BIOL 3329-001 Genomics Spring 2026

Meeting time: Tues/Thurs 9:30 AM – 10:50 AM
Meeting classroom: Fine Arts Complex 00114

Instructor: Matthew Greenwold, Ph.D., Assistant Professor of Biology
Office: HPR 117
Office Hours: Tues/Wed/Thurs 11:00 AM – 12:00 PM or by appointment.
Email: mgreenwold@uttyler.edu
Phone: 903.566.6303

Course Description: Covers emerging fields of genomics. Discusses key technologies and their applications to the study of human and model organism genomes.

Prerequisites: BIOL 1306, BIOL 1106, BIOL 1307, BIOL 1107.

Course Learning Objectives: By the end of the course, students should be able to:

- Describe how genomics, transcriptomics and proteomics constitute the phenome
- Describe the general features of genomes
- Describe the steps in sequencing and annotating genomes
- Differentiate eukaryotic, prokaryotic, and organelle genomes
- Effectively discuss emerging topics in the field of genomics.

Required Course Materials: No required textbook.

Grading: Your grade will be based on three exams, class discussions, presentation, attendance, and a final exam. The grade distribution is:

			Grading	
Exam 1 =	15%		**Percentage**	**Grade**
Exam 2 =	15%		90-100%	A
Exam 3 =	15%		80-90%	B
Discussions (3) =	15%		70-79%	C
Presentation =	15%		60-69%	D
Final Exam =	15%		< 59%	F
Attendance =	10%			
Total	100%			

Exams: There will be three semester exams that will take place **Tuesday Feb. 5th, Tuesday Mar. 5th,** and **Tuesday Apr. 2nd**. You will have the entire class period to complete the exam. The questions will be mostly short answer/essay but may also include true/false and multiple-choice questions.

Final Exam: The final exam will be 50% new material (based on student presentations) and 50% old material and consist of essay/short answer, True/False, and multiple-choice questions. The final exam will take place at the date and time specified by the University for this course.

Discussions: The discussions will consist of an in class reading assignment followed by group discussion based on instructor provided questions.

Presentation: Each student will present one genome article. The presentation should be a PowerPoint presentation with a length of 10 - 12 minutes. A rubric will be provided. I suggest that you pick an organism or group of organisms that you find interesting and then search for a genome article. Many journals specialize in genome studies such as *Genome Biology and Evolution*. The article should contain at least one novel genome and be a primary research article. You should submit your chosen article for approval by **March 17th**. The information presented by you and your fellow students will be on the final exam.

Attendance: Attendance is mandatory. You may miss **TWO** lectures without losing points. I am required to provide attendance data for Financial Aid, midterm, and final grades submissions; therefore, it is critical that you attend our class meetings. If you cannot attend for reasons of Illness or other acceptable situations, please contact me to determine the best course of action.

Course Schedule	
Week of	**Topic**
Jan. 12th	Introduction to the course and genomes
Jan. 19th	Mapping Genomes
Jan. 26th	Sequencing Genomes - (Discussion – Thursday)
Feb. 2nd	Sequencing Genomes cont. (**Exam 1** – Thursday)
Feb. 9th	Annotation / Databases
Feb. 16th	Prokaryotic Genomes
Feb. 23rd	Virus Genomes - (Discussion – Thursday)
Mar. 2nd	Virus Genomes cont. - (**Exam 2** – Thursday)
Mar 9th	SPRING BREAK – No Classes
Mar. 16th	Organelle Genomes – (Presentation Topic Due)
Mar. 23rd	Eukaryotic Genomes (Discussion – Thursday)
Mar. 30th	Avian Genomes - (**Exam 3** – Thursday)
Apr. 6th	Transcriptomics / Proteomics
Apr. 13th	Student Presentations
Apr. 20th	Student Presentations
Apr. 27th - 30th	Final Exams

Census Date: January 26th

Artificial Intelligence Statement: UT Tyler is committed to exploring and using artificial intelligence (AI) tools as appropriate for the discipline and task undertaken. We encourage discussing AI tools' ethical, societal, philosophical, and disciplinary implications. All uses of AI should be acknowledged as this aligns with our commitment to honor and integrity, as noted in UT Tyler's Honor Code. Faculty and students must not use protected information, data, or

copyrighted materials when using any AI tool. Additionally, users should be aware that AI tools rely on predictive models to generate content that may appear correct but is sometimes shown to be incomplete, inaccurate, taken without attribution from other sources, and/or biased. Consequently, an AI tool should not be considered a substitute for traditional approaches to research. You are ultimately responsible for the quality and content of the information you submit. Misusing AI tools that violate the guidelines specified for this course (see below) is considered a breach of academic integrity. The student will be subject to disciplinary actions as outlined in UT Tyler's Academic Integrity Policy.

In this course, AI is permitted only for specific assignments or situations, and appropriate acknowledgment is required. This course has specific assignments where artificial intelligence (AI) tools (such as ChatGPT or Copilot) are permitted and encouraged. When AI use is permissible, it will be clearly stated in the assignment directions, and all use of AI must be appropriately acknowledged and cited. Otherwise, the default is that AI is not allowed during any stage of an assignment.