Data Sheets and Post-Lab Questions are to be submitted within the first two minutes of the next time Lab meeting**.
8. Lab clean-ups are done 15 minutes before the end of lab. A **wet towel** should be used to wipe the lab bench to gain full points. Make sure the sink and work area is clean. Points will be deducted to the entire class if the common work areas (fume hood, analytical balances) are dirty.
9. There is no bonus work available. Kindly seek assistance immediately to clarify any questions.
10. If this is a Hybrid section, with the lecture discussion being done online, you must have access to a computer and an Internet connection. No other special technical skills are needed other than knowledge on how to use Canvas.

Out of Class Assignments: The Department of Education policy states that one (1) credit hour is the amount of student work that reasonably approximates not less than one hour of class time and two (2) hours of out-of-class time per week over the span of a semester. WASC has adopted a similar requirement.

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Course Grading Based on Course Objectives

Assessment Type	*How many*	*Total Points*
Lecture Exams	6 @ 50	300 pts
Lecture Final Exam	1 @ 150	150 pts
Online Homework	11 @ 20 6 @ 25	370 pts
Canvas Discussions	5 @ 5	25 pts
Lab Expt, Labster, and PhET Simulations	8 @ 20; 1 @ 5 1 @ 20	185 pts
Lab Exam	1 @ 50	50 pts

OVERALL POINTS = 1,080 pts

Grading Scale Percentage	*Letter Grade*
85.00% to 100 %	A
75.00% to 84.99%	B
60.00% to 74.99%	C
50.00% to 59.99%	D

Academic Honesty (Artificial Intelligence -AI)

IVC values critical thinking and communication skills and considers academic integrity essential to learning. Using AI tools as a replacement for your own thinking, writing, or quantitative reasoning goes against both our mission and academic honesty policy and will be considered academic dishonesty, or plagiarism unless you have been instructed to do so by your instructor. In case of any uncertainty regarding the ethical use of AI tools, students are encouraged to reach out to their instructors for clarification.

Accessibility Statement

Imperial Valley College is committed to providing an accessible learning experience for all students, regardless of course modality. Every effort has been made to ensure that this course complies with all state and federal accessibility regulations, including Section 508 of the Rehabilitation Act, the Americans with Disabilities Act (ADA), and Title 5 of the California Code of Regulations. However, if you encounter any content that is not accessible, please contact your instructor or the area dean for assistance. If you have specific accommodations through ***DSPS***, contact them for additional assistance.

We are here to support you and ensure that you have equal access to all course materials.

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Course Policies

- A student who fails to attend the first meeting of a class or does not complete the first mandatory activity of an online class will be dropped by the instructor as of the first official meeting of that class. Should readmission be desired, the student's status will be the same as that of any other student who desires to add a class. It is the student's responsibility to drop or officially withdraw from the class. See General Catalog for details.
- Regular attendance in all classes is expected of all students. **A student whose continuous, unexcused absences exceed the number of hours the class is scheduled to meet per week may be dropped**. For online courses, students who fail to complete required activities for two consecutive weeks may be considered to have excessive absences and may be dropped.
- Absences attributed to the representation of the college at officially approved events (conferences, contests, and field trips) will be counted as 'excused' absences.
- **Absences during Lab Classes or leaving during Lab Classes** automatically result in a **grade of zero (0) for the Lab Experiment.**
- Anyone caught cheating or plagiarizing will receive a zero (0) on the exam or assignment, and the instructor may report the incident to the Campus Disciplinary Officer, who may place related documentation in a file. Repeated acts of cheating may result in an F in the course and/or disciplinary action. Please refer to the General Catalog for more information on academic dishonesty or other misconduct. Acts of cheating include, but are not limited to, the following: (a) plagiarism; (b) copying or attempting to copy from others during an examination or on an assignment;(c) communicating test information with another person during an examination; (d) allowing others to do an assignment or portion of an assignment; (e) using a commercial term paper service.

Other Course Information

Our Class Tutor _____ hours are (MWF: _____)(TThS: _____) (Zoom ID 930 5535 9930—ask for _____).

Financial Aid

Your Grades Matter! In order to continue to receive financial aid, you must meet the Satisfactory Academic Progress (SAP) requirement. Makings SAP means that you are maintaining a 2.0 GPA, you have successfully completed 67% of your coursework, and you will graduate on time. If you do not maintain SAP, you may lose your financial aid. If you have questions, please contact financial aid at finaid@imperial.edu.

IVC Student Resources

IVC wants you to be successful in all aspects of your education. For help, resources, services, and an explanation of policies, visit http://www.imperial.edu/studentresources or click the heart icon in Canvas.

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Anticipated Class Schedule/Calendar

Week	*DATE*	*CHAPTER READINGS* *(Lecture recordings AND YouTube videos available)*	*Achieve Online Homework and Canvas Discussion* *due at 11:55 pm*	*LABORATORY and Exams* *Exam is on Lab Hours (exact time and room to be announced)*
1	Aug 11- 16	Ch 1: Chemical World Ch 2: Measurement	**HW 1 due** (in Macmillan Learning Achieve via Canvas); *Canvas Discussion 1 due*	Locker Check-in; Lab Safety; Labster 1: Lab Safety due (in Canvas)
2	Aug 18- 23	Ch 3: Matter and Energy	**HW 2 due** *Canvas Discussion 2 due*	Lab 1: Measurement and Density
3	Aug 25- 30	Ch 4: Atoms and Elements	**HW 3 due**	**Lecture Exam 1** (covers Ch 1, 2, 3) Heat
4	Sept 1(H)- 6	Ch 5: Molecules and Compounds	**HW 4 due** ***PhET Sim: Build An Atom due (in Canvas)***	Lab 2: Heat and Specific
5	Sept 8- 13	Ch 6: Chemical Composition	**HW 5 due**	**Lecture Exam 2** (covers Ch 4, 5, 6)
6	Sept 15- 20	Ch 7: Chemical Reactions	**HW 6 due**	Lab 3: Determining the Percent Water in Hydrated Metal Salt
7	Sept 22- 27	Ch 8: Quantities in Chemical Reactions	**HW 7 due**	Lab 4: Chemical Reaction and Net Ionic Equation)
8	Sept 29- Oct 4	Ch 9: Electrons in Atoms and the Periodic Table	**HW 8 due**	**Lecture Exam 3** (covers Ch 7,8)
9	Oct 6- 11	Ch 10: Chemical Bonding	**HW 9 due** *Canvas Discussion 10 due*	Lab 5: Lewis Structure, Molecular Shape, and Polarity
10	Oct 13- 18	Ch 11: Gases	**HW 10 due**	**Lecture Exam 4** (covers Ch 9, 10)
11	Oct 20- 25	Ch 12: Liquids, Solids, and Intermolecular Forces	**HW 11 due**	Lab 6: Molar Volume of a Gas
12	Oct 27- Nov 1	Ch 13: Solutions	**HW 12 due**	**Lecture Exam 5** (covers Ch 11,12,13)
13	Nov 3- 8	Ch 14: Acids and Bases	**HW 13 due** *Canvas Discussion 13 due*	Lab 7: Le Chatelier's Principle in Chemical Equilibrium
14	Nov 10(H)- 15	Ch 15: Chem Equilibrium	**HW 14 due**	Lab 8: Titration of Vinegar
15	Nov 17- 22	Ch 16: Redox Reaction **Lecture on Laboratory Techniques** for Lab Finals	**HW 15 due** *Canvas Discussion 15 due*	Locker Checkout **Lecture Exam 6** (covers Ch 14, 15, 16)
16	Nov 24- 29	Ch 17: Radioactivity & Nuclear Chem	**HW 16 due**	*Thanksgiving Break*
17	Dec 1- 6	Review for Finals	**HW 17 due on Mon Dec 1 at 11:55 pm**	**LAB FINAL EXAM** **LEC FINAL EXAM**

*****Subject to change without prior notice*****

Updated 11/2024