CORE CURRICULUM COMPONENT APPLICATION
Texarkana College

Part I: Course Information

Course Type
☒ Existing/Restructured
☐ New Course

Course Prefix & Number: **BIOL 1307**

Texas Common Course Number (TCCN): **1307**

Course Title: **Biology for Science Majors II**

Course Catalog Description

Biology for Science Majors II (4,3,3). Continuation of BIOL 1406. An integrated study of structure and function in biological populations. Includes organismal diversity and physiological aspects of transport, nutrition, gas exchange, communication, reproduction and development.

Course Prerequisites:
BIOL 1406

Available Online?
☐ Yes
☒ No

Part II: THECB Course Objectives

Upon successful completion of this course, students will:

1. Apply scientific reasoning to investigate questions, and utilize scientific tools such as microscopes and laboratory equipment to collect and analyze data.
2. Use critical thinking and scientific problem-solving to make informed decisions in the laboratory.
3. Communicate effectively the results of scientific investigations.
4. Demonstrate knowledge of modern evolutionary synthesis, natural selection, population genetics, micro and macroevolution, and speciation.
5. Distinguish between phylogenetic relationships and classification schemes.
6. Identify the major phyla of life with an emphasis on plants and animals, including the basis for classification, structural and physiological adaptations, evolutionary history, and ecological significance.
7. Describe basic animal physiology and homeostasis as maintained by organ systems.
8. Compare different sexual and asexual life cycles noting their adaptive advantages.
9. Illustrate the relationship between major geologic change, extinctions, and evolutionary trends.

See attached syllabus.

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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

Part IV: Course Student Learning Outcomes (SLO)

Upon successful completion of this course, students will:

1. Apply scientific reasoning to investigate questions, and utilize scientific tools such as microscopes and laboratory equipment to collect and analyze data.
2. Use critical thinking and scientific problem-solving to make informed decisions in the laboratory.
3. Communicate effectively the results of scientific investigations.
4. Demonstrate knowledge of modern evolutionary synthesis, natural selection, population genetics, micro and macroevolution, and speciation.
5. Distinguish between phylogenetic relationships and classification schemes.
6. Identify the major phyla of life with an emphasis on plants and animals, including the basis for classification, structural and physiological adaptations, evolutionary history, and ecological significance.
7. Describe basic animal physiology and homeostasis as maintained by organ systems.
8. Compare different sexual and asexual life cycles noting their adaptive advantages.
9. Illustrate the relationship between major geologic change, extinctions, and evolutionary trends.

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 #1) Describe modern evolutionary synthesis, natural selection, population genetics, micro and macroevolution, and speciation.

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Course Student Learning Outcome	(SLO #1) Describe modern evolutionary synthesis, natural selection, population genetics, micro and macroevolution, and speciation.
General Learning Activities	Lab activity from Howard Hughes Medical Center using stickle back fish to determine why fresh water populations lose spines and marine populations retain them. See attached activity.
Assessment ***Must Include Assignment & Rubric***	Grade and see attached rubric.

Skill Objective:	**Communication Skills:** to include effective written, oral, and visual communication
THECB Course Objective	(SLO #6) Identify the major phyla of life with an emphasis on plants and animals, including the basis for classification, structural and physiological adaptations, evolutionary history, and ecological significance.
Course Student Learning Outcome	(SLO #6) Identify the major phyla of life with an emphasis on plants and animals, including the basis for classification, structural and physiological adaptations, evolutionary history, and ecological significance.
General Learning Activities	Students work in groups of three or four with a lab packet. Information provided includes animations of life cycles, slides, models, and live or preserved materials. See attached activity.
Assessment ***Must Include Assignment & Rubric***	Practical examination and included rubric.

Skill Objective:	**Empirical and Quantitative Skills:** to include applications of scientific and mathematical concepts.
THECB Course Objective	(SLO #1) Describe modern evolutionary synthesis, natural selection, population genetics, micro and macroevolution, and speciation.
Course Student Learning Outcome	(SLO #1) Describe modern evolutionary synthesis, natural selection, population genetics, micro and

	macroevolution, and speciation.
General Learning Activities	Chi Square activity is part of the evolution unit. The student teams score the spines in stickleback fish and try to determine whether or not natural selection is acting on the species or not and if there is a statistically significant difference or not. See attached activity.
Assessment ***Must Include Assignment & Rubric***	Grade and attached rubric

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) Illustrate the relationship between major geologic change, extinctions, and evolutionary trends.
Course Student Learning Outcome	(SLO #6) Illustrate the relationship between major geologic change, extinctions, and evolutionary trends.
General Learning Activities	Watched a short film about an asteroid impact, discussed questions in groups. See attached activity.
Assessment ***Must Include Assignment & Rubric***	Grade and attached rubric.