BIOLOGY 3332 - GENETICS
Spring 2026

TIME: 8:00-8:55am Mon, Wed, & Fri

LOCATION: Ratliff Building South 1031

INSTRUCTOR: Dr. Wei-Chin Ho (who@uttyler.edu)

OFFICE HOURS: 9:30-10:30am Mon & Wed at HPR 113, 1:00-2:00pm Mon & Tue at BEP 129, or by appointment.

E-MAIL POLICY: When sending an email, please add "**BIOL3332**" at the beginning of the title and clearly indicate your **name** in the first few sentences of the main text. Please note that the instructor may not be able to respond to emails in two working days.

COURSE FORMAT: This lab course is in a **face-to-face** format. Attendance is required in this course. You will find a calendar with the planned program in this syllabus. Please check Canvas frequently for changes and updates.

COURSE DESCRIPTION: This course provides an overview of the principles and concepts of genetics. Major concepts include 1) the nature of genetic materials, 2) how genetic materials replicate and is passed on to the next generation, 3) how genetic materials contains information and dictate the expression of phenotypes, 4) how genetic materials can change from generation to generation, and 5) how the genotypic composition and phenotypic distribution change over time in a population.

COURSE GOALS:
1) To understand the concepts of genetics.
2) To be able to analyze and solve genetics problems.
3) To make connections between genetics, their lives, and other disciplines.

LEARNING OUTCOMES: Upon completion of BIOL 3332, the student should be able to
1) define key terms, processes, and principles that are frequently used in genetics and elaborate them with examples.
2) perform data analysis to answer genetics questions.
3) analyze, evaluate, and categorize novel examples using the terms, processes, and principles in genetics.
4) calculate the results, build new models, and formulate new hypotheses based on data from genetic studies.

RECOMMENDED TEXTBOOKS:
There are many good genetics textbooks out there, and I recommend that you get access to a book for in depth readings. For this course, it is **NOT** required that you buy a specific book. The essential materials (lecture slides, videos, animations, online tutorials, practice questions, etc.) can be found through Canvas. Most of lecture slides are based on the following book (recommended reading):

- Concepts of Genetics, 12e, by Klug, Cummings, Spencer, Palladino, & Killian, Pearson, 2018.

Some of the slides are based on the book below:

- Genetic Analysis: An Integrated Approach, 3e, by Sanders & Bowman, Pearson, 2018.

COMMUNICATION
Announcements: Announcements are found on Canvas, and depending on your Canvas settings for this

class, you will get notified if there is a new one. Please make a point of reading the announcements. This is how I will communicate with the class as a whole when there is important information you need.
Important Note: This syllabus, along with course assignments and due dates, are subject to change. It is your responsibility to check Canvas for corrections or updates to the syllabus. Any changes will be clearly noted in a course announcement.

GRADING:
At the end of semester, two grading methods will be used to calculate student's percentages. The **higher** one will be used as the final percentage.

Note that this is to make sure the Participation & Practice can only increase your final grades. Only the exams, preview homework, and review homework are mandatory. Participation & Practice is NOT mandatory, as students can possibly still earn 100.00% at the end of semester with zero Participation & Practice points. On the other hand, Participation & Practice points are meant for encourages students who spend time in attending lectures and exploring genetics outside the lectures.

Percentage by Method A	
Exam1	150 pts
Exam2	150 pts
Exam3	150 pts
Exam4	150 pts
Final Exam	300 pts
Preview Homework	400 pts
Review Homework	400 pts
Total:	1700 pts

Percentage by Method B	
Exam1	150 pts
Exam2	150 pts
Exam3	150 pts
Exam4	150 pts
Final Exam	300 pts
Preview Homework	400 pts
Review Homework	400 pts
Participation & Practice	300 pts
Total:	2000 pts

Letter grades will be then assigned according to the following scale on the final percentages:
A = above 90.00% (>= 1530 pts in A or >= 1800 pts in B)
B = 80.00-89.99% (>= 1360 pts in A or >= 1600 pts in B)
C = 70.00-79.99% (>= 1190 pts in A or >= 1400 pts in B)
D = 60.00-69.99% (>= 1020 pts in A or >= 1200 pts in B)
F = below 60.00%

Exams
There are four exams and one cumulative final exam. All exams are close-booked and in-person. The purpose of exams is to evaluate if students can use important concepts in genetics and analyze genetics problems independently.

Make-up Exam Policy
If you are unable to take an exam as scheduled, a make-up exam will be arranged ONLY if the reason is legitimate (illness, sport and religious events, emergencies, etc.), and a written documentation is provided (doctor's note, etc.). A make-up exam will have to be scheduled no later than one week after the missed exam. Students who fail to make appropriate arrangements will receive zero points for the exam missed. Make-up exams are in the same style as the regular exams but contain different questions.

Preview Homework

To help students prepare for lectures and get familiar with the format of exam, there is a preview homework in a format of quiz on Canvas due before each lecture. Each quiz is worth 5-15 pts, and there are 400 points in total. Each quiz typically includes 5-10 multiple-choice questions, covering the pre-reading materials of the upcoming lecture.
The quiz should be student's own work. Students are allowed to refer to any non-living resource. Students are NOT allowed to ask help from other people or work as a group together during the quizzes. Students have multiple attempts to finish preview homework quizzes.

Review Homework
To help students keep on track of learning outcomes and get familiar with the format of exam, there is a review homework in a format of quiz on Canvas after each lecture, and the due time is before the upcoming exam. Each quiz is worth 5-15 pts, and there are 400 points in total. Each quiz typically includes 5-10 multiple-choice questions, related to the pre-reading materials, lecture materials, and associated practice homework questions.
The quiz should be student's own work. Students are allowed to refer to any non-living resource. Students are NOT allowed to ask help from other people or work as a group together during the quizzes. Students should fully study the materials before taking the review homework quizzes, as only one attempt is allowed.

Participation & Practice
This part only increases your final grades. This part is essentially optional, as students can still possibly earn 100% at the end of semester if students choose to not earn Participation & Practice points. This part encourages students for their in-class participation and attendance and out-class exploration of topics in genetics.

(1) In-class Participation (6 pts * 30 = 180 pts) - Class participation and attendance are strongly recommended in this class. During each lecture, I will use **iClicker** system to record students' attendance and responses to in-class practice questions. Students need to use the app on mobile devices or the web apps in laptops (NOT remotes) to register an iClicker account with their full names, university emails and IDs and participate the poll for in-class practice questions. Students can earn at most six points if they submit correct answers to in-class questions per lecture, until reaching a maximum of 180 points. There are no make-up points for this part, as a full mark does not require students to attend all lectures.

- Using iClicker app on mobile phones:
  Step 1. Go to the website https://www.iclicker.com/students/apps-and-remotes/apps . Choose "Student App" square on the top. Download, install, and open the app.
  Step 2. If you do not have an account linked with your university email yet, click sign-up. When the app asks for your institution, please use "U of Texas - Tyler: Coll of Arts & Sciences" (*DO NOT USE "University of Texas at Tyler" for the institution!*). Enter your **full name, university email,** and **student ID**.
  Step 3. After you get an account with your university email, log in in the app. Add the course with the course name "BIOL3332_Genetics_Sp2026." When the poll begins, it will show that you can join the poll.

- Using iClicker Web on laptops:
  Step 1. Go to the website https://www.iclicker.com/students/apps-and-remotes/web . Choose "Student Web" square on the top.
  Step 2. If you do not have an account linked with your university email yet, click create an account. When the website asks for your institution, please use "U of Texas - Tyler: Coll of Arts & Sciences" (*DO NOT USE "University of Texas at Tyler" for the institution!*). Enter your **full name, university email,** and **student ID**.

Step 3. After you get an account with your university email, go to the website https://www.iclicker.com/students/apps-and-remotes/web again and click sign in. Add the course with the course name "BIOL3332_Genetics_Sp2026." When the poll begins, it will show that you can join the poll.

(2) Forum Discussion (60 pts) – Students are encouraged to use the discussion forum on the Canvas to discuss course materials. Inhere, course materials include lecture slides, pre-readings, practice questions, related textbook chapters, etc. Students receive 20 points by posting at least one question about lecture materials. Students receive 40 points by providing at least one "constructive" response to other students' questions about lecture materials. A "constructive" response should move the discussion forward to the correct answer but does not have to be completely correct. Please note that (1) Administrative questions do not count (e.g., asking when and where the exam is); (2) The forum discussion should NOT directly point out what questions are used in quizzes. Students who violate this rule are considered as cheating and will fail the course automatically.

(3) Seminar Report (60 pts) – Outside the class, I encourage students to explore the field of genetics with a topic they are interested in and in a deeper manner. To earn these 60 points, students should plan to attend an on-campus genetics-related research seminar or watch a recorded genetics-related research seminar at an online platform (such as YouTube) and then submit a report. The report should list the seminar date, title, and the presenter as well as addresses 1) what new knowledge in genetics was presented in the seminar, 2) what good or bad presentation manners was noticed in the seminar, and 3) how the materials presented in the seminar relate to the society. I will update the known schedule of on-campus seminars and list the links to recorded seminars on Canvas frequently. Using other seminars for these points needs the approval from the instructor first. The due day of the report is the last lecture day.

WHAT IS PLAGIARISM AND HOW CAN IT BE AVOIDED?

Plagiarism may be defined as (1) presenting work, ideas, or phrasing of another, in whole or part, as one's own without giving credit and proper documentation of sources; (2) copying material directly from sources (including electronic media) except when the material is enclosed in quotation marks and the source is clearly identified; (3) paraphrasing too closely to the original, even when the source is identified; and (4) claiming credit for work in any media (electronic, digital, artistic, etc.) where the student is not the original creator of said work. Work that is plagiarized will receive an automatic grade of "F". If you are unsure about this subject, please take the time to talk to your instructor and /or read this: https://www.ox.ac.uk/students/academic/guidance/skills/plagiarism

You will also be required to turn in all written assignments (lab report assignments) in a Word document on CANVAS which will use UNICHECK to assess your paper for Plagiarism. You will find this on your Canvas page for this lab course; each assignment will be compared to previous student work and the work of your classmates! You will only need to turn in a copy of your assignment via the CANVAS Link.

Use of Artificial Intelligence

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.

For this course, using AI is permitted for most of the components. Obviously, using AI is not permitted during in-person, close-book exams.

Corrupted File Policy: Any student that turns in a corrupted file will be given 24 hours to turn in a file that can be opened successfully by the instructor. Failure to do so will earn a grade of "0" (Zero) for the paper.

<u>LECTURE SCHEDULE</u> (subject to change*):

Unit 1: Probability Thinking in Transmission Genetics.
Unit 2: Transmission Genetics: Research & Applications.
Unit 3: The Central Dogma of Molecular Genetics & Genetic Variations.
Unit 4: Gene Expression Regulation & Complex Genotype-Phenotype-Environment Relationship.
Unit 5: Big-Data Approaches and Technological Advances in Genetics.

Month	Day		Unit	Topic
Jan	12	M		Course Introduction
	14	W	1.1	Warm-ups
	16	F	1.2	Probability Rules and Mendel's Laws
	19	M		*MLK – No Class*
	21	W	1.3	Probability Rules and Mendel's Laws (2)
	23	F	1.4	Genetic Predictions with X-linked Inheritance
	26	M	1.5	Genetic Predictions with Linked Genes
	28	W	1.6	REVIEW I
	30	**F**		**Exam 1 (UNIT 1)**
Feb	02	M	2.1	Gamete Formation & Non-disjunction
	04	W	2.2	Large-Scale Chromosomal Variation
	06	F	2.3	Genetic Mapping
	09	M	2.4	Pedigree Analysis; Organelle Inheritance
	11	W	2.5	Genetics of Bacteria
	13	F	2.6	Genetics of Bacteria and their Viruses
	16	M	2.7	Molecular Basis of Genetics
	18	W	2.8	REVIEW II
	20	**F**		**Exam 2 (UNIT 2)**
	23	M	3.1	DNA Duplication
	25	W	3.2	DNA Duplication (2)
	27	F	3.3	Methods of Molecular Genetics
Mar	02	M	3.4	Transcription
	04	W	3.5	Translation
	06	F	3.6	DNA Mutation
	09	M		*Spring Break*
	11	W		*Spring Break*
	13	F		*Spring Break*
	16	M	3.7	DNA Repair & Recombination
	18	W	3.8	REVIEW III
	20	**F**		**Exam 3 (UNIT 3)**
	23	M	4.1	Prokaryotic Gene Expression Regulation (1)
	25	W	4.2	Prokaryotic Gene Expression Regulation (2)
	27	F	4.3	Eukaryotic Gene Expression Regulation
	30	M	4.4	Epigenetics & Genetic Imprinting

Apr	01	W	4.5	Allelism; Gene-Environment Interaction
	03	F	4.6	Pathway Analysis; Gene-Gene Interaction
	06	M	4.7	Genetic Engineering
	08	W	4.8	REVIEW IV
	10	**F**		**Exam 4 (UNIT 4)**
	13	M	5.1	Population Genetics & Genomics
	15	W	5.2	Quantitative Genetics (1)
	17	F	5.3	Quantitative Genetics (2)
	20	M	5.4	Genetic Analysis of Complex Traits
	22	W	5.5	Genetic Analysis of Cancer and Development
	24	F	5.6	Genetic Analysis of Infectious Diseases
				Final Exam (UNIT 1-5; 8-10am, Apr 29 Wed)

*Please note that this is a tentative schedule. If there are changes, I will communicate through an announcement. The dates for the exams are tentative as well.

Resources to assist you in this course:

- UT Tyler Student Accessibility and Resource (SAR) Office. (provides needed accommodations to students with document needs related to access and learning)
- UT Tyler Writing Center.
- The Mathematics Learning Center.
- UT Tyler PASS Tutoring Center.
- UT Tyler Supplemental Instruction.
- Upswing (24/7 online tutoring)
- Robert Muntz Library and Library Liaison.
- Canvas 101 (learn to use Canvas, proctoring, Unicheck, and other software)
- LIB 422 -- Computer Lab where students can take a proctored exam
- The Career Success Center.
- UT Tyler Testing Center.
- Office of Research & Scholarship Design and Data Analysis Lab.

Resources available to UT Tyler Students:

- UT Tyler Counseling Center.(available to all students)
- My SSP App. (24/7 access to Student Support Program counseling through phone or chat and online wellness resources available in a variety of languages)
- Student Assistance and Advocacy Center.
- Military and Veterans Success Center.(supports for all of our military-affiliated students)
- UT Tyler Patriot Food Pantry.
- UT Tyler Financial Aid and Scholarships.
- UT Tyler Registrar's Office.
- Office of International Programs.
- Title IX Reporting.
- Patriots Engage. (available to all students. Get engaged at UT Tyler.)

University Policies and Information

Withdrawing from Class - Students, you are allowed to withdraw (drop) from this course through the Withdrawal Portal. Withdrawing from classes can impact Financial Aid, Scholarships, Veteran Benefits, Exemptions, Waivers, International Student Status, housing, and degree progress. Please read this page, speak with your instructors, consider your options, and speak with your instructor. UT Tyler faculty and staff are here for our students and often can provide additional support options or student assistance**.** Please read the implications for withdrawing from a course and the instructions on using the Withdrawal portal on the Registrar's Withdrawal page.

Texas law prohibits students who began college for the first time in Fall 2007 or thereafter from dropping more than six courses during their entire undergraduate career. This includes courses dropped at other 2-year or 4-year Texas public colleges and universities. Consider the impact withdrawing from this class has on your academic progress and other areas, such as financial implications. We encourage you to consult your advisor(s) and financial aid for additional guidance. CAUTION #1: Withdrawing before census day does not mean you get a full refund. Please see the Tuition and Fee Refund Schedule.

CAUTION #2: All international students must check with the Office of International Programs before withdrawing. All international students are required to enroll full-time for fall and spring terms.

CAUTION #3: All UT Tyler Athletes must check with the Athletic Academic Coordinator before withdrawing from a course. CAUTION #4: All veterans or military-affiliated students should consult with the Military and Veterans Success Center.

Final Exam Policy: Final examinations are administered as scheduled. If unusual circumstances require that special arrangements be made for an individual student or class, the Dean of the appropriate college, after consultation with the faculty member involved, may authorize an exception to the schedule. Faculty members must maintain student final examination papers for a minimum of three months following the examination date.

Incomplete Grade Policy: If a student, because of extenuating circumstances, is unable to complete all of the requirements for a course by the end of the semester, then the instructor may recommend an Incomplete (I) for the course. The "I" may be assigned in place of a grade only when all of the following conditions are met: (a) the student has been making satisfactory progress in the course; (b) the student is unable to complete all coursework or final exam due to unusual circumstances that are beyond personal control and are acceptable to the instructor, and (c) the student presents these reasons before the time that the final grade roster is due. The semester credit hours for an Incomplete will not be used to calculate the grade point average.

The student and the instructor must submit an Incomplete Form detailing the work required and the time by which the work must be completed to their respective department chair or college dean for approval. The time limit established must not exceed one year. Should the student fail to meet all of the work for the course within the time limit, then the instructor may assign zeros to the unfinished work, compute the course average for the student, and assign the appropriate grade. If a grade has yet to be assigned within one year, then the Incomplete will be changed to an F, or NC. If the course was initially taken under the CR/NC grading basis, this may adversely affect the student's academic standing.

Grade Appeal Policy: Disputes regarding grades must be initiated within sixty (60) days from the date of receiving the final course grade by filing a Grade Appeal Form with the instructor who assigned the grade; this is separate from the Application for Appeal form submitted to the Student Appeals Committee, which does not rule on grade disputes as described in this policy. If the student is not satisfied with the decision, the student may appeal in writing to the Chairperson of the department from which the grade was issued. In situations where there is an allegation of capricious grading, discrimination, or unlawful actions, appeals may go beyond the Chairperson to the Dean of the college from which the grade was issued, with that decision being final. The Grade Appeal form is found in the Registrar's Form Library.

Disability/Accessibility Services: In accordance with Section 504 of the Rehabilitation Act, Americans with Disabilities Act (ADA) and the ADA Amendments Act (ADAAA), the University of Texas at Tyler offers accommodations to students with learning, physical, and/or psychological disabilities. If you have a disability, including a non-visible diagnosis such as a learning disorder, chronic illness, TBI, PTSD,

ADHD, or a history of modifications or accommodations in a previous educational environment, you are encouraged to visit https://hood.accessiblelearning.com/UTTyler and fill out the New Student application. The Student Accessibility and Resources (SAR) office will contact you when your application has been submitted and an appointment with the Assistant Director Student Accessibility and Resources/ADA Coordinator. For more information, including filling out an application for services, please visit the SAR webpage at https://www.uttyler.edu/disability-services, the SAR office located in the University Center, # 3150, or call 903.566.7079."

Military Affiliated Students: UT Tyler honors the service and sacrifices of our military-affiliated students. If you are a student who is a veteran, on active duty, in the reserves or National Guard, or a military spouse or dependent, please stay in contact with your faculty member if any aspect of your present or prior service or family situation makes it difficult for you to fulfill the requirements of a course or creates disruption in your academic progress. It is important to make your faculty members aware of any complications as far in advance as possible. Your faculty member is willing to work with you and, if needed, put you in contact with university staff who are trained to assist you. The Military and Veterans Success Center (MVSC)has campus resources for military-affiliated students. The MVSC can be reached at MVSC@uttyler.edu or via phone at 903.565.5972.

Academic Honesty and Academic Misconduct: The UT Tyler community comes together to pledge that "Honor and integrity will not allow me to lie, cheat, or steal, nor to accept the actions of those who do." Therefore, we enforce the Student Conduct and Discipline policy in the Student Manual Of Operating Procedures (Section 8).

Family Educational Rights and Privacy Act (FERPA): UT Tyler follows the Family Educational Rights and Privacy Act (FERPA) as noted in University Policy 5.2.3. The course instructor will follow all requirements to protect your confidential information.

Absence for Official University Events or Activities: This course follows the practices related to approved absences as noted by the Student Manual of Operating Procedures (Sec. 1 -501).

Absence for Religious Holidays: This course follows the practices related to Excused Absences for Religious Holy Days as noted in the Catalog.

Campus Carry: We respect the right and privacy of students who are duly licensed to carry concealed weapons in this class. License holders are expected to behave responsibly and keep a handgun secure and concealed. More information is available at http://www.uttyler.edu/about/campus-carry/index.php .