

**CHEM 8 Course Outline as of Spring 2007****CATALOG INFORMATION**

Dept and Nbr: CHEM 8 Title: INTRO ORGANIC CHEMISTRY

Full Title: Introductory Organic Chemistry

Last Reviewed: 11/26/2018

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	5.00	Lecture Scheduled	4.00	17.5	Lecture Scheduled	70.00
Minimum	5.00	Lab Scheduled	3.00	17.5	Lab Scheduled	52.50
		Contact DHR	0		Contact DHR	0
		Contact Total	7.00		Contact Total	122.50
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 140.00

Total Student Learning Hours: 262.50

Title 5 Category: AA Degree Applicable

Grading: Grade Only

Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP

Also Listed As:

Formerly:

**Catalog Description:**

An introduction to the principles, nomenclature, structure and reaction mechanisms of Organic Chemistry.

**Prerequisites/Corequisites:**

Course Completion of CHEM 1A OR Course Completion of CHEM 42 ( or CHEM 55)

**Recommended Preparation:**

Eligibility for ENGL 100 or ESL 100

**Limits on Enrollment:****Schedule of Classes Information:**

Description: An introduction to the principles, nomenclature, structure and reaction mechanisms of Organic Chemistry. (Grade Only)

Prerequisites/Corequisites: Course Completion of CHEM 1A OR Course Completion of CHEM 42 ( or CHEM 55)

Recommended: Eligibility for ENGL 100 or ESL 100

Limits on Enrollment:

Transfer Credit: CSU;UC.

Repeatability: Two Repeats if Grade was D, F, NC, or NP

## **ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:**

<b>AS Degree:</b>	<b>Area</b>		Effective:	Inactive:
<b>CSU GE:</b>	<b>Transfer Area</b>		Effective:	Inactive:
	B1	Physical Science	Fall 1981	
	B3	Laboratory Activity		

<b>IGETC:</b>	<b>Transfer Area</b>		Effective:	Inactive:
	5A	Physical Sciences	Fall 1981	
	5C	Fulfills Lab Requirement		

<b>CSU Transfer:</b>	Transferable	Effective:	Fall 1981	Inactive:
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<b>UC Transfer:</b>	Transferable	Effective:	Fall 1981	Inactive:
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**CID:**

**Certificate/Major Applicable:**

Major Applicable Course

## **COURSE CONTENT**

### **Outcomes and Objectives:**

Upon successful completion of this course the student will be able to:

1. Predict and explain three-dimensional structure, including conformational changes, for organic compounds.
2. Apply rules of nomenclature for naming organic compounds.
3. Deduce the structures for products of organic reactions.
4. Predict and explain relative physical properties of organic compounds.
5. Predict and explain relative reactivities of organic compounds.
6. Suggest appropriate methods for the syntheses of organic compounds.
7. Propose mechanisms for organic reactions.
8. Compare and contrast structures and properties of biological compounds.
9. Make observations and apply chemical concepts in the laboratory.
10. Analyze compounds by instrumental methods.

### **Topics and Scope:**

#### **LECTURE MATERIAL**

1. Bonding and structure of organic compounds
2. Acid-base Chemistry
3. Alkanes and Cycloalkanes
4. Stereochemistry
5. Alkenes and Alkynes
6. Aromatic Compounds
7. Alcohols, Ethers and Sulfur Compounds
8. Substitution and Elimination Reactions
9. Aldehydes and Ketones
10. Carboxylic Acids

11. Derivatives of Carboxylic Acids
12. Amines
13. Carbohydrates
14. Amino Acids and Proteins
15. Nucleic Acids

#### LABORATORY MATERIAL

1. Crystallization
2. Melting Point Determinations
3. Spectroscopy
4. Distillations
5. Chromatography
6. Extraction
7. Isolation of Organic Compounds
8. Synthesis of Organic Compounds
9. Structure Determination
10. Instrumental Methods

#### Assignment:

Assignments may include:

1. Specific reading and study assignments averaging 30-45 pages per week.
2. Completion of end-of-chapter exercises averaging 15-20 problems per week.
3. Laboratory experiments: identification of unknowns and products of reactions by physical, instrumental, and spectroscopic methods.
4. A written laboratory report on each experiment detailing accomplishments.
5. Four to six lecture and laboratory exams plus a comprehensive final exam.

#### Methods of Evaluation/Basis of Grade:

**Writing:** Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

Lab reports
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Writing 15 - 25%
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**Problem Solving:** Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Lab reports
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Problem solving 5 - 10%
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**Skill Demonstrations:** All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

Class performances, Lab skill technique/accurate lab results
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Skill Demonstrations 1 - 5%
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**Exams:** All forms of formal testing, other than skill performance exams.

Multiple choice, Completion, PROBLEM SOLVING AND SHORT ESSAY

Exams  
65 - 75%

**Other:** Includes any assessment tools that do not logically fit into the above categories.

None

Other Category  
0 - 0%

**Representative Textbooks and Materials:**

Essential Organic Chemistry, Bruice, Prentice Hall, 2006

Fundamentals of Organic Chemistry, 6th ed., McMurry and Simanek, Brooks/Cole, 2007

Organic Chemistry, Hill and Barbaro, Contemporary Publishing Company of Raleigh, 2004

Techniques for the Organic Laboratory: Microscale and Macroscale, Pavia, Lampman, Kriz, and Engel, Brooks/Cole, 2002