

Ethical Issues in Biology – Spring 2026

BIOL 4260 Section 001 – 2 Credits

Utah Valley University

Instructor Information

Dr. Carl E Hjelmen (he/him)

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Office hours:

Tuesdays 11:30am-12:30pm and Wednesdays 1:30pm-2:30pm or by appointment

Course Prerequisites:

BIOL 1010 or BIOL 1610 with a C- or higher, and University Advanced Standing

Resources:

Text:

No Assigned Text.

We will be discussing a number of papers, media, etc.. These required readings will be posted in PDF format or links to resources on Canvas. I can always make further reading recommendations if you ask. You will need to find access to a book of your choice for the final term paper (see description below and on Canvas)

Course website:

Canvas. Additional helpful resources are also available on <https://cehjelmen.github.io>

You can access these sites from any computer linked to the internet.

Access to Canvas will be critical as assignments, grades, updates, and other announcements will be posted there.

Computation:

While much of this class will rely on paying attention to lecture and participation in discussion and activities, some work requires use of a computer with internet access. I highly suggest that you bring your own laptop to class. **Please let me know if this is not possible.**

Course Information:

Description

Offers an in-depth analysis of current ethical issues in biology. Requires extensive reading and an analytical term paper. Presents subjects in lecture and in lab sessions. Concentrates on readings and on analyses of issues and their effects on people. Explores and discusses individual participant paradigms.

Course Objectives:

- Explore current issues in biology.
- Analyze current issues in biology.
- Analyze personal paradigms related to issues in biology.
- Write a scholarly analytical paper on an ethical issue in biology.
- Examine data that support various positions on ethical issues in biology.

Course Expectations:

Student Responsibilities

Everyone (students and instructor) should treat others with mutual respect and patience. I encourage students to work together to solve problems, unless otherwise explicitly stated. I recognize students come from their own unique background and have had their own unique experiences. If you need any special accommodations or assistance, please do not hesitate to contact me with questions.

How to do well in this course:

How well you do will be directly related to the effort you put into it. Below are suggestions:

1. Regular attendance - You will benefit from class discussion and activities. Furthermore, the class needs your participation to establish a group dynamic that provides encouragement and support.
2. Be prepared - Please do assigned readings and assignments on time. If you are interested, I can always provide additional reading materials.
3. Listening and Speaking - We will practice being generous and respectful listeners. Know that the class will benefit from what you have to contribute. Please, no side conversations.
4. Additional Information - Keep up with the work--it's not intended to be difficult, but you can't stir up your thinking without a commitment to taking the class seriously. You will be required to do additional informal assessments and exercises. Many of these exercises will be in-class work; if you have sustained absences, you will have difficulty passing the course.
5. Making your needs known - Please let me know what your needs are throughout the term. I am happy to work with you to improve your experience in this course when possible.
6. Writing – Assignments **must be typed** unless otherwise specified. Well-written English and good spelling are expected; I will deduct points for excessive spelling and/or grammar errors on any assignment.
7. Distractions – Unless told otherwise, put away all electronic devices during class.
8. Success may take time outside of class - Mastery isn't immediate. Part of success is spending as much time studying that is necessary for you. This amount will vary from student to student. If you need tips or help, please contact me.

Course Procedures:

I have provided a preliminary schedule that we will follow, it includes the sequence of topics, reading materials, assignments, etc., however, keep in mind that this schedule is subject to

change. You are responsible for all announcements made in class or online, and adjustments to schedule (even if you are not there). If you miss a class or come late after announcements have been made, you are responsible to find out from another student what announcements were made and what material was covered.

Lecture Notes:

Lecture notes or a power point presentation will typically be posted before lecture when possible. These notes will not cover everything said in lecture, but they should prove a useful addition to your notes for understanding and reviewing the concepts.

Professor Responsibilities

It will be my goal in this course to be prepared, organized, and provide a safe, productive environment to learn. Students can be expected to be treated fairly, and with respect. Additionally, all assignments will be graded and returned in a timely manner.

I will be available outside of class time to help any students who ask for it during student hours. If for any reason you cannot meet with me during the pre-determined times, you are welcome to contact me to discuss arranging an additional meeting time. You are always welcome to come by my office, but unless it is arranged in advance, I cannot guarantee I will be available.

The best method to reach me is through e-mail, however, please be patient and recognize that you may not always receive an immediate response. I will do my best to respond in a timely manner within reasonable hours, but e-mails sent late at night will not be responded to until the next day.

Disclaimer - Communication and Syllabus Changes

All items in this syllabus are subject to change or modification to correct errors or accommodate extenuating circumstances. You are responsible for messages sent by me and other UVU officials to your UVU email address. If you do not regularly use this address, please forward your UVU email to the address you regularly use. Please check the email for important class announcements and updates.

Disclaimer – Artificial Intelligence and use of tools like ChatGPT

Artificial intelligence (AI) is becoming an ever-prevalent tool in society, and it is important to understand how this tool works. It is important to recognize this as a “tool” and not a “crutch”. AI is prone to “hallucinating” and giving incorrect or false results; it also does not allow me to gauge your understanding of material. I encourage use of all resources for your work but ask that you make it your own and that you do not ask AI to complete your assignments for you. If you utilize AI, be sure to indicate it in your response that you used AI and indicate how you corrected the response and made it your own. If I feel you are not adequately responding or that you are relying on AI too much, I reserve the right to remove points on responses, up to zero credit. Please ask if you need any further clarifications!

Assessment:

Your final grade will be determined by the following formula (to be determined):

<u>Area</u>	<u>% of grade</u>
In class discussions	25
Leading Discussion	15
Assignments	25
Final Term Paper	35
Total	100

- The class will not be graded on a curve
- Your final grade will be calculated on a percentage basis

<u>Cutoff</u>	<u>Grade</u>	<u>Cutoff</u>	<u>Grade</u>
93%	A	73%	C
90%	A-	70%	C-
87%	B+	67%	D+
83%	B	63%	D
80%	B-	60%	D-
77%	C+	<59.5%	E

Assignments and Project Descriptions*In class discussions (25%)*

Attendance and participation in weekly discussions is imperative. Participation will improve all students' experiences and allows each student to bring their own perspective to the topic at hand. Attendance will be taken, and participation will be scored.

Leading discussion (15%)

Discussions occur most weeks. Each week will be led by up to two students. These discussions can be facilitated as the student sees fit. Students must sign up by the end of week two to lead a discussion.

Assignments (25%)

Typically, there will be weekly assignments. These include short reflections on topics (11) and case studies (5) presented corresponding to each week's material. I will drop the lowest reflection score.

Final Term Paper (35%)

The term paper is a central and critical component of this course and is designed to help you engage with a current ethical issue in biology, particularly as it relates to topics such as biomedical science, genomics, or bioinformatics. You will critically evaluate evidence, analyze multiple perspectives, and reflect on your own ethical paradigm as it relates to the topic you choose.

This assignment is scaffolded across the semester to support strong scholarly writing, ethical reasoning, and revision based on feedback. You will submit multiple components leading up to a final analytical paper. For more information, please see the final term paper summary document on Canvas.

Late work:

I will keep the window for submitting assignments open, but they will accrue a 10% grade deduction daily.

I understand that life can be chaotic and there are many things outside of your control. **If you are unable to complete an assignment for any reason by the due date, please let me know and we can work something out!** Remember to always let Dr. Hjelmen know if you're going to be late!

Cheating and plagiarism:

I encourage students to work together to solve problems, unless otherwise explicitly stated. This does not mean copying answers. I do not tolerate cheating of any kind, including copying from another student on exams or assignments. I will impose one of several penalties for cheating that range from a warning up to assigning a failing grade for the course. Please ask me if you are not sure about what constitutes plagiarism. See above statement about use of AI. If AI is used without modification, I consider this cheating.

UVU Policies and Resources

[**Policies and Success Strategies \(Links to an external site.\)**](#)

[**Accessibility Services \(Links to an external site.\)**](#)

Students needing accommodations due to a permanent or temporary disability, pregnancy or pregnancy-related conditions may contact UVU [Accessibility Services](#) at accessibilityservices@uvu.edu or 801-863-8747.

Accessibility Services is located on the Orem Campus in BA 110.

Deaf/Hard of Hearing students requesting ASL interpreters or transcribers can contact Accessibility Services to set up accommodations. Deaf/Hard of Hearing services can be contacted at DHHservices@uvu.edu

DHH is located on the Orem Campus in BA 112.

Academic Integrity

At Utah Valley University, faculty and students operate in an atmosphere of mutual trust. Maintaining an atmosphere of academic integrity allows for free exchange of ideas and enables all members of the community to achieve their highest potential. Our goal is to foster an intellectual atmosphere that produces scholars of integrity and imaginative thought. In all academic work, the ideas and contributions of others must be appropriately acknowledged and UVU students are expected to produce their own original academic work.

Faculty and students share the responsibility of ensuring the honesty and fairness of the intellectual environment at UVU. Students have a responsibility to promote academic integrity at the university by not participating in or facilitating others' participation in any act of academic dishonesty. As members of

the academic community, students must become familiar with their [rights and responsibilities](#). In each course, they are responsible for knowing the requirements and restrictions regarding research and writing, assessments, collaborative work, the use of study aids, the appropriateness of assistance, and other issues. Likewise, instructors are responsible to clearly state expectations and model best practices.

Further information on what constitutes academic dishonesty is detailed in [UVU Policy 541: Student Code of Conduct](#).

Equity and Title IX

Utah Valley University does not discriminate on the basis of race, color, religion, national origin, sex, sexual orientation, gender identity, gender expression, age (40 and over), disability, veteran status, pregnancy, childbirth, or pregnancy-related conditions, citizenship, genetic information, or other basis protected by applicable law, including Title IX and 34 C.F.R. Part 106, in employment, treatment, admission, access to educational programs and activities, or other University benefits or services. Inquiries about nondiscrimination at UVU may be directed to the U.S. Department of Education's Office for Civil Rights or UVU's Title IX Coordinator at 801-863-7999 – TitleIX@uvu.edu – 800 W University Pkwy, Orem, 84058, Suite BA 203.

Religious Accommodations

UVU values and acknowledges the array of worldviews, faiths, and religions represented in our student body, and as such provides supportive accommodations for students. Religious belief or conscience broadly includes religious, non-religious, theistic, or non-theistic moral or ethical beliefs as well as participation in religious holidays, observances, or activities. Accommodations may include scheduling or due-date modifications or make-up assignments for missed class work.

To seek a religious accommodation, a student must provide written notice to the instructor and the Director of Accessibility Services at accessibilityservices@uvu.edu. If the accommodation relates to a scheduling conflict, the notice should include the date, time, and brief description of the difficulty posed by the conflict. Such requests should be made as soon as the student is aware of the prospective scheduling conflict.

While religious expression is welcome throughout campus, UVU also has a [specially dedicated space](#) for meditation, prayer, reflection, or other forms of religious expression.

[**Campus Resources \(Links to an external site.\)**](#)

Technology Support Services

For 24/7 technical support contact [Instructure's Canvas Support Live Chat \(Links to an external site.\)](#) (385) 204-4930 (Available 24/7)

Student Care Statement

Any student who has difficulty affording groceries or accessing sufficient food to eat every day, or who lacks a safe and stable place to live, and believes this may affect their performance in the course, is urged to visit <https://www.uvu.edu/studentcare/> for access to a variety of resources. You may also email care@uvu.edu for assistance.

All of us have a need to maintain mental health and benefit from the assistance of professionals to do so. UVU offers mental health services at very low cost (some are free). While there may be a wait list for individual counseling, group counseling may be available in some circumstances. Student Health Services is located in SC 221, telephone 801-863-

8876 <https://www.uvu.edu/studenthealth/psych/> . The following community resources are available

24/7- the National Suicide Prevention Lifeline 1-800-273-8255 and the Safe UT Crisis Chat & Tip Line <https://safeut.med.utah.edu/>. You may also access the Crisis Text Line 741-741 or call 9-1-1. If an emergency is happening on campus, call campus police 801-863-5555.

Tentative Course Schedule

Here is a (tentative) schedule for topics. It is your responsibility to make up any work that you might miss if absent. All readings and assignments can be found on Canvas.

Wk	Dates	Topics	Due Dates
1	Jan. 5 Jan. 7 Jan. 9	Intro & Syllabus What is "ethics" in biology No in person class	Week 1 Reflection (What issues interest you most?)
2	Jan. 12 Jan. 14 Jan. 16	No in person class No in person class Discussion on GATTACA	Sign up to lead discussion due Jan. 14 Guided Reflection on GATTACA Due Jan. 16 Term Paper Book Selection Due Jan. 16
3	Jan. 19 Jan. 21 Jan. 23	No class--Holiday Frameworks for Ethical Analysis Discussion on Frameworks and Expectations	Term Paper Proposal Due Jan. 23
4	Jan. 26 Jan. 28 Jan. 30	Eugenics No in person class No in person class--Work on Annotated Bibliography	Reflection due Jan. 30
5	Feb. 2 Feb. 4 Feb. 6	Human Subjects, Consent Case Study--HeLa Cells Discussion: Research, Medical Innovations, and Consent	Reflection Due Feb. 6 Annotated Bibliography Due Feb 13

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6	Feb. 9	Genomic Privacy & Data Ownership	
	Feb. 11	Case Study--Golden State Killer	
	Feb. 13	Discussion: Should Law enforcement use public DNA databases?	Reflection Due Feb. 13
7	Feb. 16	No class--Holiday	
	Feb. 18	Ethics of Ancestry Testing	
	Feb. 20	Discussion: How to best approach data privacy/security	Reflection Due Feb. 20
8	Feb. 23	Biotechnology patents, data availability, etc.	
	Feb. 25	Case Study--The race for the human genome sequence	
	Feb. 27	Discussion: Should genes and sequences be patentable?	Reflection Due. Feb 27
9	Mar. 2	Human variation and representation in medicine	-
	Mar. 4	Case Study--Hearing patients	
	Mar. 6	Discussion: How to best account for variation in humans--Medicine	Reflection Due. Mar. 6
-	Mar. 8-14	No class--Spring Break	
10	Mar. 16	CRISPR, Gene Editing, and Human Enhancement	
	Mar. 18	Case Study--He Jiankui gene-edited babies	
	Mar. 20	Discussion--Human Genome Modification	Refelction Due. Mar. 8
11	Mar. 23	Bioinformatics and Algorithmic Bias	

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	Mar. 25	Case Study--Polygenic Risk Scores	
	Mar. 27	Discussion: How to approach GWAS and Population Studies	Reflection due Mar. 27
12	Mar. 30	Applications of AI in Bioinformatics and Medicine	Rough Draft of Paper due Mar. 30
	Apr. 1	Applications of AI in Bioinformatics and Medicine	-
	Apr. 3	Discussion: Ethical Applications of Artificial Intelligence	Reflection due Apr. 3
13	Apr. 6	Biodiversity Genomics and Conservation Ethics	Peer Review of Paper due April 6
	Apr. 8	Case Study--Earth Biogenome Project, Parachute Science	
	Apr. 10	Disucssion: Should we Sequence Everything?	Reflection due Apr. 10
14	Apr. 13	Where do we go from here?	
	Apr. 15	Lightning Presentations	Lightning Presentations due
	Apr. 17	Lightning Presentations	
15	Apr. 20	Lightning Presentations	Final Paper due-April 20