Instructor: Dr. Brenda E. Rodgers
Office: Biology 05
Phone: 834-3232
Email: via Blackboard mail system ONLY; http://www.depts.ttu.edu/ims/.
Office Hours: W (2-4pm); and by appointment.

Course Prerequisites: One year of introductory biology is required and at least six hours of college chemistry is recommended

Required Text:
Mark F. Sanders
John L. Bowman
ISBN-10: 0133889211
Publisher: Benjamin Cummings
Copyright: 2015
Format: Unbound (saleable);
880 pages
Trim Size: 8-1/2X10-7/8

Required Web Sites: http://www.depts.ttu.edu/ims/ - Blackboard access is restricted to registered students and is password protected. We will discuss the process during the introduction to the course (first class day). Should you miss that discussion, you will need to see me during office hours for clarification.

REEF Polling/Sapling Learning Genetics: http://bit.ly/saplinginstructions. Sapling Learning offers a grace period on payment; for most courses, this is 14 days from the first day of the term. During sign up or throughout the term, if you have any technical problems, please send an email to support@saplinglearning.com explaining the issue.

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<tr>
<td>1498601472</td>
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Lab Sections: Begin August 24th. You will receive materials and further instructions from your TA at that time. You should communicate directly with your TA regarding your lab assignments and attendance.
Expected Learning Outcomes:

By completing this course successfully, you will be equipped to:

- Describe the fundamentals of transmission genetics and how single gene inheritance, maternal inheritance patterns and multi-factorial traits affect phenotype.
- Understand the biochemistry and molecular biology of genetics.
- Apply basic statistical tools to genetic data sets.
- Demonstrate an understanding of bioethics from a genetics perspective.

Methods for Assessing the Learning Outcomes:

The expected learning outcomes will be assessed through:

- Interactive assessments on key concepts.
- Exams and pop quizzes.
- Group presentations and/or student-led discussions of key concepts.
- Preparation for and participation in class discussions of bioethics.
- Web-based exercises (specific learning outcomes will be linked to these exercises on the course website).
- Homework assignments.

GRADING POLICY: Your course grade will be determined as follows - Three unit exams (50%), a final exam (25%), attendance/participation/homework and performance in the lab section (25%). Final letter grades will be assigned as follows (% of total points): A=89-100%, B=79-88.5%, C=69-78.5%, D=59-68.5%, F= 58.5% and below.

NOTE: you must bring your student ID to each exam. Scantrons will be provided, pencils will not!

The last day to drop the course without academic penalty is: September 9th, 2015.

Grade Posting: Policies are in effect that strictly limit posting of grades. All grades will be posted ONLY on the Blackboard course website (http://www.depts.ttu.edu/lms/)

I cannot give them out over the phone, and I will not email them to you.

- **No makeup exams will be given.** The instructor must be notified within 24 hours of any emergency that causes you to miss an exam. To receive an excused absence from an exam you MUST provide me with verifiable documentation of an illness, emergency, or university sponsored mandatory activity. If you have a medical, family, or personal emergency and are not able to contact me before the exam, please contact me within 48 h, and I will evaluate your situation. Should you then be excused from the missed exam, your final exam grade will be substituted for the missed exam. CAUTION: Failed alarm clocks are not considered personal emergencies.

- The final exam is mandatory and comprehensive. You must put your top effort into preparing for each exam, since you have no way of predicting your performance (or illnesses) later in the course. CAUTION: Historically, final exam grades are rarely higher than the average lecture exam scores, so it is foolish to depend on the final to increase your grade substantially.

- **Classroom Etiquette:** Disruptive behavior during lecture or exams will not be tolerated. Cell phones and laptop computers may be used for REEF Polling questions and note taking ONLY! Texting, sleeping, talking to classmates is considered disruptive behavior and is disrespectful to
me and your colleagues. **You may be asked to leave if your behavior is disruptive!**

- **Attendance:** Attendance in lecture is your responsibility. Experience shows that test scores are very good indicators of who has been in class. Attendance in your weekly lab section is **MANDATORY**. Missing these sessions will impact your overall grade (remember 25% of your total points will be obtained here)! Also included are attendance/participation points from lecture.

- **Academic Honesty:** All students must abide by the highest standards of honesty. Cheating is insulting to me and to students who work hard for their grades. Academic dishonesty will be met with swift and severe penalties (zero tolerance), to the full extent allowed by University Policy (refer to the Undergraduate Catalogue or Student Handbook). Cheating is the most notorious form of academic dishonesty, defined as the *giving or receiving* of academic aid during an exam. This aid includes, but is not limited to, looking at the tests of others, using cheat sheets or notes during the exam, marking or displaying a test prominently to aid others, communicating answers to others by any means, or acting to obtain tests or their drafts prior to exam time. Other relevant examples of academic dishonesty would be sharing or receiving answers on class assignments (regardless of whether such assignments are required or optional) unless instructed to work in groups, willfully providing incorrect or misleading information to fellow students regarding course information, and the unauthorized removal or alteration of posted materials from the course website.

- **SPECIAL CONSIDERATIONS:** *Disabling conditions:* Any student who, because of a disability, may require special arrangements in order to meet the course requirements should contact the instructor as soon as possible to make any necessary arrangements. Students should present appropriate verification from Student Disability Services [http://www.studentaffairs.ttu.edu/sds](http://www.studentaffairs.ttu.edu/sds) during the instructor’s office hours. Please note instructors are not allowed to provide classroom accommodations to a student until appropriate verification from Student Disability Services has been provided. For additional information, you may contact the Student Disability Services office at 335 West Hall or 806-742-2405. *Religious holidays:* Any student who misses class days or exam days because of recognized religious holidays (defined in the Texas Civil Code) should notify me as soon as possible.
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<thead>
<tr>
<th>Date</th>
<th>Topic</th>
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<tbody>
<tr>
<td>Introduction and overview</td>
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<tr>
<td>Transmission Genetics</td>
<td>CH2</td>
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<td>Cell Division / Chromosomes</td>
<td>CH3</td>
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<td>Gene Interaction</td>
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<td>Linkage / Mapping</td>
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**September 22nd**  
EXAM I (Chapters 1-6)

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<td>Transcription/ RNA Processing</td>
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<td>Translation</td>
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<td>Genetic Approaches</td>
<td>CH 10</td>
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<td>Chromosome Structure</td>
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**October 27th**  
EXAM II (Chapters 7-11)

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<tr>
<td>Gene Mutation &amp; DNA Repair</td>
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<td>Chromosome Aberrations</td>
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<td>Gene Expression</td>
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**November 17th**  
EXAM III (Chapters 12- 15)
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<td>Organelle Inheritance</td>
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<td>Developmental Genetics</td>
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December 2nd  Last Day of Classes

December 8th  FINAL EXAM  4:30 - 7:00pm LH100

**IMPORTANT:** I reserve the right to alter the content and timing of the topics presented above. Although it rarely occurs (and never for the final exam), I also reserve the right to change test dates when you are given adequate, prior (one week) notification.
GENETICS LABORATORY SECTIONS

Coordinator: Dr. Chris Rock
Chris.rock@ttu.edu
Phone: (806) 834-4803

Teaching Assistants (TAs):
NOTE: all TAs will hold office hours on the 3rd floor atrium of Experimental Sciences Building at the designated times. Should you need assistance, please utilize these office hours. You may see any of the TAs for clarification or instruction on course content.

SECTIONS: 501 / 503
NAME: Nardana Esmaeili
EMAIL: Nardana.esmaeili@ttu.edu
Office hours: Friday 3pm

SECTIONS: 502/510
NAME: Li Sun
EMAIL: li.sun@ttu.edu
Office hours: Monday 3pm

SECTIONS: 504/506
NAME: Arnab Ghosh
EMAIL: arnab.ghosh@ttu.edu
Office Hours: Thursday 4pm

SECTIONS: 505/508
NAME: Sayani Mallick
EMAIL: sayani.mallick@ttu.edu
Office hours: Wednesday 4pm

SECTIONS: 507/512
NAME: Maheshika Meineke
EMAIL: Maheshika.herath@ttu.edu
Office hours: Tuesday 10am

SECTIONS: 509/511
NAME: Somrita Basu
EMAIL: somrita.basu@ttu.edu
Office Hours: Monday 4pm

Additional office hours:
Tuesday 11am – Yifan Cai (yifan@ttu.edu)
Friday 10am – Fakhrul Azad (mdfakhirulazad@gmail.com)
LABORATORY CONTENT/TENTATIVE SCHEDULE

Week 1: human karyotype simulation demonstrating chromosome behavior explaining Mendel's 1st and 2nd Laws. Show a video?
Week 2: Drosophila P0 cross (mapping the white eye and crossveinless loci distances; X chromosome linkage phenomena, including scope to uncover Bridges' "exceptionals" demonstrating meiotic non-disjunction [violation of Mendel's 1st Law])
Week 3: corn cob chi-square (9:3:3:1 and 3:1 phenotypic analyses of kernels vs. epistatic gene interactions, with real data scored by students);
Week 4: Scoring sex-linked traits white eye and crossveinless in Drosophila; crossing F1
Week 5: test 1 and HW review
Week 6: mapping Drosophila white eye and crossveinless by phenotypic scoring of F2 segregant population
Week 7: HW review
Week 8, 9: HW and test 2 review
Week 10: mapping the centromere-"tan spore color" locus distance in Sordaria by second division meiotic segregation analysis of ordered tetrads
Week 11: Polymerase Chain Reaction and gel electrophoresis demo; HW review
Week 12: HW and test 3 review
Week 13: scoring recessive human traits in populations, including sex-influenced index finger length; phenyl-thiocarbamate, thiourea, and sodium benzoate tasting
Week 14: The ABC model of flower development; phenotypic scoring of homeotic mutants of the A, B, and C classes in Arabidopsis thaliana.
Week 15: Hardy-Weinberg equilibrium scoring of white and crossveinless in Drosophila F6 generations of numerous independent crosses.