Tompkins Cortland Community College

Master Course Syllabus

Course Discipline and Number: BIOL 105 **Year: 2020-2021**
Course Title: General Biology II **Credit Hours: 4**

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
Intended for students who plan to transfer to an upper level program in science, environmental science, medicine, or a science-related field. Students who have a strong interest in a rigorous study of biology may also enroll. Topics include evolution, biodiversity, botany, and ecology. Substantial outside preparation for lectures and laboratories is required. Prior completion of BIOL 104 is not required. BIOL 105 fulfills the SUNY General Education Natural Sciences requirement. Students may not apply credit for both BIOL 102 and BIOL 105 toward their degree. Prerequisites: High School biology and chemistry with minimum Regents exam grades of 80% within the past five years or BIOL 101; prior completion or concurrent enrollment in ENGL 100 if required by placement testing; MATH 095 or MATH 098 and RDNG 116 if required by placement testing. 4 Cr. (3 Lec., 3 Lab.) Spring semester.

Course Context/Audience
BIOL 105 fulfills the SUNY general education requirement in the natural sciences. It will satisfy program requirements for a science, laboratory science, math/science elective, or an unrestricted elective. BIOL 104 and 105 are strongly recommended for the required biology sequence in the Environmental Studies degree program.

Students enrolling in the course should be able to take well organized notes in class lectures; to follow oral and written directions; to work in groups during laboratory sessions, and to read textbook material containing a technical vocabulary to interpret complex diagrams and flowcharts.

Basic Skills/Entry Level Expectations

Writing:	WC	College level writing skills are required. See course co-requisites or pre-requisites.
Math:	M4	MATH 095 or MATH 098 if required by placement testing.
Reading:	R4	RDNG 116 if required by placement testing.

Course Goals
This course is centered around the following core concepts:

1. Evolution: Evolutionary theory provides a framework by which all aspects of biology can be understood.
2. Biodiversity: All the world's species can be categorized taxonomically, using similarities and differences of structure; taxonomy reflects organisms' phylogeny.
3. Ecology: All organisms are interdependent with each other and with the Earth's environment.

Course Objectives/Topics

Objective/Topic	% Course
The student will be able to discuss the Theory of Natural Selection proposed by Darwin and Wallace in the context of evolutionary thought in the mid nineteenth century and as a basis for modern evolutionary thought.	10%
The student will be able to describe how evolution occurs at the population and species levels, and how higher taxa such as classes and phyla are related.	10%
The student will be able to draw a time line starting with the origin of the Earth and continuing through the present. He/she will be able to place significant events such as the origin of prokaryotes, eukaryotes, plants, animals, dinosaurs, humans, etc., on the timeline, indicating approximate times in terms of millions of years ago.	5%
The student will be able to explain the hypotheses and experiments used to explain current theories about the evolution of prokaryotes and eukaryotes.	10%
The student will be able to explain how prokaryotes are structurally different from eukaryotes; to describe the major groups of prokaryotes, including their ecology and significant relationships with humans.	8%
The student will be able to describe evolutionary trends in plants which allowed them to colonize and dominate terrestrial ecosystems.	8%
For the nine major animal phyla, the student will be able to list important evolutionary advances, unique characteristics, and major classes, including brief descriptions and discussions of their ecology.	15%
The student will be able to describe how evolutionary advances among the vertebrates led to their colonization and eventual domination of terrestrial environments	5%
The student will be able to identify major cells, tissues, and organs of angiosperms; discuss the structure and function of each in terms of the life of the entire plant.	8%
The student will be able to describe how plants obtain the nutrients and energy they need, and how they reproduce (both sexually and asexually).	6%
The student will be able to explain what populations, communities, and ecosystems are; describe how each functions in the natural world, and how human activities may impact them.	15%
The student will understand the scientific method including hypothesis testing/experimental design, and statistical analysis quantitative of data.	Throughout

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.	Information is presented in text, graph, and table form. Short papers about specific topics encourage students to gather information from relevant sources. Students will conduct their own research and/or participate in field and laboratory activities. These activities will require the application of class concepts as well as the analysis and evaluation of quantitative data.

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.	The last several chapters cover ecological concepts and issues. Students can complete a carbon/eco "footprint" activity. Students may choose research projects that evaluate anthropogenic impacts on the environment.

Instructional Methods
Lectures and laboratory activities should form the core of this course. Additionally, the instructor may wish to include structured discussion groups, student presentations, and/or original student research.

Methods of Assessment/Evaluation

Method	% Course Grade
Hourly examinations covering several chapters	20-60%
Cumulative final examination covering all core concepts	~20%
Laboratory reports or other evaluation of work completed in the lab	20-50%
Student papers or experimental research (optional)	~20%
Attendance and participation (optional)	~10%

Example Text(s)
Biology, Neil A. Campbell and Jane B. Reece,9th Edition, © 2010 Benjamin Cummings, Inc.
Biological Investigations, Dolphin, Warren D., 8th Edition, © 2010 McGraw-Hill, Inc.

Bibliography
No print resources specified

Other Learning Resources

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