University of Houston-Downtown

Course Prefix, Number, and Title: BIOL 1302: General Biology II

Credits/Lecture/Lab Hours: 3/3/0

Foundational Component Area: Life and Physical Sciences

Prerequisites: BIOL 1101, BIOL 1301 and credit or enrollment in BIOL 1102
Co-requisites: None

Course Description: A survey of current biological concepts for students majoring in the sciences. Emphasis will be placed on topics which include evolution, biological diversity, ecology, and comparative structure and function of organ systems.

TCCNS Number: BIOL 1307

Demonstration of Core Objectives within the Course:

Assigned Core Objective	Learning Outcome Students will be able to:	Instructional strategy or content used to achieve the outcome	Method by which students' mastery of this outcome will be evaluated
Critical Thinking Empirical & Quantitative Reasoning	Utilize scientific processes to identify questions pertaining to natural phenomena.	1302 lecture: Short tasks such as identifying the research question in **research presented in Science News articles, the textbook, newspaper, etc**. Longer, investigative group tasks such as **Galapagos Finches** will require that student groups use the Grants' finch data to generate and test a question. 1102 Lab: Several **open-ended and guided inquiry** lab activities based on student questions (e.g., Bacteria in the environment, Inquiry using protists and fungi, Morgan-Carter lab manual), **to include service component** requiring identifying a question (signage of natural areas or cleanup)	Students will complete weekly tasks individually (quizzes, writing sample, etc) in preparation for next class or to review past class. Some of these graded tasks will require identifying questions. Student groups present Finch investigation orally (graded using rubric adapted from the core rubric, including an item about identifying questions) Students will complete weekly tasks individually (quizzes, writing sample, etc) in preparation for next lab or to review past lab. Some of these graded tasks will require identifying questions to investigate. Group presentations will be graded using rubric adapted from the core rubric.

Critical Thinking Empirical & Quantitative Reasoning	Utilize scientific processes to develop hypotheses, collect and analyze data using quantitative and qualitative measures.	1302 Lecture: Several in-class investigations such as **Antibiotic Resistance** (National Case Study Collection) 1102 Lab: Several **open-ended and guided inquiry** lab activities based on student questions (e.g., Bacteria in the environment, Inquiry using protists and fungi, Morgan-Carter lab manual)	Students will complete weekly tasks individually (quizzes, writing sample, etc) in preparation for next class or to review past class. Some of these graded tasks will require developing hypotheses, collecting and analyzing data. In exams, students analyze similar graphical or tabular numerical data or image data to propose plausible explanation for the results Students will complete weekly tasks individually (quizzes, writing sample, etc) in preparation for next lab or to review past lab. Some of these graded tasks will require developing hypotheses, collecting and analyzing data. Students present findings orally or by lab report or poster (graded using rubric adapted from the core rubric)
Critical Thinking Empirical & Quantitative Reasoning Communication	Utilize scientific processes to effectively communicate the analysis and results using written, oral and visual communication.	1302 Lecture: Semester-long **Organism project**. Each student will choose a species to study the entire semester, with weekly homework assignments about that species' ecology, evolution and adaptations that culminate in a public poster presentation. 1102 Lab: Several **open-ended and guided inquiry** lab activities based on student questions (e.g., Terrestrial Ecology, Bacteria in the environment, Inquiry using protists and fungi, Morgan-Carter lab manual)	Each student completes regular graded homework (written, oral or visual) assignments related to this project, culminating in an individual poster, graded using core rubric adapted for this purpose and including criteria about written, oral and visual communication. One inquiry activity will require oral presentation, another a formal lab report, and another poster. These group projects will be graded using core rubric adapted for this purpose and including criteria about written, oral and visual communication.

Teamwork	Collaborate in the evaluation of the quality of scientific evidence from multiple perspectives toward the goal of reaching a shared objective.	1302 Lecture: Classroom inquiry of cases or articles such as "Premature puberty among girls poses scientific puzzle" (Science News 1 Dec 2012) 1102 Lab: Nearly all activities will be conducted as groups. Open-ended and guided inquiry will require extensive collaboration in and out of class to complete the projects.	Students collaborate to discuss evidence and make informal, ungraded presentations. Ability to collaborate will be evident in the quality of the questions, hypotheses, analysis and communication about the open-ended investigations they conduct.

Additional Course Outcomes:
N/A. See outcomes above.

Course Topics:
Lecture:

- Ecology of populations and communities
- Ecology of ecosystems
- Evolution of Populations
- Descent with Modification
- Phylogeny and the Tree of Life
- Diversity of Prokaryotes and Viruses
- Diversity of Protists and Fungi
- Diversity of Plants
- No classes – Spring Break
- Diversity of Animals
- Nutrition
- Transport
- Osmoregulation
- Sensing, Signaling and response
- Reproduction, Growth and Development

Lecture Grading/Course Content which Demonstrates Student Achievement of Core Objectives:

Course Grade ***A: 90-100*** ***B: 80-89*** ***C: 70-79*** ***D: 60-69*** ***F: 0-59***

Summary of Course Exams, Quizzes, Activities, and Final	
Weekly Assignments-highest 8 @ 10 pts each	80pts
Three exams (80 pts each)	240pts
Final Exam	80pts
Poster Project (oral/written)	100pts
Total	500 pts

Lab Grading/Course Content which Demonstrates Student Achievement of Core Objectives:

Course Grade ***A: 90-100*** ***B: 80-89*** ***C: 70-79*** ***D: 60-69*** ***F: 0-59***

Summary of Course Exams, Quizzes, Activities, and Final	
Presentation	10%
Poster	20%
Paper	20%
Service Learning Project	10%
Exam	20%
Total	100%