



## BIOL 1406 - Biology for Science Majors I BIOL-1406L.001 Lab Course Syllabus

### Description

May be taken by non-science majors as well as science majors. May be taken out of sequence. Fundamental principles of living organisms will be studied including physical and chemical properties of life, organization, function, evolutionary adaptation and classification. Concepts of cytology, reproduction, genetics, ecology and scientific reasoning are included. Laboratory activities will reinforce the above concepts.

**Credits** 4

**Lecture Hours** 3

**Lab Hours** 3

**Extended Hours** 0

**Contact Hours** 96

**State Approval Code** 26.0101.51 03

**Instructor Name** Brian Jones

**Semester/Year** Fall 2024

### Meeting Time and Location

BIOL-1406L.001 MW 1:50pm to 3:10pm HNS 2308

### Alternate Operations During Campus Closure

In the event of an emergency or announced campus closure due to a natural disaster or pandemic, it may be necessary for Panola College to move to altered operations. During this time, Panola College may opt to continue delivery of instruction through methods that include, but are not limited to: online learning management system (CANVAS), online conferencing, email messaging, and/or an alternate schedule. It is the responsibility of the student to monitor Panola College's website ([www.panola.edu](http://www.panola.edu)) for instructions about continuing courses remotely, CANVAS for each class for course-specific communication, and Panola College email for important general information.

### Student Basic Needs

Unexpected circumstances may arise, but Panola College offers various resources to support students. If you need mental health services or are facing challenges with transportation, affording class materials and supplies, or accessing food regularly—issues that may impact your class performance—please visit [panola.edu/resources](http://panola.edu/resources).

### Class Attendance

Regular and punctual attendance of classes and laboratories is required of all students. When a student has been ill or absent from class for approved extracurricular activities, he or she should be allowed, as far as possible, to make up for the missed work. If a student has not actively participated by the census date, they will be dropped by the instructor for non-attendance. This policy applies to courses that are in-person, online, hybrid, and hyflex.

Attendance in online courses is determined by submission of an assignment or participation in an activity. According to federal guidelines, simply logging into a distance learning course without participating in an academic assignment does not constitute attendance. Distance learning is defined as when a majority (more than 50%) of instruction occurs when the instructor and students are in separate physical locations. Students must engage in an academic activity prior to the course census date.

When an instructor feels that a student has been absent to such a degree as to invalidate the learning experience, the instructor may recommend to the Vice President of Instruction that the student be withdrawn from the course. Instructors may seek to withdraw students for non-attendance after they have accumulated the following number of absences:

Fall or spring semesters:

3 or more class meeting times per week - 5 absences

2 class meeting times per week - 3 absences

1 class meeting per week - 2 absences

The student is responsible for seeing that he or she has been officially withdrawn from a class. A student who stops attendance in a class without officially withdrawing from that class will be given a failing grade; consequently, the student must follow official withdrawal procedures in the Admissions/Records Office.

Please note: Health Science and Cosmetology courses may require more stringent attendance policies based on their accreditation agencies. Please see the addendum and/or program handbook for further information concerning attendance.

### **Pregnant/Parenting Policy**

Panola College welcomes pregnant and parenting students as a part of the student body. This institution is committed to providing support and adaptations for a successful educational experience for pregnant and parenting students. Students experiencing a need for accommodations related to pregnancy or parenting will find a Pregnancy and Parenting Accommodations Request form in the Student Handbook or may request the form from the course instructor.

### **Artificial Intelligence (AI) Course Policy**

**No use of Generative AI permitted.**

This option assumes that all work submitted by students will be generated by the students themselves, whether they are working individually or in groups. Students should not have another person or entity do the writing of any portion of an assignment, which includes hiring a person or a company to write assignments and/or using artificial intelligence (AI) tools like ChatGPT. Use of any AI-generated content in this course qualifies as academic dishonesty and violates Panola College's standards of academic integrity.

### **Student Learning Outcomes**

**Critical Thinking Skills – to include creative thinking, innovation, inquiry and analysis, evaluation and syntheses of information**

- CT2: Gather and assess information relevant to a question
- CT3: Analyze, evaluate, and synthesize information

**Communication Skills – to include effective development, interpretation, and expression of ideas through written, oral, and visual communication**

- CS1: Develop, interpret, and express ideas through written communication

**Empirical and Quantitative Skills – to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions**

- EQS2: Manipulate and analyze observable facts and arrive at an informed conclusion

**Teamwork – to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal**

- TW1: Integrate different viewpoints as a member of a team
- TW2: Work with others to support and accomplish a shared goal

### **Instructional Goals and Purposes**

The purposes of this course are to provide instruction in an atmosphere of mutual respect where students may develop their intellect and skills; to contribute to the development of students as scientific literate, responsible and informed members of society; to provide courses for students wishing to complete certificate programs, associate degree programs or wishing to transfer to a science baccalaureate program.

### **Learning Outcomes**

#### **Learning Outcomes for lecture portion: (from ACGM)**

After successfully studying all materials and resources presented in the course, the student will be able to:

1. Describe the characteristics of life.
2. Explain the methods of inquiry used by scientists.
3. Identify the basic requirements of life and the properties of the major molecules needed for life.
4. Compare and contrast the structures, reproduction, and characteristics of viruses, prokaryotic cells, and eukaryotic cells.
5. Describe the structure of cell membranes and the movement of molecules across a membrane.
6. Identify the substrates, products, and important chemical pathways in metabolism.
7. Identify the principles of inheritance and solve classical genetic problems.
8. Identify the chemical structures, synthesis, and regulation of nucleic acids and proteins.
9. Describe the unity and diversity of life and the evidence for evolution through natural selection.

#### **Learning Outcomes for lab portion: (from ACGM)**

After successfully studying all materials and resources presented in the course, the student will be able to:

1. Apply scientific reasoning to investigate questions and utilize scientific tools such as microscopes and laboratory equipment to collect and analyze data.
2. Use critical thinking and scientific problem-solving to make informed decisions in the laboratory
3. Communicate effectively the results of scientific investigations
4. Describe the characteristics of life.
5. Explain the methods of inquiry used by scientist
6. Identify the basic properties of substances needed for life.
7. Compare and contrast the structures, reproduction, and characteristics of viruses, prokaryotic cells, and eukaryotic cells.

### **Specific Course Objectives (includes SCANS)**

#### **General Course Objectives:**

1. To help students become better informed citizens by providing opportunities to learn the differences between science as a way of knowing and other disciplines such as art, philosophy and religion
2. To provide students an opportunity to understand and appreciate the complexity and relationships of living systems.
3. To help students become better informed regarding their own health and better informed as health services consumers by coming to a better understanding of the complexities of the human body
4. To make students aware of changing technologies in science and the responsibilities and ethical decisions that come with the use of various technologies.
5. To help students become better informed regarding environmental issues.
6. Gather and assess information relevant to a question.
7. Analyze, evaluate, and synthesize information.
8. Develop, interpret, and express ideas through written communication.
9. Manipulate and analyze observable facts and arrive at an informed conclusion.
10. Integrate different viewpoints as a member of a laboratory team.
11. Work with others to accomplish a shared goal.

### **Course Content**

A general description of lecture/discussion topics included in this course are listed in the Learning Outcomes section of this syllabus.

Students in all sections of this course will learn the following content:

A general description of lecture/discussion topics included in this course are listed in the Learning Objectives section of this syllabus. Students in all sections of this course will learn the following content: Course content (see course description) will be taken from the adopted text and lab manual, scientific journals, current popular periodicals, appropriate online sources and pertinent reference literature.

### **Methods of Instruction/Course Format/Delivery**

This course is offered in face-to-face and online format with frequent use of online resources. Both the lecture and lab portions of this course may include but not be limited to the following methods of instruction: 1. Lecture 2. Discussion 3. Internet 4. Video 5. Television 6. Demonstrations 7. Field trips 8. Collaboration 9. Readings

While the lab portion of the class will be heavily hands-on with students expected to work individually and in teams, the lecture portion of the course may also include some "hands-on" active learning type activities. Some activities will demand that students come prepared to initiate and follow through on the activity independently with the instructor available for guidance and to answer questions.

### **Major Assignments/Assessments**

The following items are assigned and assessed during the semester and used to calculate the student's final grade.

### **Assessments**

The following items will be assigned and assessed during the semester and used to calculate the student's final grade.

Faculty may assign both in- and out-of-class activities to evaluate students' knowledge and abilities. Faculty may choose from – but are not limited to -- the following methods attendance, class preparedness and participation. Collaborative learning projects, exams/tests/quizzes, homework, internet, library assignments, readings, research papers, scientific observations, student-teacher conferences, bonus and written assignments.

No late work is accepted.

### **Course Grade**

The grading scale for this course is as follows:

- Lecture – 70% consisting of:
  - Lecture Exams - 40% minimum of four a semester with a minimum of 50 multiple choice questions with at least one essay per exam making up 20% of the exam grade
  - Lecture Quizzes/Mastering Biology Exercises/Dynamic Study Modules -15%
  - Final Comprehensive Lecture exam - 15% Comprehensive Final Exam over all of the chapters covered during the semester minimum of 100 multiple choice questions
- Lab - 30% consisting of:
  - Lab Quizzes: 10%
  - Lab Exercises: 50%
  - Lab Reports: 15% minimum of two per semester in proper format
  - Lab Practicals: 25% minimum of two fill in the blank lab practicals they shall be given covering the lab review sheet with a minimum of 50 questions taken from models, specimens, pictures, slides, chemical processes, experiments and critical thinking exercises
- Final scores in the class shall not be curved
- A bonus project may be assigned at the instructor's discretion

### **Texts Materials, and Supplies**

- Textbook: Campbell Biology in Focus 3rd Edition; Lisa A. Urry, et al; 2019; Pearson (E-text available only, comes with Modified Mastering Biology in the Panola store.) ISBN# 9780135191811
- Lab Manual: Exploring Biology in the Laboratory, 3e; Pendarvis & Crawley; 2018; Morton Publishing (Lab book only required for face to face labs) ISBN# 978-161731-7552
- Lab Kit (For online lab only) Purchased only through the Panola Store.

Required supplements:

- Access Code to Modified Mastering Biology
- Access to Khan Academy (free)
- Access to Howard Hughes Medical Institute BioInteractive and other ancillaries (free)
- Access to other free online resources as necessary

### Required Readings

- May include but not be limited to news publications, professional journals, agency publications.

### Other

- Courses conducted via video conferencing may be recorded and shared for instructional purposes by the instructor.
- For current texts and materials, use the following link to access bookstore listings: <https://www.panolacollegestore.com>.
- For testing services, use the following link: <https://www.panola.edu/student-services/student-support/academic-testing-center>.
- If any student in this class has special classroom or testing needs because of a physical learning or emotional condition, please contact the ADA Student Coordinator in Support Services located in the Charles C. Matthews Student Center or go to <https://www.panola.edu/studentservices/student-support/disability-support-services> for more information.
- Withdrawing from a course is the student's responsibility. Students who do not attend class and who do not withdraw will receive the grade earned for the course.
- Student Handbook: <https://www.panola.edu/> (located on at the bottom under student)