

CATALOG INFORMATION

Dept & Nbr: CHM 202 Title: ORGANIC AND BIOCHEMISTRY
Full Title: Introduction to Organic and Biochemistry

Units	Course Hours	Per Week	Nbr of Weeks	Course Hours	Total
Max: 4.0	Lecture	3.0	17	Lecture	51.0
Min: 4.0	Lab	3.0		Lab	51.0
	Contact DHR	0.0		Contact DHR	0.0
	Contact Total	6.0		Contact Total	102.0
	Non-contact DHR	0.0		Non-contact DHR	0.0

Title 5 Category: 01 AA Degree Applic
Grading: GC Credit course for grade or CR/NC
Repeatability: 00 No repeatability allowed or defined
Also listed as:

CATALOG DESCRIPTION:

Introduction to chemical structures, bonding, chemical reactivity and mechanisms as it applies to organic and biochemistry (alkanes, alkyl halides, alcohols, alkenes, alkynes, carbonyl compounds, benzene chemistry, carboxylic acids, amines, difunctional compounds, amino acids, peptides, proteins, lipids, carbohydrates, and nucleic acids).

PREREQUISITES:
CHM 200.

COREQUISITES:

RECOMMENDED PREPARATION:
No advisories.

LIMITS ON ENROLLMENT:

SCHEDULE OF CLASSES INFORMATION:

Prerequisites: CHM 200.
Introduction to chemical structures, bonding, chemical reactivity and mechanisms as it applies to organic and biochemistry (alkanes, alkyl halides, difunctional compounds, amino acids, peptides, proteins, lipids, carbohydrates, and nucleic acids). Organic chemistry for health sciences. (Grade or CR/NC)
Transfer Credit: CSU; UC.

ARTICULATION and CERTIFICATE INFORMATION

ASSOCIATE DEGREE: Effective: FALL 1997 Inactive:
Area: A NATURAL SCIENCES
CSU GE: Effective: FALL 1997 Inactive:
Transfer area: B1 PHYSICAL UNIVERSE
B3 LAB ACTIVITY
IGETC: Effective: FALL 2002 Inactive:

Transfer area: 5A PHYSICAL SCIENCES

CSU TRANSFER: TRANSFERABLE Effective: FALL 1997 Inactive:

UC TRANSFER: TRANSFERABLE Effective: FALL 1997 Inactive:

CAN:

CERTIFICATE APPLICABLE: N NOT CERTIFICATE/MAJOR APPLICABLE

APPROVAL AND DATES

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Version 01 Submitted by: GERALD DECHAIINE Date: 12/12/2000
Department approved: Date:
Curriculum approved: 12/03/1996 Version approved: 12/03/1996
Prerequisites approved: 12/12/2000 Last reviewed: 12/12/2000
Term effective: FALL 2001 Last taught: SPRING 2006 Inactive:

COURSE CONTENT

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OUTCOME AND OBJECTIVES:

1. Demonstrate a mastery of the subject matter.
2. Demonstrate an ability to perform the necessary calculations required in the topics listed under course content.
3. Demonstrate an understanding and capability of laboratory techniques as indicated by the results of the laboratory experiments and as indicated in the course content.
4. Perform all experiments using proper safety techniques.
5. Demonstrate the use of the scientific method to assess laboratory data.
6. Demonstrate a base knowledge of the organic functional groups, their reactions, identifications and the importance and use of each to the world's civilization.

TOPICS AND SCOPE:

Lecture:

1. Structure and Bonding in Organic Molecules
2. Alkane Chemistry
3. Alkene Chemistry
4. Alkyne Chemistry
5. Benzene and Aromatic chemistry
6. Alcohol and Ether Chemistry
7. Carbonyl Group: Aldehyde, Ketone and Carboxylic Acid Chemistry
8. Properties and Reactions of Haloalkanes
9. Amines Chemistry
10. Carbohydrate Chemistry
11. Lipid Chemistry
12. Proteins and Enzymes
13. Amino Acids and Nucleic Acids

Laboratory:

1. Safety in the Laboratory
2. Structure and Molecular Models
3. Separation Techniques
4. Identification of Hydrocarbons
5. Chromatography
6. Spectroscopy
7. Identification of Alcohols and Phenols
8. Identification of Aldehydes and Ketones
9. Carboxylic Acids and Esters
10. Amines and Amides
11. Carbohydrates

12. Lipids
13. Polymerization
14. Amino Acids
15. Isolation and Identification of DNA

ASSIGNMENTS:

READING ASSIGNMENTS:

The student will be responsible for all reading assignments from the textbook and laboratory manual relating to the topics of the course.

WRITING ASSIGNMENTS:

The student will maintain a laboratory notebook and submit written reports of all laboratory experiments. The student will use mathematical concepts to determine theoretical, actual, and percent yields of laboratory experiments.

OUTSIDE ASSIGNMENTS:

The student is responsible for pre-lab preparation and recommended problem assignments which require an understanding and stoichiometry.

ASSIGNMENTS THAT DEMONSTRATE CRITICAL THINKING:

All laboratory assignments require that the student must go through a decision making process that involves determining the value of his/her data taken and the degree with which that data may be used in determining the student's conclusion.

METHOD OF INSTRUCTION:

The lecture will be augmented by demonstration, video tapes and use of overhead projections with appropriate handouts. The hands-on laboratory exercises will follow a short lecture or concept, techniques and safety. The student will analyze the data and record the results in the computer. The student will keep an up-to-date laboratory notebook for the data.

METHODS OF EVALUATION:

Exams-approximately 50%; final exam-approximately 25%; laboratory exercises-approximately 25%. The student must pass each component of the class (i.e., lecture, lab and final exam) to earn a passing grade in the course.

BASIS FOR GRADING:

The assignment of a grade is based on the level of achievement of the outcomes and objectives of the course outline and is reflected in quantifiable terms in the course syllabus.

REPRESENTATIVE TEXTBOOKS:

Textbook: Introduction to Biological Chemistry, second edition, Matta & Wilbaham, Health Publishing

Laboratory Textbook: Laboratory Experiments for Organic & Biochemistry, second edition, Bettelheim and Landesberg, Saunders College Publishing

Laboratory Notebook

Model Kit