

## Appendix B: Sample Course Syllabus



THE OHIO STATE UNIVERSITY

**Biology 2750**  
***Scientific Thought in  
an Anecdotal World***  
Spring 2025  
3 Credit Hours

**Lecturers: James Chiucchi, Ph.D.**  
**Samantha Herrmann, Ph.D.**  
Center for Life Sciences Education  
Jennings Hall

**Course Coordinator:**

**Teaching Associates:**

**Class Meeting Schedule**

Lecture: TU/TH (55-minute lectures)  
Workshop: 80 minutes, once weekly

**Course Materials**

***Required:*** *The Scientific Endeavor: A Primer on Scientific Principles and Practice Edition 2.0* by Jeffrey A. Lee; ISBN: 9781536893830.

***Assigned Readings Provided to Students:***

Carroll, S. B. (2019). *The Story of Life: Great Discoveries in Biology (First Edition)*. Chapter 2. W. W. Norton & Company, Inc.

Cook, J., Ecker, U. K. H., Trecek-King, M., Schade, G., Jeffers-Tracy, K., Fessmann, J., Kim, S. C., Kinkead, D., Orr, M., Vraga, E., Roberts, K., & McDowell, J. (2022). The cranky uncle game—combining humor and gamification to build student resilience against climate misinformation. *Environmental Education Research, 4*, 1–17. <https://doi.org/10.1080/13504622.2022.2085671>

Idso, C. D., Carter, R. M., S Fred Singer, Nongovernmental International Panel On Climate Change, & Heartland Institute (Chicago, Ill. (2016). *Why scientists disagree about global warming: the NIPCC report on scientific consensus*. NIPCC By The Heartland Institute.

Loss, S. R., Will, T., Longcore, T., & Marra, P. P. (2018). Responding to misinformation and criticisms regarding United States cat predation estimates. *Biological Invasions, 20*(12), 3385–3396. <https://doi.org/10.1007/s10530-018-1796-y>

Mammola, S., Malumbres-Olarte, J., Arabesky, V., Barrales-Alcalá, D. A., Barrion-Dupo, A. L., Benamú, M. A., Bird, T. L., Bogomolova, M., Cardoso, P., Chatzaki, M., Cheng, R.-C., Chu, T.-A., Classen-Rodríguez, L. M., Čupić, I., Dhiya'ulhaq, N. U.,

Drapeau Picard, A.-P., El-Hennawy, H. K., Elverici, M., Fukushima, C. S., & Ganem, Z. (2022). The global spread of misinformation on spiders. *Current Biology*, 32(16), R871–R873. <https://doi.org/10.1016/j.cub.2022.07.026>

National Academies of Sciences, E. (2019). Reproducibility and Replicability in Science. In *nap.nationalacademies.org*. <https://nap.nationalacademies.org/catalog/25303/reproducibility-and-replicability-in-science>

Osborne, J., Pimentel, D., Alberts, B., Allchin, D., Barzilai, S., Bergstrom, C., Coffey, J., Donovan, B., Kivinen, K., Kozyreva, A., & Wineburg, S. (2022). *Science Education in an Age of Misinformation*. Stanford University, Stanford, CA.

West, J. D., & Bergstrom, C. T. (2021). Misinformation in and about science. *Proceedings of the National Academy of Sciences*, 118(15), e1912444117. <https://doi.org/10.1073/pnas.1912444117>

**Internet Access:** Your access to Carmen is an integral and necessary part of this course. You must activate your OSU email account to have access to Carmen. The Carmen URL is <http://carmen.osu.edu> and Biology 2750 should be listed under My Courses on your Carmen homepage. The username to log on is your OSU name.# and the password is the one you use with all OSU email and registration systems. If you have a problem logging in or using Carmen, contact 688-HELP or [carmen@osu.edu](mailto:carmen@osu.edu). IMPORTANT: The CLSE and its course staff will send email ONLY to your official OSU email account.

**Prerequisites:** GE Foundational coursework in Natural Sciences.

**Course Description:** *Examination of the intersection of modern biological methodologies with the cultural environment, focusing on the sharing of information, identification of validated biological discovery, and comparison with misinformation encountered in our lived environment.*

**General Education Natural Science Goals & Objectives**

Students who successfully complete this course will fulfill the following General Education goals and objectives:

Themes: General	
Goals	Expected Learning Outcomes
<b>GOAL 1: Successful students will analyze an important topic or idea at a more advanced and in-depth level than the foundations.</b>	<b>Successful students are able to ...</b>
	<b>1.1</b> Engage in critical and logical thinking about the topic or idea of the theme.
	<b>1.2</b> Engage in an advanced, in-depth, scholarly exploration of the topic or idea of the theme.
<b>GOAL 2: Successful students will integrate approaches to the theme</b>	<b>2.1</b> Identify, describe, and synthesize approaches or experiences as they apply to the theme.

<p><b>by making connections to out-of-classroom experiences with academic knowledge or across disciplines and/or to work they have done in previous classes and that they anticipate doing in future.</b></p>	<p><b>2.2</b> Demonstrate a developing sense of self as a learner through reflection, self-assessment, and creative work, building on prior experiences to respond to new and challenging contexts.</p>
<p><b>Theme: Lived Environments</b></p>	
<p><b>GOAL 1: Successful students will explore a range of perspectives on the interactions and impacts between humans and one or more types of environments (e.g., agricultural, built, cultural, economic, intellectual, natural) in which humans live.</b></p>	<p><b>Successful students are able to ...</b></p> <p><b>1.1</b> Engage with the complexity and uncertainty of human-environment interactions.</p> <p><b>1.2</b> Describe examples of human interaction with and impact on environmental change and transformation over time and across space.</p>
<p><b>GOAL 2: Successful students will analyze a variety of perceptions, representations and/or discourses about environments and humans within them.</b></p>	<p><b>2.1</b> Analyze how humans' interactions with their environments shape or have shaped attitudes, beliefs, values and behaviors.</p> <p><b>2.2</b> Describe how humans perceive and represent the environments with which they interact.</p> <p><b>2.3</b> Analyze and critique conventions, theories, and ideologies that influence discourses around environments.</p>

Our cultural environment has changed dramatically over the past few decades with the rise of the internet and social media. In this new modern world, Biology tends to be the center of many misinformation (unintentionally spreading wrong information) and disinformation (intentionally spreading wrong information) campaigns making it difficult to discern fact from fiction. In our modern society, scientific misinformation can spread at an alarming rate, often attacking topics with overwhelming scientific consensus and the scientific processes themselves. In the past, scientific information was curated by experts in their field and passed along to scientific journalists and trustworthy media outlets who then disseminated this information to the public. Certainly, there are credible sources of scientific information to be found online but there are also several sources pushing misinformation that is often cloaked in jargon with complex scientific language, frequently using cherry-picked data to intentionally mislead and confuse.

As a student in Biology 2750, you will analyze the processes central to scientific endeavors specifically within the biological sciences, and examine the effect of these processes in the context of historical and contemporary social responses (Lived Environments (LE) Learning Outcome (LO) 1.1, 1.2). You will develop skills to effectively evaluate the validity of biological claims, and practice those skills studying

modern biological issues you will encounter in your everyday lived environment (LE LO 2.1).

This course will discuss the formation of misinformation in biology stemming from changes in the way research results make their way into the public sector through social media, the rise of preprint servers that gain media attention, publication biases, predatory publishers, and malfeasance (example: Andrew Wakefield’s misconduct fabricating the link between vaccines and autism) (LE LO 2.1, 2.2, 2.3). Overall, this course will provide you a framework to recognize misleading biological-based claims making you more informed citizens and better able to traverse the modern environment you find yourself in currently and after completing your undergraduate degree.

### **Biology 2750 Goals and Learning Outcomes**

Upon successful completion of Biology 2750, students will demonstrate the ability to:

Goals	Expected Learning Outcomes
Goal 1: Students will develop science literacy skills and the ability to construct a scientifically literate argument.	<ul style="list-style-type: none"> <li>• 1.1 Students will evaluate both controversies in biology as well as biological topics viewed as controversial by parts of society.</li> </ul>
	<ul style="list-style-type: none"> <li>• 1.2 Students will use critical thinking skills to evaluate the validity of biological claims presented as scientific in social media and the popular press.</li> </ul>
	<ul style="list-style-type: none"> <li>• 1.3 Students will synthesize evidence-based arguments to diverse audiences using knowledge and skills from other coursework explaining how biology and technology address problems of the contemporary world.</li> </ul>
Goal 2: Students will develop critical thinking skills through and exploration of logical fallacies and their use in arguments.	<ul style="list-style-type: none"> <li>• 2.1 Students will differentiate biological science from pseudoscience and non-science.</li> </ul>
	<ul style="list-style-type: none"> <li>• 2.2 Students will identify examples of logical fallacies used in biological misinformation.</li> </ul>
	<ul style="list-style-type: none"> <li>• 2.3 Students will use logical fallacies to evaluate examples of biological research as well as biological misinformation.</li> </ul>
	<ul style="list-style-type: none"> <li>• 2.4 Students will compare anecdotal thought and experiences to biological data and reasoning.</li> </ul>
Goal 3: Students understand the scientific process in both modern and historical contexts.	<ul style="list-style-type: none"> <li>• 3.1 Students will differentiate between hypotheses, predictions, theories, laws, and facts.</li> </ul>
	<ul style="list-style-type: none"> <li>• 3.2 Students will synthesize the contributions of various scientific philosophers in the age of scientific reasoning from both eastern and western culture.</li> </ul>
	<ul style="list-style-type: none"> <li>• 3.3 Students will recognize that interpretation of data is a regular part of methodology in the natural sciences.</li> </ul>

	<ul style="list-style-type: none"> <li>• 3.4 Students will analyze the inherent risk of bias as a product of biological research being a human endeavor.</li> </ul>
	<ul style="list-style-type: none"> <li>• 3.5 Students will synthesize sound scientific explanations grounded in the scientific process.</li> </ul>
	<ul style="list-style-type: none"> <li>• 3.6 Students will summarize the process of peer review and publication commonly used in the natural sciences.</li> </ul>
	<ul style="list-style-type: none"> <li>• 3.7 Students will explain the self-correcting nature of science using examples from the history of biological research.</li> </ul>
Goal 4: Students will describe the interdependence of scientific and technological developments.	<ul style="list-style-type: none"> <li>• 4.1 Students will compare and differentiate between theoretical biology and applied biology.</li> </ul>
Goal 5: Students will analyze and interpret major forms of human thought, culture, and expression.	<ul style="list-style-type: none"> <li>• 5.1 Students will compare knowledge in the biological sciences to other forms of knowledge.</li> </ul>
	<ul style="list-style-type: none"> <li>• 5.2 Students will contrast the questions applicable to the scientific process and those that cannot be answered by science.</li> </ul>
Goal 6: Students evaluate how ideas influence the character of human beliefs, the perception of reality, and the norms which guide human behavior.	<ul style="list-style-type: none"> <li>• 6.1 Students will assess uncertainty and its role in biological literacy and agenda-driven interpretation in the media.</li> </ul>
	<ul style="list-style-type: none"> <li>• 6.2 Students will construct and deliver sound arguments appealing to different ways of thinking in specified environments.</li> </ul>
	<ul style="list-style-type: none"> <li>• 6.3 Students will apply critical thinking skills to assess human willingness or susceptibility to accept claims without evidence.</li> </ul>
	<ul style="list-style-type: none"> <li>• 6.4 Students will reflect on the ways their personal experiences have influenced their own thought or perceptions.</li> </ul>
	<ul style="list-style-type: none"> <li>• 6.5 Students will analyze scientific misconduct in the biological sciences and the conditions that encourage intentional and unintentional malfeasance.</li> </ul>
	<ul style="list-style-type: none"> <li>• 6.6 Students will analyze the misrepresentation of biological data by individuals and groups within the biological sciences.</li> </ul>

**Credit hour and work expectation:** This is a 3-credit-hour course. According to Ohio State policy, students should expect around 3 hours per week of time spent on direct instruction (instructor content, labs, and Carmen activities, for example) in addition to 6 hours of homework (reading and assignment preparation, for example) to receive a

grade of (C) average. [ASC Honors](#) provides an excellent guide to scheduling and study expectations.

### **Grading and Evaluation**

Graded assignments may come in three forms, and students should note the expectations for each in the descriptions of our class assignments below.

- **Independent Work (↑)**: Strictly non-collaborative, original-individual work. You may discuss this assignment only with your instructor. Discussions with other individuals, either in person or electronically, are strictly prohibited.
- **Collaboration Required (↑↑)**: An explicit expectation for collaboration among students either in-class or outside (i.e., group work).
- **Optional-Collaboration (↑↑↑)**: Students are permitted, but not required, to discuss the assignment or ideas with each other. However, all submitted work must be one's original and individual creation.

Assignment	Points	Assignment Type
Workshop Assignments (10 x 20 pts each)	200 pts.	↑↑↑
Writing Assignments (4 x 20 pts each)	80 pts.	↑↑↑
Lecture Quizzes (5 x 50 pts each)	250 pts	↑
Final Project	50 pts.	↑
Misinformation Inventory	30 pts	↑
In-class Activities (including TopHat)	50 pts.	↑↑↑
SALG	5 pts.	↑
<b>TOTAL COURSE POINTS</b>	665	

Workshop Assignments ↑↑↑: During workshop, cooperative groups will apply knowledge gained in lecture to analyze relevant case studies. These case studies will vary each week but will primarily consist of short answer responses, graph and figure analysis, and some multiple-choice questions. Groups will submit their work at the beginning of workshop the following week. Examples of topics discussed will include Climate change research and climate change denial, COVID -19 and vaccine misinformation, GMO's, misinformation on invasive species, nutrition misinformation, alternative medicine, Conservation Biology, Evolution misinformation, and genetic engineering techniques. Examples of these assignments are designed to help students 1) better understands credible biology sources, 2) use lateral reading to determine source credibility, 3) discuss the role of expertise in biological fields, and 4) parse conflicting credible information within the field of biology itself.

Writing Assignments ↑↑↑: These assignments will be a mix of writing assignments asking students to synthesize content from lecture, reading assignments, and individual research of articles in the popular and primary literature (we have included an example assignment at the end of this document – *Appendix C: Sample Writing Assignment Debunk the Bunk*).

Lecture Quizzes † : These brief quizzes will serve as checkpoints for students to keep up with objective components of lecture. They will be held at the beginning of lecture and consist of multiple choice and short answer questions reflective of lecture material. There will be 5 progressive quizzes throughout the semester.

Final Project † : This final paper will ask students to research an example of pseudoscience and provide a scientific counterargument aimed at winning a “Thanksgiving debate with your uncle.”

Misinformation Inventory: You will keep track of all misinformation you encounter for a week as well as the misinformation you create and/or try to debunk for an entire week. This data will then be turned into a visual representation of your choice. Be creative here and think of ways you might want to display this data. Examples will be shown during class to help give you some ideas.

In-Class Activities 🗨️: Active learning opportunities in lecture will include group case studies as well as TopHat questions.

SALG † : The Student Assessment of Learning Gains is a survey taken during the final week of the course and will be worth 5 points for completion.

### **Final Grades:**

Your final grade will be based on the percentage of the 665 points that you earn during the semester, as indicated below. Please note that we do not grade the course on a curve and *Carmen* does not round scores up to the next nearest percentage point, so 92.11% and 92.97% both earn the grade of A-.

### **Grade Scale**

A	A-	B+	B	B-	C+	C	C-	D+	D	E
100 – 93.0%	92.9 – 90.0%	89.9 – 87.0%	86.9 – 83.0%	82.9 – 80.0%	79.9 – 77.0%	76.9 – 73.0%	72.9 – 70.0%	69.9 – 67.0%	66.9 – 60.0%	59.9 – 0%

### **Posting Of Grades:**

All grades will be posted on Carmen. After grades are posted you have 10 working days to challenge any grade or inquire regarding an unposted or missing grade. **After that time, grades are final as posted or zero if missing.** To challenge or inquire about a grade, contact your TA. IMPORTANT: Make sure that all of your grades are properly posted on Carmen as you receive them. Challenges about grades, particularly after the end of the semester, cannot be entertained after the 10-day grace period.

### **Late Assignments Policy:**

All written assignments are due by 11:59 pm on the assigned dates. A late assignment (except exams) will be subject to a 25% deduction for each day late. This corresponds to 100% point deduction if assignments are turned in after 4 days of the due date.

### **Instructor Feedback and Response Expectations:**

- **Email Response:** The CLSE's expectation of instructors is that emails will be responded to within one business day. If your email is sent during the evening or over the weekend, you may not receive a response until the next business day.
- **Class announcements:** We will send all important class-wide messages through the Announcements tool in CarmenCanvas. Please check [your notification preferences](https://go.osu.edu/canvas-notifications) (go.osu.edu/canvas-notifications) to ensure you receive these messages.
- **Graded Assignments** will be graded and returned to you within one week after they were turned in. All scores are posted on Carmen no later than the day the graded assignment is returned.

### **Absences:**

If you are too ill to take an exam or must miss for another legitimate unscheduled reason, you must contact the Course Coordinator within 24 hours of the exam. Make up exams will be given only to students who produce, at the make up or before, documentation of a legitimate reason (at the time of the absence) for missing the exam. Valid excuses are limited to problems that are beyond the student's control, such as military duty, intercollegiate athletic or academic activities, funerals, etc. Medical excuses will be considered only if you have been treated by a medical professional on the day of the exam (excuses from the student health center website will not be accepted). Lack of transportation, loss of electricity, travel plans, etc. are not considered valid excuses. If you anticipate having to miss an exam due to attendance at a university sanctioned event or other qualifying conflict, you must contact the Course Coordinator at least one week in advance of the exam.

If you have no documentation to support your absence, or your absence from the exam is not for an excused reason, you will still be offered the opportunity for a makeup exam, with a 25% overall deduction on your exam score if arrangements are made within 24 hours of the original exam.

The format of makeup exams is at the discretion of the instructors. All makeup exams must be made up within one week of when the original exam was given.

**Note: Check the date and time of the final examination now and make sure that this time does not conflict with your future plans. No early final exams will be given. The only makeup exam will be held on Wednesday, December xx at 9:00 a.m. and is available only in emergency situations and with prior approval of the Course Coordinator.**

Make-Up Workshops and Lecture Activities: Both the lecture and workshop are integral parts of this course. If you miss a class, you must contact your instructor (lecture or workshop, as appropriate) within 48 hours of their missed class in order to be eligible to complete a make-up assignment. All make-up work requires a valid written excuse from a doctor, therapist, athletic coach, or other person involved with the absence (preferably *before* the event occurs, if it's a planned absence). We will



consider one absence for every student to be excused without documentation, however students must contact their instructor within 48 **hours** of their missed workshop to receive the make-up exercise. Therefore, it is essential that you contact your instructor immediately if you miss a workshop, or if you know in advance that you cannot attend class on a specific date.

Make-up work must be completed and received within one week of the original assignment date (unless very unusual circumstances apply), or else you forfeit all points for that workshop.

Excused absences include, but are not limited to:

1. Illness and injury
2. Mental health
3. Disability-related concerns
4. Military service
5. Death in the immediate family
6. Religious observance
7. Academic field trips
8. Participation in university sanctioned concert or athletic event
9. Participation in university disciplinary hearings

If you have a reason to miss class that is not listed above, please reach out to the instructor to discuss your options. It is the intention of the Center for Life Sciences Education to remain supportive of the needs of each of our students. Students who do not contact their instructor within 48 hours of the missed class will not be eligible for make-up work.

If you are isolating while waiting for a COVID-19 test result, please let me know immediately. Those testing positive for COVID-19 should refer to the **Safe and Healthy Buckeyes site** for resources. Beyond five days of the required COVID-19 isolation period, I may rely on Student Life Disability Services to establish further reasonable accommodations. You can connect with them at [slds@osu.edu](mailto:slds@osu.edu); 614-292-3307; or [slds.osu.edu](http://slds.osu.edu).

### Accommodation of Special Needs:

The university strives to maintain a healthy and accessible environment to support student learning in and out of the classroom. If you anticipate or experience academic barriers based on your disability (including mental health, chronic, or temporary medical conditions), please let us know immediately so that we can privately discuss options. To establish reasonable accommodations, we may request that you register

with Student Life Disability Services. After registration, make arrangements with the Course Coordinator as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. Only the course coordinator is authorized to complete SLDS accommodations. This will help us ensure that your individual needs will be met appropriately and fairly. SLDS contact information: [slds@osu.edu](mailto:slds@osu.edu); 614-292-3307; [slds.osu.edu](http://slds.osu.edu); 098 Baker Hall, 113 W. 12<sup>th</sup> Avenue.

Religious Accommodations:

Ohio State has had a longstanding practice of making reasonable academic accommodations for students' religious beliefs and practices in accordance with applicable law. In 2023, Ohio State updated its practice to align with new state legislation. Under this new provision, students must be in early communication with their instructors regarding any known accommodation requests for religious beliefs and practices, providing notice of specific dates for which they request alternative accommodations within 14 days after the first instructional day of the course. Instructors in turn shall not question the sincerity of a student's religious or spiritual belief system in reviewing such requests and shall keep requests for accommodations confidential.

With sufficient notice, instructors will provide students with reasonable alternative accommodations with regard to examinations and other academic requirements with respect to students' sincerely held religious beliefs and practices by allowing up to three absences each semester for the student to attend or participate in religious activities. Examples of religious accommodations can include, but are not limited to, rescheduling an exam, altering the time of a student's presentation, allowing make-up assignments to substitute for missed class work, or flexibility in due dates or research responsibilities. If concerns arise about a requested accommodation, instructors are to consult their tenure initiating unit head for assistance.

A student's request for time off shall be provided if the student's sincerely held religious belief or practice severely affects the student's ability to take an exam or meet an academic requirement and the student has notified their instructor, in writing during the first 14 days after the course begins, of the date of each absence. Although students are required to provide notice within the first 14 days after a course begins, instructors are strongly encouraged to work with the student to provide a reasonable accommodation if a request is made outside the notice period. A student may not be penalized for an absence approved under this policy.

If students have questions or disputes related to academic accommodations, they should contact their course instructor, and then their department or college office.

For questions or to report discrimination or harassment based on religion, individuals should contact the [Office of Institutional Equity](#).

Policy: [Religious Holidays, Holy Days and Observances](#)

### **Weather or Other Short-Term Closing:**

Should in-person classes be canceled, students will be notified as to which alternative methods of teaching will be offered to ensure continuity of instruction for this class. Communication will be via Carmen announcements and course-wide email.

### **Section Changes:**

All section changes and adds are completed by the course coordinator. Due to the need to keep up-to-minute availability of seats in each workshop, the lecturer and workshop instructors are unable to sign any permission forms.

### **Course Technology**

For help with your password, university e-mail, Carmen, or any other technology issues, questions, or requests, contact the OSU IT Service Desk. Standard support hours are available at <https://ocio.osu.edu/help/hours>, and support for urgent issues is available 24x7.

- **Self-Service and Chat support:** <http://ocio.osu.edu/selfservice>
- **Phone:** 614-688-HELP (4357)
- **Email:** [8help@osu.edu](mailto:8help@osu.edu)
- **TDD:** 614-688-8743

### ***Carmen***

- Carmen, Ohio State's Learning Management System, will be used to host materials and activities throughout this course. To access Carmen, visit [Carmen.osu.edu](http://Carmen.osu.edu). Log in to Carmen using your name.# and password. If you have not setup a name.# and password, visit [my.osu.edu](http://my.osu.edu).
- Help guides on the use of Carmen can be found at <https://resourcecenter.odde.osu.edu/carmen>
- **This online course requires use of Carmen (Ohio State's learning management system) and other online communication and multimedia tools. If you need additional services to use these technologies, please request accommodations with your instructor.**
- [Carmen accessibility](#)

### ***CarmenZoom***

- Office hours will be held through Ohio State's conferencing platform, CarmenZoom. A separate guide to accessing CarmenZoom and our office hours is posted on the course Carmen page under Files.

- Students may use the audio and video functions if a webcam and microphone are available. If not, there is still a chat function within CarmenZoom for the student to live chat with the professor or TA in the virtual office hours room.
- [Carmen Zoom](#) help guide

### ***TurnItIn***

- Students at The Ohio State University are accountable for the integrity of the work they submit. Therefore, you should be familiar with the guidelines provided by the [Committee on Academic Misconduct \(COAM\)](#) and [Section A of OSU's Code of Student Conduct](#) in order to meet the academic expectations concerning appropriate documentation of sources. In addition, OSU has made TurnItIn, a learning tool and plagiarism prevention system, available to instructors. For this class, you will submit your papers to TurnItIn from Carmen. When grading your work, I will interpret the originality report, following [Section A of OSU's Code of Student Conduct](#) as appropriate. For more information about TurnItIn, please see [the vendor's guide for students](#). Note that submitted final papers become part of the OSU database.
- Please know that I view TurnItIn first and foremost as a teaching tool to make you a better writer. You will see in your individual originality reports exactly what the instructors see. We WANT you to look at this report as soon as you submit your assignments. If you see an issue, please correct it right away, before we start grading the assignment. You can resubmit without penalty as many times as you want prior to the established due date for any assignment. After the due date, the late policy is in effect.

### ***TopHat***

- TopHat is a web-based response system that allows students to use their own devices provide responses in the classroom. This course uses Top Hat to promote active engagement, allow for synchronous feedback, and monitor attendance.
- [TopHat](#) help guide

## **Discussion and Communication Guidelines**

The following are expectations for how we should communicate as a class. Above all, please remember to be respectful and thoughtful.

- **Tone and civility:** Let's maintain a supportive learning community where everyone feels safe and where people can disagree amicably. Remember that sarcasm doesn't always come across online and is not always appreciated in-person. The instructional team work very hard to provide a positive learning experience. Please keep this in mind and remain civilized and respectful in your class communications.
- **Citing your sources:** When we have academic discussions, please cite your sources to back up what you say.

### **Issue Resolution:**

The CLSE believes that student concerns are usually most effectively addressed by the staff closest to the situation. Therefore, students are ordinarily expected to address issues or concerns first with their instructors. If the issue cannot be resolved by your instructor, or for some reason you feel that you absolutely cannot address your concern with your instructor, please feel free to contact the Course Coordinator or Assistant Director Adam Andrews ([andrews.171@osu.edu](mailto:andrews.171@osu.edu)).

### **Building Emergency Action Plan:**

Each building on campus has a Building Emergency Action Plan (BEAP) outlining that specific building's specific procedures to be followed in the event of a range of emergency situations, including fire, weather, terrorism, chemical spills, etc. It is the role of every Buckeye to help keep each other safe and to be aware of these procedures. You can find all of the campus BEAPs at <https://dps.osu.edu/beap>.

### **Lyft Ride Smart:**

Lyft Ride Smart at Ohio State offers eligible students discounted rides, inside the university-designated [service area](#), from 7 p.m. to 7 a.m. Prices may be impacted by distance, traffic, time of day, special events and prime time surcharges. To qualify for program discounts, users must select "shared ride" when booking in the Lyft app. For more information, visit: <https://tm.osu.edu/ride-smart>.

### **Mental Health:**

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing. If you or someone you know are suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life's Counseling and Consultation Service (CCS) by visiting [ccs.osu.edu](https://ccs.osu.edu) or calling **614-292-5766**. CCS is located on the 4th Floor of the Younkin Success Center and 10th Floor of Lincoln Tower. You can reach an on call counselor when CCS is closed at **614-292-5766** and 24 hour emergency help is also available 24/7 by dialing 988 to reach the Suicide and Crisis Lifeline.

### **Title IX:**

Title IX makes it clear that violence and harassment based on sex and gender are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories (e.g., race). If you or someone you know has been sexually harassed or assaulted, you may find the

appropriate resources at <http://titleix.osu.edu> or by contacting the Ohio State Title IX Coordinator at [titleix@osu.edu](mailto:titleix@osu.edu).

### **Diversity:**

The Ohio State University affirms the importance and value of diversity in the student body. Our programs and curricula reflect our multicultural society and global economy and seek to provide opportunities for students to learn more about persons who are different from them. We are committed to maintaining a community that recognizes and values the inherent worth and dignity of every person; fosters sensitivity, understanding, and mutual respect among each member of our community; and encourages each individual to strive to reach his or her own potential. Discrimination against any individual based upon protected status, which is defined as age, color, disability, gender identity or expression, national origin, race, religion, sex, sexual orientation, or veteran status, is prohibited.

### **Academic Misconduct:**

It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term "academic misconduct" includes all forms of student academic misconduct wherever committed, illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct <http://studentlife.osu.edu/csc/>. We will adhere to this policy.

- Unless otherwise specified for a particular assignment, all submitted work should be a student's own unique effort. Collaborative efforts are not permitted unless expressly sanctioned for a particular assignment.
- Unless otherwise specified for a particular assignment, use of AI-generated materials for course submissions is not permitted.
- Reusing past work: In general, you are prohibited in university courses from turning in work from a past class to your current class, even if you modify it. If you want to build on past research or revisit a topic you've explored in previous courses, please discuss the situation with me.
- Using others' verbatim words without the use of quotation marks *and* citation is plagiarism. Paraphrased work requires citation to denote the use of others' ideas. Copying other's words without quotation while using citations is still considered plagiarism.
- Use of any technology during a quiz or exam (including but not limited to cell phones, smart watches, headphones, electronic dictionaries, etc.) is strictly prohibited.

### **Copyrighted Class Materials:**

© The Instructor's lectures and all course materials, including power point presentations, tests, outlines, assignments, and similar materials, are protected by

copyright. You may take notes and make copies of course materials for your own use. You may not and may not allow others to reproduce or distribute lecture notes and course materials publicly whether or not a fee is charged without the express written consent of the course instructor or course coordinator.

## Spring 2025 TENTATIVE SCHEDULE

Week	Lecture Topics	Chapters and Readings	Assignments Due
1	Introduction to Science and Malarkey	1	Workshop Assignment 1: Understanding Sources
2	The Philosophy of Science and the Community of Scientists <ul style="list-style-type: none"> <li>Focus on the unifying theories of modern biology (Cell Theory, Evolution, Central Dogma/Hereditiy)</li> <li>The colloquial "It's just a theory."</li> </ul>	2	Workshop Assignment 2: How to read a scientific paper
3	Biological Methodologies: <ul style="list-style-type: none"> <li>Types of research studies in biology</li> <li>Qualitative vs Quantitative biology</li> <li>Observational studies and clinical trials in Biology</li> <li>Pilot Studies</li> </ul>	3, 4	Writing Assignment 1 due; <b>Lecture Quiz 1</b>
4	Biological Research in Our Modern Lived Environment <ul style="list-style-type: none"> <li>In the lab/field – what happens?</li> <li>Publishing – What are journals?</li> <li>How does the public find out about research?</li> <li>Peer Review</li> <li>The politics of public funding for studies</li> </ul>	3, 4	Workshop Assignment 3: Visit a journal website: How do you submit a paper?
5	Correlation and Causality in Biology <ul style="list-style-type: none"> <li>Storks deliver babies?</li> <li>Interpreting correlations</li> <li>Common Causes in correlation</li> <li>Determining Causality</li> </ul>	6	Writing Assignment 2 due; Workshop Assignment 4: Storks Deliver Babies (p = 0.008)
6	Statistical Traps in Biological research <ul style="list-style-type: none"> <li>Interpreting p-values in biological research</li> <li>Multiple tests and the p-value</li> <li>False positives and negatives</li> </ul>	6	<b>Lecture Quiz 2</b>
7	Common Data Visualization practices in biology <ul style="list-style-type: none"> <li>Bar Charts</li> <li>Line Graphs</li> <li>Y-axis values</li> <li>Misleading figures in the media and how to spot them</li> </ul>	7	Workshop Assignment 5: Data Analysis Skills and reading figures
8	Publication Bias within the natural sciences <ul style="list-style-type: none"> <li>What studies get published?</li> <li>Negative results are just as interesting?</li> <li>How to spin a publication?</li> </ul>	National Academies of Sciences, E. (2019); West and Bergstrom (2021)	Writing Assignment 3 due Workshop Assignment 6: Conflicting Information – Vitamin E
9	Predatory Publishers <ul style="list-style-type: none"> <li>What are they?</li> <li>How do we spot them?</li> <li>How do we fight back?</li> </ul>	West and Bergstrom (2021)	<b>Lecture Quiz 3</b>
10	Evaluating Biological Claims <ul style="list-style-type: none"> <li>Wakefield et al. controversy surrounding vaccines and autism</li> <li>Why are most biological claims you come across false?</li> </ul>	(Idso et al., 2016)	Workshop Assignment 7: Lateral Reading – Determining the credibility of biological claims
11	How to spot biological misinformation <ul style="list-style-type: none"> <li>Where do we find this?</li> <li>What do we look for?</li> </ul>	3; (Idso et al., 2016); Cook (2022)	Writing Assignment 4 due Workshop Assignment 8: Why scientists disagree about global warming
12	Critical Thinking in Biology <ul style="list-style-type: none"> <li>Find the source</li> <li>Think about the big picture – linking multiple biological ideas together</li> </ul>	6; Osborne et al. (2022)	<b>Lecture Quiz 4</b>

13	Strategies to correct biological misinformation <ul style="list-style-type: none"> <li>• Finding correct information</li> <li>• Methods to correct</li> <li>• Strategies to engage with misinformation</li> </ul>	Loss et al. (2018); Mammola et al. (2022)	Workshop Assignment 9: Bluff the listener
14	Misconduct in biology <ul style="list-style-type: none"> <li>• The Legacy of Wakefield</li> <li>• Spider Misconduct</li> <li>• Misconduct at OSU</li> </ul>	Chapter 5; (Carroll, 2019)	Final Project Due Friday at 11:59 p.m. Workshop 10: Who can be trusted as a credible scientist?
15	Final Exam Week	No readings	Lecture Quiz 5 on assigned final exam day

**Information in this syllabus is subject to change with as much notice to students as possible.**