Term Information

Effective Term	Spring 2026

General Information

Course Bulletin Listing/Subject Area	Entomology
Fiscal Unit/Academic Org	Entomology - D1130
College/Academic Group	Food, Agric & Environ Science
Level/Career	Undergraduate
Course Number/Catalog	2400E
Course Title	Evaluating Evidence in Biology & Medicine
Transcript Abbreviation	Eval Evidence Em
Course Description	Explores information and scientific literacies in biology, medicine, and health, with emphasis on science as reported in the media and a unique focus on insect-related biology as model systems (e.g. using insect models in medical research). We use evolutionary theory as the unifying framework for all life on earth.
Semester Credit Hours/Units	Fixed: 3

Offering Information

Length Of Course	14 Week
Flexibly Scheduled Course	Never
Does any section of this course have a distance education component?	No
Grading Basis	Letter Grade
Repeatable	No
Course Components	Lecture
Grade Roster Component	Lecture
Credit Available by Exam	No
Admission Condition Course	No
Off Campus	Never
Campus of Offering	Columbus, Lima, Mansfield, Marion, Newark, Wooster

Prerequisites and Exclusions

Prerequisites/Corequisites	Honors standing for "H" designation
Exclusions	
Electronically Enforced	Yes

Cross-Listings

Cross-Listings

Subject/CIP Code

Subject/CIP Code	26.0702
Subsidy Level	Baccalaureate Course
Intended Rank	Freshman, Sophomore, Junior, Senior

Requirement/Elective Designation

Health and Well-being

Course Details

Course goals or learning objectives/outcomes

- locate, acquire, assess, and summarize science-related information with direct application to health and wellbeing, including public health issues, medical research, and societal impacts from an array of sources
- evaluate the reliability and bias of sources as they pertain to health and wellbeing topics, such as insect-vectored disease prevention, medical ethics, and health policy
- compare & contrast the nature of scientific information from various sources (scholarly, primary sources; review articles, textbooks, various websites, news outlets, etc.) in the context of health and biological sciences
- explain why authorities/information sources in one realm may disagree due to differences in values, cultural contexts, or agendas with authorities/sources in another realm
- provide examples of how technology has advanced science and medicine, and how society has responded to innovations and challenges, e.g. COVID-19 pandemic.

Content Topic List

- Science: what is it? why trust it?
- Evaluating scientific credibility & expertise
- How to read a scientific paper
- Evolution basics and application in experiments
- Experimental design and bias
- Types of Medical Studies
- Ecological studies: Observations and testable hypotheses.
- Objective vs. Personal vs. Political truths
- Exploration, Society's Future and Conflict
- Human Physiology and Neurobiology
- Food choices, GMO foods

Sought Concurrence

No

Attachments

- submission-health-well-being- ENT 2400H-V2.pdf: Theme Submission

  (Other Supporting Documentation. Owner: Klinger,Ellen G)
- ENTMLGY 2400E Syllabus SP26-V2.docx: Revised Syllabus

  (Syllabus. Owner: Klinger,Ellen G)
- ENTMLGY 2400E Syllabus SP26-V2-Track Changes.docx: Syllabus with track changes

  (Other Supporting Documentation. Owner: Klinger,Ellen G)
- ENT 2400- Cover Letter with Responses to ASC CC_11.19.25.pdf: Cover letter

  (Cover Letter. Owner: Klinger,Ellen G)

Comments

- Returned at request of Department

Revise as per COAA via email message 24 April 2025 *(by Osborne,Jeanne Marie on 11/19/2025 03:15 PM)*

- Revised in response to ASC themes committee email Oct 6, 2025 *(by Klinger,Ellen G on 11/19/2025 01:50 PM)*
- Please see Subcommittee feedback email sent 10/6/25. *(by Neff,Jennifer on 10/06/2025 12:57 PM)*
- -We cannot process this course for GE Theme until we have received the parallel request to create the regular (non-H) version of this course with same GE Theme. Entomology 2400 does not yet exist in the system. Both Entomology 2400 and 2400E will have to be reviewed through Arts and Sciences at the same time. Indeed, once offered, 2400 and 2400E will have to be scheduled at the same time (2400E will be embedded in the regular 2400).
  Also please know that eventually 2400H will need to be submitted for GE Theme as well. I see it was last offered in AU24 with the legacy Natural Science--Biological Science. *(by Vankeerbergen,Bernadette Chantal on 06/23/2025 09:39 AM)*

Workflow Information

Status	User(s)	Date/Time	Step
Submitted	Klinger,Ellen G	03/19/2025 09:56 AM	Submitted for Approval
Approved	Klinger,Ellen G	03/20/2025 08:33 AM	Unit Approval
Revision Requested	Osborne,Jeanne Marie	04/24/2025 11:33 AM	College Approval
Submitted	Klinger,Ellen G	04/28/2025 10:49 AM	Submitted for Approval
Approved	Klinger,Ellen G	05/06/2025 10:32 AM	Unit Approval
Approved	Osborne,Jeanne Marie	05/13/2025 11:48 AM	College Approval
Revision Requested	Vankeerbergen,Bernadette Chantal	06/23/2025 09:41 AM	ASCCAO Approval
Submitted	Klinger,Ellen G	07/10/2025 09:37 AM	Submitted for Approval
Approved	Klinger,Ellen G	07/10/2025 09:47 AM	Unit Approval
Approved	Osborne,Jeanne Marie	07/11/2025 11:46 AM	College Approval
Revision Requested	Neff,Jennifer	10/06/2025 12:57 PM	ASCCAO Approval
Submitted	Klinger,Ellen G	11/19/2025 01:50 PM	Submitted for Approval
Approved	Klinger,Ellen G	11/19/2025 01:51 PM	Unit Approval
Revision Requested	Osborne,Jeanne Marie	11/19/2025 03:15 PM	College Approval
Submitted	Klinger,Ellen G	11/19/2025 03:56 PM	Submitted for Approval
Approved	Klinger,Ellen G	11/19/2025 03:58 PM	Unit Approval
Approved	Osborne,Jeanne Marie	11/19/2025 04:06 PM	College Approval
Pending Approval	Jenkins,Mary Ellen Bigler Neff,Jennifer Vankeerbergen,Bernadette Chantal Steele,Rachel Lea	11/19/2025 04:06 PM	ASCCAO Approval

Dear ASC Curriculum Committee,

Thank you for your thoughtful review and feedback on Entomology 2400 & 2400E. Please find below our detailed responses, which address each of your recommendations and clarify how the revised course aligns with the Health & Wellbeing Theme and the expectations for advanced, interdisciplinary learning. I am including both a version of the syllabus with track changes and a "clean" copy so that the subcommittee can clearly see all revisions made in response to their feedback.

We appreciate your guidance and look forward to your continued support.

Benjamin Philip

1. The Subcommittee requests that the course clarify its unique focus within the life sciences by emphasizing insect-related biology (such as insect models in medical research) in order to align with faculty expertise and avoid overlapping content with other life sciences units. The Subcommittee asks that the disciplinary approach be clearly framed, which will also help clarify the course's connection to the Theme.

   Note: *We appreciate the feedback of the subcommittee. With respect we note that the course requests for ENTMLGY 2400/2400E are based on an approved course, ENTMLGY 2400H, and that the course learning goals and objectives as well as the course content have been updated but not substantively changed from the approved version of this course in these course proposals. Upon evaluation of the existing course (ENTMLGY 2400H) we found that the course was a good fit for the Health and Wellbeing Theme, and with the encouragement that we have heard since the inception of the GEN to create greater opportunities in the GE for Honors Students, we moved to update the existing course to submit as the new course requests you are reviewing. By providing this course as an honors-embedded course (2400/2400E), it also provides an opportunity for non-honors students to gain the experience that had previously been limited to honors students in the current 2400H. The plan is to update the current ENTMLGY 2400H as well, as time permits once the current course proposals are approved. However, we will be happy to emphasize the entomological aspects of the course further.*

   - The Course Description now states that insect-related biology is a core emphasis (with a concrete example of insect models in research), immediately signaling the course's niche in the life sciences and in health and well-being. It also includes a statement of the disciplinary approach (insect science, making it clear that the perspective and expertise driving the course are distinct.

The GE Theme connection is enriched with entomology-specific examples (e.g., insect vectors of disease and insect models), demonstrating that the course content not only fits "Health and Wellbeing" but does so via entomological science.

Minor elaboration of the schedule/topics (elaborating on "GMO Insects" and reinforcing the insect context of assignments) further describe the unique course unique curriculum. Universal topics (like GMO or scientific literacy) are clearly tailored to insects, aligning with faculty expertise in the Entomology department.

2. The Subcommittee requests that the perspective of the course be revised to move beyond foundation content in order to meet the ELOs of the Theme in an advanced, scholarly way. The current course learning outcomes focus primarily on scientific content (e.g., evolution basics, medical ethics) and do not explicitly address Health and Wellbeing. The Subcommittee requests that the focus and outcomes of the course be explicitly tied to the Theme, clarifying what students are expected to gain from the course in relation to both health and wellbeing.
    - The ENTMLGY 2400 syllabus, after revisions, aligns better with the expectations of the Health & Well-being Theme:

      It moves beyond foundational content by using entomological science as a springboard for examining public health issues, ethical debates, and science in society. Students engage in advanced skills like analyzing primary literature using discipline specific techniques, debating contemporary issues, and reflecting on their learning, which is appropriate for a Theme course. As not all students will have extensive science backgrounds, some foundational scaffolding material must be present to help support the equity of student learning (evolution basics, reading scientific papers), but these activities are meant to support the upper-level application within the course.

      The course learning outcomes are now explicitly tied to health and well-being, with each outcome either aligning with the theme or clearly operating within its scope (as evidenced by the inclusion of terms like "health policy," "disease prevention," "health and wellbeing" directly in the outcomes). This clarifies for students and reviewers alike what the takeaways are with respect to the theme.

      The syllabus provides concrete examples of what students will gain: the ability to critically evaluate health-related information, a broadened perspective on how science impacts well-being in society, and tools to make informed decisions that promote health and well-being.

      The syllabus outlines that students will have:

- Knowledge: of current health issues (diseases, nutrition, etc.) and their scientific underpinnings.
- Skills: information literacy, critical thinking, ethical reasoning applied to health content.
- Perspective: appreciation of different viewpoints and the complexity of health-related decisions in society.
- Empowerment: confidence to assess claims about well-being and contribute to solutions (even if just by being well-informed citizens).

Theme ELO (Health & Wellbeing)	**How ENTMLGY 2400 Addresses It (Current Syllabus)**
ELO 1.1: Engage in critical and logical thinking about health and well-being. ***("Analytical thinking")***	• **Course Outcome:** Students learn to *"locate, assess, and summarize"* information on health topics, and *"compare & contrast"* scientific information from different sources – both require critical evaluation and are applied directly to health and well-being topics. • **Activities:** Early worksheets (e.g. *What is Science? Why trust science?, Worksheet 1*) teach skepticism and evidence-based reasoning in health science. Students critique media articles for scientific rigor (Worksheet 6 on experimental design and bias) – honing logic and skepticism. • **In-Class:** Frequent discussions on controversial issues (e.g. ethics of vaccines, GMO risks) demand logical argumentation, meeting ELO 1.1. While this activity is not directly assessed by the instructor, the class frequently uses student self-evaluation after discussion in class to help the student reflect and to appropriately evaluate student participation in class. Ultimately this participation is evaluated in part via the Discussion Participation and Attendance grade.
ELO 1.2: Conduct an advanced, in-depth, scholarly exploration of health and well-being. ***("Scholarly exploration")***	• **Course Outcome:** The outcomes explicitly uses *"in-depth, scholarly exploration"* by having students retrieve and analyze scholarly sources on health/medicine. The inclusion of primary literature reading, evaluation and research-focused projects indicates scholarly engagement. • **Activities:** Students read a peer-reviewed journal article and dissect it (Worksheet 3). They also analyze a full lay audience book (*Starry Messenger*) for themes of well-being – a scholarly approach uncommon in 2000-level courses. • **Student-led Project:** Having students design and

Theme ELO (Health & Wellbeing)	How ENTMLGY 2400 Addresses It (Current Syllabus)
	lead a discussion on a health science topic of their choice requires them to delve deeply into that topic as a scholar would, beyond surface.
ELO 2.1: Identify, describe and synthesize approaches or experiences as they apply to health and well-being *("Integration and application")*	• **Course Outcome:** CLO #2 and #3 push students to synthesize information and consider context, implicitly encouraging connections beyond the classroom. • **Activities:** The syllabus indicates students connect content to **out-of-class experiences**. For example, discussions on pesticides invite students to bring their knowledge of agriculture or personal stance into conversation with scientific data. The *GM food* debate integrates disciplines (biology, politics, nutrition, economics) and may draw on students' prior classes or personal viewpoints. Students will select and research their chosen topics for student led discussions. • **Real-World Connection:** The final exam prompts use of public media sources to answer health questions, mirroring how one might apply class skills to real-world health information challenges.
ELO 2.2: Demonstrate a developing sense of self as a learner through reflection, self-assessment, and creative work. *("Self-reflection and growth")*	• **Course Outcome:** CLO #3 is tagged with ELO 2.2 through activities that have students examine their own information-seeking and biases. • **Activities:** The syllabus requires **self-assessment after each discussion**– students reflect on their participation and learning, which directly fosters self-awareness as learners. Additionally, working in teams with peer evaluations for group exams encourages students to reflect on their collaboration skills and learning habits. • **Creative Work:** The student-led discussion project is a creative, student-driven exercise, where learners must take ownership of teaching content. This undoubtedly causes reflection on their learning process when they prepare to guide peers.
ELO 3.1: Explore and analyze health & well-being from theoretical, scientific, socio-economic, historical, cultural, technological, policy, and/or personal perspectives.	• **Course Outcome:** CLO #4 explicitly addresses differing perspectives by comparing scientific authorities to government/policy authorities on health matters. CLO #5 also touches on societal response (a cultural/historical perspective) to medical advances • **Activities:** Nearly every major topic brings in multiple

Theme ELO (Health & Wellbeing)	How ENTMLGY 2400 Addresses It (Current Syllabus)
("Multiple perspectives on wellbeing")	perspectives: e.g., the **vaccine/autism case** (Wakefield study) is discussed, bringing scientific vs. public perception; **GMOs** are debated from activist vs. scientist vs. industry angles; **Starry Messenger** chapters prompt consideration of objective vs. political vs. personal "truths" in science. • **Group work:** By working in diverse teams and sharing viewpoints in discussions, students hear and analyze perspectives other than their own, broadening their understanding of well-being issues.
ELO 3.2: Identify, reflect on, or apply strategies for promoting health and well-being. ***("Applying strategies for wellbeing")***	• **Course Outcome:** CLO #5 (technology advances and society's responses) aligns with identifying and analyzing strategies (societal responses to challenges like COVID-19). • **Activities:** The course goal statement concludes that students will be *"equipped with tools to… better analyze health and wellbeing and apply strategies for promoting it."* This suggests that by the end, successful students should be able to conceive or critique strategies to improve well-being (e.g., combat misinformation, support public health measures). The **final exam** tests such abilities by asking students to apply what they learned to new scenarios. • **Personal action:** After learning about issues, classes discuss "what now?" in terms of improving health literacy or policy. These discussions should lead students to consider their role in promoting wellbeing.

3. The Subcommittee requests that the syllabus clarify how cultural perspectives are taught and integrated throughout the course. While the final exam asks students to consider multiple perspectives, it is unclear where and how these skills are scaffolded within the course content.
    - GE Rationale Mentions Broad Perspectives: In the General Education rationale, the syllabus explicitly states that students will "broaden their perspectives to include socio-economic, scientific, historical, cultural, technological, and public policy aspects" beyond their personal viewpoints. This indicates a clear intent to cover cultural dimensions.

      Early Introduction to Differing Viewpoints: Beginning in Week 1, the course sets the stage for perspective-taking. Worksheet 1 ("What is Science? Why

trust science?") asks students to list reasons to trust science (pro) and to be skeptical of science (con). This exercise gets students thinking about opposing viewpoints regarding scientific knowledge – a foundational step in understanding how different backgrounds or experiences (including cultural ones) might influence trust in science. While not explicitly about cross-cultural differences, it introduces the idea that not everyone views science identically.

Evaluating Sources (Week 2): Worksheet 2 ("Evaluating scientific credibility & expertise") teaches students to assess information sources using a rubric. By examining credibility criteria, students indirectly confront why different sources present different perspectives. For instance, they might compare a scholarly article to a blog post. This builds the skill of recognizing bias and perspective – an essential precursor to understanding cultural bias.

Ethics and Historical Cases (Week 5): Worksheet 7 ("Medical Ethics") has students read portions of How Science Works (Jenkins) and relate study design to ethical treatment of patients. Medical ethics discussion will include historical cases like the Tuskegee syphilis study or Henriettta Lacks' story, which are steeped in cultural and racial context. They inherently teach students how cultural history (e.g., abuse of marginalized groups in research) influences present-day ethical views and trust in medicine – a critical cultural perspective on scientific practice.

Socio-economic Perspectives (Week 7): Worksheet 8 covers the "Relationship between chemical pesticide and human health," including discussion of companies that produce these chemicals and the relationship between science and its funding sources. This is a clear integration of multiple perspectives: students consider the environmental health impacts versus corporate and economic interests. While the word "culture" isn't used here, the underlying idea is that different stakeholder groups (agribusiness companies, regulators, consumers, environmental advocates) have distinct perspectives on the use of pesticides. The interplay between corporate culture and public health is a type of perspective analysis.

Explicit Multi-Perspective Analysis (Weeks 7–9): The course employs Neil deGrasse Tyson's *Starry Messenger: Cosmic Perspectives on Civilization* as a reading for several weeks, with corresponding worksheets (9, 10, 11). The syllabus notes that themes such as "objective vs. personal vs. political truths" are discussed – effectively analyzing how scientific facts (objective) can be interpreted or valued differently by individuals (personal beliefs) and by governments or groups (political/social agendas). This explicitly tackles perspective-taking: students learn to dissect how one's personal or cultural background (personal truths) or political/cultural context can lead to

different conclusions from the same facts. Tyson's book is all about placing scientific knowledge in the context of society and civilization; as the syllabus says, these chapters relate to "perspectives on human civilization through the lens of science.". That inherently includes cultural perspectives, since "human civilization" encompasses diverse cultures and their views on science. In the "Food Choices" chapter (Worksheet 11), students examine how society decides what is safe or acceptable to eat. This can open discussion on cultural dietary differences in different parts of the world.

Debating GMOs – Stakeholder Perspectives (Weeks 11–12): The syllabus devotes two worksheets to genetically modified foods: Worksheet 12 (GMO Introduction) and Worksheet 13 ("Analysis of GM foods from different perspectives"). Worksheet 13 is particularly notable: it asks students to apply information from a documentary (Food Evolution) and other sources to articulate pro and con arguments about GMOs from the perspectives of activists, governments, scientists, consumers, and agricultural companies. This is a concrete assignment where students must step into multiple viewpoints – for instance, understanding why an environmental activist group might oppose GM crops on cultural or ethical grounds, while a scientist might support them for their potential to improve health. While these perspectives revolve around roles and interests, they are tied to values and worldviews (activist vs. corporate vs. public), which are culturally informed. This assignment is an excellent scaffolding step: by considering differing societal positions on a health/science issue, students practice exactly the analytical skill the subcommittee is concerned about.

Student-Led Discussions (Weeks 14–16): Toward the end of the semester, students themselves choose contemporary science/health issues and lead discussions (example topics may include "Fear and Decision Making," "Stem Cells," "Health Supplements," "Social Media"). This activity is a capstone in terms of perspective-taking: students must research and present an issue, and will bring up differing viewpoints to stimulate discussion (e.g., pro vs con on stem cell use, or generational differences in social media's impact on health information). The student-led discussion by design revolves around issues that have contrasting opinions and contextual factors. For example, "Fear and Decision Making" could touch on how cultural background influences what health risks people fear most, or "Health Supplements" might involve perspectives from medical professionals versus traditional healers or consumers from different cultures. The syllabus already primes the class for "varied opinions" and respectful debate in the Discussion Guidelines, emphasizing open inquiry and not pushing any single point of view. This indicates that by the time of student-led sessions, students are expected to be comfortable examining controversial topics from multiple angles – a skill they've been building.

Final Exam with Multiple Perspectives: Although the syllabus description of the Final Exam is brief, the exam will employ a comprehensive application of the course's evidence evaluation techniques, using various sources to answer questions about health and wellness. For instance, the students are presented a scenario related to the film Outbreak (1995) and are required to discuss responses to the situations in the film from different perspectives (scientific, public, policy, cultural). By this stage, students have encountered numerous examples of scientific issues that require balancing perspectives.

4. The syllabus refers to "health and wellness" in the paragraph explaining how the course fulfills the GEN category. The Subcommittee requests that this be updated to "wellbeing," as the name of the GEN category was changed several years ago
    - Wording was changed
5. The Subcommittee requests that the course consistently assess students' understanding of the Theme across all assignments and activities while also providing structured opportunities for reflection as learners.
    - Course Topics Aligned with Theme: A review of the Course Schedule and Worksheet Topics shows that many class sessions and assignments directly involve health and well-being issues:
        - Insect-borne diseases and public health (mentioned in the GE rationale as an example).
        - Medical ethics (Worksheet 7).
        - Chemical pesticides and human health (Worksheet 8).
        - Societal perspectives on science and health through Neil deGrasse Tyson's Starry Messenger readings (Worksheets 9–11).
        - Genetically Modified Foods and even GMO insects (Worksheets 12–13).
        - Student-chosen topics (Weeks 14–16

      These examples demonstrate that the content students engage with is nearly always tied back to health and well-being, which is the first step in assessing their understanding of the theme – students can't complete these assignments without grappling with the theme topics themselves.

      Skill-Building vs. Theme Content: Some early assignments focus on foundational skills (e.g., Worksheet 1: What is Science? Why trust science?; Worksheet 2: Evaluating scientific credibility; Worksheet 3: Reading a scientific paper). These initially might seem "general" rather than theme-specific. However, even these are contextualized within health/medicine:

        - Worksheet 1 gets at trust in science – highly relevant when later evaluating medical claims (a core of health literacy).
        - Worksheet 3 uses an insect model study, meaning students practice reading primary literature.

- Evolution basics (Worksheets 4–5) pivot to an example of natural selection in an outbreak, directly linking evolutionary biology to disease, a health theme.

In sum, even the foundational science content is presented with an eye toward its application in health and well-being contexts. By mid-semester, virtually all content (ethics, public health, etc.) is overtly theme-driven.

Assessment Mechanisms:

Worksheets (26% of grade): These 13 worksheets are a primary method for students to demonstrate understanding of readings and concepts. Because the worksheet topics correspond to theme-related issues, successfully completing them indicates the student can apply course concepts in the context of health and well-being scenarios. For example, Worksheet 8 doesn't just test knowledge of toxicology; it explicitly asks students to consider public health concerns vs. corporate interests regarding pesticides, which assesses their grasp of the socio-health implications (Theme ELO 3.1) as well as scientific evidence.

Discussions & Participation (20%): Class discussions are where students articulate and debate ideas about the theme topics (e.g., "vaccine acceptance" scenario combining scientific and cultural perspectives). While the grading for participation is based on a rubric of discussion skills (respect, reasoning, listening, etc.), the content of discussions is inherently tied to theme understanding. For instance, a student cannot effectively debate "objective vs personal truth in public health" (a Starry Messenger topic) without understanding those concepts in a health context.

ENTMLGY 2400 already integrates the Health & Wellbeing theme extensively and employs reflective practices. We ensure no assignment is left behind in relating to the theme – even the seemingly generic ones are framed within the context of health and medicine, making the assessment of theme understanding truly consistent. We will reinforce a culture of reflection, helping students become self-aware learners who can articulate how their skills and understanding of health and well-being have advanced through the course.

6. The Subcommittee asks that the department revise the statement in the syllabus (p. 1) describing how this course fits into the new General Education Curriculum. Since this is a 3-credit hour course, it does not, by itself, fulfill the GEN Theme: Health and Wellbeing, which requires 4-6 credit hours. To avoid confusion among students, the Subcommittee suggests phrasing such as "This course is approved in the GEN Theme: Health and Wellbeing category." Furthermore, the syllabus states, "This course fulfills the GE Themes: Health and Wellbeing for Natural Science/Biological Science." However, there is no such GE category, and it appears that elements from multiple

categories have been conflated. The subcommittee requests that the mention of "Natural Science/Biological Science" be removed.

- Wording was changed

7. The Subcommittee recommends that the department update the email address link in the Religious Accommodations statement on page 15 of the syllabus. This should now link students to the Civil Rights Compliance Office email.
    - Email was changed

THE OHIO STATE UNIVERSITY

SYLLABUS
ENTMLGY 2400E
Evaluating Evidence in Biology & Medicine

SP 2026
3 credit hours
In-Person M & W 9:35-10:55AM; Journalism Bldg 143

COURSE OVERVIEW

Instructor

Instructor: Dr. Benjamin Philip, PhD

Email address: philip.12@osu.edu (preferred contact method)

Phone: 614-688-4973

Office: 257A Howlett Hall

Office hours: e-mail instructor to arrange appointment for in-person or virtual meetings

Prerequisites

Honors standing for 'H' designation

Course description

Explores information and scientific literacies in biology, medicine, and health, with emphasis on science as reported in the media and a unique focus on insect-related biology as model systems (e.g. using insect models in medical research). We use evolutionary theory as the unifying framework for all life on earth. The ability to scrutinize science as reported in popular sources and to procure additional, credible information is emphasized.

This course is approved in the GEN Theme: Health and Wellbeing category

General Education Goals and Expected Learning Outcomes (ELO)

This course is approved in the GEN Theme: Health and Wellbeing category. ENTMLGY 2400E fulfills Goals 1, 2 and 3 and Expected Learning Outcome 1.1, 1.2, 2.1, 2.2, 3.1 and 3.2.

Goal 1: Analyze health and well-being at a more advanced and deeper level than in the Foundations component.

> **ELO 1.1** Engage in critical and logical thinking about the topic or idea of health and well-being.
> **ELO 1.2** Conduct an advanced, in-depth, scholarly exploration of the topic or idea of health and well-being.

Goal 2: Integrate approaches to health and well-being 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.

> **ELO 2.1** Identify, describe and synthesize approaches or experiences as they apply to health and well-being.
> **ELO 2.2** 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.

Goal 3: Explore and analyze health and well-being through attention to at least two dimensions of well-being. (e.g., physical, mental, emotional, career, environmental, spiritual, intellectual, creative, financial, etc.)

> **ELO 3.1** Explore and analyze health and well-being from theoretical, socio-economic, scientific, historical, cultural, technological, policy and/or personal perspectives.
> **ELO 3.2** Identify, reflect on or apply strategies for promoting health and well-being.

How the course fulfills these General Education Goals and Expected Learning Outcomes: This course engages students by encouraging critical and logical thinking about scientific topics related to health and wellbeing– for instance, examining how insect-borne diseases (e.g. Zika via mosquitoes) impact public health, or how insects are used as models in biomedical research – thereby leveraging entomological science to illuminate the theme of Health and Wellbeing. This is achieved through evaluating scientific credibility and expertise, reading scientific papers, and understanding experimental design and bias. Students integrate knowledge by connecting academic content with out-of-classroom experiences and previous coursework. This is evident in activities like analyzing the relationship between chemical pesticides and human health, and discussing medical ethics, where assignments require students to reflect on their learning through self-assessment. Additionally, students regularly

work in groups on assignments, discussions and exams, thereby increasing their exposure to the views of others. Consequently, students are expected to broaden their perspectives to include socio-economic, scientific, historical, cultural, technological, and public policy aspects, rather than exclusively focusing on their personal viewpoints. For instance, when examining a public health issue like vaccine acceptance, we consider not only the scientific data but also cultural beliefs and historical experiences that influence different communities' responses.

The semester covers a variety of topics, such as the analysis of GM foods, discussions on the societal impact of scientific advancements, and student-led presentations on contemporary issues of their choosing (e.g. disease transmission, medical research ethics, and the societal response to scientific innovation). The themes covered in class are woven through the readings, worksheets, discussions, quizzes and exams. The goal of the class is to equip students with the tools to properly evaluate the information they encounter, enabling them to better analyze health and wellbeing and apply strategies for promoting it.

Course learning outcomes

By the end of this course, students should successfully be able to (with reference to the related general education health and wellbeing theme learning objectives (ELO) above):

1. locate, acquire, assess, and summarize science-related information with direct application to health and wellbeing, including public health issues, medical research, and societal impacts from an array of sources (e.g. scholarly journals, government websites, news outlets, social media, etc.). **ELO 1.1, 1.2**
2. evaluate the reliability and bias of sources as they pertain to health and wellbeing topics, such as insect-vectored disease prevention, medical ethics, and health policy. **ELO 1.2, 2.1**
3. compare & contrast the nature of scientific information from various sources (scholarly,primary sources; review articles, textbooks, various websites, news outlets, etc.) in the context of health and biological sciences. **ELO 1.1, 1.2, 2.1, 2.2**
4. explain why authorities/information sources in one realm (e.g., scientists/peer-reviewed publications) may disagree due to differences in values, cultural contexts, or agendas with authorities/sources in another realm (e.g., public office holders/government health orders). **ELO 1.1, 3.1**
5. provide examples of how technology has advanced science and medicine, and how society has responded to innovations and challenges, e.g. COVID-19 pandemic. **ELO 3.1, 3.2**

HOW THIS COURSE WORKS

Mode of delivery: This course is 100% in-person. Supporting information will be posted on our Carmen page, however, students are expected to attend class.

Credit hours and work expectations: This is a **3-credit-hour course**. According to Ohio State policy (go.osu.edu/credithours), students should expect around 3 hours per week of time spent on direct instruction (e.g., instructor content and Carmen activities) in addition to 6 hours of homework (e.g., reading and assignment preparation) to receive a grade of (C) average.

Attendance and participation requirements: Your attendance is required for your participation in class discussions.

- **Excused absences:** Legitimate excused absences include: participation in an activity of an official University organization, verifiable illness, verifiable family emergency, subpoena, jury duty, military service, and professional reasons (e.g., attendance at professional society meeting, job interview). Other serious personal problems will be considered on an individual basis. Instructor may require proof of documentation. Contact the instructor as soon as you know you will be absent due to an excused reason. Arrangements will be made between the instructor and student individually on how missed assignments or exams will be handled in the case of excused absences.
- **Office hours**: **OPTIONAL**

COURSE MATERIALS AND TECHNOLOGIES

Textbooks

Required

- Newspaper access: *New York Times* (Free e-version @ OSU Libraries). Access instructions will be provided in class.
- Other materials (essays, articles, podcasts or videos) will be posted on Carmen or shared during class.

Not Required, but a good resource

- *How Science Works: Evaluating Evidence in Biology and Medicine*. 2004. S.H. Jenkins. ISBN-10: 0195158954

The text is available as an OSU e-book: https://library.ohio-state.edu/record=b8938191

NOTE: A total of three individuals can use the OSU e-book simultaneously, so access to this text may be limited.

Course technology

Technology support

For help with your password, university email, Carmen, or any other technology issues, questions, or requests, contact the Ohio State IT Service Desk. Standard support hours areavailable at ocio.osu.edu/help/hours, and support for urgent issues is available 24/7.

- **Self-Service and Chat support:** ocio.osu.edu/help
- **Phone:** 614-688-4357(HELP)
- **Email:** servicedesk@osu.edu
- **TDD:** 614-688-8743

Technology skills needed for this course

- Basic computer and web-browsing skills
- Navigating Carmen (go.osu.edu/canvasstudent)
- CarmenZoom virtual meetings (go.osu.edu/zoom-meetings)

Required equipment

- Computer: current Mac (MacOs) or PC (Windows 10) with high-speed internet connection
- Webcam and microphone: built-in or external webcam and microphone, fully installed and tested or corresponding mobile device with video capabilities, if your group decides on this type of meeting.
- Other: a mobile device (smartphone or tablet) to use for BuckeyePass authentication
- It will be ideal if you can bring either a mobile device, tablet or laptop to you to class each session, as we will be actively searching resources during most classes.

Required software

- Microsoft Office 365: All Ohio State students are now eligible for free Microsoft Office 365. Full instructions for downloading and installation can be found at go.osu.edu/office365help.

- Top Hat**:** Students will need to register for an Ohio State University Top Hat account. This access is free and participation via Top Hat can be used for some attendance purposes. https://tophat.com/

Carmen access

You will need to use BuckeyePass (buckeyepass.osu.edu) multi-factor authentication to access your courses in CarmenCanvas. To ensure that you are able to connect to CarmenCanvas at all times, it is recommended that you do each of the following:

- Register multiple devices in case something happens to your primary device. Information can be found at BuckeyePass (buckeyepass.osu.edu).
- Users will only receive one SMS passcode at a time. Using the "Trust Browser" feature on a user's first authentication log in of the day will allow the user to bypass the need for another passcode for 24 hours.
- Install the Duo Mobile application (https://it.osu.edu/learner-technology-handbook/ch3/duo) on all of your registered devices for the ability to generate one-time codes in the event that you lose cell, data, or Wi-Fi service.

If none of these options will meet the needs of your situation, you can contact the IT Service Desk at 614-688-4357 (HELP) and IT support staff will work out a solution with you.

GRADING AND FACULTY RESPONSE

How your grade is calculated

ASSIGNMENT CATEGORY	POINTS
Discussion Participation and Attendance	100 (20%)
Worksheets (10 points each)	130 (26%)
Student-led discussion	20 (4%)
Online quizzes (15 points each)	30 (6%)
Group take-home exam #1	60 (12%)
Group take-home exam #2	60 (12%)
Final exam (cumulative; students complete individually)	100 (20%)
Total	**500**

See Course Schedule below for assignment due dates.

Descriptions of major course assignments

Discussion Participation and Attendance

Description: This class relies heavily on class discussion so attendance and engagement are important. Because our discussions center on Health & Wellbeing topics, your contributions will reflect your understanding of those issues. Engaging thoughtfully with the theme in discussion is part of demonstrating your learning. Your instructor will review the parameters of ideal participation at the beginning of the semester, and you will be reminded of expectations during the semester. For evaluation purposes, students will complete a self-assessment (see below, following course schedule) after each class discussion and these will be used to by the instructor to formulate grades for participation. The instructor will alert you at the midterm timepoint if your in-class participation requires improvement. Available points will be evenly distributed among all class meetings.

Worksheets

Description: These enable you to practice interpreting and evaluating information from various sources of science-related data (however good/questionable) that come at us every day, as well as organizing thoughts from your text in preparation for discussion. Each worksheet focuses on applying course concepts to a health and wellbeing scenario or issue. In this way, every worksheet response demonstrates your understanding of an aspect of the theme Worksheets are due and discussed in class on the dates indicated in the **Course Schedule.**

Each Worksheet (posted at Carmen) includes explicit instructions and in many cases the worksheets are good practice for group take-home exams. Deadlines for submitting your work are found in the course schedule. Students will submit their own worksheets but may work together discussing topics/readings. **All submitted work must be original (do not submit copies of another student's work).**

To receive full credit your work must: 1) be substantive, 2) demonstrate a good faith effort, and 3) be posted before class commences on the days that they are due. "Substantive" in this context may be defined as "meaningful and explicitly expressed;" thus, be sure you answer the question/prompt fully, using language that is clear and unambiguous. "Demonstrate good faith effort" means you have been conscientious and diligent-- your answer evidences a sincere attempt to do a good job completing the work as opposed to a perfunctory one and the instructor can clearly see through the content in your answers that you have utilized the resources in the worksheet (book chapter, online video, etc.).

Worksheet Topics

1. What is science? Why trust science?
    a. Research profiles of famous scientists
    b. Describe reasons to either trust science (pro) and/or reasons to be skeptical of science (con).
2. Evaluating scientific credibility & expertise
    a. Criteria to determine the credibility of information sources
    b. Practice using rubric to evaluate online sources
3. Reading scientific literature (using an insect model study)
    a. Carmen module outlining an insect related annotated scientific article, containing pre- and post- evaluation
4. Evolution basics (Part 1)
    a. Questions related to video *The Origin of Species: The Beak of the Finch*
5. Evolution basics (Part 2)
    a. Questions related to video *Think Like a Scientist: Natural Selection in an Outbreak.*
6. Experimental Design
    a. Popular press articles related to scientific studies are evaluated for study

design and issues of chance, bias, or contamination found in the study.

7. Medical Ethics
    a. Questions related to reading selections from *How Science Works* by Stephen Jenkins.
    b. Gather information to relate scientific study design to ethical treatment of patients.
8. Relationship between chemical pesticides (e.g. insecticide and herbicides) and human health
    a. Questions related to reading selections from *How Science Works* by Stephen Jenkins.
    b. Foundation for discussing chemical pesticides, companies that produce the chemicals and relationship between science and funding sources.
    c. Examine the perspectives of different groups – for example, the corporate culture of a chemical company vs. the public health concerns of communities. We discuss how perceptions of pesticide use can differ in various cultural or regional contexts.

9. through 11. Analysis of topics in *Starry Messenger* by Neil deGrasse Tyson.
    a. Themes (such as truths, conflicts and risk) are related to perspectives on human civilization through the lens of science.

12. Introduction to GM foods
    a. Questions related to the documentary *Food Evolution*

13. Analysis of GM foods from different perspectives
    a. Information from *Food Evolution* and other sources is applied to pro/cons of GM foods from the perspective of activists, governments, scientists, consumer and agricultural companies.

Student-led discussion

Description: There will be the opportunity to choose a topic of interest and to develop a lesson/discussion related to the topic. Students will be responsible for designing an activity and worksheet for the class to complete in advance of the discussion. Additionally, students will develop a plan for leading a discussion in class, including examples of questions and topics they will use to drive the discussion. Students will submit their activity, worksheet, discussion plan and question examples for grading.

Online quizzes

Description: Two online (multiple-choice/ short answer) quizzes will be assigned to students. These quizzes can be completed open book/note/internet by students, but they will be timed. Students must not work with other students on these quizzes. Refer to the Carmen assignment for due date.

Group take-home exams

Description: Your instructor will assign student teams, each to comprise no more than 5 students. Each team will complete a Group Contract (posted on Carmen), which provides a written plan for how the team is going to complete the exam—who is doing what, when the team has agreed to meet, etc. Each team will complete one contract per group take-home exam, submit via Carmen, and update it as needed. By signing the Group Contract, team members indicate their intention to adhere to the written plan and to act in accord with the stated behaviors and responsibilities.

Prior to release of the first group take-home exam, your instructor will provide guidance in class regarding 1) expectations for exam answers, 2) how to function as a team member, and 3) when and how to contact them if an unexpected problem arises that the group cannot solve independently. The class period following the deadline for submitting the final version of the exam answers is devoted to discussing the exam (see syllabus for exam dates and deadlines).

Dissension Document for Group take-home exams: Any student may opt to disagree withtheir team's answer to a given exam question. If a student disagrees with the team's answerand provides the CORRECT ANSWER, said student will earn the appropriate points (and the team will not). If a student dissents and provides an INCORRECT answer, the student will lose points accordingly.

How to dissent from a group exam answer: The student uses the Dissent template (posted at Carmen) to provide a brief but complete justification for an alternate answer and emails the document to the instructor. If more than two students decide to dissent and wish to provide the same answer, it may be posted as a single dissension, but the document must clearly indicate the names of the dissenting students.

Self- and peer-evaluation forms. Templates are posted at Carmen and list the key elements of good teamwork. Review these templates BEFORE you undertake the exam. Upon completion of a given take-home exam, each student will fill out and submit to Carmen one self-evaluation form, and one peer-evaluation form per team member. ***The completed forms are confidential; only your instructor will have access to them.***

Final exam

Description: The final exam will be taken individually. This exam will test your cumulative knowledge gained in the course with techniques used to evaluate evidence. Students will use a variety of sources of information, including public facing media to answer questions scientifically about health and wellness. This exam is take-home and can be completed open book/note.

Honors Designation

Description: Students wishing to earn the honors designation will be given an Honors-specific final exam that will require evaluation of topics through more in-depth and challenging questions. Additionally, Honors students work will be graded using a more demanding rubric for the student-led discussion presentation. These Honors specific rubrics will be posted on Carmen.

Late Assignments

- Without an excused absence, late assignments will be subject to a 10% grade deduction during the first two hours, with additional 25% deductions accruing for every day it is late. Group exams will be discussed in class after the due date, therefore no late exams will be accepted unless there is a validated excused absence (these students may need to complete a different exam individually).

Grading scale

93–100: A

90–92.9: A-

87–89.9: B+

83–86.9: B

80–82.9: B-

77–79.9: C+

73–76.9: C

70–72.9: C-

67–69.9: D+

60–66.9: D

Below 60: E

Instructor feedback and response time

Below is my intended availability throughout the course. (Remember that you can call **614-688-4357(HELP)** at any time if you have a technical problem.)

- **Grading and feedback:** For large weekly assignments, you can generally expectfeedback within **7 days or less**.
- **Email:** I will reply to emails within 24 hours on weekdays (M-F).

OTHER COURSE POLICIES

Discussion and communication guidelines

Below are my expectations for how we should communicate as a class. Please remember to be respectful and thoughtful. At times we will discuss topics that many students have varied opinions about. Remember- this class specifically is using science to evaluate evidence.

- **Tone and civility**: At all times we will maintain a supportive learning community where everyone feels safe and where people can disagree amicably.
- **Writing style**: Write using good grammar, spelling, and punctuation. All work must

be your own/your team's. I will deduct points for answers that are unclear, particularly on group take-home exams.

- **Citing sources:** while engaging in class discussions please be aware that some statements will need a scientific source to back it up. While it is not expected that the student have sources for everything they say in class discussion can be limited by the instructor to scientifically relevant material. It is best practice in writing to state sources for statements made on topics that are not taken from class material.
- **Backing up your electronic work**: I cannot overemphasize how important this is. Group work will take place via shared documents, but I encourage students to work offline and have alternate copies of the group work.

Academic Misconduct/Academic Integrity

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand the University's Code of Student Conduct, and that all students will complete all academic and scholarly assignments with fairness and honesty. Students must recognize that failure to follow the rules and guidelines established in the University's Code of Student Conduct and this syllabus may constitute Academic Misconduct.

The Ohio State University's Code of Student Conduct (Section 3335-23-04) defines academic misconduct as: Any activity that tends to compromise the academic integrity of the University or subvert the educational process. Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination. Ignorance of the University's Code of Student Conduct is never considered an excuse for academic misconduct, so I recommend that you review the Code of Student Conduct and, specifically, the sections dealing with academic misconduct.

If I suspect that a student has committed academic misconduct in this course, I am obligated by University Rules to report my suspicions to the Committee on Academic Misconduct. If COAM determines that you have violated the University's Code of Student Conduct (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the University.

If you have any questions about the above policy or what constitutes academic misconduct in this course, please contact the instructor for this course

Generative Artificial Intelligence (GenAI) Statement

In this course, students are welcome to explore innovative tools and technologies, including generative artificial intelligence (GenAI). GenAI can be a helpful resource for drafting creative content, brainstorming ideas, creating a “reverse outline” from a rough draft, and enhancing productivity. Yet it is essential to approach its use thoughtfully and ethically. Your written assignments must be your own original work. Submission of GenAI-generated content as your own work is considered a violation of Ohio State’s Academic Integrity policy and Code of Student Conduct because the work is not your own. The use of unauthorized GenAI tools will result in referral to the Committee on Academic Misconduct. If I suspect that you have used GenAI inappropriately on an assignment for this course, I will ask you to communicate with me to explain your process for completing the assignment in question.

Copyright

The materials used in connection with this course may be subject to copyright protection and are only for the use of students officially enrolled in the course for the educational purposes associated with the course. Copyright law must be considered before copying, retaining, or disseminating materials outside of the course.

Creating an environment free from harassment, discrimination, and sexual misconduct

The Ohio State University is committed to building and maintaining a community to reflect diversity and to improve opportunities for all. All Buckeyes have the right to be free from harassment, discrimination, and sexual misconduct. Ohio State does not discriminate on the basis of age, ancestry, color, disability, ethnicity, gender, gender identity or expression, genetic information, HIV/AIDS status, military status, national origin, pregnancy (childbirth, false pregnancy, termination of pregnancy, or recovery therefrom), race, religion, sex, sexual orientation, or protected veteran status, or any other bases under the law, in its activities, academic programs, admission, and employment. Members of the university community also have the right to be free from all forms of sexual misconduct: sexual harassment, sexual assault, relationship violence, stalking, and sexual exploitation.

To report harassment, discrimination, sexual misconduct, or retaliation and/or seek confidential and non-confidential resources and supportive measures, contact the Civil Rights Compliance Office:

Online reporting form at **civilrights@osu.edu**
Call 614-247-5838 or TTY 614-688-8605,
Or Email **civilrights@osu.edu**

The university is committed to stopping sexual misconduct, preventing its recurrence, eliminating any hostile environment, and remedying its discriminatory effects. All university employees have reporting responsibilities to the Civil Rights Compliance Office to ensure the university can take appropriate action:

- All university employees, except those exempted by legal privilege of confidentiality or expressly identified as a confidential reporter, have an obligation to report incidents of sexual assault immediately.
- The following employees have an obligation to report all other forms of sexual misconduct as soon as practicable but at most within five workdays of becoming aware of such information: 1. Any human resource professional (HRP); 2. Anyone who supervises faculty, staff, students, or volunteers; 3. Chair/director; and 4. Faculty member.

In addition, this course adheres to **The Principles of Community** adopted by the College of Food, Agricultural, and Environmental Sciences. These principles can be found at https://cfaes.osu.edu/about/cfaes-principles-community. If you have been a victim of or a witness to harassment or discrimination or a bias incident, you can report it online and anonymously (if you choose) at https://civilrights.osu.edu/.

Intellectual Diversity

Ohio State is committed to fostering a culture of open inquiry and intellectual diversity within the classroom. This course will cover a range of information and may include discussions or debates about controversial issues, beliefs, or policies. Any such discussions and debates are intended to support understanding of the approved curriculum and relevant course objectives rather than promote any specific point of view. Students will be assessed on principles applicable to the field of study and the content covered in the course. Preparing students for citizenship includes helping them develop critical thinking skills that will allow them to reach their own conclusions regarding complex or controversial matters.

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 (equity@osu.edu).

Policy: Religious Holidays, Holy Days and Observances (https://oaa.osu.edu/religious-holidays-holy-days-and-observances)

Weather or other short-term closing

Although Ohio State strives to remain open to ensure continuity of services to students and the public, extreme conditions can warrant the usage of the university's **Weather or Other Short-Term Closing Policy**. Please **visit this webpage** to learn more about preparing for potential closings and planning ahead for winter weather.

Counseling and Consultation Services/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 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 through the 24/7 by dialing 988 to reach the Suicide and Crisis Lifeline.

For students in the College of Food, Agricultural, and Environmental Sciences, David Wirt, wirt.9@osu.edu, is the CFAES embedded mental health counselor on the Columbus campus. To contact David, please call 614-292-5766. Students should mention their affiliation with CFAES if interested in speaking directly with David.

ACCESSIBILITY ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES

Requesting accommodations

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 me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion.

If you are ill and need to miss class, including if you are staying home and away from others while experiencing symptoms of a viral infection or fever, please let me know immediately. In cases where illness interacts with an underlying medical condition, please consult with Student Life Disability Services to request reasonable accommodations. You can connect with them at slds@osu.edu; 614-292-3307; or slds.osu.edu.

In addition, please feel free to discuss class performance or your ability to complete a class task with your instructor. My priority is to facilitate a positive learning environment during this period of uncertainty. Do not hesitate to e-mail me (philip.12@osu.edu) if you have questions or concerns.

COURSE SCHEDULE

Refer to the Carmen course for up-to-date assignment due dates. This schedule is subject to change and any modification will be discussed in class and posted on Carmen.

Week	Date	Topic	References/Assignments due
1	Monday	Class introduction; Science: What is it?	
	Wednesday	Science: Why trust it? How does info get shared in science?	Worksheet 1: What is Science? Why trust science
2	Monday	**No Class: Martin Luther King Jr. Day**	
2	Wednesday	Evaluating scientific credibility & expertise	Worksheet 2: Evaluating scientific credibility & expertise
3	Monday	How to read a scientific paper	Worksheet 3: Reading a scientific paper (using an insect model study)
	Wednesday	Evolution basics	Worksheet 4: Evolution Basics (Part 1)
4	Monday	Translation & application in techniques (PCR, etc.)	Worksheet 5: Evolution Basics (Part 2)
	Wednesday	Experimental design and bias	Worksheet 6: Experimental design
5	Monday	**Individual** work on Exam 1	**Online Quiz 1 due; 11:59PM**
	Wednesday	Types of Medical Studies	Worksheet 7: Medical Ethics
6	Monday	Class time to work on Exam 1	
	Wednesday	Discuss Exam #1 answers in class— Come prepared to share!	**Exam 1 due before class.**
7	Monday	Ecological studies: Observations and testable hypotheses. (Jenkins Ch. 4)	Worksheet 8: Relationship between chemical pesticides (e.g. insecticide and herbicides) and human health
	Wednesday	*Starry Messenger*— Intro through Ch. 1 Objective vs. Personal vs. Political truths	Worksheet 9: Analysis of *Starry Messenger*
8	Monday	*Starry Messenger*— Ch. 2 Exploration	
	Wednesday	*Starry Messenger* — Ch. 3 through 5 Society's Future and Conflict	Worksheet 10: Analysis of *Starry Messenger*
9	Monday	*Starry Messenger*— Ch 10 and CODA	

		Human Physiology and Neurobiology	
	Wednesday	*Starry Messenger*— Ch. 6 Food Choices	Worksheet 11: Analysis of Starry *Messenger*
10		**No Class this Week: Spring Break**	
11	Monday	GMO Introduction	**Online Quiz 2 Due; 11:59PM**
	Wednesday	GMO Technology	Worksheet 12: Introduction to GM Foods
12	Monday	GMO Pro and Con arguments	Worksheet 13: Analysis of GM foods from different prospectives
	Wednesday	GMO Insects	
13	Monday	Class time to work on Exam 2 (Asynchronous for Election Day)	
	Wednesday	GMO Wrap up, planning for student led discussions	
14	Monday	Student led discussion: Student choice	**Exam 2 Due Before class**
	Wednesday	Student led discussion: Student Choice	
15	Monday	Student led discussion: Student Choice	
	Wednesday	Movie assigned for final exam- *Outbreak* (1995)	
16	Monday	Student led discussion: Social Media	Student-led discussion assignment: Worksheet and lesson plan
Finals week	**Final: Due Friday May 1st 11:59PM**		

Reading/Media List:

- Jenkins, S. H. (2004). How science works: Evaluating evidence in biology and medicine. Oxford University Press.
- Kennedy, S. H. (Director). (2016). Food evolution [Film]. Abramorama.
- Levin, K. A. (2005). Study design I. Evidence-Based Dentistry, 6(3), 78-79. https://doi.org/10.1038/sj.ebd.6400355
- Levin, K. A. (2005). Study design II. Evidence-Based Dentistry, 6(4), 102-103. https://doi.org/10.1038/sj.ebd.6400356
- PBS (Producer). (2020). Spillover: Zika, Ebola & Beyond [Documentary]. Public Broadcasting Service. https://www.pbs.org/wnet/spillover/
- Petersen, W. (Director). (1995). Outbreak [Film]. Warner Bros.
- Sanders, D., Frago, E., Kehoe, R., Patterson, C., & Gaston, K. J. (2020). A meta-analysis of biological impacts of artificial light at night. Nature Ecology & Evolution, 4, 320-327. https://doi.org/10.1038/s41559-020-01322-x
- Tyson, N. deGrasse. (2022). Starry messenger: Cosmic perspectives on civilization. Henry Holt and Company.
- Wakefield, A. J., Murch, S. H., Anthony, A., Linnell, J., Casson, D. M., Malik, M., Berelowitz, M., Dhillon, A. P., Thomson, M. A., Harvey, P., Valentine, A., Davies, S. E., & Walker-Smith, J. A. (1998). Ileal-lymphoid-nodular hyperplasia, non-specific colitis, and pervasive developmental disorder in children. The Lancet, 351(9103), 637-641. https://doi.org/10.1016/S0140-6736(97)11096-0

Rubric to for Self-assessment of Discussion Participation and Performance

Component	Sophisticated	Competent	Not Yet Competent	Unacceptable
Conduct	Student shows respect for members of the class, both in speech and manner, and for the method of shared inquiry and peer discussion. Does not dominate discussion. Student challenges ideas respectfully, encourages and supports others to do the same.	Student shows respect for members of the class and for the method of shared inquiry and peer discussion. Participates regularly in the discussion but occasionally dominates the conversation or has difficulty accepting challenges to his/her ideas.	Student struggles showing respect for the class or the process as evidenced by speech and manner. Sometimes resorts to personal attacks when in disagreement with others.	Student shows a lack of respect for members of the group and the discussion process. Often dominates the discussion or disengages from the process. When contributing, can be argumentative or dismissive of others' ideas, or resorts to personal attacks.
Ownership/ Leadership	Takes responsibility for maintaining the flow and quality of the discussion whenever needed. Helps to redirect or refocus discussion when it becomes sidetracked or unproductive. Makes efforts to engage reluctant participants. Provides constructive feedback and support to others.	Will take on responsibility for maintaining flow and quality of discussion, and encouraging others to participate but either is not always effective or is effective but does not regularly take on the responsibility.	Rarely takes an active role in maintaining the flow or direction of the discussion. When put in a leadership role, often acts as a guard rather than a facilitator: constrains or biases the content and flow of the discussion.	Does not play an active role in maintaining the flow of discussion or undermines the efforts of others who are trying to facilitate discussion.
Reasoning	Arguments or positions are reasonable and supported with evidence from the readings. Often deepens the conversation by going beyond the text, recognizing implications and extensions of the text. Provides analysis of complex ideas that help deepen the inquiry and further the conversation.	Arguments or positions are reasonable and mostly supported by evidence from the readings. In general, the comments and ideas contribute to the group's understanding of the material and concepts.	Contributions to the discussion are more often based on opinion or unclear views than on reasoned arguments or positions based on the readings. Comments or questions suggest a difficulty in following complex lines of argument or student's arguments are convoluted and difficult to follow.	Comments are frequently so illogical or without substantiation that others are unable to critique or even follow them. Rather than critique the text the student may resort to ad hominem attacks on the author instead.

Listening	Always actively attends to what others say as evidenced by regularly building on, clarifying, or responding to their comments. Often reminds group of comments made by someone earlier that are pertinent.	Usually listens well and takes steps to check comprehension by asking clarifying and probing questions, and making connections to earlier comments. Responds to ideas and questions offered by other participants.	Does not regularly listen well as indicated by the repetition of comments or questions presented earlier.	Behavior frequently reflects a failure to listen or attend to the discussion as indicated by repetition of comments and questions, off-task activities.
Reading	Student has carefully read and understood the readings as evidenced by oral contributions; familiarity with main ideas, supporting evidence and secondary points. Comes to class prepared with questions and critiques of the readings.	Student has read and understood the readings as evidenced by oral contributions. The work demonstrates a grasp of the main ideas and evidence but sometimes interpretations are questionable. Comes prepared with questions.	Student has read the material, but comments often indicate that he/she didn't read or think carefully about it, or misunderstood or forgot many points. Class conduct suggests inconsistent commitment to preparation.	Student either is unable to adequately understand and interpret the material or has come to class unprepared, as indicated by serious errors or an inability to answer basic questions or contribute to discussion.

Adapted from Relearning by Design, Inc., 2000

THE OHIO STATE UNIVERSITY

SYLLABUS
ENTMLGY 2400E
Evaluating Evidence in Biology & Medicine

SP 2026
3 credit hours
In-Person M & W 9:35-10:55AM; Journalism Bldg 143

COURSE OVERVIEW

Instructor

Instructor: Dr. Benjamin Philip, PhD

Email address: philip.12@osu.edu (preferred contact method)

Phone: 614-688-4973

Office: 257A Howlett Hall

Office hours: e-mail instructor to arrange appointment for in-person or virtual meetings

Prerequisites

Honors standing for 'H' designation

Course description

Explores information and scientific literacies in biology, medicine, and health, with emphasis on science as reported in the media and a unique focus on insect-related biology as model systems (e.g. using insect models in medical research)~~Explores information and scientific literacies in biology, medicine, and health with emphasis on science as reported in the media and the use of insects and other organisms as model systems~~. We use evolutionary theory as the unifying framework for all life on earth. The ability to scrutinize science as reported in popular sources and to procure additional, credible information is emphasized.

~~This course is approved in the GEN Theme: Health and Wellbeing category This course fulfills GE Themes: Health and Wellbeing for Natural Science/Biological Science~~

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General Education Goals and Expected Learning Outcomes (ELO)

This course is approved in the GEN Theme: Health and Wellbeing category~~This course fulfills the General Education (GE) rationale for the GE Themes: Health and Wellbeing~~. ENTMLGY 2400E fulfills Goals 1, 2 and 3 and Expected Learning Outcome 1.1, 1.2, 2.1, 2.2, 3.1 and 3.2.

Goal 1: Analyze health and well-being at a more advanced and deeper level than in the Foundations component.

> **ELO 1.1** Engage in critical and logical thinking about the topic or idea of health and well-being.
> **ELO 1.2** Conduct an advanced, in-depth, scholarly exploration of the topic or idea of health and well-being.

Goal 2: Integrate approaches to health and well-being 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.

> **ELO 2.1** Identify, describe and synthesize approaches or experiences as they apply to health and well-being.
> **ELO 2.2** 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.

Goal 3: Explore and analyze health and well-being through attention to at least two dimensions of well-being. (e.g., physical, mental, emotional, career, environmental, spiritual, intellectual, creative, financial, etc.)

> **ELO 3.1** Explore and analyze health and well-being from theoretical, socio-economic, scientific, historical, cultural, technological, policy and/or personal perspectives.
> **ELO 3.2** Identify, reflect on or apply strategies for promoting health and well-being.

How the course fulfills these General Education Goals and Expected Learning Outcomes: This course engages students by encouraging critical and logical thinking about scientific topics related to health and ~~wellness~~wellbeing– for instance, examining how insect-borne diseases (e.g. Zika via mosquitoes) impact public health, or how insects are used as models in biomedical research – thereby leveraging entomological science to illuminate the theme of Health and Wellbeing. This is achieved through evaluating scientific credibility and expertise, reading scientific papers, and understanding experimental design and bias.

Students integrate knowledge by connecting academic content with out-of-classroom experiences and previous coursework. This is evident in activities like analyzing the relationship between chemical pesticides and human health, and discussing medical ethics, where assignments require students to reflect on their learning through self-assessment. Additionally, students regularly work in groups on assignments, discussions and exams, thereby increasing their exposure to the views of others. Consequently, students are expected to broaden their perspectives to include socio-economic, scientific, historical, cultural, technological, and public policy aspects, rather than exclusively focusing on their personal viewpoints. For instance, when examining a public health issue like vaccine acceptance, we consider not only the scientific data but also cultural beliefs and historical experiences that influence different communities' responses.

The semester covers a variety of topics, such as the analysis of GM foods, discussions on the societal impact of scientific advancements, and student-led presentations on contemporary issues of their choosing (e.g. ~~stem cells, health supplements~~ disease transmission, medical research ethics, and the societal response to scientific innovation). The themes covered in class are woven through the readings, worksheets, discussions, quizzes and exams. The goal of the class is to equip students with the tools to properly evaluate the information they encounter, enabling them to better analyze health and wellbeing and apply strategies for promoting it.

Course learning outcomes

By the end of this course, students should successfully be able to (with reference to the related general education health and wellbeing theme learning objectives (ELO) above):

- 1. ~~locate, acquire, assess, and summarize science-related information~~ locate, acquire, assess, and summarize science-related information with direct application to health and wellbeing, including public health issues, medical research, and societal impacts from an array of sources (e.g. scholarly journals, government websites, news outlets, social media, etc.). **ELO 1.1, 1.2**
- 2. ~~evaluate the currency, relevance, context, authority, accuracy, purpose, reliability, and potential bias associated with a given source~~evaluate the reliability and bias of sources as they pertain to health and wellbeing topics, such as insect-vectored disease prevention, medical ethics, and health policy. **ELO 1.2, 2.1**
- 3. compare & contrast the nature of scientific information from various sources (scholarly,primary sources; review articles, textbooks, various websites, news outlets, etc.) in the context of health and biological sciences. **ELO 1.1, 1.2, 2.1, 2.2**
- 4. explain why authorities/information sources in one realm (e.g., scientists/peer-reviewed publications) may disagree due to differences in values, cultural contexts, or agendas with authorities/sources in another realm (e.g., public office

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holders/government health orders). **ELO 1.1, 3.1**

5. provide examples of how technology has advanced science and medicine, and how society has responded to innovations and challenges, e.g. COVID-19 pandemic. **ELO 3.1, 3.2**

HOW THIS COURSE WORKS

Mode of delivery: This course is 100% in-person. Supporting information will be posted on our Carmen page, however, students are expected to attend class.

Credit hours and work expectations: This is a **3-credit-hour course**. According to Ohio State policy (go.osu.edu/credithours), students should expect around 3 hours per week of time spent on direct instruction (e.g., instructor content and Carmen activities) in addition to 6 hours of homework (e.g., reading and assignment preparation) to receive a grade of (C) average.

Attendance and participation requirements: Your attendance is required for your participation in class discussions.

- **Excused absences:** Legitimate excused absences include: participation in an activity of an official University organization, verifiable illness, verifiable family emergency, subpoena, jury duty, military service, and professional reasons (e.g., attendance at professional society meeting, job interview). Other serious personal problems will be considered on an individual basis. Instructor may require proof of documentation. Contact the instructor as soon as you know you will be absent due to an excused reason. Arrangements will be made between the instructor and student individually on how missed assignments or exams will be handled in the case of excused absences.
- **Office hours**: **OPTIONAL**

COURSE MATERIALS AND TECHNOLOGIES

Textbooks

Required

- Newspaper access: *New York Times* (Free e-version @ OSU Libraries). Access instructions will be provided in class.
- Other materials (essays, articles, podcasts or videos) will be posted on Carmen or shared during class.

Not Required, but a good resource

- *How Science Works: Evaluating Evidence in Biology and Medicine*. 2004. S.H. Jenkins. ISBN-10: 0195158954

The text is available as an OSU e-book: https://library.ohio-state.edu/record=b8938191

NOTE: A total of three individuals can use the OSU e-book simultaneously, so access to this text may be limited.

Course technology

Technology support

For help with your password, university email, Carmen, or any other technology issues, questions, or requests, contact the Ohio State IT Service Desk. Standard support hours areavailable at ocio.osu.edu/help/hours, and support for urgent issues is available 24/7.

- **Self-Service and Chat support:** ocio.osu.edu/help
- **Phone:** 614-688-4357(HELP)
- **Email:** servicedesk@osu.edu
- **TDD:** 614-688-8743

Technology skills needed for this course

- Basic computer and web-browsing skills
- Navigating Carmen (go.osu.edu/canvasstudent)
- CarmenZoom virtual meetings (go.osu.edu/zoom-meetings)

Required equipment

- Computer: current Mac (MacOs) or PC (Windows 10) with high-speed internet connection
- Webcam and microphone: built-in or external webcam and microphone, fully installed and tested or corresponding mobile device with video capabilities, if your group decides on this type of meeting.
- Other: a mobile device (smartphone or tablet) to use for BuckeyePass authentication
- It will be ideal if you can bring either a mobile device, tablet or laptop to you to class each session, as we will be actively searching resources during most classes.

Required software

- Microsoft Office 365: All Ohio State students are now eligible for free Microsoft Office 365. Full instructions for downloading and installation can be found at go.osu.edu/office365help.

- Top Hat**:** Students will need to register for an Ohio State University Top Hat account. This access is free and participation via Top Hat can be used for some attendance purposes. https://tophat.com/

Carmen access

You will need to use BuckeyePass (buckeyepass.osu.edu) multi-factor authentication to access your courses in CarmenCanvas. To ensure that you are able to connect to CarmenCanvas at all times, it is recommended that you do each of the following:

- Register multiple devices in case something happens to your primary device. Information can be found at BuckeyePass (buckeyepass.osu.edu).
- Users will only receive one SMS passcode at a time. Using the “Trust Browser” feature on a user’s first authentication log in of the day will allow the user to bypass the need for another passcode for 24 hours.
- Install the Duo Mobile application (https://it.osu.edu/learner-technology-handbook/ch3/duo) on all of your registered devices for the ability to generate one-time codes in the event that you lose cell, data, or Wi-Fi service.

If none of these options will meet the needs of your situation, you can contact the IT Service Desk at 614-688-4357 (HELP) and IT support staff will work out a solution with you.

GRADING AND FACULTY RESPONSE

How your grade is calculated

ASSIGNMENT CATEGORY	POINTS
Discussion Participation and Attendance	100 (20%)
Worksheets (10 points each)	130 (26%)
Student-led discussion	20 (4%)
Online quizzes (15 points each)	30 (6%)
Group take-home exam #1	60 (12%)
Group take-home exam #2	60 (12%)
Final exam (cumulative; students complete individually ~~and in-person~~)	100 (20%)
Total	**500**

See Course Schedule below for assignment due dates.

Descriptions of major course assignments

Discussion Participation and Attendance

Description: This class relies heavily on class discussion so attendance and engagement are important. Because our discussions center on Health & Wellbeing topics, your contributions will reflect your understanding of those issues. Engaging thoughtfully with the theme in discussion is part of demonstrating your learning. Your instructor will review the parameters of ideal participation at the beginning of the semester, and you will be reminded of expectations during the semester. For evaluation purposes, students will complete a self-assessment (see below, following course schedule) after each class discussion and these will be used to by the instructor to formulate grades for participation. The instructor will alert you at the midterm timepoint if your in-class participation requires improvement. Available points will be evenly distributed among all class meetings.

Worksheets

Description: These enable you to practice interpreting and evaluating information from various sources of science-related data (however good/questionable) that come at us every day, as well as organizing thoughts from your text in preparation for discussion. Each worksheet focuses on applying course concepts to a health and wellbeing scenario or issue. In this way, every worksheet response demonstrates your understanding of an aspect of the theme Worksheets are due and discussed in class on the dates indicated in the **Course Schedule.**

Each Worksheet (posted at Carmen) includes explicit instructions and in many cases the worksheets are good practice for group take-home exams. Deadlines for submitting your work are found in the course schedule. Students will submit their own worksheets but may work together discussing topics/readings. **All submitted work must be original (do not submit copies of another student's work).**

To receive full credit your work must: 1) be substantive, 2) demonstrate a good faith effort, and 3) be posted before class commences on the days that they are due. "Substantive" in this context may be defined as "meaningful and explicitly expressed;" thus, be sure you answer the question/prompt fully, using language that is clear and unambiguous. "Demonstrate good faith effort" means you have been conscientious and diligent-- your answer evidences a sincere attempt to do a good job completing the work as opposed to a perfunctory one and the instructor can clearly see through the content in your answers that you have utilized the resources in the worksheet (book chapter, online video, etc.).

Worksheet Topics

1. What is science? Why trust science?
    a. Research profiles of famous scientists
    b. Describe reasons to either trust science (pro) and/or reasons to be skeptical of science (con).
2. Evaluating scientific credibility & expertise
    a. Criteria to determine the credibility of information sources
    b. Practice using rubric to evaluate online sources
3. Reading scientific literature (using an insect model study)
    a. Carmen module outlining an insect related annotated scientific article, containing pre- and post- evaluation
4. Evolution basics (Part 1)
    a. Questions related to video *The Origin of Species: The Beak of the Finch*
5. Evolution basics (Part 2)
    a. Questions related to video *Think Like a Scientist: Natural Selection in an Outbreak.*
6. Experimental Design
    a. Popular press articles related to scientific studies are evaluated for study

design and issues of chance, bias, or contamination found in the study.

7. Medical Ethics
    a. Questions related to reading selections from *How Science Works* by Stephen Jenkins.
    b. Gather information to relate scientific study design to ethical treatment of patients.
8. Relationship between chemical pesticides (e.g. insecticide and herbicides) and human health
    a. Questions related to reading selections from *How Science Works* by Stephen Jenkins.
    b. Foundation for discussing chemical pesticides, companies that produce the chemicals and relationship between science and funding sources.
    ~~b.~~c. Examine the perspectives of different groups – for example, the corporate culture of a chemical company vs. the public health concerns of communities. We discuss how perceptions of pesticide use can differ in various cultural or regional contexts.
9. through 11. Analysis of topics in *Starry Messenger* by Neil deGrasse Tyson.
    a. Themes (such as truths, conflicts and risk) are related to perspectives on human civilization through the lens of science.
12. Introduction to GM foods
    a. Questions related to the documentary *Food Evolution*
13. Analysis of GM foods from different perspectives
    a. Information from *Food Evolution* and other sources is applied to pro/cons of GM foods from the perspective of activists, governments, scientists, consumer and agricultural companies.

Student-led discussion

Description: There will be the opportunity to choose a topic of interest and to develop a lesson/discussion related to the topic. Students will be responsible for designing an activity and worksheet for the class to complete in advance of the discussion. Additionally, students will develop a plan for leading a discussion in class, including examples of questions and topics they will use to drive the discussion. Students will submit their activity, worksheet, discussion plan and question examples for grading.

Online quizzes

Description: Two online (multiple-choice/ short answer) quizzes will be assigned to students. These quizzes can be completed open book/note/internet by students, but they will be timed. Students must not work with other students on these quizzes. Refer to the Carmen assignment for due date.

Group take-home exams

Description: Your instructor will assign student teams, each to comprise no more than 5 students. Each team will complete a Group Contract (posted on Carmen), which provides a written plan for how the team is going to complete the exam—who is doing what, when the team has agreed to meet, etc. Each team will complete one contract per group take-home exam, submit via Carmen, and update it as needed. By signing the Group Contract, team members indicate their intention to adhere to the written plan and to act in accord with the stated behaviors and responsibilities.

Prior to release of the first group take-home exam, your instructor will provide guidance in class regarding 1) expectations for exam answers, 2) how to function as a team member, and 3) when and how to contact them if an unexpected problem arises that the group cannot solve independently. The class period following the deadline for submitting the final version of the exam answers is devoted to discussing the exam (see syllabus for exam dates and deadlines).

Dissension Document for Group take-home exams: Any student may opt to disagree withtheir team's answer to a given exam question. If a student disagrees with the team's answerand provides the CORRECT ANSWER, said student will earn the appropriate points (and the team will not). If a student dissents and provides an INCORRECT answer, the student will lose points accordingly.

How to dissent from a group exam answer: The student uses the Dissent template (posted at Carmen) to provide a brief but complete justification for an alternate answer and emails the document to the instructor. If more than two students decide to dissent and wish to provide the same answer, it may be posted as a single dissension, but the document must clearly indicate the names of the dissenting students.

Self- and peer-evaluation forms. Templates are posted at Carmen and list the key elements of good teamwork. Review these templates BEFORE you undertake the exam. Upon completion of a given take-home exam, each student will fill out and submit to Carmen one self-evaluation form, and one peer-evaluation form per team member. ***The completed forms are confidential; only your instructor will have access to them.***

Final exam

Description: The final exam will be taken individually. This exam will test your cumulative knowledge gained in the course with techniques used to evaluate evidence. Students will use a variety of sources of information, including public facing media to answer questions scientifically about health and wellness. This exam is take-home and can be completed open book/note.

Honors Designation

Description: Students wishing to earn the honors designation will be given an Honors-specific final exam that will require evaluation of topics through more in-depth and challenging questions. Additionally, Honors students work will be graded using a more demanding rubric for the student-led discussion presentation. These Honors specific rubrics will be posted on Carmen.

Late Assignments

- Without an excused absence, late assignments will be subject to a 10% grade deduction during the first two hours, with additional 25% deductions accruing for every day it is late. Group exams will be discussed in class after the due date, therefore no late exams will be accepted unless there is a validated excused absence (these students may need to complete a different exam individually).

Grading scale

93–100: A

90–92.9: A-

87–89.9: B+

83–86.9: B

80–82.9: B-

77–79.9: C+

73–76.9: C

70–72.9: C-

67–69.9: D+

60–66.9: D

Below 60: E

Instructor feedback and response time

Below is my intended availability throughout the course. (Remember that you can call **614-688-4357(HELP)** at any time if you have a technical problem.)

- **Grading and feedback:** For large weekly assignments, you can generally expectfeedback within **7 days or less**.
- **Email:** I will reply to emails within 24 hours on weekdays (M-F).

OTHER COURSE POLICIES

Discussion and communication guidelines

Below are my expectations for how we should communicate as a class. Please remember to be respectful and thoughtful. At times we will discuss topics that many students have varied opinions about. Remember- this class specifically is using science to evaluate evidence.

- **Tone and civility**: At all times we will maintain a supportive learning community where everyone feels safe and where people can disagree amicably.
- **Writing style**: Write using good grammar, spelling, and punctuation. All work must

be your own/your team's. I will deduct points for answers that are unclear, particularly on group take-home exams.

- **Citing sources:** while engaging in class discussions please be aware that some statements will need a scientific source to back it up. While it is not expected that the student have sources for everything they say in class discussion can be limited by the instructor to scientifically relevant material. It is best practice in writing to state sources for statements made on topics that are not taken from class material.
- **Backing up your electronic work**: I cannot overemphasize how important this is. Group work will take place via shared documents, but I encourage students to work offline and have alternate copies of the group work.

Academic Misconduct/Academic Integrity

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand the University's Code of Student Conduct, and that all students will complete all academic and scholarly assignments with fairness and honesty. Students must recognize that failure to follow the rules and guidelines established in the University's Code of Student Conduct and this syllabus may constitute Academic Misconduct.

The Ohio State University's Code of Student Conduct (Section 3335-23-04) defines academic misconduct as: Any activity that tends to compromise the academic integrity of the University or subvert the educational process. Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination. Ignorance of the University's Code of Student Conduct is never considered an excuse for academic misconduct, so I recommend that you review the Code of Student Conduct and, specifically, the sections dealing with academic misconduct.

If I suspect that a student has committed academic misconduct in this course, I am obligated by University Rules to report my suspicions to the Committee on Academic Misconduct. If COAM determines that you have violated the University's Code of Student Conduct (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the University.

If you have any questions about the above policy or what constitutes academic misconduct in this course, please contact the instructor for this course

Generative Artificial Intelligence (GenAI) Statement

In this course, students are welcome to explore innovative tools and technologies, including generative artificial intelligence (GenAI). GenAI can be a helpful resource for drafting creative content, brainstorming ideas, creating a "reverse outline" from a rough draft, and enhancing productivity. Yet it is essential to approach its use thoughtfully and ethically. Your written assignments must be your own original work. Submission of GenAI-generated content as your own work is considered a violation of Ohio State's Academic Integrity policy and Code of Student Conduct because the work is not your own. The use of unauthorized GenAI tools will result in referral to the Committee on Academic Misconduct. If I suspect that you have used GenAI inappropriately on an assignment for this course, I will ask you to communicate with me to explain your process for completing the assignment in question.

Copyright

The materials used in connection with this course may be subject to copyright protection and are only for the use of students officially enrolled in the course for the educational purposes associated with the course. Copyright law must be considered before copying, retaining, or disseminating materials outside of the course.

Creating an environment free from harassment, discrimination, and sexual misconduct

The Ohio State University is committed to building and maintaining a community to reflect diversity and to improve opportunities for all. All Buckeyes have the right to be free from harassment, discrimination, and sexual misconduct. Ohio State does not discriminate on the basis of age, ancestry, color, disability, ethnicity, gender, gender identity or expression, genetic information, HIV/AIDS status, military status, national origin, pregnancy (childbirth, false pregnancy, termination of pregnancy, or recovery therefrom), race, religion, sex, sexual orientation, or protected veteran status, or any other bases under the law, in its activities, academic programs, admission, and employment. Members of the university community also have the right to be free from all forms of sexual misconduct: sexual harassment, sexual assault, relationship violence, stalking, and sexual exploitation.

To report harassment, discrimination, sexual misconduct, or retaliation and/or seek confidential and non-confidential resources and supportive measures, contact the Civil Rights Compliance Office:

Online reporting form at **civilrights@osu.educivlrights.osu.edu**
Call 614-247-5838 or TTY 614-688-8605,
Or Email **civilrights@osu.edu**

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The university is committed to stopping sexual misconduct, preventing its recurrence, eliminating any hostile environment, and remedying its discriminatory effects. All university employees have reporting responsibilities to the Civil Rights Compliance Office to ensure the university can take appropriate action:

- All university employees, except those exempted by legal privilege of confidentiality or expressly identified as a confidential reporter, have an obligation to report incidents of sexual assault immediately.
- The following employees have an obligation to report all other forms of sexual misconduct as soon as practicable but at most within five workdays of becoming aware of such information: 1. Any human resource professional (HRP); 2. Anyone who supervises faculty, staff, students, or volunteers; 3. Chair/director; and 4. Faculty member.

In addition, this course adheres to **The Principles of Community** adopted by the College of Food, Agricultural, and Environmental Sciences. These principles can be found at https://cfaes.osu.edu/about/cfaes-principles-community. If you have been a victim of or a witness to harassment or discrimination or a bias incident, you can report it online and anonymously (if you choose) at https://civilrights.osu.edu/.

Intellectual Diversity

Ohio State is committed to fostering a culture of open inquiry and intellectual diversity within the classroom. This course will cover a range of information and may include discussions or debates about controversial issues, beliefs, or policies. Any such discussions and debates are intended to support understanding of the approved curriculum and relevant course objectives rather than promote any specific point of view. Students will be assessed on principles applicable to the field of study and the content covered in the course. Preparing students for citizenship includes helping them develop critical thinking skills that will allow them to reach their own conclusions regarding complex or controversial matters.

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 (equity@osu.edu).

Policy: Religious Holidays, Holy Days and Observances (https://oaa.osu.edu/religious-holidays-holy-days-and-observances)

Weather or other short-term closing

Although Ohio State strives to remain open to ensure continuity of services to students and the public, extreme conditions can warrant the usage of the university's **Weather or Other Short-Term Closing Policy**. Please **visit this webpage** to learn more about preparing for potential closings and planning ahead for winter weather.

Counseling and Consultation Services/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 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 through the 24/7 by dialing 988 to reach the Suicide and Crisis Lifeline.

For students in the College of Food, Agricultural, and Environmental Sciences, David Wirt, wirt.9@osu.edu, is the CFAES embedded mental health counselor on the Columbus campus. To contact David, please call 614-292-5766. Students should mention their affiliation with CFAES if interested in speaking directly with David.

ACCESSIBILITY ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES

Requesting accommodations

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 me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion.

If you are ill and need to miss class, including if you are staying home and away from others while experiencing symptoms of a viral infection or fever, please let me know immediately. In cases where illness interacts with an underlying medical condition, please consult with Student Life Disability Services to request reasonable accommodations. You can connect with them at slds@osu.edu; 614-292-3307; or slds.osu.edu.

In addition, please feel free to discuss class performance or your ability to complete a class task with your instructor. My priority is to facilitate a positive learning environment during this period of uncertainty. Do not hesitate to e-mail me (philip.12@osu.edu) if you have questions or concerns.

COURSE SCHEDULE

Refer to the Carmen course for up-to-date assignment due dates. This schedule is subject to change and any modification will be discussed in class and posted on Carmen.

Week	Date	Topic	References/Assignments due
1	Monday	Class introduction; Science: What is it?	
	Wednesday	Science: Why trust it? How does info get shared in science?	Worksheet 1: What is Science? Why trust science
2	Monday	**No Class: Martin Luther King Jr. Day**	
2	Wednesday	Evaluating scientific credibility & expertise	Worksheet 2: Evaluating scientific credibility & expertise
3	Monday	How to read a scientific paper	Worksheet 3: Reading a scientific paper (using an insect model study)
	Wednesday	Evolution basics	Worksheet 4: Evolution Basics (Part 1)
4	Monday	Translation & application in techniques (PCR, etc.)	Worksheet 5: Evolution Basics (Part 2)
	Wednesday	Experimental design and bias	Worksheet 6: Experimental design
5	Monday	**Individual** work on Exam 1	**Online Quiz 1 due; 11:59PM**
	Wednesday	Types of Medical Studies	Worksheet 7: Medical Ethics
6	Monday	Class time to work on Exam 1	
	Wednesday	Discuss Exam #1 answers in class— Come prepared to share!	**Exam 1 due before class.**
7	Monday	Ecological studies: Observations and testable hypotheses. (Jenkins Ch. 4)	Worksheet 8: Relationship between chemical pesticides (e.g. insecticide and herbicides) and human health
	Wednesday	*Starry Messenger*— Intro through Ch. 1 Objective vs. Personal vs. Political truths	Worksheet 9: Analysis of *Starry Messenger*
8	Monday	*Starry Messenger*— Ch. 2 Exploration	
	Wednesday	*Starry Messenger* — Ch. 3 through 5 Society's Future and Conflict	Worksheet 10: Analysis of *Starry Messenger*
9	Monday	*Starry Messenger*— Ch 10 and CODA	

		Human Physiology and Neurobiology	
	Wednesday	*Starry Messenger*— Ch. 6 Food Choices	Worksheet 11: Analysis of Starry *Messenger*
10		**No Class this Week: Spring Break**	
11	Monday	GMO Introduction	**Online Quiz 2 Due; 11:59PM**
	Wednesday	GMO Technology	Worksheet 12: Introduction to GM Foods
12	Monday	GMO Pro and Con arguments	Worksheet 13: Analysis of GM foods from different prospectives
	Wednesday	GMO Insects	
13	Monday	Class time to work on Exam 2 (Asynchronous for Election Day)	
	Wednesday	GMO Wrap up, planning for student led discussions	
14	Monday	Student led discussion: Student choice	**Exam 2 Due Before class**
	Wednesday	Student led discussion: Student Choice~~Stem Cells~~	
15	Monday	Student led discussion: Student Choice~~Health Supplements~~	
	Wednesday	Movie assigned for final exam- *Outbreak* (1995)	
16	Monday	Student led discussion: Social Media	Student-led discussion assignment: Worksheet and lesson plan
Finals week	**Final: Due Friday May 1st 11:59PM**		

Reading/Media List:

- Jenkins, S. H. (2004). How science works: Evaluating evidence in biology and medicine. Oxford University Press.
- Kennedy, S. H. (Director). (2016). Food evolution [Film]. Abramorama.
- Levin, K. A. (2005). Study design I. Evidence-Based Dentistry, 6(3), 78-79. https://doi.org/10.1038/sj.ebd.6400355
- Levin, K. A. (2005). Study design II. Evidence-Based Dentistry, 6(4), 102-103. https://doi.org/10.1038/sj.ebd.6400356
- PBS (Producer). (2020). Spillover: Zika, Ebola & Beyond [Documentary]. Public Broadcasting Service. https://www.pbs.org/wnet/spillover/
- Petersen, W. (Director). (1995). Outbreak [Film]. Warner Bros.
- Sanders, D., Frago, E., Kehoe, R., Patterson, C., & Gaston, K. J. (2020). A meta-analysis of biological impacts of artificial light at night. Nature Ecology & Evolution, 4, 320-327. https://doi.org/10.1038/s41559-020-01322-x
- Tyson, N. deGrasse. (2022). Starry messenger: Cosmic perspectives on civilization. Henry Holt and Company.
- Wakefield, A. J., Murch, S. H., Anthony, A., Linnell, J., Casson, D. M., Malik, M., Berelowitz, M., Dhillon, A. P., Thomson, M. A., Harvey, P., Valentine, A., Davies, S. E., & Walker-Smith, J. A. (1998). Ileal-lymphoid-nodular hyperplasia, non-specific colitis, and pervasive developmental disorder in children. The Lancet, 351(9103), 637-641. https://doi.org/10.1016/S0140-6736(97)11096-0

Rubric to for Self-assessment of Discussion Participation and Performance

Component	Sophisticated	Competent	Not Yet Competent	Unacceptable
Conduct	Student shows respect for members of the class, both in speech and manner, and for the method of shared inquiry and peer discussion. Does not dominate discussion. Student challenges ideas respectfully, encourages and supports others to do the same.	Student shows respect for members of the class and for the method of shared inquiry and peer discussion. Participates regularly in the discussion but occasionally dominates the conversation or has difficulty accepting challenges to his/her ideas.	Student struggles showing respect for the class or the process as evidenced by speech and manner. Sometimes resorts to personal attacks when in disagreement with others.	Student shows a lack of respect for members of the group and the discussion process. Often dominates the discussion or disengages from the process. When contributing, can be argumentative or dismissive of others' ideas, or resorts to personal attacks.
Ownership/ Leadership	Takes responsibility for maintaining the flow and quality of the discussion whenever needed. Helps to redirect or refocus discussion when it becomes sidetracked or unproductive. Makes efforts to engage reluctant participants. Provides constructive feedback and support to others.	Will take on responsibility for maintaining flow and quality of discussion, and encouraging others to participate but either is not always effective or is effective but does not regularly take on the responsibility.	Rarely takes an active role in maintaining the flow or direction of the discussion. When put in a leadership role, often acts as a guard rather than a facilitator: constrains or biases the content and flow of the discussion.	Does not play an active role in maintaining the flow of discussion or undermines the efforts of others who are trying to facilitate discussion.
Reasoning	Arguments or positions are reasonable and supported with evidence from the readings. Often deepens the conversation by going beyond the text, recognizing implications and extensions of the text. Provides analysis of complex ideas that help deepen the inquiry and further the conversation.	Arguments or positions are reasonable and mostly supported by evidence from the readings. In general, the comments and ideas contribute to the group's understanding of the material and concepts.	Contributions to the discussion are more often based on opinion or unclear views than on reasoned arguments or positions based on the readings. Comments or questions suggest a difficulty in following complex lines of argument or student's arguments are convoluted and difficult to follow.	Comments are frequently so illogical or without substantiation that others are unable to critique or even follow them. Rather than critique the text the student may resort to ad hominem attacks on the author instead.

Listening	Always actively attends to what others say as evidenced by regularly building on, clarifying, or responding to their comments. Often reminds group of comments made by someone earlier that are pertinent.	Usually listens well and takes steps to check comprehension by asking clarifying and probing questions, and making connections to earlier comments. Responds to ideas and questions offered by other participants.	Does not regularly listen well as indicated by the repetition of comments or questions presented earlier.	Behavior frequently reflects a failure to listen or attend to the discussion as indicated by repetition of comments and questions, off-task activities.
Reading	Student has carefully read and understood the readings as evidenced by oral contributions; familiarity with main ideas, supporting evidence and secondary points. Comes to class prepared with questions and critiques of the readings.	Student has read and understood the readings as evidenced by oral contributions. The work demonstrates a grasp of the main ideas and evidence but sometimes interpretations are questionable. Comes prepared with questions.	Student has read the material, but comments often indicate that he/she didn't read or think carefully about it, or misunderstood or forgot many points. Class conduct suggests inconsistent commitment to preparation.	Student either is unable to adequately understand and interpret the material or has come to class unprepared, as indicated by serious errors or an inability to answer basic questions or contribute to discussion.

Adapted from Relearning by Design, Inc., 2000

GE Theme course submission worksheet: Health & Wellbeing

Overview

Courses in the GE Themes aim to provide students with opportunities to explore big picture ideas and problems within the specific practice and expertise of a discipline or department. Although many Theme courses serve within disciplinary majors or minors, by requesting inclusion in the General Education, programs are committing to the incorporation of the goals of the focal theme and the success and participation of students from outside of their program.

Each category of the GE has specific learning goals and Expected Learning Outcomes (ELOs) that connect to the big picture goals of the program. ELOs describe the knowledge or skills students should have by the end of the course. Courses in the GE Themes must meet the ELOs common for **all** GE Themes and those specific to the Theme, in addition to any ELOs the instructor has developed specific to that course. All courses in the GE must indicate that they are part of the GE and include the Goals and ELOs of their GE category on their syllabus.

The prompts in this form elicit information about how this course meets the expectations of the GE Themes. The form will be reviewed by a group of content experts (the Theme Advisory) and by a group of curriculum experts (the Theme Panel), with the latter having responsibility for the ELOs and Goals common to all themes (those things that make a course appropriate for the GE Themes) and the former having responsibility for the ELOs and Goals specific to the topic of **this** Theme.

Briefly describe how this course connects to or exemplifies the concept of this Theme (Health & Wellbeing)

In a sentence or two, explain how this class "fits' within the focal Theme. This will help reviewers understand the intended frame of reference for the course-specific activities described below.

(enter text here)

This class explores information and scientific literacies in biology and medicine, with particular emphasis on how the science of health and wellness is reported in the media. The students develop skills to scrutinize scientific information and learn to procure additional, credible information to inform their future choices.

Connect this course to the Goals and ELOs shared by *all* Themes

Below are the Goals and ELOs common to all Themes. In the accompanying table, for each ELO, describe the activities (discussions, readings, lectures, assignments) that provide opportunities for students to achieve those outcomes. The answer should be concise and use language accessible to colleagues outside of the submitting department or discipline. The specifics of the activities matter—listing "readings" without a reference to the topic of those readings will not allow the reviewers to understand how the ELO will be met. However, the panel evaluating the fit of the course to the Theme will review this form in conjunction with the syllabus, so if readings, lecture/discussion topics, or other specifics are provided on the syllabus, it is not necessary to reiterate them within this form. The ELOs are expected to vary in their "coverage" in terms of number of activities or emphasis within the course. Examples from successful courses are shared on the next page.

Goal 1: Successful students will analyze an important topic or idea at a more advanced and in-depth level than the foundations. In this context, "advanced" refers to courses that are e.g., synthetic, rely on research or cutting-edge findings, or deeply engage with the subject matter, among other possibilities.

Goal 2: Successful students will integrate approaches to the theme 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.

	Course activities and assignments to meet these ELOs
ELO 1.1 Engage in critical and logical thinking.	We discuss hypotheses and methodologies, evaluate sources and expertise, interpret scientific data and claims, and weigh relevant evidence. Weekly readings and accompanying worksheets challenge students to critically evaluate the information they are assigned to read and be prepared to actively participate in class discussions.
ELO 1.2 Engage in an advanced, in-depth, scholarly exploration of the topic or ideas within this theme.	Class materials come from a variety of sources to enhance student engagement at a more advanced level, as shown by: Worksheets- require students to do research to answers thought questions that help lead classroom discussions (for example: Worksheet #7 where students are asked to find medical studies where there were ethical questions raised about the study). Class Discussion- Since one of the goals of this course is to help students understand how to evaluate information, students are often given topics to research in class so that we can discuss how and where they are getting information. A class discussion about the steps taken to find information helps other students to gain insight into how their peers search for information. Exams- Require students to locate various types of sources, evaluate content and authority, and answer questions regarding information the sources provide.
ELO 2.1 Identify, describe, and synthesize approaches or experiences.	Students make connections to experiences through: Worksheets- Questions related to their life experiences are made with assigned readings and through questions related to different media sources (for example: Worksheet #12 asks students to consider how the documentary "Food Evolution" addresses the role of media and social influencers in shaping public opinion about GMOs, and to relate it to their experiences of why the public places so much stock in social media). Quizzes- These assessments ask students to do more than just repeat information they encounter, but rather to use multiple lines of evidence to come to conclusions (For example: Quiz #2 asks students to discuss different critiques of Tyrone Hayes' work on feminization of frogs exposed to Atrazine, and to provide reasons why these critiques might be valid or not)
ELO 2.2 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.	Students are continually asked to evaluate their own learning and to reflect in class on how they have seen changes in the way they evaluate evidence. The final exam is a good example of how this is put into practice: The students begin with a scenario in which someone they know is diagnosed with cancer. The students are tasked with turning to an internet search for answers. Once the students do their initial search for information, I provide them with more directions for seeking out alternative treatments for the cancer diagnosis. The students reflect on the process as they gather information and realize by the end that what is being "recommended" on the internet as a treatment has been discredited by the scientific community. The final question asks the students to reflect and establish rules by which they will evaluate the information they encounter in their lives. Group exams and discussions both have specific requirements for students to reflect on their participation and work using rubrics for self-evaluation.

Example responses for proposals within "Citizenship" (from Sociology 3200, Comm 2850, French 2803):

***ELO 1.1** Engage in critical and logical thinking.*	*This course will build skills needed to engage in critical and logical thinking about immigration and immigration related policy through:* *Weekly reading response papers which require the students to synthesize and critically evaluate cutting-edge scholarship on immigration;* *Engagement in class-based discussion and debates on immigration-related topics using evidence-based logical reasoning to evaluate policy positions;* *Completion of an assignment which build skills in analyzing empirical data on immigration (Assignment #1)*

	Completion 3 assignments which build skills in connecting individual experiences with broader population-based patterns (Assignments #1, #2, #3) *Completion of 3 quizzes in which students demonstrate comprehension of the course readings and materials.*
***ELO 2.1** Identify, describe, and synthesize approaches or experiences.*	*Students engage in advanced exploration of each module topic through a combination of lectures, readings, and discussions.* *<u>Lecture</u>* *Course materials come from a variety of sources to help students engage in the relationship between media and citizenship at an advanced level. Each of the 12 modules has 3-4 lectures that contain information from both peer-reviewed and popular sources. Additionally, each module has at least one guest lecture from an expert in that topic to increase students' access to people with expertise in a variety of areas.* *<u>Reading</u>* *The textbook for this course provides background information on each topic and corresponds to the lectures. Students also take some control over their own learning by choosing at least one peer-reviewed article and at least one newspaper article from outside the class materials to read and include in their weekly discussion posts.* *<u>Discussions</u>* *Students do weekly discussions and are given flexibility in their topic choices in order to allow them to take some control over their education. They are also asked to provide* *information from sources they've found outside the lecture materials. In this way, they are able to* *explore areas of particular interest to them and practice the skills they will need to gather information* *about current events, analyze this information, and communicate it with others.* *Activity Example: Civility impacts citizenship behaviors in many ways. Students are asked to choose a TED talk from a provided list (or choose another speech of their interest) and summarize and evaluate what it says about the relationship between civility and citizenship. Examples of Ted Talks on the list include Steven Petrow on the difference between being polite and being civil, Chimamanda Ngozi Adichie's talk on how a single story can perpetuate stereotypes, and Claire Wardle's talk on how diversity can enhance citizenship.*
***ELO 2.2** 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.*	*Students will conduct research on a specific event or site in Paris not already discussed in depth in class. Students will submit a 300-word abstract of their topic and a bibliography of at least five reputable academic and mainstream sources. At the end of the semester they will submit a 5-page research paper and present their findings in a 10-minute oral and visual presentation in a small-group setting in Zoom.* *Some examples of events and sites:* *The Paris Commune, an 1871 socialist uprising violently squelched by conservative forces*

	Jazz-Age Montmartre, where a small community of African-Americans–including actress and singer Josephine Baker, who was just inducted into the French Pantheon–settled and worked after World War I. *The Vélodrome d'hiver Roundup, 16-17 July 1942, when 13,000 Jews were rounded up by Paris police before being sent to concentration camps* *The Marais, a vibrant Paris neighborhood inhabited over the centuries by aristocrats, then Jews, then the LGBTQ+ community, among other groups.*

Goals and ELOs unique to Health & Wellbeing

Below are the Goals and ELOs specific to this Theme. As above, in the accompanying Table, for each ELO, describe the activities (discussions, readings, lectures, assignments) that provide opportunities for students to achieve those outcomes. The answer should be concise and use language accessible to colleagues outside of the submitting department or discipline. The ELOs are expected to vary in their "coverage" in terms of number of activities or emphasis within the course. Examples from successful courses are shared on the next page.

GOAL 3: Students will explore and analyze health and wellbeing through attention to at least two dimensions of wellbeing. (Ex: physical, mental, emotional, career, environmental, spiritual, intellectual, creative, financial, etc.).

	Course activities and assignments to meet these ELOs
ELO 3.1 Explore and analyze health and wellbeing from theoretical, socio-economic, scientific, historical, cultural, technological, policy, and/or personal perspectives.	Students have many opportunities to analyze health and well being. Some of the most impactful activities are what the students are assigned to read/watch in preparation of our daily class discussions: Readings and Worksheets: Assigned readings cover a variety of topics, ranging from human relationships with our food and environment to cosmic perspectives on earth and the universe. The questions on worksheets correspond to questions that students will wrestle with in their everyday lives as they think about challenges such as feeding our planet and controlling insect-vectored diseases.
ELO 3.2 Identify, reflect on, or apply strategies for promoting health and well-being.	The goal of the class is to equip students with the tools to properly evaluate the information they encounter. To ensure the practice in class translates to meaningful growth, the topics we use are ones that the students will need to wrestle with. For example, weeks of class are spent on GMOs, and students identify about how these technologies are currently used (eg. food production, pest control, insect-vectored disease reduction), reflect on how these technologies may impact their lives, and apply strategies to promote their health and wellness in the future. These topics are woven through the readings, worksheets, discussions, quizzes and exams.