

Syllabus for
BIO 150–Human Biology and Global Health
3.0 Credit Hours
Fall 2022

I. COURSE DESCRIPTION

This course is design to introduce students to the central principles of biology as well as the philosophy and principles of science in general. This course focuses on issues in human biology, genetics, infectious disease, global health, and bioethics. By the end of this course, students will be in a position to understand current advances and technologies in biology that are of relevance to all members of society, such as genetic testing and technology, stem cell research and cloning, reproductive technologies, and global health and infectious diseases. (BIO 150 credit does not apply toward the BIO major.)

Corequisite: BIO 150 Lab.

II. STUDENT LEARNING OUTCOMES FOR THIS COURSE

This course is designed for nursing students, but would also be of interest to students in non-science disciplines as a general education science requirement. The course emphasizes the understanding and appropriate application of basic biological principles to many issues of science in society. The goal of the course is that this brief involvement with the philosophy, methods, findings and concepts of biology, and its intersecting with other areas of life will make a noticeable contribution toward becoming a scientifically literate citizen who will function more effectively in solving science-related problems in society.

As a result of successfully completing this course, the student will be able to do the following:

- A. Demonstrate an understanding of the process of science, be able to solve problems using the scientific method, and be able to distinguish between science and pseudoscience.
- B. Demonstrate an understanding of the science necessary to discuss and integrate biological concepts in the analysis of problems and case studies.
- C. Demonstrate an understanding of the relationship between genetics and health and the specific mechanisms of heredity and reproduction.
- D. Develop familiarity with pathogens that cause human disease and suffering and describe the impact of the global disease burden.
- E. Apply the understanding of life science and their Christian worldview to engage current bioethical issues in society (genetic manipulation and genetic testing, etc.).
- F. Read science news with interest and understanding, as well as the ability to critique whether sound scientific and ethical research was used in the process.

III. ASSOCIATED PROGRAMS

This course meets degree completion requirements for the following programs:

- A. Global Environmental Sustainability
 - 1. Equip students to understand the interdisciplinary nature of environmental issues.
- B. Nursing

III. UNIVERSITY OUTCOMES

This course aligns with the following University Outcomes as indicated on the last page

A. Intellectual Pursuit

IV. TEXTBOOKS AND OTHER LEARNING RESOURCES

A. Required Materials:

OpenStax: Concepts of Biology ISBN-: 978-1938168116 (free online version available in pdf format and html-- <https://openstaxcollege.org/textbooks/concepts-of-biology/get>)

OpenStax:Microbiology ISBN-13: 978-1-938168-14-7 (free online version available in pdf format and html-- <https://openstax.org/details/books/microbiology>)

Access to the internet for supplemental material in global health and infectious diseases (CDC, WHO, etc)

B. Recommended Materials:

None

VI. POLICIES AND PROCEDURES

A. Department Policies and Procedures

1. The Department of Biology and Chemistry adheres to the Assessment policy concerning plagiarism as described in the University Catalog, "Written assignments using sources must demonstrate ethical and accurate use of source material. Plagiarism and any unethical or inappropriate use of sources are not tolerated."
2. The following assessment actions will be taken in the of event of documented instances of plagiarism on written assignments, copying of homework assignments, or cheating during examinations:
 - (1) An automatic zero will be given for the assignment or exam.
 - (2) The original assignment or exam will be kept in the student file and a copy will be given to the student. This could have a negative impact on letters of reference and admission to graduate schools and other postgraduate programs.
 - (3) The Department will take repeated offenses as grounds for further action.

B. Course Procedures

1. Evaluation Procedures:

<u>Item:</u>	<u>Percentage:</u>
Exams	40%
Quizzes	10%
Discussions and Homework	50%

<u>Semester Grade</u>	<u>Percent</u>
A	90-100
B	80-89

C	70-79
D	60-69
F	59 and below

Quizzes will be timed. Students who are late without an administrative excuse will not be given additional time. **Students who miss a quiz will not be allowed to makeup the quiz unless they have an administrative excuse.** The missed quiz must be made up before the next class meeting.

All assignments require individual effort unless indicated otherwise. Any evidence of plagiarism or cheating on assignments will result in a zero for that assignment. Any cheating on a quiz or exam or a repeat plagiarism offence on an assignment will result in an automatically earned “F” for the semester.

2. Attendance Policies

Only administrative excuses or serious medical problems are allowed for an **excused late exam or quiz**. In such cases the instructor must be contacted **BEFORE** the scheduled exam time. If the instructor is not contacted upon a student’s return to class after a missed exam, the makeup is treated as an **unexcused late exam**. Late exams must be taken before the next class meets. **Unexcused late exams** may be taken but will cost the student 20% of his or her potential maximum makeup exam grade the first time, 30% the second time, 40% the third time, etc.

The student is allowed three absences for illness, emergencies, or for personal reasons. Thereafter each absence will result in a 2% reduction in the total semester points. Only administratively excused absences will be excused.

Students who miss class are responsible for finding out what they missed and arranging to makeup any possible outstanding work. All work must be made-up within a week. All quizzes and exams must be made up before the next scheduled class time.

3. Whole Person Assessment Requirements

The student will read a current article on a Global Health crisis/ issue and prepare a written response to include a summary of main points, analysis of how science, Christianity, and they personally can contribute to the solution of the crisis.

VII. COURSE CALENDAR

WK	CHAPTER MATERIAL
1	Introduction to Biology and Bioethics: Healing and Medicine
2	Introduction to Biology—The Scientific Method and Human Research Ethics
3	Chemical Level of Organization: Organic Molecules
4	Digestive System and Nutrition— <i>Global Health Issues</i> : Diabetes and Obesity
5	Cellular Level of Organization— <i>Global Health Issues</i> : Cancer and Chromosomal Disorders
6	Early Human Development— <i>Global Health Issues</i> : Infertility and Reproductive Technology
7	DNA and Protein Synthesis
8	Genetic Inheritance— <i>Global Health Issues</i> : Genetic Diseases, Testing, and Ethical Issues
9	Introduction to Pathogens: Prokaryotes— <i>Global Health Issues</i> : Antibiotic Resistance
10	Introduction to Pathogens: Eukaryotes— <i>Global Health Issues</i> : END 7
11	Introduction to Pathogens: Acellular— <i>Global Health Issues</i> : Vaccination
12	Disease and Epidemiology Human Immune System
13	Major Global Health Issues—Current Events and Paper

Primary Program: Global Environmental Sustainability (B.S.)
Human Biology and Global Health Lecture – BIO 150
Fall 2022

This course contributes to the University and program outcomes as indicated below:

Significant Contribution – Addresses the outcome directly and includes targeted assessment.

Moderate Contribution – Addresses the outcome directly or indirectly and includes some assessment.

Minimal Contribution – Addresses the outcome indirectly and includes little or no assessment.

OUTCOMES	Significant Contribution	Moderate Contribution	Minimal Contribution
Spiritual Integrity			
Understand and apply the Biblical stewardship principles to environmental issues			X
Personal Resilience			
Develop practical skills marketable for employment.			X
Intellectual Pursuit			
Equip students to understand the interdisciplinary nature of environmental issues.		X	
Demonstrate applicability of environmental sustainability with companies, government agencies, or private groups.			X
Understand and apply the Biblical stewardship principles to environmental issues.			X
Develop practical skills marketable for employment.			X
Global Engagement			
Demonstrate applicability of environmental sustainability with companies, government agencies, or private groups.			X
Understand and apply the Biblical stewardship principles to environmental issues.			X
Bold Vision			
Demonstrate applicability of environmental sustainability with companies, government agencies, or private groups.			X