The Indiana Academy for Science, Mathematics, and Humanities
AP Environmental Science (SCI04328)
Spring Semester 2024

Instructor: Donald Winslow, Ph.D. donald.winslow@bsu.edu
Office: Elliott Hall B008E Phone: (765)285-7463
Office hours: M 2-4 PM, T 4-5 PM, W 2-4 PM, R 2-5 PM, F 2-4 PM or by appointment
Class meetings: in Burris 211, MWF 12-12:50 PM, lab Tuesday 2-4 PM

Course description (from the Course Catalog, https://academy.bsu.edu/catalog/)

Prerequisite: One year biology
Co-requisite: AP Environmental Science Lab (SCI4328L)
Credit: 1.5 credits
Offered: Spring

The study of environmental science concerns itself with the interaction between humans and the ecosystems, in which we live and work. The course focuses on the determination of environmental quality through a series of laboratory experiences dealing with soil, water, and air resources. There is a concentration on problems having to do with population, pollution, agriculture, resource management and land use. An integrated approach to the issues facing us is emphasized. The course will use a problem-based learning approach and will incorporate a service learning component. Students will prepare for and are encouraged to take the AP Environmental Science exam in May.

Course learning outcomes

Upon completing this course, students will be able to describe the ways in which human societies interact with their environments, apply the concepts of resource limitation and sustainability to discuss the complex issues involved in the resolution of environmental conflicts, and practice field and laboratory analytic techniques to assess environmental quality.

Course materials

Friedland, Andrew; and Rick Relyea. 2023. *Environmental Science for the AP Course*, 4th ed., Bedford, Freeman & Worth: New York.

Molnar, William. 2011. *Laboratory Investigations for AP Environmental Science*, 2nd ed., People's Education, Saddle Brook, NJ.

Nash, Roderick Frazier. 1990. *American Environmentalism*, 3rd ed., McGraw-Hill: USA.

We will supplement these texts with other relevant material throughout the semester.

You should also have a lab and field notebook for recording data for lab exercises.

Please note that some aspects of this course may need to be changed during the semester, so this syllabus is subject to revision. If the syllabus is revised during the semester, the updated syllabus will be posted on Canvas. Please refer to Canvas for updated information.

The assignments for the course are shown in the table below.

3 lecture exams @ 100 points	300 points
1 comprehensive exam @ 150 points	150 points
Quizzes/lab notebook/workbook	100 points
Reports and presentations	100 points
Lab write-ups	100 points
Environmental advocacy project	50 points
TOTAL	800 points

Grading Scale:

100 – 93% = **A**	< 90 – 87% = **B+**	< 80 – 77% = **C+**	< 70% = **D***
< 93 – 90% = **A-**	< 87 – 83% = **B**	< 77 – 70% = **C**	
	< 83 – 80% = **B-**		

Grades will be posted on Canvas and Powerschool. If I am late posting grades, you can estimate your current grade in the course by adding all the points you have earned or anticipate earning from all assignments. There are 800 points available in the course, so each point is worth 0.125%. **Please make an appointment to talk with me if you are concerned about your grade or uncertain about your standing in the course.**

Attendance

Please arrive on time to class. The instructor is required to take attendance so that all students are accounted for. If you arrive late to class, someone might start checking to see where you may be. If you are late, you may need to remind the instructor to change the absence to tardy. This will disrupt our workflow and possibly the workflow of others, so please try to avoid being late.

If you miss lecture for any reason, you are responsible for obtaining any notes, announcements, reading material, or assignments from the instructor or a classmate. If you miss a lab, it may be difficult to arrange for you to make it up. Participation in lab is essential for your own success and for that of any student working with you. If an unavoidable emergency or illness prevents you from attending class or completing an assignment on time, please inform the instructor as soon as possible (preferably beforehand).

The Academy and not the instructor determines whether an absence is excused or unexcused. No direct grade penalty is assessed for an absence, but missing class is likely to make it very difficult for you to be successful in the course.

Safety

Please familiarize yourself with lab safety protocols and perform procedures with care. Because we hold class in a science lab, no food, gum, or drinks can be brought into the classroom. Your work area should always be free of clutter and only have the necessary materials (pens/pencils, notebook, etc.). If there are glassware breakage or equipment problems, please notify the instructor immediately to ensure proper safety and equipment protocols are followed.

Academic conduct

It is important to prepare for each class meeting by completing the reading and any assignments that are due. Assignments should be submitted on Canvas or in class, depending on the assignment. Although some activities such as labs may be completed in pairs or groups of students, each student is individually responsible for submitting assignments with original writing (not copied from your lab mate). You are encouraged to discuss answers to lab activities with other class members, but the wording should not be the same. Do not share word processing files with each other, but make sure each student has access to the raw data for analysis.

You are expected to conduct yourself according to the Indiana Academy Student Handbook (https://academy.bsu.edu/handbook/), especially the Code of Conduct and the section on Academic Integrity. On writing assignments, please be sure to use your own wording and cite all sources of information, whether from the Internet or otherwise. If you are not sure how to cite something, ask the instructor. Note that language copied verbatim from a book, website, another student's paper, or any other source is considered plagiarism unless it is in quotation marks and cited. Plagiarism is a form of academic dishonesty. Please do not plagiarize or cheat in any other way. An infraction may result in a 0 for the assignment. Also, the instructor is required to report any ethics violations to the Academic Integrity Board or (the Director of Academic Affairs and your parents).

Academic honesty

You are expected to conduct yourself according to the Indiana Academy Student Handbook (https://academy.bsu.edu/handbook/), especially the Code of Conduct and the section on Academic Integrity. On writing assignments, please be sure to use your own wording and cite all sources of information, whether from the Internet or otherwise. If you are not sure how to cite something, ask the instructor. Note that language copied verbatim from a book, website, another student's paper, or any other source is considered plagiarism unless it is in quotation marks and cited. Plagiarism is a form of academic dishonesty. Please do not plagiarize or cheat in any other way. An infraction may result in a 0 for the assignment. Also, the instructor is required to report any ethics violations to the Academic Integrity Board or (the Director of Academic Affairs and your parents).

Artificial intelligence (AI) technology

Technologies referred to as "artificial intelligence" (AI) are becoming increasingly salient in our lives, sometimes with more emphasis on artificial than on intelligence. The original Turing test for artificial intelligence is to engage in dialogue with what we would now call a "chatbot". If the discourse is indistinguishable from that of a human, then it is considered artificial intelligence. Modern language models such as ChatGPT exemplify this approach by stringing together words from human writing to sound intelligent (without necessarily being intelligent).

These tools can be very useful, from simple spellchecks to generating computer code. As you adopt these technologies, however, it is important to verify that information you gain is correct and to avoid presenting as your own work that was produced by software or anyone else. You can avoid these pitfalls if you use the auto-generated content as a starting point but not as a finished product. Find the original sources of information and cite those. AI has this nasty habit of making up references that don't exist, so don't rely on it.

Computers, phones, and other personal devices

It is helpful to bring a laptop or tablet to lab, as we will often use such devices for data analysis or other class activities. Personal devices should not be used for non-class purposes during classtime. This is distracting to yourself and others and interferes with the learning process.

Classroom conduct

Please be considerate of other classmates. Keep any devices not used for classroom activities silenced or off. Your phone should be put away if it's not being used for class. Laptops can be used in class for class activities, but repeated use for non-class activities may result in a loss of that privilege. Please treat each other with respect and refrain from annoying behavior. Do not interrupt another student or the instructor. If you are having difficulty getting a word in, you can raise your hand. Examples of improper conduct include having extended conversations, working on assignments for other courses, sleeping, etc. Serious and/or chronic problems may be cause for dismissal from the course.

A calculator (but not a phone) may be used for exams.

Late work

If an absence is excused by the Academy, the instructor will make every reasonable effort to ensure you have the opportunity to make up any assignments associated with the absence. If the absence is unexcused, the instructor may accept late work as time allows, but a grade penalty of 10% per day late may be applied at the instructor's discretion.

If an exam is missed due to an excused absence, the instructor will make every reasonable effort to ensure you have the opportunity to make it up. If the absence is unexcused, a retake may be allowed at the instructor's discretion, but a penalty of 10% per day late may be assessed at the instructor's discretion. If a lab is missed, it may be difficult to arrange for a student to make it up due to supplies and logistical constraints. If the absence was excused, the instructor may need to substitute an alternate activity.

Dual Credit

Students may choose to enroll in Ball State's Dual Credit Program to earn college credit for NREM 101, Environment and Society, from Ball State at a reduced rate of tuition ($250 flat fee). Students who are eligible for free or reduced lunch this academic year may enroll at no charge if verified by the school. Free and reduced lunch students will still be responsible for any textbook costs associated with the dual credit course.

To enroll in Ball State's Dual Credit Program, students should have a 3.0 GPA on a 4.0 scale and complete the application & registration process before the given deadline. Ball State will bill students via postal mail; no money should be submitted to the high school. College credit can only be earned during the semester (or, in the case of year-long classes, during the academic year) in which the student is enrolled. Late enrollments are not permitted.

Whether college credit earned through dual credit courses will be accepted by another institution of higher education is determined by the college or university to which a student is seeking admission. Before enrolling through Ball State's Dual Credit Program, students should check directly with that institution to determine if a course will be accepted and how it will be counted toward graduation requirements. Refunds will not be issued if Ball State credits are not able to be transferred. In most cases, students will need to earn a C or better to transfer credit from Ball State to another institution. Grades of D or lower earned in Ball State Dual Credit courses are recorded on a student's Ball State transcript but may not be able to transfer.

The rigor of this course will be periodically reviewed by Ball State University faculty in an effort to maintain the high quality of education that each student receives. To learn more about Ball State's Dual Credit Program, visit bsu.edu/dualcredit, call 765-285-1581 or email dualcredit@bsu.edu.

See the Dual Credit syllabus for this course published on Canvas for more information.

Library research

Through your association with Ball State University, you have access to an academic research library with many useful materials. This includes online access to many peer-reviewed scientific journals through bibliographic databases to which Ball State subscribes. To access these databases, go to https://www.bsu.edu/library, and scroll down to "Databases". The databases are listed in alphabetical order by the first letter. Two good ones to try are Academic Search Complete under "A" and JSTOR under "J". When you click on one of these databases, you will be prompted to log into your Ball State account. You can search for articles on particular topics and then access the full text of many articles from the journal publishers' websites.

Infectious disease outbreaks

There is always the potential for the outbreak of a dangerous strain of COVID-19 or another disease. There is currently no campus-wide mask mandate, but if the CDC declares another health emergency and BSU puts a mask mandate in place, this policy may change. If and when masks are required on the BSU campus, the Indiana Academy will then follow the same procedure. If some or all of us need to switch to online learning for any length of time, look for directions on Canvas.

Student accommodations and special circumstances

If you have an IEP or a 504 that provides accommodations, have emergency medical information to share, or need special arrangements in case the building needs to be evacuated, please make an appointment with the instructor as soon as possible.

If you are struggling with study habits, stress, and/or personal issues, I encourage you to discuss the situation with your SLC and/or contact the Guidance Office for help in addressing these issues so that you can thrive at the Academy. Many resources are available for students, and important contact information is listed below:

For guidance: Meg Wright (mewright@bsu.edu), phone:765-285-7407; office: WA183.
To find a tutor: Than Win (than.win@bsu.edu)
For mental health: Dr. Mindy Wallpe (mcwallpe@bsu.edu), phone: 765-285-5483; office: WA 160-C.

Ball State University Inclusive Excellence Statement:

Ball State University aspires to be a university that attracts and retains a diverse faculty, staff, and student body. We are committed to ensuring that all members of the community are welcome, through valuing the various experiences and worldviews represented at Ball State and among those we serve. We promote a culture of respect and civil discourse as expressed in our Beneficence Pledge *and through university resources found* here. (https://www.bsu.edu/campuslife/multicultural-center)

Schedule (subject to change)

5 Jan: review last semester's final exam, environmental advocacy project, Wyoming pronghorns

8 Jan: Review syllabus, course planning for semester

9 Jan: Rock weathering and soil formation lab

10 Jan: Rock weathering and soil formation lab

12 Jan: Rock weathering and soil formation lab, agriculture, biomes, soil nutrients, fishing, mining

16 Jan: Soil texture & physical properties lab
17 Jan: Biodiversity & ecosystems, geological processes & rock types, soil texture & weathering
19 Jan: Populations, invasive species, forests and forestry
22 Jan: Review session for examination 1
23 Jan: Soil survey field trip

24 Jan: Examination 1

26 Jan: Atmospheric processes & weather, climate change

29 Jan: Air resources

30 Jan: Soil analysis lab

31 Jan: Indoor air

2 Feb: Groundhogs

6 Feb: Groundhog population survey using iNaturalist or field excursion
7 Feb: Global air issues

9 Feb: Clean Air Act

12 Feb: Noise pollution

13 Feb: Squirrel nest survey

14 Feb: Solid waste

16 Feb: Radon

19 Feb: No class: Winslow gone at HASTI conference (look on Canvas for assignment)

20 Feb: No lab: Winslow gone at HASTI conference (look on Canvas for assignment)

21 Feb: Discussion on reading from *American Environmentalist*: Black Elk

23 Feb: Discussion on reading from *American Environmentalist*: Rachel Carson

26 Feb: Review session for examination 2

27 Feb: Air quality lab
28 Feb: Examination 2
1 March: Parent-teacher conferences
11 March: Energy generation
12 March: Energy conservation, renewable resources, sustainable energy
13 March: Environmental energy problems, urban ecology
15 March: Forms of energy generation
18 March: Student energy presentations
19 March: Insulation lab
20 March: Hydrologic resources
22 March: Watersheds and irrigation
25 March: Aquatic biomes
26 March: Biofuels lab
27 March: Sewage treatment
29 March: Water pollution
2 April: White River field trip
3 April: Chemical testing lab
5 April: Sustainability
8 April: Environmental laws
9 April: White River field excursion
10 April: Waste reduction
12 April: Review session for examination 3
15 April: Examination 3
16 April: Benthic macroinvertebrates lab
17 April: Health effects of pollution
19 April: Environmental advocacy
22 April: Earth Day
23 April: Wildflower field trip
24 April: State Envirothon competition at Purdue
29 April: Migrant songbirds
30 April: Migrant songbird field trip
1 May: Wildfire
3 May: Review session for final examination
6 -10 May: Finals Week