CHEM 8 Course Outline as of Fall 2010

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

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 Recommended: Eligibility for ENGL 100 or ESL 100 Limits on Enrollment: Transfer Credit: CSU;UC.

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree: CSU GE:	Area Transfer Area B1 B3	Physical Scient Laboratory Act		Effective: Effective: Fall 1981	Inactive: Inactive:
IGETC:	Transfer Area 5A 5C	Physical Sciences Fulfills Lab Requirement		Effective: Fall 1981	Inactive:
CSU Transfer	:Transferable	Effective:	Fall 1981	Inactive:	
UC Transfer:	Transferable	Effective:	Fall 1981	Inactive:	

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.

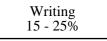
Lab reports

Problem Solving: Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Lab reports

Skill Demonstrations: All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

Class performances, Lab skill technique/accurate lab results



Problem solving 5 - 10%

Skill Demonstrations 1 - 5% Multiple choice, completion, problem solving and short essay

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

None

Representative Textbooks and Materials:

Essential Organic Chemistry, Bruice, Prentice Hall, 2009 Fundamentals of Organic Chemistry, 6th ed., McMurry and Simanek, Brooks/Cole, 2007 Organic Chemistry, Hill and Barbaro, Contempory Publishing Company of Raleigh, 2004 Techniques for the Organic Laboratory: Microscale and Macroscale, Pavia,

Lampman, Kriz, and Engel, Brooks/Cole, 2006

Exams 65 - 75%

Other Category 0 - 0%