Chemistry 206 (Organic Chemistry) Syllabus and Schedule

Basic Course Information

Semester:	Spring 2017	Instructor Name:	Dr. Alto Benedicto
Course Title & #:	Chemistry 206	Email:	alto.benedicto@imperial.edu
CRN #:	21096	Units:	5
Classroom:	2734 (Lec); 2715 (Lab)	Office #:	2779
Class Dates:	Feb 13 to Jun 9, 2017	Office Hours:	MTWR 6:10 – 6:25 pm (Rm 2734) MTWR 9:40 – 10:10 pm (Rm 2715) S 9:00 – 10:00 am (Rm 2715) or special appointment
Class Days:	Monday & Wednesday	Office Phone #:	(760)355-5751
Class Times:	4:45 pm - 6:10 pm (Lec) 6:30 pm – 9:40 pm (Lab)	Emergency Contact:	Department Secretary (760) 355-6155

Course Description

This course is a study of various reactions and properties aldehydes, ketones, carboxylic acids, aromatic compounds, amines, conjugated dienes, lipids, carbohydrates, and organic polymers. A survey of various biochemical topics such as metabolism, protein structure, and DNA is also included. This course is a continuation of CHEM 204 and is intended for students majoring in chemistry, biology, and pre-medical sciences. (CSU, UC)

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. analyze the structure, nomenclature, physical properties and synthesize aldehydes and ketones. (ISLO4)
2. analyze the structure, nomenclature, and physical properties and synthesize carboxylic acids. (ISLO2)
3. identify and write the steps to synthesize reactions including esters, enolates, enamine and Aldol reactions. (ISLO2)
4. develop and recognize the concept of aromaticity by the analysis of Aromatic compounds. (ISLO4)
5. determine the structure, nomenclature, physical properties and synthesize amines. (ISLO4)

Course Objectives

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

1. demonstrate knowledge of the structure and reactions aldehydes and ketones.
2. demonstrate knowledge of the structure and reactions carbolxylic acids and their derivatives.
3. demonstrate knowledge of enolate anions and enamines.
4. demonstrate knowledge of the structure and reactions of aromatic compounds.
5. demonstrate knowledge of the structure and reactions of amines.

6. demonstrate knowledge of the structure and reactions of conjugated dienes.
7. demonstrate knowledge of organic polymers.
8. demonstrate knowledge of the structure and reactions carbohydrates.
9. demonstrate knowledge of lipids.
10. demonstrate knowledge of the chemistry of metabolism.
11. demonstrate knowledge of the structure and reactions of amino acids and proteins.
12. demonstrate knowledge of nucleic acids and DNA.

Textbooks & Other Resources or Links

REQUIRED MATERIALS:

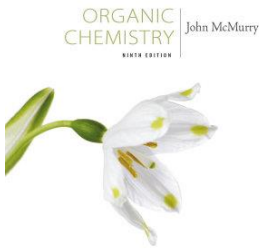

Figure 1: Organic Chemistry book by John McMurry, 9th edition

1. *Organic Chemistry*, by John McMurry. Cengage Learning, 9th Ed, **ISBN**: 9781337158459 (see #2 on how to purchase)
2. Purchase OWL2 via https://www.cengagebrain.com/shop/ISBN/9781305779822, then register with OWL2 via http://login.cengagebrain.com . This purchase includes the following*: OWL2 online HW*, *LabSkills prelab*, digital copy of *Organic Chemistry*, by John McMurry, and the loose-leaf version of the book. You may also purchase all these through the IVC bookstore.
3. Select Experiments in *A Small Scale Approach to Organic Laboratory Techniques*, by Donald Pavia, G. Lampman et al. (Cengage Learning, 3rd edition or latest) (See last page of Syllabus for list of experiments)
4. *Chemistry 206 Lecture and Lab Notes**, by Alto Benedicto.
5. Research Lab Notebook* (9 x 11, Hardbound, numbered pages, non-spiral permanent bound, graphed or lined pages).
6. Chemistry Laboratory Coat* (white, long sleeve, knee length)
7. Eight (8) Scantron Sheets Form No. 889-E (submitted on the second day of class) and pencil
8. safety goggles* ($5; needed on second class day), non-programmable scientific calculator ($15 - $25), close-toed shoes
9. free access to Net Tutor (online tutoring with a live person) via Blackboard or Canvas

* Available at **IVC Chemistry/STEM Club.**

RECOMMENDED MATERIALS:

1. *Study Guide with Student Solutions Manual for McMurry's Organic Chemistry*, 9th Edition. (Amazon Rent: $18.34)
2. *Odyssey Molecular Explorer (Student Edition),* by Wavefunction, Inc. (Molecular Modeling software)

3. Molecular Models* (*HGS Maruzen* Organic Chem Kit #1003A $28+tax; or General Chem Kit #1001A $17+tax)

Course Requirements and Instructional Methods

1. Attendance for the entire class period is mandatory for Chem 206 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 comply with safety rules such as wearing Safety Goggles, etc.), you will be marked absent for that Lab, and will garner zero points for the experiment.
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 the absence.
3. During Exam, the only things allowed are: **pencil, nonprogrammable calculator, and I.D.** You will be supplied with a Scantron. You may use the Exam Questionnaire as scratch paper. The Exam Questionnaire, and Scantron are to be submitted at the end of the Exam. **Possession of electronic devices (phones, ipod, 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 206 textbook** and to **sign up for online HW (OWLv2 and LabSkills) no later than the second week of class**. Personal laptop is highly encouraged for online HW during Lab Class.
5. **Due dates for Online Chapter HWs are found in the Class Schedule of Topics (see last page).**
6. **Due dates for Quizzes are found in the Class Schedule of Topics (see last page).**
7. **Due dates for Pre-lab Reading HW are found in the Class Schedule of Topics (see last page).**
8. Prior to start of Lab Class, students are to fill out the Lab Notebook with INK with the following **Prelab Information**: **Date, Descriptive Title, Chemical Equation, Side Reactions, Table of Physical Constants, Calculations, Illustration of Apparatus Setup, Outline of Procedure**. Submit the notebook **within the first two minutes of class** for full pre-lab credit, therefore, don't be late!!! At times, Prelab quiz on said experiment will be given prior to start of the experiment.
9. Before leaving the Lab Class, make sure the **instructor has signed** your Lab Notebook. Cross-out mistakes with a single strike-through line. Use appropriate verb tense. Cross out large blank areas in the notebook. Sign and date your notebook. **Notebook (containing Graphs, Spectroscopic Data, % Yield, etc. as need be) with answer to Post-Lab Questions are to be submitted within the first two minutes of the next time Lab meeting**.
10. Products obtained from Labs must be submitted in a vial with the following information: **Your Name, Name of Compound, melting point and other relevant data, purity, yield in grams**. Points will be subtracted for missing information.
11. Lab clean-ups are done 15 minutes before the end of lab. A **wet towel** should be used to wipe the lab bench in order to gain full points. Make sure 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.
12. There are no bonus work available. Kindly seek assistance immediately to clarify any questions.
13. Keep up with the chapter readings. Seek help immediately on unclear concepts.

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.

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
Quizzes	15 @ 10	150 pts
Online Homework	14 @ 10	140 pts
Pre-lab HW	9 @ 10	90 pts
Lab Experiments and Typewritten Report	8 @ 10 1 @ 10	80 pts 10 pts
Lab Final Exam	1 @ 100	100 pts

OVERALL POINTS = 1,020 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

Attendance

- 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.**

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.

- 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.

Online Netiquette

- What is netiquette? Netiquette is internet manners, online etiquette, and digital etiquette all rolled into one word. Basically, netiquette is a set of rules for behaving properly online.
- Students are to comply with the following rules of netiquette: (1) identify yourself, (2) include a subject line, (3) avoid sarcasm, (4) respect others' opinions and privacy, (5) acknowledge and return messages promptly, (6) copy with caution, (7) do not spam or junk mail, (8) be concise, (9) use appropriate language, (10) use appropriate emoticons (emotional icons) to help convey meaning, and (11) use appropriate intensifiers to help convey meaning [do not use ALL CAPS or multiple exclamation marks (!!!!)].

Academic Honesty

Academic honesty in the advancement of knowledge requires that all students and instructors respect the integrity of one another's work and recognize the important of acknowledging and safeguarding intellectual property.

There are many different forms of academic dishonesty. 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.

Additional 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 Support Site.**The Canvas Support Site provides a variety of support channels available to students 24 hours per day.
- **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 Student 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 StudentHealth Fee.

- **Student Health Center**. A Student Health Nurse is available on campus. In addition, Pioneers Memorial Healthcare District provides 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 therapy are provided to currently enrolled students. Contact the IVC Mental Health Counseling Services at 760-355-6196 in Room 2109 for more information.

Student Rights and Responsibilities

Students have the right to experience a positive learning environment and to dueprocess of law. For more information regarding student rights and responsibilities, please refer to the IVC General Catalog.

Information Literacy

Imperial Valley College is dedicated to helping students skillfully discover, evaluate, and use information from all sources. The IVC Library Department provides numerous Information Literacy Tutorials to assist students in this endeavor.

(see next page)

Anticipated Class Schedule/Calendar

*****Class Schedule is tentative, subject to change without prior notice*****

Chem Club members are offering free tutoring services. They get paid nothing to tutor.

Quizzes (designated as Quiz) are due every Tuesday at 11:55 pm
Pre-lab Reading HW (designated as Pre-lab) are due every Thursday at 11:55 pm
Online Chapter HW (designated as HW) are due every Saturday at 11:55 pm

WK	DATE	CHAPTER READINGS	LABORATORY	**Due dates**
1	Feb 13 – Feb 18	Ch 15: Benzene and Aromaticity	Safety Video & Quiz; How to Keep A Lab Notebook Lab 1: Diels-Alder Reaction (Expt 51A)	*Class Quiz 1 (during class hour on Feb 15);*
2	Feb 20 – Feb 25	Ch 16: Benzene Derivatives: Electrophilic Aromatic Substitution	Lab 2: Esterification of Diels-Alder Adduct (Expt 51B) Start of Lab 3 Part 1	**Net Tutor feedback (due Feb 22);** *Pre-lab A; HW15;*
3	Feb 27 – Mar 4	Ch 17: Phenols Ch 18: Thiols and Sulfides	Lab 3: Polymer Synthesis through ROMP (Expt 51C)	*Quiz 15; Pre-lab B; HW16*
4	Mar 6 – Mar 11	Ch 19: Aldehydes and Ketones: Nucleophilic Addition Reactions	Lab 4: Dehydration of 2- and 4-Methylcyclohexanol(Expt 22) **Lecture Exam 1** (covers Ch 15, 16, 17)	*Quiz 16; Pre-lab C; HW17+*
5	Mar 13 – Mar 18	Ch 20: Carboxylic Acids and Nitriles	Lab 5: Relative Reactivities of Several Aromatic Compounds (Expt 42)	*Quiz 17; Pre-lab D; HW19*
6	Mar 20 – Mar 25	Ch 21: Carboxylic Acid Derivatives: Nucleophilic Acyl Substitution.	Lab 6: Preparation of Soap from 70% Lard and 30% Coconut Oil (Expt 24A) **Lecture Exam 2** (covers Ch 18, 19)	*Quiz 19; Pre-lab E; HW20*
7	Mar 27 – Apr 1	Ch 22: Carbonyl Alpha-Substitution Reactions	Con't of Lab 6 Lab 7: Biodiesel from Coconut Oil (Expt 26A and 26C)	*Quiz 20; Pre-lab F; HW21*
8	Apr 3 – Apr 8	Ch 23: Carbonyl Condensation Reactions	Con't of Lab 7 **Lecture Exam 3** (covers Ch 20, 21)	*Quiz 21; Pre-lab G; HW22*
9	Apr 10 – Apr 15	Con't of Ch 23 and Ch 13: Mass Spectrometry	Lab 8: Molecular Modeling using Computers; GC-MS Spectra	*Quiz 22; Pre-lab H; HW23*
10	Apr 17 – Apr 22	*Spring Break*	*Spring Break*	

WK	DATE	CHAPTER READINGS	LABORATORY	**Due dates**
11	Apr 24 – Apr 29	Ch 24: Amines and Heterocycles	**Lecture Exam 4** (covers Ch 22, 23)	*Quiz 23; Pre-lab I; HW13*
12	May 1 – May 6	Ch 25: Carbohydrates	Lab 9: Functional Group Tests (Expt 58A; 58D; Tollens Test and Iodoform Test)	*Quiz 11; HW24*
13	May 9 – May 13	Ch 26: Amino Acids, Peptides, and Proteins Ch 27: Lipids	Lab 10: Identification of Unknowns	*Quiz 24; HW25*
14	May 15 – May 20	Ch 28: Nucleic Acids Ch 29: Metabolic Pathways	Con't of Lab 10 **Lecture Exam 5** (covers Ch 25, 26, 27)	*Quiz 25; HW26+*
15	May 22 – May 27	Ch 30: Pericyclic Reactions	Start Lecture on Ch 31 Locker Checkout	*Quiz 26; HW28+*
16	May 29 – Jun 3	Ch 31: Synthetic Polymers	**Lecture Exam 6** (covers Ch 28, 29, 30, 31)	*Quiz 28; HW30+*
17	Jun 5 – Jun 9	**FINAL EXAM (on Last Day)**	**Lab Final Exam** (on second to last day)	*Quiz 30;*

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Net Tutor is offering free tutoring services on the web. You get real time live person on other end.

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Online Chapter HW (designated as HW) are due every Saturday at 11:55 pm