Biology 309 – Principles of Genetics
Fall 2025

Meeting times:
Lecture**:** Tu/Th 12:30 p.m. – 1:45 p.m. (SC 2133)
Recitation**:**
Section 05 - Tuesday 9:30 - 11:20 am (SC 1330)
Section 06 – Wednesday 9:30 - 11:20 pm (SC 1330)
Section 07 - Wednesday 11:30 - 1:20 pm (SC 1330)
Section 08 – Thursday 9:30 - 11:20 am (SC 1330)

Instructor:
Dr. Leann Norman
E-mail: lnorman@towson.edu
Office: Science Complex 3101P
Office Hours: Monday: (Virtual via Zoom; *please email in advance*) 8:00 - 9:30am
Wednesday: 8:00 - 9:30am

Course Objectives:
This course is designed to expose students to the basic principles of genetics. Students will explore the basic concepts of classical, molecular and population genetics. Major topics covered include: the inheritance of Mendelian as well as complex traits, the molecular basis of inheritance, the use of modern technologies in the study of genetics, the genetics of disease and complex traits, and the role of genetics in understanding evolution, ecology, and conservation biology.
By the end of the course, students should be able to:

- Solve Mendelian inheritance problems and interpret the results
- Describe the basic structure of DNA, RNA and proteins and explain how the structure of those molecules is related to their biological functions
- Describe the processes of replication, transcription and translation
- Describe the mechanisms of the control of gene expression
- Explain the molecular processes that are involved in the inheritance of traits
- Describe basic genome structure, and the mechanisms of genomic change and evolution
- Critically analyze data from primary literature sources in genetics
- Describe techniques that are currently used in genetics, medicine and biotechnology
- Relate genetic processes to evolutionary and ecological models
- Relate an understanding of genetics to significant contemporary issues

Course catalogue description:
Problem-based genetics: Mendelian genetics, genetic linkage and mapping, nucleic acid structure, replication and function, protein synthesis and the genetic code, gene expression and regulation, mutation, repair, and recombination, recombinant DNA technology, and population genetics.

Prerequisites: This course is intended to follow BIOL200/L, BIOL206/L, and CHEM 131/L with a grade of C or better.

Text: Genetics: A Conceptual Approach. Benjamin A. Pierce W.H. Freeman, 7th Edition. This is not a required text; however, chapters listed in the syllabus as corresponding to lectures are from this text and can serve as a resource throughout the semester.

Cook Library has placed a copy of the textbook on course reserves. You can borrow the book from the library for free for two hours at a time by going to the Ask Us Desk on Cook Library's main floor, asking for the title, and presenting your OneCard.

Missed Assignment/Recitation Policy: Make-up opportunities for missed assignments and recitations are given at the discretion of the instructor. Communication from the student regarding missed assignments and recitations must be made **within 48 hours** following the assessment.
Again, absences and make-up opportunities are excused at the sole discretion of the instructor.
When in doubt – email your instructor as early as possible!

Attendance Policy: Attendance is strongly encouraged for lecture and recitation. It is in the best interest of the student to make sure that classes are attended to be successful with assignments and exams. Participation points are awarded for being on time to recitations, participating during the exercise, and not leaving early.

Components of Grade: There are two major components to this course: lecture and recitation. Lecture is designed to give students an understanding of the basics of genetics. During recitation, students will complete problem sets and participate in group activities in order to further their understanding of the materials presented in lecture.

Grading policy: Grades are posted to Blackboard, typically within a week of the assignment due date. Requests to regrade an assignment will be granted only when a student can present clear evidence that a grading error was made, such as an addition error or missing a correct answer. Requests for re-grading must be made via email to lnorman@towson.edu **within one week** of the date that the graded assignment was returned to students.

Points:

Lecture	
Blackboard Quizzes (lowest two dropped), 8 x 10 pts	80 points
Midterm Exams 3 x 100 pts	300 points
Optional Cumulative Final Exam (100 pts; replaces lowest midterm exam)	
Recitation	
Recitation Assignments (lowest of 12 dropped), 11 x 15 pts	165 points
Recitation Participation	25 points
Total points	**570 points**

Grading Scale: Averages will be rounded to the nearest 0.1%

A	≥ 92.0%	A-	89.0 < 92.0%		
B+	86.0 < 89.0%	B	82.0 < 86.0%	B-	79.0 < 82.0%
C+	76.0 < 79.0%	C	69.0 < 76.0%		
D	60.0 < 69.0	F	< 60.0%		

Quizzes:

Ten quizzes will be given to encourage you to stay current with the material and to give you practice with exam-type questions. Quizzes will be available on Blackboard all day during the scheduled date as well as 24 hours after the day of the Quiz date listed on the syllabus. Quizzes must be completed on Blackboard either on the due date or within the 24-hour grace period. Students may use notes and textbooks during the quizzes; however, they are timed and need to be completed by each student independently in one sitting. **Online sources (google, AI, internet searching, etc.) should not be used during quizzes.** The lowest two quiz scores will be dropped and there will be no make-up quizzes unless approved by the instructor (including possible technical issues). If you do experience computer problems, please screen shot the error and email it to me as soon as possible, being sure to explain what happened.

Exams:

Exam dates are listed clearly on the lecture schedule. There are three exams and an optional cumulative final exam in this course (please see syllabus schedule for specific dates). Exams will cover material from both lectures and recitations. Makeup exams will not be given without instructor permission. If an exam is missed, the student will take the cumulative final exam during the scheduled final exam period. The cumulative final exam score will be used to replace the lowest midterm exam score or a single missed exam. Any additional missed exams will be scored as a zero. For all exams you will need Scantron Form No. 95946, available at the bookstore for about 30¢ each. This form is the only acceptable assessment answer sheet for exams.

Exam Materials:

Always bring a #2 pencil and calculator to exams. Pencils and calculators cannot be shared during exams. You may not use any electronic device during exams except for your calculator: no phones, tablet, smart watches laptops, etc. Bring an extra calculator and batteries in case of failure. Again, for all exams, you will need Scantron Form No. 95946, available at the bookstore. This form is the only acceptable assessment answer sheet for exams so buy extras and bring them to exams.

Recitations:

Recitations and assignments complement material introduced in lecture, but do not always follow the same schedule of topics. Any reading to be done before recitation is typically posted to Blackboard unless otherwise noted. Recitation work is usually done in assigned groups and many will require access to a calculator and computer (*see computer access details below)*. Exam weeks labeled as "*Flex Week*" on the calendar will typically involve a virtual (asynchronous) assignment. Details will be shared at the start of each "*Flex Week*". Participation points are awarded for being on time to recitations, participating during the exercise, and not leaving early. Every group member must be present until the group is finished. Exercises are

typically posted to Blackboard before class; completed in class and submitted online before the end of class. Unless otherwise noted, paper copies are not supplied or accepted. The lowest recitation assignment grade will be dropped at the end of the semester. Missed *and excused* recitation assignments will be granted at the discretion of the instructor and should be scheduled within 48hours of the missed recitation.

Computer access:

Many of the recitation exercises will require access to a computer that has a spreadsheet program and access to the internet. The Department may be able to supply Microsoft laptops during the recitation session, but it may be more convenient to use your own. You will need a word processor and a spreadsheet program; all instructions are written for the Windows version of Excel. Please reach out to your instructor if you anticipate difficulty finding access to a computer.

Academic Integrity Policy and the Use of AI:

You are expected to complete all assignments, including quizzes and exams, by yourself and submit them by the deadlines. The only exception to this is for group activities in recitations unless otherwise noted. Violations of this constitute academic misconduct, also known as cheating. Academic dishonesty, including cheating, will earn a zero for that assignment on the first offense and a zero for the course on the second offense.

Cheating means using, attempting to use, and/or disseminating unauthorized materials, information, notes, study aids, videos, or other devices in any academic exercise. This includes unauthorized communication of information during an exercise or exam. Some examples include but are not limited to: Copying from another student's paper or receiving unauthorized assistance during any graded deliverable; using books, notes or other devices (e.g., calculators, phones, watches, laptops, or other internet enabled devices) when these are not authorized; procuring without authorization tests or examinations before the scheduled exercise (including discussion of the substance of examinations and tests when it is expected these will not be discussed); copying reports, laboratory work, computer programs or files and the like from other students; collaborating on laboratory or computer programs or files and the like with other students; collaborating on laboratory or computer work without authorization and without indication of the nature and extent of the collaboration; sending a substitute to take an examination, using solutions manuals, providing exam and assignment questions to student websites or using such a website to complete an assignment and/or exam (including free or pay websites that maintain textbook and/or instructor solutions). To clarify, copying or collaborating with other students or using external resources, including other people, on any type of assignments that are expressly designed to be completed individually is cheating. You will never, in this class, be permitted to plagiarize, meaning to use the work of another person or a tool such as ChatGPT, for any purpose. If you are ever uncertain about how you should work on an assignment, please contact me.

Recorded sessions and any associated materials are designated ONLY for registered students in the class. Any sharing or dissemination of recordings beyond the student body registered in the course and section constitutes a violation of privacy and may also be categorized as cheating or defamation of character (depending on the circumstance), a possible copyright infringement. Personal recording of any synchronous sessions (including a recording on your own phone,

computer, or alternate source) or class material is not allowed unless written approval has been received by the instructor and requested prior to recording.

Complicity in Academic Dishonesty means helping or attempting to help another commit an act of academic dishonesty. Some examples include but are not limited to: Allowing another to copy from one's paper during an examination or test; distributing test questions or substantive information about the material to be tested without authorization before the scheduled exercise; collaborating on academic work that is expressly designed to be completed individually; taking an examination or test for another student; signing a false name on an academic exercise; or sharing assignment or exam information before, during, or after the deliverable in written, electronic, video, or verbal form. (Note: Collaboration and sharing information are characteristics of academic communities. These become violations when they involve dishonesty. Students should seek clarification when in doubt).

Abuse of Academic Materials means destroying, stealing, or making inaccessible library or other resource materials. Some examples include: Stealing or destroying library or reference materials needed for common academic exercises; hiding resource materials so others may not use them; destroying computer programs or files needed in academic work; stealing or intentionally destroying another student's notes or laboratory experiments; receiving assistance in locating or using sources of information in an assignment where such assistance has been forbidden by the instructor.

Violations of the Academic Integrity Policy are documented and reported to the University. View more on academic dishonesty here:
https://www.towson.edu/about/administration/policies/documents/polices/03-01-00-student-academic-integrity-policy.pdf

Copyright:
Lectures and course materials, including, but not limited to power point presentations, tests, outlines, assignments, video recordings and similar materials, are protected by copyright. You may take notes of course materials for your own use; however, you may not, nor may you allow others to, reproduce, or distribute lecture notes and course materials publicly whether or not a fee is charged without my express written consent (this includes uploading to online websites and/or tutoring programs). Similarly, you own copyright in your original papers and exam essays. If I am interested in posting your answers or papers on the course website, I will ask for your written permission. Again, recording of any synchronous sessions (including a recording on your own phone, computer or alternate source) or class material is not allowed unless written approval has been received by the instructor and requested prior to recording.

Student Conduct and Professionalism:
Students are expected to behave professionally at all times during class and during all interactions with the instructor. Students can expect to be treated likewise in a professional manner. Disruptive behavior of any kind will not be tolerated. Late arrivals and early departures from class and lab are disruptive; please arrive on time for class. Personal electronic devices including cell phones and smartwatches must be silenced prior to the start of lecture and recitation.

· Engage with others in a respectful manner.

· Keep in mind that written communication lacks the non-verbal cues we use to understand each other. It may be helpful to review what you write to ensure the message reads the same way you are intending it to.

· Remember the TU Student Code of Conduct in all online engagement.

· It is not appropriate to post statements of a personal or political nature, or statements criticizing classmates or faculty. Inappropriate statements/language will be deleted by the course faculty.

Emails:
Emails are the official means of communication between the students and the University (including the instructor). Typically, the instructor will promptly respond to students' emails. However, if a student emails in the evening, it may not be read until the next morning. If a student emails over the weekend, it may take 24-48 hours before an email response is sent. You should include "BIOL309" in the subject line of emails sent to the instructor, or they may be filtered to the spam box and therefore not be seen or answered. If you do not get a response to an email, check your subject line.

Course Repeat Policy:
Students may not repeat the course more than once without prior permission of the Academic Standards Committee.

Technology Statement:
Feel free to use electronic devices in class as long as their use 1) does not distract from your own or your classmates' learning, and 2) it is not during assignments or exams, or other times that the instructor may designate. Please have phone ringers and vibration off during the class. This policy is subject to change especially if repeated corrections are made due to electronic devices in the classroom.

Americans with Disabilities Act:
Students with disabilities are encouraged to register with Accessibility & Disability Services (ADS), 7720 York Road, Suite 232, 410-704-2638 (Voice) or 410-704-4423 (TDD). Students who suspect that they have a disability but do not have documentation are encouraged to contact ADS for advice on how to obtain appropriate evaluation. A memo from ADS authorizing your accommodation is needed and must be presented to the instructor before any accommodation can be made. Accommodations are not retroactive to previous exams or assignments.

Diversity Statement:
We welcome individuals of all ages, backgrounds, citizenships, disability, sex, education, ethnicities, family statuses, genders, gender identities, geographical locations, languages, military experience, political views, races, religions, sexual orientations, socioeconomic statuses, and work experiences. Towson University values diversity and fosters a climate that is grounded in respect and inclusion, enriches the educational experience of students, supports positive

classroom and workplace environments, promotes excellence, and cultivates the intellectual and personal growth of the entire university community. Should you feel that you are experiencing a negative environment related to diversity issues or cultural sensitivity, we encourage you to contact the Department's Diversity Committee Chair, Dr. Colleen Winters (cwinters@towson.edu).

Title IX Statement:

Towson University (TU) is committed to ensuring a safe, productive learning environment on our campus that does not tolerate sexual misconduct, including harassment, stalking, sexual assault, sexual exploitation, or intimate partner violence [Policy 06.01.60]. It is important for you to know that there are resources available if you or someone you know needs assistance. You may speak to a member of university administration, faculty, or staff, but keep in mind that they have an obligation to report the incident to the Title IX Coordinator. It is a goal that you feel able to share information related to your life experiences in classroom discussions and in one-on-one meetings. However, it is required to share information with the Title IX Coordinator regarding disclosures, but know that the information will be kept private to the greatest extent possible. If you want to speak to someone who is permitted to keep your disclosure confidential, please seek assistance from the TU Counseling Center 410-704-2512 to schedule an appointment, and locally, within the community at TurnAround, Inc., 443-279-0379 (24-hour hotline) or 410-377-8111 to schedule an appointment.

Major Campus Emergencies:

In the event of a major campus emergency (including inclement weather), course requirements, deadlines and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances beyond the instructor's control. The official source for information about campus closings or emergencies is www.towson.edu. Information about changes in this course will be distributed via Blackboard or emails from the instructor (lnorman@towson.edu).

To report a medical or fire emergency, call 911; to contact Towson Police (TUPD) call 410.704.4444. To obtain updates regarding an ongoing emergency, sign up for Towson alert text messages, view towson.edu/publicsafety/notification. There are emergency telephones outdoors across campus and in parking garages that connect directly to the TUPD. If you feel threatened or need help, push the button and you will be connected immediately.

Week of	Week	Lecture	Textbook chapter	Recitation
Aug 25	1	Intro to Genetics Chromosomes & Cellular Reproduction	1, 2	***No scheduled recitation***
Sept 1	2	Mendelian Genetics **Quiz 1 (Thursday, Sept 4th)**	3	Assignment #1
Sept 8	3	Extensions of Mendelian Genetics Linkage of Traits **Quiz 2 (Thursday, Sept 11th)**	4, 5	Assignment #2
Sept 15	4	Linkage of Traits Recombination & Chromosome Mapping **Quiz 3 (Thursday, Sep 18th)**	5,7	Assignment #3
Sept 22	5	**EXAM I – Tuesday, Sept. 23rd 12:30 - 1:45pm** Chromosome Variation	8	Assignment #4 *(Flex week)*
Sept 29	6	DNA Structure Chromosome Structure **Quiz 4 (Thursday, Oct. 2nd)**	10, 11	Assignment #5
Oct 6	7	DNA Replication & Recombination **Quiz 5 (Thursday, Oct. 9th)**	12	Assignment #6
Oct 13	8	DNA Transcription **Quiz 6 (Thursday, Oct. 16th)**	13	Assignment #7
Oct 20	9	RNA Processing & Translation **Quiz 7 (Thursday, Oct. 23rd)**	14, 15	Assignment #8
Oct 27	10	**EXAM II – Tuesday, Oct. 28th 12:30 - 1:45pm** Control of Gene Expression	16	Assignment #9 *(Flex week)*
Nov 3	11	Control of Gene Expression **Quiz 8 (Thursday, Nov. 6th)**	16, 17	Assignment #10
Nov 10	12	Gene Mutations & DNA Repair Biotechnology & Genetics **Quiz 9 (Thursday, Nov. 13th)**	18, 19	Assignment #11
Nov 17	13	Cancer Genetics Population Genetics **Quiz 10 (Thursday, Nov. 20th)**	23, 25	Assignment #12
Nov 24	14	Evolutionary Genetics *Thanksgiving Holiday, Campus Closed: Nov. 26 –30th)*	26	*Holiday week: No scheduled recitations*
Dec 1	15	Evolutionary Genetics **EXAM III – Thursday, Dec. 5th 12:30am - 1:45pm**	26	*Flex week: Semester Review*
Dec 8	16	Monday, Dec 8th (Last day of classes) **FINAL EXAM: Tuesday, Dec. 9th 12:30 – 2:30pm**		

****Syllabus and schedule subject to change.**