



Course Syllabus

BIOL 2406 Environmental Biology

Catalog Description: Principles of environmental systems and ecology, including biogeochemical cycles, energy transformations, abiotic interactions, symbiotic relationships, natural resources and their management, lifestyle analysis, evolutionary trends, hazards and risks, and approaches to ecological research.

Prerequisites: none (MATH 1314 is recommended, but not required)

Semester Credit Hours: 4

Lecture Hours per Week: 3

Lab Hours per Week: 3

Extended hours: N/A

Contact Hours per Semester: 96

State Approval Code: 03.0103.51 01

Class section meeting time:

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.

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.

Core Components and Related College Student Learning Outcomes :

This course counts as part of the academic requirements of the Panola College Core Curriculum and an Associate of Arts or Associate of Science degree. X Yes No: If no, skip to Instructional Goals.

The items below marked with an X reflect the state-mandated outcomes for this course **IF this is a CORE course:**

- X Critical Thinking Skills – to include creative thinking, innovation, inquiry and analysis, evaluation and syntheses of information
 - CT1: Generate and communicate ideas by combining, changing, or reapplying existing information
 - X CT2: Gather and assess information relevant to a question
 - X CT3: Analyze, evaluate, and synthesize information
- X 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
 - CS2: Develop, interpret, and express ideas through oral communication
 - X CS3: Develop, interpret, and express ideas through visual communication
- X Empirical and Quantitative Skills – to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions
 - EQS1: Manipulate and analyze numerical data and arrive at an informed conclusion
 - X EQS2: Manipulate and analyze observable facts and arrive at an informed conclusion
- X Teamwork – to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal
 - X TW1: Integrate different viewpoints as a member of a team
 - X TW2: Work with others to support and accomplish a shared goal
- Personal Responsibility – to include the ability to connect choices, actions, and consequences to ethical decision-making
 - PR1: Evaluate choices and actions and relate consequences to decision-making
- Social Responsibility – to include intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national, and global communities
 - SR1: Demonstrate intercultural competence
 - SR2: Identify civic responsibility
 - SR3: Engage in regional, national, and global communities

Instructional Goals and Purposes:

The purpose of this course is for the student to develop a basic knowledge and understanding of fundamental ecological principles, ecological / environmental sampling methods, current environmental issues, and emerging solutions to said issues.

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

Lecture Learning Outcomes:

1. Explain the structure and impact of biogeochemical cycles.
2. Describe energy transformations across trophic levels.
3. Illustrate abiotic/biotic interactions and symbiotic relationships.
4. Identify various types of natural resources, human impact on these resources, and common resource management practices.

5. Quantify and analyze the impact of lifestyle on the environment.
6. Depict evolutionary trends and adaptations to environmental changes.
7. Describe environmental hazards and risks and the social and economic ramifications.
8. Describe ecological and statistical techniques and approaches used in the study of environmental biology.

Lab Learning Outcomes:

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. Explain the structure and impact of biogeochemical cycles.
5. Describe energy transformations across trophic levels.
6. Illustrate abiotic/biotic interactions and symbiotic relationships.
7. Identify various types of natural resources, human impact on these resources, and common resource management practices.
8. Quantify and analyze the impact of lifestyle on the environment.
9. Depict evolutionary trends and adaptations to environmental changes.
10. Describe environmental hazards and risks and the social and economic ramifications.
11. Describe ecological and statistical techniques and approaches used in the study of environmental biology.

Methods of Instruction/Course Format/Delivery:

This lecture and/or lab portion of this course is offered in two formats: hybrid and online. The course typically includes: digital reading assignments; digital & physical lectures; digital & physical field trips; digital & physical class discussions; and digital & physical laboratory assignments. Computer-based assignments including (but not limited to) Pearson's mastering suite are used to keep the hybrid and online sections at a college level of instruction.

Major Assignments / Assessments:

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

Assignments

Lecture:

Mastering Homework: Several Mastering homework assignments will be assigned during the semester. Mastering homework assignments typically include a conglomerate of reading quiz questions, Bioflix activities, coaching assignments, current events, map based questions, data based questions, process based questions, video questions, and activity questions. Mastering Homework should be submitted before the due date. Mastering Homework cannot be made up, but the student can turn the assignments in late with a .6%/hour penalty (~30 points every 2 days).

Laboratory:

Vernier Lab Exercises (Hybrid courses only): Hybrid students will use Vernier lab equipment to collect data, and fill out a lab report. Online students will use Vernier lab applications to collate data, and fill out a lab report. Student .pdf scans of Vernier lab reports will be submitted to the instructor via canvas. To earn credit for laboratory work the student must be both present and participating in the activity. Lab exercises are due by the

deadline. Late submissions of Vernier lab reports will suffer a 10 point penalty for every day past the due date.

Labster Lab Exercises (Online course only): Labster labs are interactive online labs that do not require a separate lab report. All data is collected and interpreted by the student during the web-based interactive lab. Labster will keep track of student participation and effort. Lab exercises are due by the deadline. Labster assignments do not have a late submission window.

Mastering Lab Exercises: Several Mastering laboratory assignments will be assigned during the semester. Mastering laboratory assignments typically include a mix of Bioflix activities, coaching assignments, map based questions, data based questions, process based questions, video questions, and activity questions. Mastering laboratory assignments should be submitted before the due date. Mastering lab exercises cannot be made up, but the student can turn the assignments in late with a .6%/hour penalty (~30 points every 2 days).

Environmental Topic Presentation: The student can research/organize/arrange/produce/present a freshman level, term, presentation over a current environmental topic. -or- The student can research/perform/present a freshman level, term, experiment. The student must pick one of the preceding options. While collaboration is not discouraged, no two students can present the same topic.

Assessment(s):

Lecture:

Unit Exams: Several tests will be given during the semester. Test questions will, primarily, be drawn from the lecture book, but may include a few questions concerning in class discussions.. Each exam may consist of multiple-choice, matching, true/false, fill in the blank, and essay type questions. At least one (1) Unit Exam will require the use of a proctored testing center. Unit exams are online and open for ~48 hours, and missed examinations cannot be made up! Please see the Extra Credit section for more information.

Final Exam: A final comprehensive examination will be open for 36 hours during the week of final exams and will cover material from the whole semester. The final comprehensive exam may consist of multiple-choice, true/false and matching questions. The Final Exam Will require the use of a proctored testing center. The final exam cannot be made up.

Laboratory:

Vernier Lab Quizzes: If a lab section is habitually unprepared for lab, the Instructor reserves the right to schedule a physical lab quiz for the upcoming week. Vernier lab quizzes can be made up within a week of their administration. The make up will consist of 3 essay questions.

Course Grade:

The grading scale for this course is as follows: A=90; B=80-89; C=70-79; D=60-69; F=59 and below

- **Lecture is 60% of your course grade** (all lecture offerings for this course are Hybrid/Online with at least 40% digital assignment / submission)
 - Unit Exams - 40%
 - Mastering Assignments - 30%
 - Final Exam - 20%
 - Attendance and Participation - 10%

- o Extra credit Dynamic Study Modules - ~7.5%
- o Total percent possible - 107.5%
- **Lab is 40% of your course grade** (all laboratory offerings for this course are Hybrid/Online with at least 40% digital assignment / submission)
 - o Vernier and/or Labster Labs & Quizzes - 30%
 - o Mastering Lab Assignments - 30%
 - o Research Project - 30%
 - o Attendance and Participation - 10%
 - o Extra Credit Mastering Article Assignments - ~5%
 - o Total percent possible - 105%

REQUIRED Texts, Materials, and Supplies:

- **Essential Environment Digital Bundle** (It is heavily suggested, but not required that you obtain this bundle from the Panola College Bookstore or through the mylabandmastering canvas link). This bundle includes an 18 month access for mylabandmastering and covers the lab and lecture uses of mylabandmastering - ISBN 9780134838878
 - o The Professor is not responsible for components ordered outside of the Panola College Bookstore or the mylabandmastering link in the course. If you purchase your textbook or access code from cheng, amazon, or other 3rd party retailers, you are responsible for making sure that the book includes all needed components.
 - Withgott, J and Laposata, M (2018). Essential Environment: The Science Behind the Stories 6th Ed. New York, New York: Pearson Publications. ISBN 9780135213193 (digital) -OR- 9780134714882 (physical)
 - o Access Code for Modified Mastering Environmental Science for Lab. If you do not purchase the bundle or you purchase a used textbook, you will have to purchase the access code via the mylabandmastering link.
- **Labster Access Code** can be purchased from the bookstore or directly through the link in the course
- **Technology requirements:**
 - o **Access to a desktop, laptop, chromebook that meets the minimum specifications below:**
 - **At least 8GB of RAM (16GB suggested)**
 - **At least 2.5GHz processor (3.5GHz suggested)**
 - **THE BRAND OF COMPUTER DOES NOT MATTER AS MUCH AS THE REQUIREMENTS LISTED ABOVE**
 - o **Broadband or equivalent connection is required all sections of this course**
 - 200Mbps down / 20Mbps up is overkill
 - 100Mbps down / 10Mbps up is ideal
 - 50Mbps down / 5Mbps up is a lower limit
 - o **Google Chrome Browser is required for all sections of this course.**
 - o Google account (please note that your student email gives you access to a google account) is required for all sections of this course.
 - Google Office Suite (or Microsoft Office if you have issues with free software).
 - o **Scanner or Cellular phone with “genius scan” app are required for the hybrid sections of this course**
 - o **One of the following FREE vernier programs is required for the hybrid section of the course (All of these programs are free for students)**
 - **Logger pro (preferred free software) - Works best on windows / mac**
 - Link provided in course
 - **Logger lite (alternative free software) - Works best on most systems**
 - <https://www.vernier.com/products/software/logger-lite/#download>

- **Graphical Analysis (alternative free software) - Works best on chromebooks**
 - <https://www.vernier.com/product/graphical-analysis-4/>
- **Appropriate dress for hybrid laboratory fieldwork** (you should be willing to get these items wet and/or dirty)
 - long sleeve shirt
 - long leg pants (or long skirt)
 - close toed shoes
 - Headlamp or miner's hat (night labs only). Any "hands-free" personal light source should work
 - Reflective vest or bright shirt (night labs only)
- **Vehicular Transport (hybrid sections only)**
 - A few times during the semester, hybrid students will need to follow the instructor to data collection sites as far as 20min from campus. Students are welcome to carpool to data collection sites.

OPTIONAL Texts, Materials, and Supplies:

- Waders
- Field boots

REQUIRED Readings:

- Withgott, J and Laposata, M (2018). Essential Environment: The Science Behind the Stories 6th Ed. New York, New York: Pearson Publications. ISBN 9780134714882 (this text is digitally included in the bookstore bundle)
- Various Vernier Technology based labs posted in Canvas (hybrid courses only)

RECOMMENDED Readings:

- "Current Events" located under the "study area" of the modified mastering portal
- "Word Study Tools" located under the "study area" of the modified mastering portal
- "Dire Predictions: Understanding Climate Change 2/e eText" located under the "study area" of the modified mastering portal

Important Notes Concerning Late Work, Attendance, Extra Credit, and Academic Integrity:

- **Late work (when accepted) will suffer a grade penalty, regardless of circumstances. Mastering assignments suffer a .6% penalty for every hour past the due date. Non-mastering assignments will suffer a 10 point penalty for every day past the due date. Extra credit will not be accepted past the due date for any reason whatsoever.** For Hybrid missed meetings, the professor should be contacted ASAP to develop an alternate schedule. ** The student will need to make up the missed lab hours. Failure to make up the missed hybrid lab hours will result in a large loss of points.
- **The student is responsible for attending all lectures and laboratories and completing all assigned lecture/lab assignments/examinations.** Online Lecture attendance will be based on completion of attendance assignments. Hybrid Lecture attendance will be based on a mix of physical attendance and attendance assignments. Hybrid Lab attendance will be based on physical attendance. Online lab attendance will be based on labster completion percentages. When the professor feels that the student has been absent to such a degree as to invalidate the learning experience, the professor may recommend to the Vice President of Instructional Affairs that the student be dropped from the course. The professor may drop the student for attendance deficiencies after they have accumulated 5 lecture absences or 2 lab absences. The student is also responsible for being punctual to class and attentive in class. **One point will be deducted from the final average in lecture and/or lab for every absence that exceeds the college's attendance policy (above).** Three tardies count as one absence.
- **Three possible forms of extra credit include:**

- Attendance - Lecture absences affect the degree to which a final exam can help your semester average by replacing lower Unit Test grades. A student with more than 5 absences will not be able to replace any unit test grades (even if they missed a unit test).

Number of Absences	Comparable attendance score	Number of replaced Unit Test Grades
0-2	90% or higher	2
3-5	70% to 89%	1
5 or more	69% or lower	0

- Mastering Dynamic Study Module - The dynamic study modules are absolutely essential to mastery of course content. The instructor may award a student 2.5 bonus points on a unit exam for each Dynamic Study Module completed by the due date.
 - Mastering Article Assignments - Several articles provide a real world view of Environmental Biology. The instructor may award a student 5 bonus points on a Vernier lab assignment for each Mastering Article Assignments completed by the due date.
- Academic integrity is an important value in student development. Plagiarism and cheating are not allowed.** Plagiarism is defined as the taking of a person's ideas, words, or information and claiming those properties as one's own. The use of all ideas, words, or information from any source must be properly referenced and due credit must be given to it's author. Typed summaries, class reports, lab reports, and lab handouts will be submitted through Canvas. Canvas will run the submitted summaries, class reports, and lab reports through turnitin.com. Lab handouts, however, will be visually inspected by the associated instructor. A summary, class report, or lab report which scores higher than 40% on copied material will automatically receive a grade of "0". Properly quoting and citing borrowed information is NOT plagiarism. Sharing laboratory data (not questions) is NOT plagiarism. The instructor reserves the right to employ other means outside turnitin.com to check the "originality" of a students work. All plagiarizing infractions will result in a grade of "0" for the assignment. A student will fail the class upon their second plagiarizing offense. Students shall have the right to contest a plagiarism or cheating claim. The appeals process is specifically defined in the student handbook. Cheating is defined as unauthorized help on an examination, practical or assigned course material. A student must not receive from any other student or give to any other student any information, answers, or help during an exam, in-class quiz, digital quiz, and kahoot quiz. A student must not "steal" the answers from an unsuspecting student during an exam, in-class quiz, digital quiz, and kahoot quiz. A student must not use any sources for answers during the proctored or in-class exam (including, but not limited to: notes, books or electronic devices) without prior authorization from the professor. A student must not obtain exam question illegally, tamper with the exam/in-class quiz/digital quiz/kahoot quiz questions, nor change the results of an exam/in-class quiz/digital quiz/kahoot quiz after it has been graded. All cheating infractions will result in a grade of "0" for the assignment. A student will fail the class upon their second cheating offense. Students shall have the right to contest a cheating claim. The appeals process is specifically defined in the student handbook.
 - Please note the college has an updated cheating offense document that students will need to acknowledge when completing proctored exams.

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:
<http://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 Administration Building or go to
<https://www.panola.edu/student-services/student-support/disability-support-services> for more information.
- 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 Pathfinder* or may request the form from the course instructor.
- 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, *The Pathfinder*: <https://www.panola.edu/student-services>