CORE CURRICULUM COMPONENT APPLICATION
Texarkana College

Part I: Course Information

Course Type
☒ Existing/Restructured
☐ New Course

Course Prefix & Number: **CHEM 1419**

Texas Common Course Number (TCCN): **CHEM 1419**

Course Title: **Introductory Organic and Biochemistry**

Course Catalog Description

Introductory Organic Chemistry I (4,3,3). A survey of organic and biochemistry including functional groups, nomenclature, carbohydrates, lipids, proteins, enzymes, bioenergetics, catabolism, anabolism, nucleic acids, nutrition, digestion, body fluids, neurotransmitters, hormones, immunoglobulins and current topics.

Course Prerequisites: none

Available Online?
☐ Yes
☒ No

Part II: THECB Course Objectives
None listed

See Attached Syllabus

Part III: THECB Skill Objectives
1. Critical Thinking Skills: to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
2. Communication Skills: to include effective development, interpretation and expression of ideas through written, oral and visual communication
3. Empirical and Quantitative Skills: to include applications of scientific and mathematical concepts.
4. Teamwork: to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal

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Part IV: Course Student Learning Outcomes (SLO)
Upon successful completion of this course, students will:

Learning Outcomes

1. Compare and contrast the natures and bonding characteristics of organic and inorganic molecules.
2. Draw structural representations of organic molecules and describe shapes.
3. Name, describe physical and chemical properties; and discuss uses of alkanes and alkenes.
4. Name; describe physical and chemical properties; and discuss uses of alkenes, alkynes, and aromatics.
5. Name; describe physical and chemical properties; and discuss uses of alcohols, phenols, esters, and thiols.
6. Name; describe physical and chemical properties; and discuss uses of aldehydes and ketones.
7. Name; describe physical and chemical properties; and discuss uses of esters and salts.
8. Name; describe physical and chemical properties; and discuss uses of amines and amides.
9. Describe the nature, structure, physical properties, and chemical properties of carbohydrates.
10. Describe the nature, structure, physical properties, and chemical properties of lipids.
11. Describe the nature, structure, physical properties, and chemical properties of protein and enzymes.
12. Illustrate and explain the major anabolic and catabolic pathways for carbohydrate, lipid, and protein metabolism.

See Attached Syllabus

Skill Objective:	**Critical Thinking Skills:** to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
THECB Course Objective	SLO #2 Draw structural representations of organic molecules and describe shapes.
Course Student Learning Outcome	SLO #2 Draw structural representations of organic molecules and describe shapes.
General Learning Activities	Students will draw Lewis Structures and use VSEPR to predict structures and shapes of various molecules given chemical formulae. Based upon these findings, students will extrapolate to physical and chemical properties. See attached activity—Lewis Structures.
Assessment	Exam questions. See attached rubric.

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Must Include Assignment & Rubric	

Skill Objective:	**Communication Skills:** to include effective written, oral, and visual communication
THECB Course Objective	SLO # 7 Name; describe physical and chemical properties; and discuss uses of esters and salts. SLO #8 Name; describe physical and chemical properties; and discuss uses of amines and amides.
Course Student Learning Outcome	SLO # 7 Name; describe physical and chemical properties; and discuss uses of esters and salts. SLO #8 Name; describe physical and chemical properties; and discuss uses of amines and amides.
General Learning Activities	Lab groups will prepare and present PowerPoint presentations and short papers about drugs that contains at least one of the following functional groups: ester, salt, amine, amide. See the attached assignment--pharmacology.
Assessment ***Must Include Assignment & Rubric***	Exam questions. See attached rubric

Skill Objective:	**Empirical and Quantitative Skills:** to include applications of scientific and mathematical concepts.
THECB Course Objective	SLO #5 Name; describe physical and chemical properties; and discuss uses of alcohols, phenols, esters, and thiols.
Course Student Learning Outcome	SLO #5 Name; describe physical and chemical properties; and discuss uses of alcohols, phenols, esters, and thiols.
General Learning Activities	Students will extract ethanol from various consumer products and calculate the percent alcohol and proof. See attached Wow that has a kick
Assessment ***Must Include Assignment & Rubric***	Exam questions. See attached rubric

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Skill Objective:	**Teamwork:** to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal
THECB Course Objective	SLO #6 Name; describe physical and chemical properties; and discuss uses of aldehydes and ketones.
Course Student Learning Outcome	SLO #6 Name; describe physical and chemical properties; and discuss uses of aldehydes and ketones.
General Learning Activities	Student lab teams will extract citral from various citrus fruits, observe it's chemical and physical properties, and make calculations predicting amount of fruit needed for commercial production of the oil. See attached orange oil lab.
Assessment ***Must Include Assignment & Rubric***	Exam questions. See attached rubric