Tompkins Cortland Community College

Master Course Syllabus

Course Discipline and Number: BIOL 102 **Year: 2020-2021**

Course Title: Principles of Biology II **Credit Hours: 3**

Attendance Policy: *To maintain good grades, regular attendance in class is necessary. Absence from class is considered a serious matter and absence never excuses a student from class work. It is the responsibility of all instructors to distribute reasonable attendance policies in writing during the first week of class. Students are required to comply with the attendance policy set by each of their instructors. Students are not penalized if they are unable to attend classes or participate in exams on particular days because of religious beliefs, in accordance with Chapter 161, Section 224-a of the Education Law of the State of New York. Students who plan to be absent from classroom activity for religious reasons should discuss the absence in advance with their instructors. See college catalog for more information.*

Services for Students with Disabilities: *It is the College's policy to provide, on an individual basis, appropriate academic adjustments for students with disabilities, which may affect their ability to fully participate in program or course activities or to meet course requirements. Students with disabilities should contact the Coordinator of Access and Equity Services, to discuss their particular need for accommodations. All course materials are available in alternate formats upon request.*

Course Description

BIOL 102 presents an overview of major biological principles. It is appropriate for students who are not planning to transfer to an upper level major in science, environmental science, medicine, or a science-related field. Major topics include evolution, biodiversity, animal form and function, and ecology. Prior completion of BIOL 101 is not required. Substantial outside preparation for lectures and laboratories is required. BIOL 102 fulfills the SUNY General Education Natural Sciences requirement. Students may not apply credit for both BIOL 102 and BIOL 105 toward their degree. Completion of BIOL101 is not required. Prerequisites: MATH 090 if required by placement testing; prior completion or concurrent enrollment in ENGL 100 and RDNG 116 if required by placement testing. This course has no BIOL prerequisite. 3 Cr. (2 Lec., 2 Lab.) Fall and spring semesters.

Course Context/Audience

This course fulfills TC3 General Education Goal #8 and the SUNY General Education requirement for Natural Sciences. It will satisfy TC3 program requirements for a science, laboratory science, science/math, or unrestricted elective.

Basic Skills/Entry Level Expectations

Writing:	WC	College level writing skills are required. See course co-requisites or pre-requisites.
Math:	M2	Completed MATH 090 (if needed) - Course requires only the use of basic mathematical skills.
Reading:	R3	Course may be taken concurrently with RDNG 116.
Other:		Ability to take class notes, follow directions and work independently in a laboratory setting.

Course Goals

The core concepts around which this course is centered are:

1. Animal form and function: Animals show adaptations for obtaining and digesting food, reproduction, internal circulation, etc.

2. Evolution: Natural selection is the major process by which evolution proceeds.

3. Biodiversity: Although there is a great deal of diversity among species, they can be categorized according to their similarities and differences.

4. Ecology: All organisms, including humans, are dependent on intricate and interdependent relationships with the physical environment for survival.

Course Objectives/Topics

Objective/Topic	% Course
The student will be able to explain how animals obtain and process nutrients, and solve other problems associated with survival and/or reproduction.	25%
The student will be able to use Darwin's Theory of Natural Selection, as well as more recent theories, to describe how evolution proceeds.	25%
The student will be able to briefly describe the major forms of life on earth, including both prokaryotic and eukaryotic forms.	25%
The student will be able to explain how all organisms are dependent on, and interrelated with, each other and with their environment.	25%

General Education Goals - Critical Thinking & Social/Global Awareness

CRITICAL THINKING OUTCOMES	HOW DOES THE COURSE ADDRESS THE OUTCOMES (Include required or recommended instructional resources, strategies, learning activities, assignments, etc., that must or could be used to address the goal/outcomes)
Students will be able to ➢ develop meaningful questions to address problems or issues. ➢ gather, interpret, and evaluate relevant sources of information. ➢ reach informed conclusions and solutions. ➢ consider analytically the viewpoints of self and others.	Students will be taught to think scientifically by asking questions and troubleshooting their answers by applying the scientific method to relevant issues. Inquiry-based laboratories. (e.g., ecology research) Students will be encouraged to evaluate different sources of biological information from the popular press and the scientific literature. Written paper on current topic in biology e.g. evolution, applied ecology. Ecological research Students will learn to recognize valid information vs. skewed/biased. Bibliography with 5 citations, 3 reliable 2 skewed. Explain why they think the 2 are skewed or biased. Students will examine biological topics of controversy and/or critically evaluate scientific research. In class debate i.e. current debate in biology. Possible topics: climate change, applied ecology. Discussion of research topics. Q&A.
SOCIAL/GLOBAL AWARENESS OUTCOMES	**HOW DOES THE COURSE ADDRESS THE OUTCOMES** (Include required or recommended instructional resources, strategies, learning activities, assignments, etc., that must or could be used to address the goal/outcomes)
➢ Students will begin to understand how their lives are shaped by the complex world in which they live. ➢ Students will understand that their actions have social, economic and environmental consequences.	Students will examine biological cause-effect relationships in the context of personal choices and social constructs. Describe health aspects of biology, especially agricultural land use, water treatment, disease propagation. Group activity present data from ecological studies to class Students will learn to consider biological topics from the standpoint of citizen responsibility (e.g., issues they may encounter as voters, etc.). Debate/discuss, video – an inconvenient truth. Other topics: pollution, pesticide resistance, climate instability and political instability Students will learn how environmental pollutants impact biodiversity, etc. Attend an instructor-selected lecture at Cornell on one of these topics. Write paragraph of experience.

Instructional Methods
Lecture, discussion of student questions, experimental and observational laboratories should be combined in all sections of this course.

Methods of Assessment/Evaluation

Method	% Course Grade
Hourly exams, covering several chapters; the last exam should incorporate questions relating to all core concepts	~60%
Written laboratory reports	~20%
Short quizzes, covering 2 chapters or less	~20%
Participation in class discussion (optional)	~10%

Text(s)
Biology: Concepts and Connections or similar, Campbell, Mitchell Reece, Latest Edition, Benjamin Cummings
Laboratory Activities for Biology 102 or similar, Morris, Latest Edition,

Bibliography

Gould, Stephen. 1977. Ever Since Darwin. W.W. Norton and Company, Inc. London. (Any of Gould's essays would work for this course.

Moran, Laurence. 2002. "Evolution is a Fact and a Theory" http://www.talkorigins.org/faqs/evolution-fact.html

New York Times

Other Learning Resources

Audiovisual No resources specified
Electronic No resources specified
Other No resources specified