BIOL 1408 - Biology for Non-Science Majors I Course Syllabus

Description

Provides a survey of biological principles with an emphasis on humans, including chemistry of life, cells, structure, function and reproduction. Laboratory activities will reinforce the above concepts. BIOL 1408 and BIOL1409 may be taken out of sequence.
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-1408.101 TR 7:45am-9:05am HNS 1200

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) 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.

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

- CS3: Develop, interpret, and express ideas through visual 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 goa

- 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... 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 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 baccalaureate program.

Learning Outcomes

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

1. Distinguish between prokaryotic, eukaryotic, plant and animal cells, and identify major cell structures.
2. Identify stages of the cell cycle, mitosis (plant and animal), and meiosis.
3. Interpret results from cell physiology experiments involving movement across membranes, enzymes, photosynthesis, and cellular respiration.
4. Apply genetic principles to predict the outcome of genetic crosses and statistically analyze results.
5. Describe karyotyping, pedigrees, and biotechnology and provide an example of the uses of each.
6. Identify parts of a DNA molecule, and describe replication, transcription, and translation.
7. Analyze evidence for evolution and 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. Distinguish between prokaryotic, eukaryotic, plant and animal cells, and identify major cell structures.
5. Identify stages of the cell cycle, mitosis (plant and animal), and meiosis.
6. Interpret results from cell physiology experiments involving movement across membranes, enzymes, photosynthesis, and cellular respiration.
7. Apply genetic principles to predict the outcome of genetic crosses and statistically analyze results.
8. Identify the importance of karyotypes, pedigrees, and biotechnology.
9. Identify parts of a DNA molecule, and describe replication, transcription, and translation.
10. Analyze evidence for evolution and natural selection.

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 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 format with frequent use of online resources. Both the lecture and lab portions of this course may include but not be limited to presentations by the instructor, videos, presentations by students, class discussions. 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.

Assignments

1. The lecture portion may include but not be limited to objective and essay type written assignments, presentations by students, observation by the teacher of student participation and interaction, class discussions. Some of these activities may come from the required texts and online support as well as other ancillary online resources.
2. The lab portion may include but not be limited to objective and essay type items in lab reports, the gathering, presenting and analysis of data, the creation of experiments, presentations by students, observation by the teacher of student participation and interaction, class discussions. Some of these activities may come from the required texts and virtual labs.

Assessments

1. Lecture: Quizzes, Unit Tests, Observations
2. Lab: Observation of lab activities, lab reports, lab quizzes

Course Grade

The grading scale for this course is as follows:

40% from average of Unit Exams (5 or 6 exams)
20% from assignments
20% from the Laboratory Average
20% from the Final Exam (comprehensive over all but the last unit)

Texts Materials, and Supplies

- Text: Campbell Biology Concepts and Connections 10th Edition; Martha R. Taylor; et al; 2021; Pearson (E-Text available only, comes with Modified Mastering Biology in Panola Store) ISBN# 9780136538820
- Lab Manual: Exploring Biology in the Laboratory Core Concepts,2e; Pendarvis & Crawley; 2018; Morton Publishing (Lab book only required for face to face labs) ISBN# 978-161731-9006
- Lab Kit: (For online lab only) Purchased only through 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.

Recommended Readings

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

Addendum

Note: (Specific Course Information for this class section is located in this document below.)

BIOL 1408 General Biology I Course Information Fall 2024

Instructor: Brian P. Jones

Office: Health and Natural Sciences Bldg. **Office#** 2305

Office Phone#: 903-693-2074

Email: bjones@panola.edu Please E-mail me in canvas only (Email usually checked three times per day)

Office Hours: MW 9:30-11:30a.m.

TTh 1:15-3:15p.m. **(OFFICE HOURS SUBJECT TO CHANGE)**

Special Note:

The instructor reserves the right to change any portion of the stated requirements for the course with timely notice given to students.

Tutorials:

Your first, best and most frequently offered opportunities for "tutorial" assistance are to meet with the instructor during office hours. Those hours are listed near the top of this document and on the office door. If the designated "Office Hours" do not work with your schedule, you should make an appointment with your instructor for another time. For Distance Learning students, phone calls, email, discussion postings and study groups are also good options.

Group tutorial opportunities may be offered during the semester. At least one will focus on study skills.

Do not come to the instructor's office empty handed or empty headed. If you are preparing for class by reading and taking notes AND you are listening in lecture, you should be able to give the instructor a fair idea of what concepts confuse you the most.

Lecture Assignments:

The lecture assignments in this class will consist of activities to help you understand the information from each chapter covered. Dynamic Study Modules will be assigned for each Chapter and will be for grade. Engaging Homework assignments will also be assigned for a grade. **(You will not receive a grade if you do not complete the Dynamic Study Modules by their assigned due dates.) (Extra Credit assignments must be submitted by the due date or no credit will be received for it.)** To receive full credit for Engaging homework assignments, you must turn them in by the assigned due date. **(Note: If the engaging homework assignments are turned in past the due date, 10% will be taken off from the engaging homework assignment grade each day it is late.)**

Lecture assignments count **20% of the semester average**.

Lecture Exams:

There will be a total of 6 Exams. All exams are open book accept Exam #3 and the Final Exam which are proctored and will be taken at one of the Panola College Testing Centers. (Marshall, Carthage, Center) **(Note: If you are a dual credit student, your Proctored Exams will be given at the Testing facility at your High school. If you do not live close to a Panola College Testing center, you can take your exam at the closest Public Library's Exam Proctoring Room upon approval. (Note: There will be a review sheet and you will be able to create notes to use for these exams)** You will be given a 2 day window to take all exams. **(Note: Exams must be completed by the assigned due date. If the exam is not completed by the assigned due date, you will receive a zero for an exam grade. There are no missed exam make-ups)**

Lecture Exams count **40%** of the **semester average.**

The Final Exam is proctored and is comprehensive over Chapters 1-15. **(Note: There will be a Final Exam Review Sheet and you will be able to create notes to use for this exam)**

The **Final Exam** will count **20%** of the **semester average**.

Tentative Lecture Test Schedule: (Testing schedule is subject to change)

Exam 1: Ch 1,2,3 Fri. 09/06 Unproctored

Exam 2: Ch 4,5 Fri. 09/20 Unproctored

Exam 3: Ch 6,7 Mon. 10/07- Wed. 10/09 **PROCTORED**

Exam 4: Ch 8,9 Fri. 10/25 Unproctored

Exam 5: Ch 10,11,12 Fri. 11/08 Unproctored

Exam 6: Ch 13,14,15 Fri. 11/22 Unproctored

FINAL Exam Chs. 1-15 Thu. 12/05 **PROCTORED**

FINAL Exam Testing Window of (Thu. 12/05, Fri. 12/06, Mon. 12/09, Tuesday 12/10) **PROCTORED** Online in the Panola College Testing Center (Marshall, Carthage, Center)

Laboratory:

The lab activities in this course are designed to reinforce the lecture material through a hands-on experimental approach. You will be completing labs from your lab book. You will also be completing some virtual labs from the HHMI.org website. You will receive grades for the face to face lab activities as well as the virtual lab activities. (**To receive credit for face to face labs and virtual labs you must complete them by the assigned due date. Late labs will not be accepted.)**

Labs count **20% of the semester average**.

Policy on Electronic Devices in the Classroom:

All electronic devices are to be stowed out of sight unless the student receives permission from the instructor to have them visible. The instructor reserves the right to view any open windows or minimized items on any computer or computer-type device being used by the student during class. All communication devices must be set to silent. If a personal situation necessitates a student needing the use of such devices, they must get permission from the instructor before class starts. The student will then be assigned a seat close to the door so that they may leave the classroom with a minimal amount of disruption to the class. Failure to abide by these rules may result in disciplinary action

Attendance and Conduct:

Please refer to the policies in the current catalog. **You are not allowed to miss more than 3 face to face classes in a Monday/Wednesday class. Missing more than 3 class sessions in lecture or lab can result in being dropped from the class.** Promptness to lecture and lab is expected. **3 tardies equal an absence**. Students will be respectful and attentive. **Students exhibiting inappropriate behaviors are subject to removal from the classroom and potentially from the class. Hats will not be worn in the lecture room or in the laboratory. Students will not eat and/or drink in the classroom. Cell phones must be turned off in the classroom and laboratory.**

Communication:

Students in both the Face to Face and Online classes should use the e-mail tool within Canvas to communicate with the instructor. E-mail is preferable to telephone calls except in emergency situations.

Biology 1408: General Biology I Tentative Fall 2024 Lecture Schedule (Note: Schedule may change)

Weeks (1-16) (M – F)	Topic(s) (Note: Every Chapter has a Dynamic Study Module that must be completed for a grade)	Chapter(s) covered	Mastering Biology Dynamic Study Modules	Mastering Biology Homework Assignments	Unit Exams (P) Proctored
1 Aug. 20-23	Class Orientation / Biology Exploring Life	1	1	Intro to Mastering Biology	

2 Aug. 26-30	Biology Exploring Life / The Chemical Basis of Life	1, 2	2	Enzymes	
3 **Sept. 2nd Labor Day** Sept. 3-6	The Molecules of Cells	3	3	Tour of Prokaryotic Cells	Exam 1 (Chs. 1-3)
4 Sept. 9-13	Tour of the Cell	4	4	Tour of Animal Cell / Tour of Plant Cell	
5 Sept. 16-20	The Working Cell	5	5	Membrane Transport	Exam# 2 (Chs. 4-5)
6 Sept. 23-27	How Cells Harvest Chemical Energy	6	6	Cellular Respiration	
7 Sept. 30-Oct. 4th	Photosynthesis	7	7	Photosynthesis	
8 Oct. 7-11	Review / Mid-Term	6,7			(P) Exam# 3 (Chs. 6-7}
9 Oct. 14-18	The Cellular Basis of Reproduction and Inheritance	8	8	Cell Cycle Mitosis vs Meiosis Mitosis Extra Credit	Oct. 15th Mid-Term Grades Posted
10 Oct. 21-25	Patterns of Inheritance	9	9	DNA DNA Replication Genetic Cross Pedigree Extra Credit	Exam# 4 (Chs. 8-9)
11 Oct. 28 –Nov. 1	Molecular Biology of a Gene How Genes Are Controlled	10,11	10, 11	Karyotypes Extra Credit Central Dogma DNA-RNA-Protein	
12 Nov. 4- Nov. 8	How Genes Are Controlled DNA Technology and Genomics	11,12	12	Exploring Biotechnology	Nov. 8th Last Day to Withdraw Exam# 5 (Chs. 10-12)
13 *Nov. 11-15*	How Population Evolve The Origin of Species	13, 14	13, 14	Evolution	
Nov. 18-22	The Origin of Species Tracing Evolutionary History	14, 15	15	Natural Selection	Exam #6 (Chs. 13-15)
14 *Nov. 25-29*	Thanksgiving Break				
15	Review for Final Exam/Final Exams				

Dec. 2-4 ***(Dec. 5, 6 Exams)***					
16 *Dec. 9-11* ***(Exams)***	(P) Final Exam (Chs. 1-15)				

The lecture professor will set the specific due dates for the Mastering Biology Assignments. Other lecture assignments may include in class pop quizzes, student presentations, or group discussions which will be announced and determined by the professor.

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/studentsupport/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)

SCANS Criteria

1. Foundation skills are defined in three areas: basic skills, thinking skills, and personal qualities.
    a. Basic Skills: A worker must read, write, perform arithmetic and mathematical operations, listen, and speak effectively. These skills include:
        i. Reading: locate, understand, and interpret written information in prose and in documents such as manuals, graphs, and schedules.
        ii. Writing: communicate thoughts, ideas, information, and messages in writing, and create documents such as letters, directions, manuals, reports, graphs, and flow charts.
        iii. Arithmetic and Mathematical Operations: perform basic computations and approach practical problems by choosing appropriately from a variety of mathematical techniques.
        iv. Listening: receive, attend to, interpret, and respond to verbal messages and other cues.
        v. Speaking: Organize ideas and communicate orally.
    b. Thinking Skills: A worker must think creatively, make decisions, solve problems, visualize, know how to learn, and reason effectively. These skills include:
        i. Creative Thinking: generate new ideas.
        ii. Decision Making: specify goals and constraints, generate alternatives, consider risks, and evaluate and choose the best alternative.
        iii. Problem Solving: recognize problems and devise and implement plan of action.
        iv. Visualize ("Seeing Things in the Mind's Eye"): organize and process symbols, pictures, graphs, objects, and other information.
        v. Knowing How to Learn: use efficient learning techniques to acquire and apply new knowledge and skills.
        vi. Reasoning: discover a rule or principle underlying the relationship between two or more objects and apply it when solving a problem.
    c. Personal Qualities: A worker must display responsibility, self-esteem, sociability, self management, integrity, and honesty.
        i. Responsibility: exert a high level of effort and persevere toward goal attainment.
        ii. Self-Esteem: believe in one's own self-worth and maintain a positive view of oneself.

iii. Sociability: demonstrate understanding, friendliness, adaptability, empathy, and politeness in group settings.
iv. Self-Management: assess oneself accurately, set personal goals, monitor progress, and exhibit self-control.
v. Integrity and Honesty: choose ethical courses of action.

2. Workplace competencies are defined in five areas: resources, interpersonal skills, information, systems, and technology.
   a. Resources: A worker must identify, organize, plan, and allocate resources effectively.
      i. Time: select goal-relevant activities, rank them, allocate time, and prepare and follow schedules.
      ii. Money: Use or prepare budgets, make forecasts, keep records, and make adjustments to meet objectives.
      iii. Material and Facilities: Acquire, store, allocate, and use materials or space efficiently. Examples: construct a decision timeline chart; use computer software to plan a project; prepare a budget; conduct a cost/benefits analysis; design an RFP process; write a job description; develop a staffing plan.
   b. Interpersonal Skills: A worker must work with others effectively.
      i. Participate as a Member of a Team: contribute to group effort.
      ii. Teach Others New Skills.
      iii. Serve Clients/Customers: work to satisfy customer's expectations.
      iv. Exercise Leadership: communicate ideas to justify position, persuade and convince others, responsibly challenge existing procedures and policies.
      v. Negotiate: work toward agreements involving exchange of resources, resolve divergent interests.
      vi. Work with Diversity: work well with men and women from diverse backgrounds. Examples: collaborate with a group member to solve a problem; work through a group conflict situation, train a colleague; deal with a dissatisfied customer in person; select and use appropriate leadership styles; use effective delegation techniques; conduct an individual or team negotiation; demonstrate an understanding of how people from different cultural backgrounds might behave in various situations.
   c. Information: A worker must be able to acquire and use information.
      i. Acquire and Evaluate Information.
      ii. Organize and Maintain Information.
      iii. Interpret and Communicate Information.
      iv. Use Computers to Process Information. Examples: research and collect data from various sources; develop a form to collect data; develop an inventory record-keeping system; produce a report using graphics; make an oral presentation using various media; use on-line computer databases to research a report; use a computer spreadsheet to develop a budget.
   d. Systems: A worker must understand complex interrelationships.
      i. Understand Systems: know how social, organizational, and technological systems work and operate effectively with them.
      ii. Monitor and Correct Performance: distinguish trends, predict impacts on system operations, diagnose deviations in systems' performance and correct malfunctions.
      iii. Improve or Design Systems: suggest modifications to existing systems and develop new or alternative systems to improve performance. Examples: draw and interpret an organizational chart; develop a monitoring process; choose a situation needing improvement, break it down, examine it, propose an improvement, and implement it.
   e. Technology: A worker must be able to work with a variety of technologies.
      i. Select Technology: choose procedures, tools or equipment including computers and related technologies.
      ii. Apply Technologies to Task: understand overall intent and proper procedures for setup and operation of equipment.
      iii. Maintain and Troubleshoot Equipment: Prevent, identify, or solve problems with equipment, including computers and other technologies. Examples: read equipment descriptions and technical specifications to select equipment to meet needs; set up and assemble appropriate equipment from instructions; read and follow directions for troubleshooting and repairing equipment.