UVU UTAH VALLEY UNIVERSITY™

Master Course Syllabus

For additional course information, including prerequisites, corequisites, and course fees, please refer to the Catalog: <https://catalog.uvu.edu/>

Semester: Spring 2025
Course Prefix: BIOL
Course Title: Genetics

Year: 2025
Course and Section #: 3500-001
Credits: 3

Course Description

For Biology majors. Studies the genetic basis of life and the mechanisms by which information to make life is stored in the DNA. Presents classical, molecular, and population genetics in the background of current techniques and understanding of genetic processes. Provides an understanding of the basic principles of genetics and preparation for more advanced courses in other aspects of biology.

Course Attributes

This course has the following attributes:
☐ General Education Requirements
☐ Global/Intercultural Graduation Requirements
☐ Writing Enriched Graduation Requirements
☒ Discipline Core Requirements in Program
☐ Elective Core Requirements in Program
☐ Open Elective
Other: *Click here to enter text.*

Instructor Information

Instructor Name: Amanda Lavelle

Student Learning Outcomes

1	Apply the processes of mitosis and meiosis and to explain and predict the transmission of genetic information.
2	Use basic patterns of genetic inheritance to predict the transmission of genetic attributes to future generations.
3	Describe the structure of DNA and explain how its structure facilitates information storage, replication, and transfer.

4	Explain how genes control the activities of the cell and the physical and behavioral attributes of organisms.
5	Describe how genes and the environment interact with each other to generate the physical and behavioral attributes of organisms.

Click here to enter text.

Course Materials and Texts

1. Pierce, Genetics, a Conceptual Approach. The eBook and Achieve homework are fully integrated into Canvas.
2. Canvas will be utilized to post course content, administer exams, complete homework, and for assignment submission. Grades will be posted on Canvas.
3. Internet/computer: You will need reliable access to a computer with internet access to utilize Canvas and to watch lectures, complete the course exams and access the online homework platform.

Course Requirements

Course Assignments, Assessments, and Grading Policy

Grade item	Percent
In-class group work	20%
Homework	20%
Midterm exams	25%
Final exam	35%
Extra credit	1.5%

Exams and assignments
1. **In-class group work:** Group work will take place weekly throughout the semester. Completed assignments should be uploaded to the Canvas drop box as a PDF or DOC(X) file by one group member following completion in class. If you miss class the day of an in-class assignment, it is your responsibility to complete the assignment on your own and submit the completed assignment to the Canvas drop box. Late work will not be accepted; however the lowest group work assignment score will be dropped at the end of the semester.

2. **Homework:** Graded homework assignments will be due weekly throughout the semester. These assignments will be completed on Achieve, the textbook publisher's homework platform, though links integrated into Canvas. A 5% penalty will apply for incorrect answers. Homework is due by 11:59pm of the date listed in Achieve. Late homework will be accepted with a 10% per day late penalty.

3. **Midterm and final exams:** There will be three non-cumulative midterms and a cumulative final exam that will be given through Canvas. All exams will be administered as quizzes in Canvas. Midterms will open at 9 am and close at 11:59 pm of the dates specified in the schedule. The

final exam will be open during the first part of finals week and will close at 11:59pm of the date listed in the schedule. Please contact me BEFORE the exam if you need accommodations. Extenuating circumstances will be handled on a case-by-case basis.

4. **Extra credit:** You can earn up to 1.5% extra credit by completing one or more of the following extra credit opportunities. Each option is worth 0.5%.
    a. **Social credit:** Attend office hours. Must be completed before midterm 2 opens.
    b. **Course evaluation:** Complete the course evaluation at the end of the semester. If > 80% of the class completes the course evaluation, everyone will earn the extra credit.
    c. **Attend an event** related to biology/genetics on campus, such as a guest lecture, workshop, seminar, or research presentation. After attending, write a summary (1 page) discussing the main topics presented at the event. Must be complete by the last day of classes.

Required or Recommended Reading Assignments
Recommended weekly reading in Genetics: A Conceptual Approach

General Description of the Subject Matter of Each Lecture or Discussion

Week	Week of	Topic
Unit 1		
1	Jan. 6	Introduction, DNA as the Molecule of Heredity *Chapters 1, 10, 12*
2	Jan. 13	Transcription, RNA processing, and Translation *Chapters 13, 15*
3	Jan. 20	Principles of Heredity *Chapters 2, 3*
4	Jan. 27	Pedigrees and Genetic Testing *Chapter 6*
Unit 2		
5	Feb. 3	Extensions and Modifications of Basic Principles *Chapters 4,5* **Midterm 1: Feb. 7-9: Covers Unit 1 (Weeks 1-4)**
6	Feb. 10	Population Genetics *Chapter 25*
7	Feb. 17	Linkage, Recombination, Gene Mapping *Chapter 7*
8	Feb. 24	Chromosome Variation *Chapter 8*
9	Mar. 3	Genome Organization and Evolution
	Mar. 10	***Spring Break***
Unit 3		
10	Mar. 17	Mutations *Chapter 18* **Midterm 2: Mar. 21-23: Covers Unit 2 (Weeks 5-9)**
11	Mar. 24	Control of Gene Expression in Bacteria

		Chapter 16
12	Mar. 31	Control of Gene Expression in Eukaryotes, Epigenetics *Chapters 17, 21*
13	Apr. 7	Cancer Genetics *Chapter 23*
14	Apr. 14	Genome Modification *Chapters 19 and 20* **Midterm 3: Apr. 18-20: Covers Unit 3 (Weeks 10-13)**
15	Apr. 21	Review for Final Exam Classes end Tuesday April 22
16	Apr. 28	**Final Exam: Cumulative: April 24-27**

Required Course Syllabus Statements

Generative AI
Generative AI: AI programs are not a replacement for your human creativity, originality, and critical thinking. Writing, thinking, and researching are crafts that you must develop over time to develop your own individual voice. At the same time, you should learn how to use AI and in what instances AI can be helpful to you.

The use of generative AI tools (e.g. ChatGPT, Google Gemini, etc.) is permitted in this course for the following activities:
- Brainstorming and refining your ideas.
- Fine tuning your research questions.
- Finding information on your topic.
- Drafting an outline to organize your thoughts.
- Checking grammar and style.

The use of generative AI tools is not permitted in this course for the following activities:
- Impersonating you in classroom contexts, such as by using the tool to complete assignments.
- Writing a draft of a writing assignment.
- Writing entire sentences, paragraphs or papers to complete class assignments.

You are responsible for the information you submit based on an AI query (for instance, that it does not violate intellectual property laws, or contain misinformation or unethical content). Your use of AI tools must be properly documented and cited in order to stay within university policies on academic honesty.

Any student work submitted using AI tools should clearly indicate what work is the student's work and what part is generated by the AI. If any part of this is confusing or uncertain, please reach out to me for a conversation before submitting your work.

Using Remote Testing Software
☒ This course does not use remote testing software.

☐ This course uses remote testing software. Remote test-takers may choose their remote testing locations. Please note, however, that the testing software used for this may conduct a brief scan of

remote test-takers' immediate surroundings, may require use of a webcam while taking an exam, may require the microphone be on while taking an exam, or may require other practices to confirm academic honesty. Test-takers therefore shall have no expectation of privacy in their test-taking location during, or immediately preceding, remote testing. If a student strongly objects to using test-taking software, the student should contact the instructor at the beginning of the semester to determine whether alternative testing arrangements are feasible. Alternatives are not guaranteed.

Required University Syllabus Statements

Accommodations/Students with Disabilities
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 Accommodation
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.