
Term Information

Effective Term Autumn 2026

General Information

Course Bulletin Listing/Subject Area Biology
Fiscal Unit/Academic Org Introductory Biology - D0326
College/Academic Group Arts and Sciences
Level/Career Undergraduate
Course Number/Catalog 3730
Course Title Humans vs Germs: An Arms Race between Medicine and Evolution
Transcript Abbreviation Humans vs Germs
Course Description An evolutionary analysis of human health through the lens of our coevolution with pathogens and the rise of biotechnology as a tool for manipulating how evolution affects both pathogens and the human condition.
Semester Credit Hours/Units Fixed: 3

Offering Information

Length Of Course 14 Week, 12 Week, 8 Week, 7 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 Biology 1101 or 1110 or 1112/1113xx (1113.xx, 1113H, or 1113E) and 1114xx (1114.xx, 1114H, or 1114E)
Exclusions
Electronically Enforced Yes

Cross-Listings

Cross-Listings

Subject/CIP Code

Subject/CIP Code 26.1310
Subsidy Level Baccalaureate Course
Intended Rank Sophomore, Junior, Senior

Requirement/Elective Designation

Origins and Evolution

The course is an elective (for this or other units) or is a service course for other units

Course Details

Course goals or learning objectives/outcomes

- Explain how evolutionary processes like mutation, drift, natural selection, and sexual selection can help us understand the ultimate causes of disease;
- Apply the tools of evolutionary biology to biomedical problems, such as pathogen evolution
- Analyze human health problems and identify whether and how an evolutionary perspective can help with understanding the causes and/or treatment of disease and the development of therapeutics
- Apply an understanding of evolutionary processes to predict the response of humans and their parasites to changes in the environment
- Analyze the effects of various biotechnological innovations on human health and pathogen evolution
- Effectively communicate complicated scientific ideas using both written and oral modalities

Content Topic List

- Evolutionary medicine
- evolutionary mechanisms
- cancer biology
- pathogen coevolution
- biotechnology
- vaccines

Sought Concurrence

Yes

COURSE REQUEST
3730 - Status: PENDING

Last Updated: Vankeerbergen,Bernadette
Chantal
09/19/2025

Attachments

- Biology 3730 Concurrence Request List.docx
(List of Depts Concurrence Requested From. Owner: Andrews,Adam Lee)
- 3730 History Concurrence.pdf
(Concurrence. Owner: Andrews,Adam Lee)
- 3730 Micro Concurrence.pdf
(Concurrence. Owner: Andrews,Adam Lee)
- 3730 Pharmacy Concurrence.pdf
(Concurrence. Owner: Andrews,Adam Lee)
- Biology 3730 GE Form.pdf: GE Summary Form
(Other Supporting Documentation. Owner: Andrews,Adam Lee)
- Antho Concurrence Request.pdf: Concurrence request exchange; no final response
(Concurrence. Owner: Andrews,Adam Lee)
- EEOB Concurrence Request.pdf: EEOB concur. req; no response received
(Concurrence. Owner: Andrews,Adam Lee)
- Biology BS Curriculum Map.pdf: Biology Major Curriculum Map
(Other Supporting Documentation. Owner: Andrews,Adam Lee)
- Biology 3730 Syllabus.pdf: Updated syllabus
(Syllabus. Owner: Andrews,Adam Lee)
- Biology 3730 Response to Panel.pdf: Responses to Panel
(Cover Letter. Owner: Andrews,Adam Lee)

Comments

- Please see feedback email sent to the department 09-18-2025 RLS *(by Steele,Rachel Lea on 09/18/2025 12:34 PM)*
- Please see Subcommittee feedback email sent 05/22/2025. *(by Hilty,Michael on 05/22/2025 03:01 PM)*
- needs prereq adjustment *(by Kulesza,Amy Elizabeth on 04/30/2025 08:56 AM)*

Workflow Information

Status	User(s)	Date/Time	Step
Submitted	Andrews,Adam Lee	04/30/2025 08:40 AM	Submitted for Approval
Revision Requested	Kulesza,Amy Elizabeth	04/30/2025 08:56 AM	Unit Approval
Submitted	Andrews,Adam Lee	04/30/2025 08:57 AM	Submitted for Approval
Approved	Kulesza,Amy Elizabeth	04/30/2025 09:34 AM	Unit Approval
Approved	Vankeerbergen,Bernadette Chantal	04/30/2025 03:29 PM	College Approval
Revision Requested	Hilty,Michael	05/22/2025 03:01 PM	ASCCAO Approval
Submitted	Andrews,Adam Lee	05/27/2025 08:59 AM	Submitted for Approval
Approved	Kulesza,Amy Elizabeth	05/27/2025 09:07 AM	Unit Approval
Approved	Vankeerbergen,Bernadette Chantal	05/27/2025 10:25 AM	College Approval
Revision Requested	Steele,Rachel Lea	09/18/2025 12:34 PM	ASCCAO Approval
Submitted	Andrews,Adam Lee	09/19/2025 11:43 AM	Submitted for Approval
Approved	Kulesza,Amy Elizabeth	09/19/2025 12:12 PM	Unit Approval
Approved	Vankeerbergen,Bernadette Chantal	09/19/2025 01:05 PM	College Approval
Pending Approval	Jenkins,Mary Ellen Bigler Neff,Jennifer Vankeerbergen,Bernadette Chantal Steele,Rachel Lea	09/19/2025 01:05 PM	ASCCAO Approval



19 September 2025

To Whom It May Concern:

The Center for Life Sciences Education would like to thank the ASC GE Themes Panel for their recent review of our proposed new course, Biology 3730 – *Humans vs. Germs*. In response to the contingencies and comments, I offer the following updates.

Contingency: *The Subcommittee asks that the Center provide ample opportunity for students to demonstrate their mastery of ELO 2.2. While they note and appreciate the final assignment (it is clearly an example of “an advanced, in-depth, and scholarly exploration of the topic” and helps to fulfill ELO 1.2), the project does not focus on students’ “developing sense of self as a learner” and does not involve students reflecting on and assessing their own learning. While there are a multitude of ways to assess this, the Subcommittee offers the friendly suggestion that the addition of graded reflections at the beginning, mid-point, and end of the semester (either as stand-alone assignments or as clearly delineated and evaluated parts of another assignment) is a simple and effective way to meet this ELO.*

We have utilized the Panel’s excellent suggestion for a trilogy of reflection assignments, which have been added as stand-alone graded assignments. References to these assignments can be found in the summary chart, assignment breakdown, and course calendar.

Contingency: *The Subcommittee asks that the Center re-word the statement on p. 1 of the syllabus that says, “This course fulfills the Goals and Outcomes for the General Education Origins and Evolution Theme.” Since this is a three-credit hour course, Biology 3730 does not, in and of itself, fulfill the GEN Requirements for the Origins and Evolutions category (students must complete 4-6 CH in the Theme) and using the word “fulfills” in this context can be confusing for students. Instead, the Subcommittee suggests the following wording: “Biology 3730 is approved as a part of the GEN Theme: Origins and Evolution category.”*

The statement has been reworded as suggested.

Contingency: *As of August 29th, 2025, all syllabi must have either a link to the statements below **or** these statements written out in their entirety within the syllabus (the statement(s) in **bold** below are missing from the current syllabus). Syllabi should link to the Office of Undergraduate Education’s [Syllabus Policies & Statements webpage](#) and/or copy-and-paste the statements from the Office of Undergraduate Education’s website.*



All required statements have been updated to reflect the new verbiage.

Recommendation: The Subcommittee recommends that the Center clarify the points for the reading reflections (syllabus p. 3-4). The description of the assignment clearly articulates that the reflections are 9 points each, but the chart on p. 3 says there are 9 reflections that are 10 points each.

The chart was corrected to read (10x9 points each) rather than (9x10 points each).

Recommendation: The Subcommittee suggests that the Center clarify the number of references required for the Synthetic Review Article (syllabus p. 4), as the number of sources and primary literature sources are different in the first and third paragraphs (10 and 7 vs. 12 and 10). While this may mean that the final project requires fewer sources than the annotated bibliography, this should still be clarified for students.

The annotated bibliography assignment has been updated to match the expectations of 7/10 sources.

Comment: The Subcommittee is aware that large, high-enrollment courses in this unit often employ a Course Coordinator. However, the Subcommittee notes that a course at this level may not be large enough for such a role, and they offer the friendly note to remove language referencing this position (syllabus p. 1, p. 5, p. 6, etc.) if appropriate.

Given that the CLSE does not have a traditional departmental structure and many of our faculty come from other units, the role of the Course Coordinator to maintain continuity and manage all day-to-day operations of a course persists even with our smaller courses. One particular Course Coordinator oversees our non-majors introductory courses and GE Theme offerings. He will add this course to his portfolio and continue to provide both instructor and student support.

Comment: The Subcommittee notes that the link to ASC Honors is no longer operational (syllabus p. 1 under "Credit Hours and Work Expectation").

This link and its corresponding sentence referencing ASC Honors have been removed.

I welcome any additional questions for feedback should the Panel wish.

Sincerely,

Adam Andrews

Assistant Director for Curriculum & Instruction



THE OHIO STATE UNIVERSITY

Biology 3730

Humans vs Germs:

An Arms Race between Medicine and Evolution

Spring 2026 – 3 Credit Hours

Lecturer:

Email:

Office:

Student Hours:

other times scheduled by appointment

Course Coordinator:

Center for Life Sciences Education

Email:

Office:

Phone:

Class Meeting Schedule:

Lecture: Twice Weekly for 80 minutes

Prerequisites:

Biology 1101, 1110, or 1112/1113xx and 1114xx

Required Course Materials:

There will be no textbook for this course. Students can expect regular reading assignments from the primary and secondary literature, which will be linked on Carmen.

Credit Hours and Work Expectation:

This is a 3-credit-hour course. According to Ohio State policy, students should expect around 3 hours per week of time spent on direct instruction in addition to 6 hours of homework to receive a grade of C average.

Course Description:

An evolutionary analysis of human health through the lens of our coevolution with pathogens and the rise of biotechnology as a tool for manipulating how evolution affects both pathogens and the human condition.

Course Description and Learning Goals

This course is approved as a part of the General Education Theme: *Origins and Evolution* category.

Theme: Origins and Evolution	
Goals	Expected Learning Outcomes
1. Analyze Origins & Evolution at a more advanced and in-depth level than in the Foundations component.	Successful students will be able to ...
	1.1 Engage in critical and logical thinking about the topic or idea of origins and evolution. 1.2 Conduct an advanced, in-depth, scholarly exploration of the topic or idea of origins and

	evolution.
2. Integrate approaches to understanding the issues involved in origins and evolution 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 the future.	2.1 Identify, describe, and synthesize approaches or experiences as they apply to origins and evolution.
	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.
3. Appreciate the time depth of the origins and evolution of natural systems, life, humanity, or human culture, and the factors that have shaped them over time.	3.1 Illustrate their knowledge of the time depth of the universe, physical systems, life on earth, humanity or human culture by providing examples or models.
	3.2 Explain scientific methods used to reconstruct the history of the universe, physical systems, life on earth, humanity or human culture and specify their domains of validity.
	3.3 Engage with current controversies and problems related to origins and evolution questions.
4. Understand the origins and evolution of natural systems, life, humanity, or human culture, and the factors that have shaped them over time.	4.1 Describe their knowledge of how the universe, physical systems, life on Earth, humanity or human culture have evolved over time.
	4.2 Summarize current theories of the origins and evolution of the universe, physical systems, life on earth, humanity or human culture.

Students in Biology 3730 will explore what evolution has to teach us about human health and origins of disease in the rapidly growing field of evolutionary medicine. While biomedical science has identified many of the proximate biochemical, physiological, and immunological mechanisms that underlie disease, the ultimate explanations for why we get sick are intimately tied to both our evolutionary history and the evolutionary histories of our parasites and pathogens. This course will expand on foundational principles of evolution and genetics to students with an evolutionary perspective on human health and the origins of disease, showing how a consideration of features of the evolutionary process can provide a complementary approach to the study of disease, helping to solve many of the complex health problems facing humans today by understanding how they arise and how humans can use biotechnology to influence evolution.

Course Learning Goals

Successful students in this course will be able to:

- Explain how evolutionary processes like mutation, drift, natural selection, and sexual selection can help us understand the ultimate causes of disease;
- Apply the tools of evolutionary biology to biomedical problems, such as pathogen evolution;
- Analyze human health problems and identify whether and how an evolutionary perspective can help with understanding the causes and/or treatment of disease and the development of therapeutics;
- Apply an understanding of evolutionary processes to predict the response of humans and their parasites to changes in the environment;
- Analyze the effects of various biotechnological innovations on human health and pathogen evolution;
- Effectively communicate complicated scientific ideas using both written and oral modalities.

Grading and Evaluation:

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

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

Assignment	Points	Assignment Type
Reading Reflection (10 x 9 points each)	90	↑
In-Class Activities	75	↑ ↑↑ ↑↑↑
Metacognitive Reflections (3 x 10 points each)	30	↑
Essay Exams (3 x 75)	225	↑
Synthetic Review Article	200	↑
SALG	5	↑
Total Points Possible	625	

Reading Reflections (90 points)

Prior to each class, students will read articles from the primary literature as assigned in the course schedule and available on Carmen.

You are required to submit a response to the daily reading by 11:59pm the night before class (see assigned dates on the schedule and Carmen). These responses should do three things:

- (1) *Highlight the result obtained or question provoked by the study* that you found most surprising, interesting, or otherwise compelling. You should include an explanation of how the authors came to that result or question and explain why you found it compelling. This is an excellent way to demonstrate that you

read the article carefully and thought about it.

- (2) *Propose one question that can be used to stimulate discussion.* Discussion questions should not address purely technical or methodological questions (see below). They should be open-ended questions that need not have a right or wrong answer, but should be answerable by other students (that is, don't write questions that you think only the instructor can answer).
- (3) *Address technical or methodological questions.* These questions can be purely for clarification and comprehension, that is, they can have right or wrong answers. Note that a question about whether a particular experiment or method is actually appropriate for answering the study question is more of a discussion question.

Each of these responses will be assessed on a simple 3 point scale (9 points total per reflection): thoughtful responses that demonstrate clearly that you read the articles and thought about them will receive full credit; partial credit will be awarded to responses that are complete but superficial; no points will be awarded if the questions are missing or could have been written based only on reading the abstract. *The lowest score will be dropped.*

In-Class Activities (75 points)

Throughout the lectures, participation will be encouraged and assessed through a range of active learning activities, which may include TopHat questions, case-studies, worksheets, etc. Some will be completed individually while others will require discussion and engagement with other students in the class. More than 75 points will be available in order to accommodate absences.

Metacognitive Reflections (30 points)

Students will complete three reflections of themselves as learners, with specific prompts at the beginning, midpoint, and end of the semester so that both the instructor and students themselves can reflect on the student's growth as a self-motivated learner. Each reflection will be worth 10 points.

- Reflection 1 – What learning skills do you bring into the course?
- Reflection 2 – How are your learning skills supporting you through the first exam?
- Reflection 3 – How have your learning skills changed over the course?

Essay Exams (225 points)

One week prior to the scheduled exam, students will be provided with three essay prompts that they may prepare answers to. On the day of the exam, the instructors will choose one of the prompts for which students will provide a written response in class. The essay topics will draw in the lecture presentations and reading assignments.

Synthetic Review Article (200 points)

The final project for this course will be a **3000-word synthetic review of the evolutionary considerations of any human health condition or other topic in evolutionary medicine.** The review must synthesize the current state of scientific knowledge in the topic, with at least 10 references, at least 7 of which must be from the primary literature. Don't be constrained to only thinking about infectious disease, as there are evolutionary factors that help explain our susceptibility to chronic diseases

(obesity, mental illness, etc.) as well.

- **Topic statement (10 points):** You must submit a topic statement based on a provided list of potential topics.
- **Annotated bibliography (40 points):** You are required to submit an annotated bibliography that identifies 10 articles that will be used in the synthetic review. At least 7 of these articles must be from the primary literature. In addition to providing a properly formatted citation, you must provide a three-sentence summary of the article that identifies the key result of the study and explains how the study fits into the theme of the review.
- **Rough draft (50 points):** A detailed rubric will be posted to Carmen that details how the final draft will be evaluated. Feedback will be provided that must be addressed in the final draft of the paper.
- **Final draft (100 points)**

Your Final Grade:

Your final grade will be based on the percentage of the 625 points that you earn during the course of the semester as described above. Please note that we do not grade the course on a curve and Carmen does not round averages up to the next nearest percentage point, so 92.11% and 92.97% both earn the grade of A-. Final letter grades will be determined by the grade scale below:

Grade Scale:

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

Posting of Grades:

All grades will be posted on Carmen. After grades are posted you have 10 working days to challenge any grade or inquire regarding an unposted or missing grade. **After that time, grades are final.** To challenge or inquire about a missing grade, contact your laboratory instructor.

****IMPORTANT****

Make sure that all of your grades are properly posted on Carmen as you receive them. Challenges about grades, particularly after the end of the semester, will not be entertained after the 10-day grace period.

Late Assignments:

All assignments are due on the date and time prescribed in the course schedule. Late work will not be accepted except in rare (and documentable) circumstances.

Absences:

Exams:

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

plans, etc. are not considered valid excuses. If you anticipate having to miss an exam due to attendance at a university sanctioned event or other qualifying conflict, you must contact the Course Coordinator at least one week in advance of the exam.

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

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

Disability Services:

The university strives to maintain a healthy and accessible environment to support student learning in and out of the classroom. If students anticipate or experience academic barriers based on a disability (including mental health and medical conditions, whether chronic or temporary), they should let their instructor know immediately so that they can privately discuss options. Students do not need to disclose specific information about a disability to faculty. To establish reasonable accommodations, students may be asked to register with Student Life Disability Services (see below for campus-specific contact information). After registration, students should make arrangements with their instructors as soon as possible to discuss your accommodations so that accommodations may be implemented in a timely fashion.

If students are ill and need to miss class, including if they are staying home and away from others while experiencing symptoms of viral infection or fever, they should let their instructor 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.

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 [Civil Rights Compliance Office](#).

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

Weather or Other Short-Term Closing:

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

Instructor Feedback and Response Expectations:

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

Course Technology:

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

- **Self-Service and Chat support:** <http://ocio.osu.edu/selfservice>
- **Phone:** 614-688-HELP (4357)

- Email: 8help@osu.edu
- TDD: 614-688-8743

Carmen

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

CarmenZoom

- Office hours will be held through Ohio State's conferencing platform, CarmenZoom. A separate guide to accessing CarmenZoom and our office hours is posted on the course Carmen page under Files.
- Students may use the audio and video functions if a webcam and microphone are available. If not, there is still a chat function within CarmenZoom for the student to live chat with the professor or TA in the virtual office hours room.
- [Carmen Zoom](#) help guide

TurnItIn

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

TopHat

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

Discussion and Communication Guidelines:

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

- **Tone and civility:** Let's maintain a supportive learning community where everyone feels safe and where people can disagree amicably. Remember that sarcasm doesn't always come across online and is not always appreciated in-person. The instructional team work very hard to provide a positive

learning experience. Please keep this in mind and remain civilized and respectful in your class communications.

- **Citing your sources:** When we have academic discussions, please cite your sources to back up what you say.

Issue Resolution:

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

Building Emergency Action Plan:

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

Lyft Ride Smart:

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

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.

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 24/7 by dialing 988 to reach the Suicide and Crisis Lifeline.

Creating an Environment Free from Harassment, Discrimination, and Sexual Misconduct:

The Ohio State University is committed to building and maintaining a welcoming community. 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 (CRCO):

Online reporting form: <http://civilrights.osu.edu/>

Call 614-247-5838 or TTY 614-688-8605

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.

Academic Misconduct:

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 please review the Code of Student Conduct and, specifically, the sections dealing with academic misconduct.

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

If students have questions about the above policy or what constitutes academic misconduct in this course, they should contact the instructor.

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

Artificial Intelligence and Academic Integrity:

There has been a significant increase in the popularity and availability of a variety of generative artificial intelligence (AI) tools, including ChatGPT, Sudowrite, and others. These tools will help shape the future of work, research and technology, but when used in the wrong way, they can stand in conflict with academic integrity at Ohio State.

All students have important obligations under the Code of Student Conduct to complete all academic and scholarly activities with fairness and honesty. Our professional students also have the responsibility to uphold the professional and ethical standards found in their respective academic honor codes. Specifically, students are not to use unauthorized assistance in the laboratory, on field work, in scholarship, or on a course assignment unless such assistance has been authorized specifically by the course instructor. In addition, students are not to submit their work without acknowledging any word-for-word use and/or paraphrasing of writing, ideas or other work that is not your own. These requirements apply to all students undergraduate, graduate, and professional.

To maintain a culture of integrity and respect, these generative AI tools should not be used in the completion of course assignments unless an instructor for a given course specifically authorizes their use. Some instructors may approve of using generative AI tools in the academic setting for specific goals. However, these tools should be used only with the explicit and clear permission of each individual instructor, and then only in the ways allowed by the instructor.

Copyrighted Class Materials:

© The Instructor's lectures and all course materials, including power point presentations, tests, outlines, assignments, and similar materials, are protected by copyright. You may take notes and make copies of course materials for your own use. You may not and may not allow others to reproduce or distribute lecture notes and course materials publicly whether or not a fee is charged without the express written consent of the course instructor or course coordinator.

Course Schedule: Spring 2026

Schedule and assignments subject to change with as much advance notice as possible

Week	Lecture Topic	Readings	Assignments Due
1	Introduction to the Course Review of Evolutionary Mechanisms	Nesse RM. How is Darwinian medicine useful? West J Med. 2001 May;174(5):358-60. doi: 10.1136/ewjm.174.5.358. PMID: 11342524; PMCID: PMC1071402.	Metacognition Reflection 1 Due
2	How do we discover the origins of disease? Exploring Zoonotic Diseases; Using Evolution to determine the cause of cancer; Epidemiology and Koch's postulates	Walker L, Levine H, Jucker M. Koch's postulates and infectious proteins. Acta Neuropathol. 2006 Jul;112(1):1-4. doi: 10.1007/s00401-006-0072-x. Epub 2006 May 16. PMID: 16703338; PMCID: PMC8544537.	Reading Reflection 1 Due
3	The evolution of cancer and using evolution to fight back	Enriquez-Navas PM, Wojtkowiak JW, Gatenby RA. Application of Evolutionary Principles to Cancer Therapy. Cancer Res. 2015 Nov 15;75(22):4675-80. doi: 10.1158/0008-5472.CAN-15-1337. Epub 2015 Nov 2. PMID: 26527288; PMCID: PMC4693617.	Reading Reflection 2 Due
4	A study of Coevolution: HPV vs Humans	Kodaman N, Sobota RS, Mera R, Schneider BG, Williams SM. Disrupted human-pathogen co-evolution: a model for disease. Front Genet. 2014 Aug 25;5:290. doi: 10.3389/fgene.2014.00290. PMID: 25202324; PMCID: PMC4142859.	Reading Reflection 3 Due Topic Selection Statement Due
5	The Red Queen – Evolution of the Immune System: How do we stay ahead of pathogenic evolution?	Claus Wedekind; Thomas Seebeck; Florence Bettens; Alexander J. Paepke. MHC-Dependent Mate Preferences in: Biological Sciences, Vol. 260, No. 1359. (Jun. 22, 1995), pp. 245-249.	
6	How we are artificially selecting for pathogens: Antibiotic resistance	n/a – Exam Prep	Reading Reflection 4 Due

	Essay Exam 1		
7	Human population dynamics and the role of virulence in evolution		Reading Reflection 5 Due Annotated bibliography due
8	Vaccine development: Using technology to combat evolution – Pathogens fighting back.	Rosini R, Nicchi S, Pizza M, Rappuoli R. Vaccines Against Antimicrobial Resistance. Front Immunol. 2020 Jun 3;11:1048. doi: 10.3389/fimmu.2020.01048. Erratum in: Front Immunol. 2020 Jul 21;11:1578. doi: 10.3389/fimmu.2020.01578. PMID: 32582169; PMCID: PMC7283535.	Metacognition Reflection 2 Due Reading Reflection 6 Due
9	Vaccine development: Using technology to combat evolution – Technology	Wang C, Yuan F. A comprehensive comparison of DNA and RNA vaccines. Adv Drug Deliv Rev. 2024 Jul;210:115340. doi: 10.1016/j.addr.2024.115340. Epub 2024 May 27. PMID: 38810703; PMCID: PMC11181159.	Reading Reflection 7 Due Synthetic Review Rough Draft Due
10	Biotechnology and the future of human evolution Essay Exam 2	n/a – Exam Prep	
11	Using evolution to develop new medicines through phylogenetics	Lässig M, Mustonen V, Nourmohammad A. Steering and controlling evolution - from bioengineering to fighting pathogens. Nat Rev Genet. 2023 Dec;24(12):851-867. doi: 10.1038/s41576-023-00623-8. Epub 2023 Jul 3. PMID: 37400577; PMCID: PMC11137064.	Reading Reflection 8 Due
12	CRISPR – evolving pathogens and ourselves	Prasad K, George A, Ravi NS, Mohankumar KM. CRISPR/Cas based gene editing: marking a new era in medical science. Mol Biol Rep. 2021 May;48(5):4879-4895. doi: 10.1007/s11033-021-	Reading Reflection 9 Due

		06479-7. Epub 2021 Jun 18. PMID: 34143395; PMCID: PMC8212587.	
13	Using CRISPR in xenotransplantation and other tools to fight evolution	Ramachandran G, Bikard D. Editing the microbiome the CRISPR way. Philos Trans R Soc Lond B Biol Sci. 2019 May 13;374(1772):20180103. doi: 10.1098/rstb.2018.0103. PMID: 30905295; PMCID: PMC6452265.	Reading Reflection 10 Due Synthetic Review Final Draft Due
14	The future of evolutionary medicine	Natterson-Horowitz B, Aktipis A, Fox M, Gluckman PD, Low FM, Mace R, Read A, Turner PE, Blumstein DT. The future of evolutionary medicine: sparking innovation in biomedicine and public health. Front Sci. 2023;1:997136. doi: 10.3389/fsci.2023.997136. 2023 Feb 28. PMID: 37869257; PMCID: PMC10590274.	Metacognition Reflection 2 Due Reading Reflection 11 Due SALG Due
Finals	Essay Exam 3		

GE Theme course submission worksheet: Origins & Evolution

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 (Origins & Evolution)

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)

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.	
ELO 1.2 Engage in an advanced, in-depth, scholarly exploration of the topic or ideas within this theme	
ELO 2.1 Identify, describe, and synthesize approaches or experiences.	
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.	

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

ELO 1.1 Engage in critical and logical thinking.	<i>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)</i>
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	<p>Completion 3 assignments which build skills in connecting individual experiences with broader population-based patterns (Assignments #1, #2, #3)</p> <p>Completion of 3 quizzes in which students demonstrate comprehension of the course readings and materials.</p>
<p>ELO 2.1 Identify, describe, and synthesize approaches or experiences.</p>	<p>Students engage in advanced exploration of each module topic through a combination of lectures, readings, and discussions.</p> <p><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.</p> <p><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.</p> <p><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.</p> <p>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.</p>
<p>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.</p>	<p>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.</p> <p>Some examples of events and sites: The Paris Commune, an 1871 socialist uprising violently squelched by conservative forces</p>

	<i>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.</i> <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</i> <i>The Marais, a vibrant Paris neighborhood inhabited over the centuries by aristocrats, then Jews, then the LGBTQ+ community, among other groups.</i>
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Goals and ELOs unique to Origins & Evolution

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: Successful students will appreciate the time depth of the origins and evolution of natural systems, life, humanity, or human culture, and the factors that have shaped them over time.

GOAL 4: Successful students will understand the origins and evolution of natural systems, life, humanity, or human culture, and the factors that have shaped them over time.

	Course activities and assignments to meet these ELOs
ELO 3.1 Illustrate their knowledge of the time depth of the universe, physical systems, life on earth, humanity or human culture by providing examples or models.	
ELO 3.2 Explain scientific methods used to reconstruct the history of the universe, physical systems, life on earth, humanity or human culture and specify their domains of validity.	
ELO 3.3 Engage with current controversies and problems related to origins and evolution questions.	
ELO 4.1 Describe their knowledge of how the universe, physical systems, life on Earth, humanity or human culture have evolved over time.	
ELO 4.2 Summarize current theories of the origins and evolution of the universe, physical systems, life on earth, humanity or human culture.	