



IMPERIAL VALLEY COLLEGE

Basic Course Information

Semester:	Fall 2024	Instructor Name:	Dr. James Fisher
Course Title & #:	Chemistry 202 General Inorganic Chemistry II	Email:	Jim.fisher@imperial.edu
CRN #:	10519	Webpage (optional):	https://phys.org/ , https://ptable.com/#Properties/Series , https://pubs.acs.org/journal/jceda8
Classroom:	2716	Office #:	2771
Class Dates:	08/12/2024-12/07/2024	Office Hours:	Mon-Thur 7:30-8:00AM & by appointment and Zoom: https://imperial-edu.zoom.us/j/2198947419
Class Days:	Tuesday & Thursday	Office Phone #:	760-355-6524
Class Times:	1:00-5:50PM	Emergency Contact:	Department Secretary 760-355-6155
Units:	5	Class Format/Modality:	Face to face

Course Description

This course is a study of various reaction mechanisms and properties of hydrocarbons, alkyl halides, alcohols, thiols, and ethers. Stereochemical properties of compounds are investigated and related to structure and observed reactions. Instrumental methods of analysis such as IR, UV-VIS, NMR, and mass spectrometry are discussed. This course is intended for students majoring in chemistry, biology, and pre-medical sciences. (C-ID: CHEM 150; C-ID: CHEM 160 S with CHEM 206) (CSU, UC).

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

CHEM 200 - General Inorganic Chemistry I (Historical)

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)

Course Objectives

Upon satisfactory completion of the course, students will be able to:

1. Demonstrate knowledge covalent bonding and molecular geometry.
2. Describe structure and reactions of alkanes and cycloalkanes.

Updated 7/30/24



3. Demonstrate knowledge of organic acids and bases.
4. Demonstrate knowledge of stereochemistry and its effects of molecular properties.
5. Demonstrate knowledge of the structure and reactions of alkenes.
6. Demonstrate knowledge of alkyl halides and radical reactions.
7. Demonstrate knowledge of nucleophilic substitution and beta elimination.
8. Demonstrate knowledge of the structure and reactions of alcohols and thiols.
9. Demonstrate knowledge of the structure and reactions of alkynes.
10. Demonstrate knowledge of the structure and reactions of ethers, sulfides, and epoxides.
11. Identify organic molecules using various instrumental methods such as mass spectrometry and nuclear magnetic resonance spectrometry (NMR) as well as infrared (IR) and UV-Visible spectroscopy.

Textbooks & Other Resources or Links

1. Organic Chemistry [Global Edition], Leroy Wade, Jan Simek, ISBN-13: 9781292424255 or ISBN-10: 1292424257
2. [Organic Chemistry \(Wade\), Complete and Semesters I and II - Chemistry LibreTexts](#) Leroy Wade
3. Lab Manual [Chemistry 204 Laboratory Manual](#); purchase from the STEM/Chem club, \$20.00.
4. Lab notebook for recording experiments. [Amazon.com : AHGXC College Ruled Notebook 2 Pack - B5 Large Composition Notebook Lined Journal 7.6 x 10 inch, with Thick 100gsm Lined Paper, Total 408 Numbered Pages, Inner Pocket - Green Brown : Office Products](#)
5. 2@spiral ringed notebooks, 1 for notes taken while reading your textbook and 1 for working problems/exercises at the end of the chapter. These will be your study guides for the final.
6. Safety Glasses or Goggles: must be acid and heat resistant. These must comply with:
 - a. Meet ANSI* Z87.1-2003 standards.
 - b. Polycarbonate lens
 - c. Wraparound protection offers a wide field of vision.
7. Nonprogrammable Calculator: a highly recommended calculator is the Texas Instruments TI36X Solar Scientific Calculator (not the "TI36X-Pro" or the TI-30Xa).
8. Scranton for your final exam an 882-E, for 100 answers.
9. If you want to Zoom email me 1st and use: <https://imperial-edu.zoom.us/j/2198947419>

Course Requirements and Instructional Methods

- **Lecture Quizzes:** A short quiz on lecture material will periodically be given at the beginning of class. Quizzes are worth 5-15 points each with **no makeup** quizzes allowed. Quizzes will not be given on lecture exam days.
- **Lecture Exams:** Under normal circumstances (**Fall, Spring or 16-week semester**), there will be 5 exams. There are no **make-up** exams. Exams will be graded and then returned as soon as possible. Only non-programable calculators are allowed.
- **Safety** in the laboratory is of utmost importance - those who do not follow the outlined safety procedures will either have points deducted from their lab score or asked to leave the lab during that lab. Closed toed shoes and goggles are required.



- **Laboratory:** All experiments are required to be prepared as **formal lab write-ups** as described in the lab notebook handout (which you will receive in class). The core of the write-up in your notebook will include the title, objective, and procedures, and must be done **prior** to the start of the lab. In order to begin an experiment, the instructor must initial the pre-lab. This is necessary to ensure safety in the lab. In addition, each lab experiment will require a data, calculations, and discussion write-up that is completed in your lab notebook. There are no lab make-ups. Unless otherwise instructed, each student will work on experiments individually.
- **Lab Notebook:** You will not be allowed to start an experiment until the Prelab is completed and checked; this is worth 1 point. Experiments are due as directed; late experiments are acceptable with a loss of points (one point per lab point) up to the lab before the lab exam. Your lab notebook can be used on lab exams.
- **Completed experimental lab write-ups** are due the following lab meeting however if there are problems with calculations a second lab day is allowed for turning labs in for grading. After that **1 pt will be lost per lab day late**. NOTE, the definition of a Lab Day is at the end of the Lab period since labs are ONLY graded during lab, and never between labs; in other words, the next lab day starts at the end of that day lab or any lab graded after that lab is officially over is considered the next lab day. Lab notebooks are handed in after each lab exam to get a tally of points, however ungraded labs are considered late on lab exam day.
- **Lab Exams:** Lab exams will contain problems and/or explanation type questions based on the preceding laboratory experiments. Your Lab Notebook can be used during the Lab Exams. There are 2 Lab exams Fall and Spring, each of which count toward your course grade. No Make-up Lab exams will be allowed. This Point Total is added to your Lecture Score to obtain a total score that includes both the lecture and lab component of this class. Only non-programable calculators are allowed.
- **Lab Cleanup** The entire class will lose points if the sinks, scales, hoods, floor are not clean, chemical caps not screwed back on, and chairs not put in place. The class can lose up to 10 points per lab.
- **Final Exam:** The Final Exam is comprehensive. Final exam questions are in multiple-choice format. You must purchase an 882-E, 50 questions per side, Scranton for the Final Exam. There are **no make-ups** because the date and time of the Final is the last day of class. Only non-programable calculators are allowed.
- **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.
- **You must** (1) remember your locker combination-after locker check-in, (2) bring goggle or eye safety glasses, (3) closed toed shoes to be in the lab; you are not furnished these and (4) calculators for exams. Forgetting to do so will cost you 5 points.
- **Zoom face-to-face:** Zoom is for a video face-to-face instruction; we can work on homework problems etc. In Canvas, on the left banner is a link to "ConferZoom." Since this is new, and I don't



know when students want to video/conference call, first contact me (Cranium Café/email) then we can initiate a Zoom Conference.

- **Fisher Zoom:** <https://cccconfer.zoom.us/j/9867876993>

Course Grading Based on Course Objectives

- **Study Hints:** Chemistry is a very demanding course. Depending on your background, you will need to spend 1-4 hours outside of lab to get your work done. Missing a lecture usually means your grade falls by ½ grade.
- **Do not fall behind so:**
 - **Go to office hours**
 - **Get a tutor**
 - **Form study groups**
- **No Gifts, cards, or food; all will be refused. Spend your time and effort studying.**
- **Don't try to cram! It doesn't work.**
- **Keep up!**

In-class quizzes	10 @ 5	50 pts
Exams	5 @ 100	500 pts
Labs	15 @ 10	150 pts
Learning based lab		25 pts
Lab Cleanup	14@-10	("-" points lost if necessary)
Lab Exams	2 @ 100	200 pts
Locker Checkout		20 pts
Final Exam		240 pts
TOTAL (about)		≈1200 pts

Letter grades will be assigned based upon the % of points earned: Grading scale, A: 90-100%; B: 80-89%, C: 70-79%, D: 60-69, F: <59.

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.

The following kinds of honesty violations and their definitions are not meant to be exhaustive. Rather, they are intended to serve as examples of unacceptable academic conduct.

- **Plagiarism** is taking and presenting as one's own the writings or ideas of others, without citing the source. You should understand the concept of plagiarism and keep it in mind when taking exams and

preparing written materials. If you do not understand how to “cite a source” correctly, you must ask for help.

- Cheating is defined as fraud, deceit, or dishonesty in an academic assignment, or using or attempting to use materials, or assisting others in using materials that are prohibited or inappropriate in the context of the academic assignment in question.

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.

Course Policies

Attendance

- A student who fails to attend the first meeting of a class or does not complete the first mandatory activity of a 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 absence exceed the number of hours the class is scheduled to meet per week may be dropped; Chemistry 100, four units, is six hours and all other Chemistry courses, five units, are nine hours.** 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.
- **Lab Attendance** is recorded just as lecture attendance. **If you miss** the safety or introduction of the lab, you will not be able to attend that lab, and there are not lab makeups. **You will receive no points for a lab you miss. Two (2) unexcused absences and you will be dropped. You may be asked to have your lab signed by the Instructor, at the beginning and end of the lab to receive any credit. Since Closed Toed Shoes are mandatory for Lab, not having closed toed shoes will not count as an absence, and you will NOT receive credit for the lab. Locker checkout counts as 2 labs or 20 points.**
- Absences attributed to the representation of the college at officially approved events (conferences, contests, and field trips) will be counted as ‘excused’ absences.

Classroom Etiquette

- Electronic Devices: Cell phones and electronic devices must be turned off and put away during class, unless otherwise directed by the instructor.
- Food and Drink are prohibited in all classrooms. Water bottles with lids/caps are the only exception. Additional restrictions will apply in labs. Please comply as directed by the instructor.



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- **Disruptive Students:** Students who disrupt or interfere with a class may be sent out of the room and told to meet with the Campus Disciplinary Officer before returning to continue with coursework. Disciplinary procedures will be followed as outlined in the [General Catalog](#).
- **Children in the classroom:** Due to college rules and state laws, no one who is not enrolled in the class may attend, including children.

IVC Student Resources

Student Services

Imperial Valley College offers various services in support of student success. The following are some of the services available for students. Please speak to your instructor about additional services which may be available.

- **CANVAS LMS.** Canvas is Imperial Valley College's main Learning Management System. To log onto Canvas, use this link: [Canvas Student Login](#). The [Canvas Student Guides Site](#) provides a variety of support available to students 24 hours per day. Additionally, a 24/7 Canvas Support Hotline is available for students to use: 877-893-9853.
- **Learning Services.** There are several learning labs on campus to assist students through the use of computers and tutors. Please consult your [Campus Map](#) for the [Math Lab](#); [Reading, Writing & Language Labs](#); and the [Study Skills Center](#).
- **Library Services.** There is more to our library than just books. You have access to tutors in the [Study Skills Center](#), study rooms for small groups, and online access to a wealth of resources.

Disabled Students Programs and Services (DSPS)

Any student with a documented disability who may need educational accommodations should notify the instructor or the [Disabled Student Programs and Services](#) (DSP&S) office as soon as possible. The DSP&S office is located in Building 2100, telephone 760-355-6313. Please contact them if you feel you need to be evaluated for educational accommodations.

Student Counseling and Health Services

Students have counseling and health services available, provided by the pre-paid Student Health Fee.

- **Student Health Center.** A Student Health Nurse is available on campus. In addition, Pioneers Memorial Healthcare District provide basic health services for students, such as first aid and care for minor illnesses. Contact the IVC [Student Health Center](#) at 760-355-6128 in Room 1536 for more information.
- **Mental Health Counseling Services.** Short-term individual, couples, family and group counseling services are available for currently enrolled students. Services are provided in a confidential, supportive, and culturally sensitive environment. Please contact the IVC Mental Health Counseling Services at 760-355-6310 or in the building 1536 for appointments or more information.

Veteran's Center

The mission of the [IVC Military and Veteran Success Center](#) is to provide a holistic approach to serving military/veteran students on three key areas: 1) Academics, 2) Health and Wellness, and 3) Camaraderie; to serve as a central hub that connects military/veteran students, as well as their families, to campus and



community resources. Their goal is to ensure a seamless transition from military to civilian life. The Center is located in Building 600 (Office 624), telephone 760-355-6141.

Student Equity Program

- The Student Equity Program strives to improve Imperial Valley College's success outcomes, particularly for students who have been historically underrepresented and underserved. The college identifies strategies to monitor and address equity issues, making efforts to mitigate any disproportionate impact on student success and achievement. Our institutional data provides insight surrounding student populations who historically, are not fully represented. Student Equity addresses disparities and/or disproportionate impact in student success across disaggregated student equity groups including gender, ethnicity, disability status, financial need, Veterans, foster youth, homelessness, and formerly incarcerated students. The Student Equity Program provides direct supportive services to empower students experiencing insecurities related to food, housing, transportation, textbooks, and shower access. We recognize that students who struggle meeting their basic needs are also at an academic and economic disadvantage, creating barriers to academic success and wellness. We strive to remove barriers that affect IVC students' access to education, degree and certificate completion, successful completion of developmental math and English courses, and the ability to transfer to a university. Contact: 760.355.5736 or 760.355.5733 Building 100.
- The Student Equity Program also houses IVC's Homeless Liaison, who provides direct services, campus, and community referrals to students experiencing homelessness as defined by the McKinney-Vento Act. Contact: 760.355.5736 Building 100.

Student Right

Students have the right to experience a positive learning environment and to due process of law. For more information regarding student rights and responsibilities, please refer to the IVC [General Catalog](#).



<p>Organic Chemistry (Global ed.) 10th ed. 2022 Leroy Wade Primary text</p>	<p>Organic Chemistry Map: Organic Chemistry (Wade), Complete and Semesters I and II - Chemistry LibreTexts Leroy Wade</p>
<p>Book</p> <p>Part 1</p> <ol style="list-style-type: none">1. Structure and Bonding2. Acids and bases: functional groups3. Structure and Stereochemistry of alkanes4. The study of chemical reactions5. Stereochemistry6. Alkyl halides, Nu substitution7. Structure and synthesis of alkenes, E8. Reactions of alkenes9. Alkynes10. Structure and synthesis of alcohols11. Reactions of alcohols12. IR and Mass Spec13. NMR <p>Part 2</p> <ol style="list-style-type: none">14. Ethers, epoxides, thioethers15. Conjugated systems, orbital symmetry, UV16. Aromatic17. Reactions of Aromatic18. Ketones and Aldehydes19. Amines20. Carboxylic acids21. Carboxylic acid derivatives22. Condensation of carbonyl or enols23. Carbohydrates and Nucleic acids24. Amino acids, peptides and proteins25. Lipids26. Polymers	<p>Part 1</p> <ol style="list-style-type: none">1. Intro and review (1)2. Structure and Properties (1 & 2)3. Functional groups and nomenclature (2)4. Structure and stereochemistry of alkanes (3)5. Intro to organic reactions and free radical halogenation (4)6. Stereochemistry (5)7. Alkyl halides Nu and E (6)8. Structure and synthesis of alkenes (7)9. Reactions of alkenes (8)10. Alkynes (9)11. IR and Mass Spec (12, 13)12. NMR (13) <p>Part 2</p> <ol style="list-style-type: none">13. Structure and synthesis of alcohols (10)14. Reactions of alcohols (11)15. Ethers, epoxides and thioethers (14)16. Conjugated systems, UV (15)17. Aromatic (16)18. Reactions aromatic (17)19. Ketones and aldehydes (18)20. Amines (19)21. Carboxylic acids (20)22. Carboxylic acids and derivatives (21)23. Condensation of carbonyl or enols (22)24. Carbohydrates and Nucleic acids (23)25. Amino acids, peptides and proteins (24)26. Lipids (25)27. Nucleic acids (N/A)

Anticipated Class Schedule/Calendar

Subject to change without prior notice

Organic Chemistry I 204 (10519) Tuesday & Thursday Lecture 1:00-2:25PM & Lab 2:40-5:50 2715 Fall 2024			
Wk #	Wk of		
1	Aug 13	Tue	Lecture: Intro Lab: Safety & Locker check-in
		Thur	Ch 01 Basic Bonding Lab 01 discussion
2	Aug 20	Tue	Ch 01 Basic Bonding Lab 01
		Thur	Ch 01 Basic Bonding Lab 02 & 03 discussion
3	Aug 27	Tue	Ch 02 Acids and Bases Functional Groups Lab 02
		Thur	Ch 02 Acids and Bases Functional Groups Lab 02
4	Sept 3	Tue	Ch 03 Structure and Stereochemistry of alkanes Lab 03
		Thur	Ch 03 Structure and Stereochemistry of alkanes Exam 1 and Lab 04 & 05 discussion
5	Sept 10	Tue	Ch 04 The study of chemical reactions Lab 04
		Thur	Ch 04 The study of chemical reactions Lab 05
6	Sept 17	Tue	Ch 05 Stereochemistry Lab 06 & 07 discussion
		Thur	Ch 05 Stereochemistry Lab 07
7	Sept 24	Tue	Ch 06 Alkyl halides, Nu substitution Lab 07
		Thur	Ch 06 Alkyl halides, Nu substitution Lab 08
8	Oct 1	Tue	Ch 07 Structure and synthesis of alkenes, E Lab 08



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		Thur	Ch 07 Structure and synthesis of alkenes, E Exam 2 and Lab 09 & 10 discussion
9	Oct 8	Tue	Ch 08 Reactions of alkenes Lab 09
		Thur	Ch 08 Reactions of alkenes Lab 09
10	Oct 15	Tue	Ch 09 Alkynes Lab 10
		Thur	Ch 09 Alkynes Lab 10
11	Oct 22	Tue	Ch 10 Structure and synthesis of alcohols Lab 11
		Thur	Ch 10 Structure and synthesis of alcohols Lab 11
12	Oct 29	Tue	Ch 11 Reactions of alcohols Lab 11
		Thur	Ch 11 Reactions of alcohols Exam 3 and Lab 12 discussion
13	Nov 5	Tue	Ch 12 IR and Mass Spec Lab 12
		Thur	Ch 12 IR and Mass Spec Lab 12
14	Nov 12	Tue	Ch 13 NMR Finish labs
		Thur	Ch 13 NMR Finish labs
15	Nov 19	Tue	Ch 13 NMR Exam 4
		Thur	Ch 13 NMR Lab Exam
Nov 26 & 28 Holiday			
16	Dec 3	Tue	Review
		Thur	Final