

Syllabus for
BIO 111—Introductory Biology I Lecture
3.0 Credit Hours
Fall 2022

I. COURSE DESCRIPTION

An introduction to the study of general biology covering the scientific method, levels of organization, the cell, photosynthesis, respiration, classical and molecular genetics, and vertebrate anatomy and physiology. (Designed for biology majors and minors and pre-health professions majors. BIO 101 and BIO 111 may not both be taken for credit).
Corequisite: BIO 111 Lab and BIO 105 Lecture.

II. STUDENT LEARNING OUTCOMES FOR THIS COURSE

This is one of four courses (in addition to BIO 111 Lab, 112 Lecture, and 112 Lab) comprising a sequence designed to serve as a comprehensive introduction to the study of biology. This series provides the biology major with the basic language and conceptual foundation upon which to build students' major leading to a career in biological or pre-professional health-related fields. These courses are prerequisites to all other biology courses from which biology and pre-professional health career majors make their choices depending upon individual goals, interests, and departmental requirements. Enrollment in a course commits a student to learning. The teacher for the course commits to helping the student learn. If both student and teacher are true to their commitments, teaching and learning will occur. The activities and situations that contribute to learning are simple and well known: repetition, concentration, association, small unit steps, use of a communication vehicle appropriate to the nature of the objective, and learning events sequenced to permit each one to complement or enhance the associated one. A concomitant requirement of Bio105 lecture will serve to expose students to key study habits, techniques, and styles. To pass Bio105 students will need to maintain attendance and complete all assignments or earn an 80% or higher on all Bio111 exams.

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

- A. Discuss the principles of life common to both plants and animals.
- B. Describe and use the scientific method in problem-solving situations.
- C. Describe the various structures and function of each level of organization.
- D. Relate the principles of biology to problems in modern life within a Christian perspective.
- E. Define the terms necessary to comprehend and discuss the biological concepts presented in the course.
- F. Exhibit a mature, responsible attitude toward his or her work by being prepared, present, and punctual for the training inherent in the discipline of science and in the development of consistent Christian character.
- G. Relate the role of biology to modern scientific issues; e.g., energy, molecular biology, environmental pollution, world food problems, etc.
- H. Read science periodicals with interest and understanding.
- I. Express an appreciation for life, God's greatest creation.
- J. Better appreciate, understand, and apply how to be a responsible steward of God's magnificent creation.

Objectives for Students in Teacher Preparation Program:

The Teacher Preparation Program meets the competency-based requirements established by the

Oklahoma Commission on Teacher Preparation. This course meets the following competencies: Subject Competencies (SC) 7.b.1, 7.b.6, 7.b.7, 7.b.10.

This course is designed to help students meet subject competencies:

SC 7.b.1: Structure and function in living systems.

SC 7.b.6: The cell.

SC 7.b.7: The molecular basis of heredity.

SC 7.b.10: Matter, energy, and organization in living systems.

III. ASSOCIATED PROGRAMS

This course meets degree completion requirements for the following programs:

A. Biology

1. Equip students to scientifically investigate biological based problems and communicate their research to the scientific community.
2. Educate students to be knowledgeable of current biological trends, concepts, and facts.
3. Prepare our students for entry into graduate programs or health programs.

B. Medical Molecular Biology

C. Biomedical Chemistry

IV. UNIVERSITY OUTCOMES

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

A. Personal Resilience

B. Intellectual Pursuit

V. TEXTBOOKS AND OTHER LEARNING RESOURCES

A. Required Materials:

Brooker, R.J., Widmaier, E.P., Graham, L.E., and Stiling, P.D. 2019. Biology, 5th edition. New York, NY, McGraw-Hill Companies, Inc.

9781260487855: CONNECT access card for Brooker, Biology, 5e (all digital option)

9781260692013: Brooker, Biology, 5e loose leaf book with CONNECT access card

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 Policies and Procedures

1. Evaluation Procedures

- a. The **final exam** is a 200-point, two-hour, multiple-choice, comprehensive final exam. It is administered during the final exam week as scheduled by the Registrar's Office.
- b. **Exams** are given approximately every 3 weeks covering a unit or set of units of study as scheduled in the course calendar. There will be four 100-point multiple-choice exams. Make-up exams must be legitimized with Administrative Excuse or Medical Note. Make up exams must be rescheduled by the student within one week of exam date.
- c. **Quizzes:** Eleven to 16 quizzes will be given during the course; however, only the top 10 quiz scores will be recorded.
- d. The course grade is determined from the following evaluation sources:
- | | | |
|-----|---|--------------------|
| (1) | Final Exam | 200 points |
| (2) | Four Exams @ 100 points each | 400 points |
| (3) | LearnSmart Assignments 16 @ 12.5 pts each | 200 points |
| (5) | Quizzes – 10 @ 20 points each | <u>200 points</u> |
| | TOTAL POSSIBLE POINTS IN COURSE | 1000 points |

- e. The course letter grade is assigned as follows:

<u>Letter Grade</u>	<u>Percentages</u>
A	90-100%
B	80-89.9%
C	70-79.9%
D	60-69.9%
F	<60%

Honor Code: We believe students to be maturing young adults ready and able to assume those responsibilities for their own behavior. What a person learns is directly proportional to the effort expended. The grade one earns from the course may or may not reflect accurately how much that person has really learned, but it is the best measuring tool education possesses at the present time that is universally accepted and recognized. Grades earned, over the long haul, are less important than true learning. Therefore, since learning is the result of individual effort, we expect individualized work. In this course, academic honesty includes (1) being diligent in maintaining exam security; (2) being prompt and dependable; (3) being honest concerning class attendance; and (4) avoiding literary plagiarism. Dishonesty in any of the above specified points is in violation of the Honor Code and could incur the penalties as specified in the Student Handbook and/or department's statement.

2. Attendance Policies and Procedures

Attendance at each class or laboratory is mandatory. Excessive absences can reduce a student's grade or deny credit for the course.

- a. Class attendance is essential for a complete learning experience.
- b. The student may be excused for scheduled department events and/or university academic events. All requests must be submitted in writing and have either a chairman's or dean's signature.

- c. 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. Students who miss more than 9 class periods will automatically earn an "F" for the semester.
- d. Excused Absences: Absences may be excused by the Instructor, the Dean, or other Administrators for LEGITIMATE reasons (illness verified with a doctor's note). An "E" will be assigned for classes missed. **The absence(s) will not count against the student, but neither DOES IT EXCUSE the individual from knowing information missed nor from making appropriate, timely arrangements for exam/quiz makeup(s).** It is the student's responsibility to find out what was missed including a test or quiz. Failure to make proper arrangements for makeup(s) will result in a **late test fee** being assessed and points deducted (10% per day including weekends) until the test or quiz is made up.
- e. Unexcused Absences: Each student is allowed three unexcused absences. Sleeping in class = an absence. Students who carry on conversations, use cell phones, or laptops for non-class purposes during lecture distract others, and inhibit learning. **Makeup quizzes and exams will not be permitted for any unexcused absence or tardy.**
- f. Tardiness: For a mature individual, habitual, inexcusable tardiness is to be avoided. Three tardies equal one absence. **Tests and quizzes will not be given to individuals who arrive late to class.** Being tardy more than 10 minutes after class has started equals an unexcused absence for that day.
- g. Late Work: The ORU catalog states that the "*privilege* of making up assignments are between faculty and student." Thus, in this class a **-10% per day late penalty** will be assessed for unexcused late work. Furthermore, such assignments more than one week late will not be accepted and a zero will be assigned.

3. Whole Person Assessment Requirements
None

VII. COURSE CALENDAR

BLOCK 1

Chapter 1 An Introduction to Biology
Chapter 2 The Chemical Basis of Life I: Atoms, Molecules, and Water
Chapter 3 The Chemical Basis of Life II: Organic Molecules
Chapter 4 General Features of Cells
Chapter 5 Membrane Structure, Synthesis, and Transport

Exam 1 & Block 1 Homework

BLOCK 2

Chapter 6 An Introduction to Energy, Enzymes, and Metabolism
Chapter 7 Cellular Respiration, Fermentation, and Secondary Metabolism
Chapter 8 Photosynthesis
Chapter 9 Cell Communication

Exam 2 & Block 2 Homework

BLOCK 3

Chapter 10 Multicellularity
Chapter 11 Nucleic Acid Structure, DNA Replication, and Chromosome Structure
Chapter 12 Gene Expression at the Molecular Level
Chapter 13 Gene Regulation

Exam 3 & Block 3 Homework

BLOCK 4

Chapter 14 Mutation, DNA Repair, and Cancer
Chapter 15 The Eukaryotic Cell Cycle, Mitosis, and Meiosis
Chapter 16 Simple Patterns of Inheritance
Chapter 18 Genetics of Viruses and Bacteria

Exam 4 & Block 4 Homework

FINAL EXAM (Finals Week)

Primary Program: Biology (B.S.)
Introductory Biology I Lecture – BIO 111
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			
Encourage students to integrate their Christian faith with the discipline of biology, appreciate the glory and majesty of Christ visible in the biological process and creatures of life, and recognize our roles as stewards of God's creation.			X
Embolden our students to apply their Christian worldview to ethical dilemmas in medicine, research, environment, and other biological-related issues in human society; and to develop and exhibit Christ-like compassion by using their scientific training to bring healing to those suffering from disease, inadequate healthcare, food insecurity, and pollution.			X
Personal Resilience			
Prepare our students for entry into graduate programs or health programs.		X	
Intellectual Pursuit			
Equip students to scientifically investigate biological based problems and communicate their research to the scientific community.		X	
Educate students to be knowledgeable of current biological trends, concepts, and facts.		X	
Encourage students to integrate their Christian faith with the discipline of biology, appreciate the glory and majesty of Christ visible in the biological process and creatures of life, and recognize our roles as stewards of God's creation.			X
Embolden our students to apply their Christian worldview to ethical dilemmas in medicine, research, environment, and other biological-related issues in human society; and to develop and exhibit Christ-like compassion by using their scientific training to bring healing to those suffering from disease, inadequate healthcare, food insecurity, and pollution.			X
Global Engagement			
Encourage students to integrate their Christian faith with the discipline of biology, appreciate the glory and majesty of Christ visible in the biological process and creatures of life, and recognize our roles as stewards of God's creation.			X
Embolden our students to apply their Christian worldview to ethical dilemmas in medicine, research, environment, and other biological-related issues in human society; and to develop and exhibit Christ-like compassion by using their scientific training to bring healing to those suffering from disease, inadequate healthcare, food insecurity, and pollution.			X
Bold Vision			
Embolden our students to apply their Christian worldview to ethical dilemmas in medicine, research, environment, and other biological-related issues in human society; and to develop and exhibit Christ-like compassion by using their scientific training to bring healing to those suffering from disease, inadequate healthcare, food insecurity, and pollution.			X