BIOL 2316.088 Genetics (online)

Course Syllabus: Fall 2021

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

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Office Hours	Monday	Tuesday	Wednesday	Thursday	Friday	Online
	9:30-10:30 AM	In class all day	1:30-4:30 PM	1:30-3:00 PM		Email anytime

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. Emphasis on human genetics.

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

Required Instructional Materials:
Inclusive Access: We have negotiated with the Publisher to obtain a discounted price for your lecture course materials. Your eBook for Human Genetics by Rikki Lewis and Connect Access Code are included with your tuition and will be available through Blackboard on the first class day (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.

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Optional Instructional Materials: none

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
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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.

Core Curriculum Purpose and Objectives:
Through the core curriculum, students will gain a foundation of knowledge of human cultures and the physical and natural world; develop principles of personal and social responsibility for living in a diverse world; and advance intellectual and practical skills that are essential for all learning. Courses in the foundation area of life and physical sciences focus on describing, explaining, and predicting natural phenomena using the scientific method. Courses involve the understanding of interactions among natural phenomena and the implications of scientific principles on the physical world and on human experiences.

College Student Learning Outcomes:

Critical Thinking Skills
CT.1
Students will demonstrate the ability to 1) analyze complex issues, 2) synthesize information, and 3) evaluate the logic, validity, and relevance of data.
Communication Skills
CS.1
Students will effectively develop, interpret and express ideas through written communication.
Empirical and Quantitative Skills
EQS.1
Students will manipulate numerical data or observable facts by organizing and converting relevant information into mathematical or empirical form.
EQS.2
Students will analyze numerical data or observable facts by processing information with correct calculations, explicit notations, and appropriate technology.
Team Work
TW2. Students will work with others to support and accomplish a shared goal.

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:

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

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, 18 and 21**

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 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 submit 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 and there is a 10% deduction for each day the quiz is late and not submitted by the due date. Each chapter quiz will be proctored by Proctorio.
    - The following items will be restricted during quizzes:
        - 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
- 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.
    - The following items will be verified before you can take the exam:
        - Your ID, signature and face visible
    - The following items will be recorded during exams:
        - Camera feed and audio
        - Exam environment
    - 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

- A 6-8-page research paper over an approved topic in human genetics. Your topic must be submitted for approval by the instructor by February 10, 2021 and the final paper must be submitted by **April 22, 2021.** 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.
- 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: Monday—Thursday 8:00 a.m. to 6:00 p.m. and Friday 8:00 a.m. to 12:00 p.m. 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.

Communication: NTCC email is the official form of communication used by the college. Please check your NTCC email daily for any important announcements or communications from me. I will post important announcements each week based on the topics that are to be studied. You should receive an email notification of these announcements as well. I encourage you to contact me with any questions that you have about the course through email. I will respond to your email within 24-36 hours but generally much sooner.

Institutional/Course Policy:

- Northeast Texas Community College is a "community of scholars." Please remember that you and all of the 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.
- All colleges and universities must remain diligent in their pursuit of assuring the academic integrity of their courses to maintain their accreditation status with Southern Association of Colleges and Schools and the Texas Higher Education Coordinating Board. The academic integrity of NTCC's online courses is maintained with the documented use of proctored mid-term and final examinations.
- 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 deeply 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:
    - Schedule and plan to complete all lecture assignments and submit them when they are due. Be sure to print off the calendar to help you keep up with assignment due dates.
    - Be sure to do all of your own work. Collusion and plagiarism are acts of academic dishonesty. Work that is copied and pasted directly from any website is not acceptable in any form on any assignment or test. See the Student Handbook, p. 90 for definitions of collusion, plagiarism, and cheating. Infractions can result in severe grading

penalties or failure.

- The last day to drop the course with a grade of W is **Tuesday, November 16, 2021**. 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.

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.