



**NORTHEAST TEXAS**  
**COMMUNITY COLLEGE**

## **BIOL 2316.088 Genetics**

**Course Syllabus: Spring 2024 (online)**

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*“Northeast Texas Community College exists to provide personal, dynamic learning experiences empowering students to succeed.”*

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<b>Office Hours</b>	<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>	<b>Friday and Weekends</b>
	9:00 – 11:00 a.m. and by appointment TEAM Meetings Available Upon Request	9:00 a.m.–noon and by appointment TEAM Meetings Available Upon Request	9:00 –11:00 a.m. and by appointment TEAM Meetings Available Upon Request	9:00 a.m.–noon and by appointment TEAM Meetings Available Upon Request	Email <a href="mailto:lpresley@ntcc.edu">lpresley@ntcc.edu</a>

*This syllabus serves as the documentation for all course policies and requirements, assignments, and instructor/student responsibilities.*

*Information relative to the delivery of the content contained in this syllabus is subject to change. Should that happen, the student will be notified.*

**Course Description:** 3 credit hours

Study of the principles of molecular and classical genetics and the function and transmission of hereditary material. May include population genetics and genetic engineering.

**Prerequisite(s):** 8 hours of college-level biology

### **COURSE Student Learning Outcomes:**

1. Define genetics and heredity and explain how DNA is maintained and how it provides information to construct a protein.
2. Distinguish somatic cells from germ cells and diploid from haploid along with describing the main events of the cell cycle.
3. Explain the steps in sperm and oocyte formation and how meiosis is necessary to reproduction.
4. Solve single-gene and multiple-gene inheritance problems in light of Mendelian genetics.
5. Describe the impact of epistasis, penetrance, expressivity, pleiotropy, gene linkage, and sex-linkage on gene expression.
6. Explain how mitochondrial DNA differs from nuclear DNA and the mode of inheritance of a mitochondrial trait.
7. Define multifactorial traits and heritability.
8. Explain the structure of the DNA molecule and the mechanisms of replication, transcription and translation.
9. Describe the nature of gene variants.
10. Draw and describe the major components of a chromosome and distinguish between normal chromosome number and abnormal chromosome number.

11. List the characteristics of a cancerous tumor, explain how the loss of the control of the cell cycle causes cancer, and distinguish the difference between driver and passenger mutations in cancer.
12. Describe causes of infertility in males and females, ARTS that donate sperm, uterus or oocyte and the steps of in vitro fertilization. Evaluation/Grading Policy:

### **Evaluation and Grading Policy**

10% Assignments (online homework, quizzes and discussion posts)

10% Research Paper

40% Unit Tests 1-4

20% Midterm (taken at an approved proctored location)

20% Final Exam (taken at an approved proctored location)

Final Grades will be determined as follows:

90.0 --- 100 = A

80.0 --- 89.9 = B

70.0 --- 79.9 = C

60.0 --- 69.9 = D

59.9 and < = F

**Required Instructional Materials:** We have negotiated with the Publisher to obtain a discounted price for your lecture course materials. The eBook and Connect Access Code are included with your tuition and will be available through Blackboard on the first day of class (use the link found on the Bb course homepage). The materials are required for your class and essential in your success. If you also determine that you would like a print copy of your text in addition to your inclusive access loose-leaf copies will be available in the College Store at a discounted price. You may opt out of purchasing your materials from the College Store through the Census Date for the course. If you choose to opt out, you will be responsible for purchasing your Connect Access Code from another vendor. You will receive a refund for the Inclusive Access if you opt out.

**Textbook or eBook:** Human Genetics 14 Edition (Rikki Lewis) Publisher: McGraw Hill

**Minimum Technology Requirements:** Laptop or computer with webcam Access to high-speed daily internet Microsoft Office 365 (available as a free download for all NTCC students) Chrome Browser and Proctorio browser extension required.

**Required Computer Literacy Skills:** Ability to use a Chrome web browser to access NTCC Blackboard System for course information, eBook and Connect assignments and Proctorio for test monitoring as required. Ability to access NTCC student email system and communicate professionally and competently with instructor. Ability to create and complete Word documents, save on your computer and upload into Bb assignment links and TurnItIn.com.

**Course Structure and Overview:** BIOL 2316 is a 16-week online course in genetics. The course is divided into 4 units with each unit covering 3 to 4 chapters in the textbook. Students complete each chapter by 1) reading the Smart Book assignment, 2) watching the instructional videos available, 3) completing the Connect homework assignment and quiz. This course will require you to spend a minimum of 4 to 6 hours per week on these activities so you will want to plan your time accordingly. All Smart Book and homework assignments are due on Sunday evening. A printable calendar is available which clearly shows all due dates. Connect homework assignments are automatically submitted on the due date. After the due date, you are allowed study attempts on the homework prior to the exam but there are no extensions for missed due dates on homework. Each chapter also requires you to complete a chapter quiz. The chapter quizzes are due on Tuesday evenings. Each quiz has a time limit of 30 minutes, and you will have 2 attempts to complete with a 5% deduction on the second attempt. There is a 10% deduction for each day late you complete the quiz.

**Assignments, Quizzes, Unit Tests, Research Paper, Mid-term and Final Exams:**

- Smart Book, homework assignments, and quizzes are assigned using McGraw-Hill Connect.

- **Smart Book** is your opportunity to read each chapter and practice what you have learned along the way. Smart Book can be utilized each week according to the printed schedule. You will receive credit for your work in Smart Book.

- **Connect Homework Assignments:** Each chapter assignment has 20-25 questions. There is no time limit and you do not have to complete the work in one sitting, but the assignment will automatically be submitted on the due date. You have 2 attempts to complete the assignment before the due date and if you use your second attempt, you will simply revise the previous submission. After the due date, you can access the assignment as many times as you like as study attempts. If you miss the due date and open the assignment as a study attempt, you will not receive credit for completing the assignment. There are no extensions of the due date.

- **Connect Quizzes:** Each chapter quiz has 20-25 questions. You will have a time limit of 30 minutes to complete the quiz. You will have to complete the quiz in one sitting, but you have 2 attempts to take the quiz before the due date. The second attempt will include a 5% deduction. The quiz automatically submits on the due date. After the due date, you can access the quiz as a study attempt without it affecting your grade. If you have not completed the quiz by the due date and open it as a study attempt, you will not be awarded a grade and cannot receive an extension.

- **Unit Tests:** Each unit test contains 50 to 75 questions drawn from a larger pool of questions. Each unit test has a time limit of 70-80 minutes. You will have 2 attempts on each unit exam with average grade for the 2 attempts recorded. Each unit test will be proctored using Proctorio.

- o The following items will be verified before you can take the exam: ▪ Your ID, signature and face visible

- o The following items will be recorded during exams: ▪ Camera feed and audio ▪ Exam environment

- o The following items will be restricted during exams: ▪ Full screen mode ▪ All existing tabs in browser closed and no new tabs allowed ▪ Only one monitor allowed ▪ No downloads, no clipboard, no right-clicking, no printing and all browser extensions will be disabled

- An 8-page research paper covering an approved topic in human genetics. Your topic must be submitted for approval by the instructor by **February 15, 2024**, and the final paper must be submitted by **April 17, 2024**. The paper should be double-spaced, 12-point font. A minimum of 3 resources (not including the textbook) should be used. MLA or APA formatting is acceptable. You will upload your research paper into the link on the homepage for TurnItIn.com. You may upload your paper multiple times prior to the due date to check for indications/flags of plagiarism and make those corrections prior to the due date.

- The mid-term and final exams are proctored exams which you must take in person at a college testing center or public library with a proctoring service. Failure to take the final exam will result in a grade of “F” for the course. If you reside in the NTCC service area, you must take the midterm and final on campus at the NTCC testing center on the main campus. The testing center is located on the main campus of NTCC in the Student Services Building. The hours of the testing center are generally: Monday—Thursday 8:00 a.m. to 6:00 p.m. and Friday 8:00 a.m. to 12:00 p.m. (But do check directly with the testing center as sometimes changes occur). If you do not reside in the NTCC service area, you will be asked to contact the instructor the first two weeks of the semester and identify a college testing center (preferred) or public library with an exam proctoring service where you can be proctored while taking these exams. Please be aware that other college testing centers or libraries may charge a fee for you to use their facilities. You will need to provide the physical address, email address and phone number for the proposed proctoring location. The instructor will contact the center to verify the appropriateness of the location for approval. Proctored exams must be taken using the testing center’s network. Mobile hot spots are not acceptable when taking the mid-term and final exams.

**Communications:** NTCC email is the official form of communication used by the college. The instructor will respond to student emails within 24 hours of receipt. **You should NOT expect an immediate response from your instructor in reply to your email.** While I will try to respond in a timely fashion, I do not always have my phone on my person, and I do not have notifications set on my phone to alert me the moment an email arrives in my inbox. (On the weekends it may be up to 48 hours after receipt of email.) Feedback and grades on assignments and postings will be posted 48 to 72 hours after due date/time of assignment.

**Institutional/Course Policy:** Northeast Texas Community College is a “community of scholars.” Please remember that you and all students in this class are pursuing very important goals in your lives. As scholars, I

expect every student to be courteous to other students and the instructor in all online experiences. As your instructor, I will make a conscientious effort to provide you with a variety of teaching and learning formats to help you in your efforts to be successful in Genetics.

I care about your learning experience and your success in this course, however that ultimate success does depend largely on **YOU**. Your success can be maximized and your potential achieved by making the commitment to meet these online expectations:

1. Schedule and plan to complete all lecture and laboratory assignments and submit them when they are due. Be sure to print off the calendar to help you keep up with assignment due dates. Late assignments are not accepted unless the student can provide a compelling reason for submitting late work. No tests or exams may be taken late.
2. Be sure to do all your own work. Collusion and plagiarism are acts of academic dishonesty.
3. The last day to drop the course with a grade of W is **April 18**. If circumstances require you to withdraw from this course, you must do so by that date. It is the student's responsibility to initiate the withdrawal with the registrar's office. Failure to officially withdraw will result in your receiving a grade of F.

### **Alternate Operations During Campus Closure and/or Alternate Course Delivery Requirements**

In the event of an emergency or announced campus closure due to a natural disaster or pandemic, it may be necessary for Northeast Texas Community College to move to altered operations. During this time, Northeast Texas Community College may opt to continue delivery of instruction through methods that include, but are not limited to, online through the Blackboard Learning Management System, online conferencing, email messaging, and/or an alternate schedule. It is the responsibility of the student to monitor NTCC's website (<http://www.ntcc.edu/>) for instructions about continuing courses remotely, Blackboard for each class for course-specific communication, and NTCC email for important general information.

Additionally, there may be instances where a course may not be able to be continued in the same delivery format as it originates (face-to-face, fully online, live remote, or hybrid). Should this be the case, every effort will be made to continue instruction in an alternative delivery format. Students will be informed of any changes of this nature through email messaging and/or the Blackboard course site.

### **Statement Regarding the Use of Artificial Intelligence (AI) Technology:**

Absent a clear statement from a course instructor, use of or consultation with generative AI shall be treated analogously to assistance from another person (collusion). Generative AI is a subset of AI that utilizes machine learning models to create new, original content, such as images, text, or music, based on patterns and structures learned from existing data (Cornell, Center for Teaching Innovation). Unauthorized use of generative AI tools to complete an assignment or exam is not permitted. Students should acknowledge the use of generative AI and default to disclosing such assistance when in doubt. Individual course instructors may set their own policies regulating the use of generative AI tools in their courses, including allowing or disallowing some or all uses of such tools. Students who are unsure of policies regarding generative AI tools are encouraged to ask their instructors for clarification. (Adapted from the Stanford University Office of Community Standards-- accessed August 31, 2023)

### **NTCC Academic Honesty/Ethics Statement:**

NTCC upholds the highest standards of academic integrity. The college expects all students to engage in their academic pursuits in an honest manner that is beyond reproach using their intellect and resources designated as allowable by the course instructor. Students are responsible for addressing questions about allowable resources with the course instructor. Academic dishonesty such as cheating, plagiarism, and collusion is unacceptable and may result in disciplinary action. This course will follow the NTCC Academic Honesty and Academic Ethics policies stated in the Student Handbook. Refer to the student handbook for more information on these subjects.

### **ADA Statement:**

It is the policy of NTCC to provide reasonable accommodations for qualified individuals who are students with disabilities. This College will adhere to all applicable federal, state, and local laws, regulations, and guidelines

with respect to providing reasonable accommodations as required to afford equal educational opportunity. It is the student's responsibility to request accommodations. An appointment can be made with the Academic Advisor/Coordinator of Special Populations located in Student Services and can be reached at 903-434-8264. For more information and to obtain a copy of the Request for Accommodations, please refer to the special populations page on the NTCC website.

### **Family Educational Rights and Privacy Act (FERPA):**

The Family Educational Rights and Privacy Act (FERPA) is a federal law that protects the privacy of student education records. The law applies to all schools that receive funds under an applicable program of the U.S. Department of Education. FERPA gives parents certain rights with respect to their children's educational records. These rights transfer to the student when he or she attends a school beyond the high school level. Students to whom the rights have transferred are considered "eligible students." In essence, a parent has no legal right to obtain information concerning the child's college records without the written consent of the student. In compliance with FERPA, information classified as "directory information" may be released to the general public without the written consent of the student unless the student makes a request in writing. Directory information is defined as: the student's name, permanent address and/or local address, telephone listing, dates of attendance, most recent previous education institution attended, other information including major, field of study, degrees, awards received, and participation in officially recognized activities/sports.

### **Eagle Assist**

At Northeast Texas Community College, we understand that students often need support that extends beyond the classroom. "Eagle Assist" is the place to start when looking for that type of assistance. Our support system is here to help you succeed in both your academic and personal growth. [www.ntcc.edu/eagleassist](http://www.ntcc.edu/eagleassist)

### **Services provided:**

- [Mental Health Counseling](#)
- [Classroom Accommodations](#)
- [NTCC Care Center Food Pantry](#)
- [NTCC Care Center Hygiene Closet](#)
- [NTCC Care Center Cook Nook](#)
- [Financial Literacy](#)
- [Child Care Assistance](#)
- [Emergency Aid](#)

Can't find what you are looking for? Send us a message at [eagleassist@ntcc.edu](mailto:eagleassist@ntcc.edu)

[Mental Health Counseling Services](#) are available to all NTCC students.

- Visit the following page to get your account activated:

[www.thevirtualcaregroup.com/ntcc](http://www.thevirtualcaregroup.com/ntcc)

**Tentative Lecture Timeline (\*note\* instructor reserves the right to adjust this timeline at any point in the term):**

### **Tentative Course Timeline:**

Week 1: What's in a Human Genome?

Week 2: Cells

Week 3: Meiosis, Development & Aging; Test 1

Week 4: Single Gene Inheritance

Week 5: Beyond Mendel's Laws

Week 6: Matters of Sex

Week 7: Multifactorial Traits; Test 2

Week 8: Mid-term Chapters 1-7

Week 9: DNA Structure and Replication;

Week 10: Gene Action: From DNA to Proteins  
Week 11: Gene Expression & Epigenetics; Test 3  
Week 12: Gene Description  
Week 13: Chromosomes; Term paper due  
Week 14: Cancer Genetics and Genomics  
Week 15: Reproductive Technologies; Test 4  
Week 16: Final Exam Chapters 9-13, 20-23

### Appendix of Additional Information:

#### **\*What is McGraw-Hill Connect?**

The McGraw-Hill Connect provides you with access to your ebook. Additionally, within each Connect Folder in Blackboard you will see a link to three different activities: 1) SmartBook, 2) Chapter Assignment, and 3) Quiz.

- 1) **SmartBook assignments are not figured into your course grade;** however, they will be used as extra credit assignments with the extra points earned added to the Unit Test score. Students have said that doing the SmartBook exercises improved their grades as SmartBook assignments are beneficial to your understanding of the material. This guided reading helps identify areas that you are having trouble understanding and provides you with some “tutoring” in those areas. I have set the SmartBook to take average of 60 - 90 minutes, however, you can spend as much time on these reading activities as you need.
- 2) **Homework assignments are required and figured into the course grade.** These can be done 2 times before the due date. Five percent will be deducted for the 2<sup>nd</sup> try. There is no time limit, so it is advisable to start early and work on this all during the week. Use of the eBook and hints are available with no deductions. Feedback will be shown after submitting each attempt. After the first attempt, you will see what questions you got correct or incorrect. After the 2nd attempt, more detailed feedback is given. Printing is allowed on homework assignment questions. Study attempts: After the due date, these homework assignments will be available for practice without changing your grade. Assignments are automatically submitted on the due date. If you do not complete the assignment before that time, a grade of zero will automatically be recorded in the gradebook. If you open the assignment after the due date as a study attempt, you cannot receive an extension on the work.
- 3) **Quizzes are required and figured into the course grade.** Quizzes are usually 20 – 25 questions with a time limit of 30 minutes. Please use these quizzes to determine whether you have a true understanding of the material. Each quiz can be taken 2 times before the due date. Five percent will be deducted for the 2<sup>nd</sup> try, but I have set the quizzes and the homework assignments to take the highest grade, so it is to your advantage to correct your work and review the questions. The quizzes will be submitted automatically on the due date.