Biology 3453.001 - Genetics
Dr. Cynthia J. Maurstad, Dept. Biology
Spring 2024

Instructor: Dr. Cynthia Maurstad, Dept. Biology
Office: Room 111 Miller Science Bldg / 468-2038 / cynthia.maurstad@sfasu.edu
Office hours: MW 8:00 am -10:30 am; by appointment via ZOOM


Class Time & Place: MW 3:00 – 4:15pm – Miller Science Bldg 225

Course Description: This course provides an introduction to modern genetic principles including inheritance patterns, chromosome structure and function, gene expression and regulation, DNA replication and repair, and the behavior of genes in populations. Credits: (4).

Pre-requisites: BIOL 1306 & 1106, 1307 & 1107, CHEM 1311
Co-requisites: Bio 3053 F 8:00 – 10:50am – Miller Science Bldg 216

Credit Hour Justification. BIOL 3453 "Genetics" (4 credits lecture, 0 credits lab) spans 15 weeks as a face-to-face lecture and lab. The lecture and lab (BIOL 3053) must be taken concurrently. The grades for lecture exams, lecture homework, and lab assignments are combined into one single grade for the course. Students are required to complete assignments based on readings in the textbook and D2L content modules, including homework assignments on the publisher supported web platform “Mastering Genetics”. They are required to complete significant reading to finish both lab and lecture assignments. Students must complete periodic exams over the course content. Successful completion of all elements for the course requires at least 18 hours of student work each week. This includes the time for BIOL 3453 and the co-requisite BIOL 3053

Program Learning Outcomes: PLO #1 – Knowledge; PLO #3 – Critical Thinking

Student Learning Outcomes:
• SLO – 1: Apply Mendel’s rules in the analysis of inheritance patterns (PLO #1, #3).
• SLO – 2: Describe the structure & function of chromosomes & the processes of molecular biology (PLO #1)
• SLO – 3: Be familiar with, understand the principles behind, and know the potential and limitations of, the tools and techniques of recombinant DNA technology and biotechnology (PLO #1).
• SLO – 4: Calculate the genetic parameters of a population, as well as predict the effect of evolutionary forces on the population (PLO #1, #3)

Course Requirements: Four major exams; homework assignments associated with chapter topic. These homework assignments are accessed via the publishers supported website “Mastering Genetics”; reading – you are expected to read each chapter assigned in the course calendar as well material presented in class.

What you need for this course:
• Access to D2L: It is here that you will find the course units, homework and lab worksheets.
• The required text: Concepts of Genetics, 12th edition; Klug, Cummings, Spencer, Palladino; Access to the
Publisher Mastering Genetics website. Text and access are available in a package: ISBN 9780135194157. For technical issues regarding Mastering Genetics, use the link provided on D2L.

- Technology Requirement: Even though this is a face-to-face class, technology is used to facilitate distribution and collection of materials, assignments, lab worksheets, etc. It is your responsibility to acquire a consistent, stable, dependable computer and internet connection with which to complete the assignments for the course by the deadlines indicated on the Semester Calendar. It is not the responsibility of the instructor to provide additional time for assignments or exams or an alternative means of completing the course due to technological issues on your part. If you are having technical issues with D2L, please call the student help line at 936-468-1919 or e-mail at d2l@sfasu.edu; live support is available from 8 am to 5 pm CST, Monday through Friday. For general technical issues, you may call the Technical Help Desk at 936-468-4357; they are available M – F, 8 am to 5 pm, CST.

Grading

**Homework.** Homework assignments are associated with each chapter.

- These assignments are accessed via Pearson’s “Mastering Genetics” website; there is a Pearson’s “My Lab and Mastering” widget on the D2L homepage for this course (lower right corner); all access to Mastering Genetics should go through this widget.
- You should have purchased access with your text or you can purchase access from the Mastering Genetics site itself. Due dates for each assignment are indicated in the “Assignment List” on the Mastering Genetics site. Grading policy is also spelled out on this site.
- Each homework assignment will be graded and contribute equally to your homework grade. Your homework grade will constitute 35% of your final BIO 3453 course grade.

**Exams.** There are 4 exams scheduled; THERE IS NO COMPREHENSIVE FINAL.

- Each exam is worth 100 points. All exams are closed book and will be taken in person during class time – see class schedule in this syllabus. Exams are SET and will not be changed unless the university is closed for unexpected reasons.
- Your scores on the (4) exams will be averaged to give you an “exam score”; this will constitute 40% of your BIO 3453 course grade.

**Lab.** Your laboratory grade will consist of worksheets (see laboratory syllabus) and two lab homework assignments found on Mastering Genetics.

- A detailed explanation of these can be found in the laboratory syllabus. Your laboratory grade will constitute 25% of your BIO 3453 course grade.

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**BIOL 3453 Genetics**

**Spring 2024 Lecture Schedule**

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<tr>
<th>Week</th>
<th>DATE</th>
<th>TOPIC</th>
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<tr>
<th>Week</th>
<th>Dates</th>
<th>Topics</th>
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<tbody>
<tr>
<td>1</td>
<td>Mon, Jan., 22nd Wed., Jan, 24th</td>
<td>Introduction to Class Mendelian Genetics (Ch. 3)</td>
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<tr>
<td>2</td>
<td>Mon, Jan. 29th Wed., Jan, 31st</td>
<td>Extensions of Mendelian Genetics (Ch. 4) Sex Determination and Sex Chromosomes (Ch.7)</td>
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<tr>
<td>3</td>
<td>Mon, Feb. 5th Wed., Feb, 7th</td>
<td>Chromosomes Mapping in Eukaryotes (Ch. 5) Review</td>
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<tr>
<td>4</td>
<td>Mon., Feb. 12th Wed., Feb. 14th</td>
<td>EXAM 1 Chromosomal Mutations (Ch. 8)</td>
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<td>5</td>
<td>Mon, Feb. 19th Wed., Feb. 21st</td>
<td>DNA Structure and Analysis (Ch. 10) DNA Organization in Chromosomes (Ch. 12)</td>
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<td>6</td>
<td>Mon, Feb. 26th Wed., Feb. 28th</td>
<td>DNA Replication and Recombination (Ch. 11) The Genetic Code and Transcription (Ch. 13)</td>
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<td>7</td>
<td>Mon., March 4th Wed., March 6th</td>
<td>Review</td>
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<td>8</td>
<td>Mon., March 11th Wed., March 13th</td>
<td>SPRING BREAK</td>
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<td>9</td>
<td>Mon., March 18th Wed., March 20th</td>
<td>Translation and Proteins (Ch. 14) Gene Mutation (Ch. 15)</td>
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<td>10</td>
<td>Mon., March 25th Wed., March 27th</td>
<td>Regulation of Gene Expression Bacteria (Ch.16) Transcriptional Regulation Eukaryotes (Ch. 17)</td>
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<td>11</td>
<td>Mon., April 1st Wed., April 3rd</td>
<td>Posttranscriptional Regulation Eukaryotes (Ch.18) Epigenetic Reg. of Gene Expression (Ch. 19)</td>
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<tr>
<td>12</td>
<td>Mon., April 8th Wed., April 10th</td>
<td>Review</td>
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<td>13</td>
<td>Mon., April 15th Wed., April 17th</td>
<td>Recombinant DNA Technology (Ch. 20) Genomic Analysis (Ch. 21)</td>
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<tr>
<td>14</td>
<td>Mon., April 22nd Wed., April 24th</td>
<td>Application of Genetic Engineering and Biotechnology (Ch. 22) Cancer Genetics (Ch. 24)</td>
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<td>15</td>
<td>Mon., April 29th Wed., May 1st</td>
<td>Population and Evolutionary Genetics (Ch. 26) Review</td>
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<tr>
<td>16</td>
<td>Mon., May 6th 4:00 pm</td>
<td>EXAM 4</td>
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NOTE: Slight variations from the proposed calendar are possible during the course.

Exam dates will not be changed unless the school is closed for a catastrophic reason . . . think hurricane, flood, snowpocalypse, etc. Mark these dates on your calendar NOW.

**Wednesday, April 10th** is the last day to drop a class without a W for the semester.

**Course Grade Calculation:** To determine your final course grade for BIO 3453, the following weighting will be used:

\[
\text{Course Grade} = (\text{Homework average})(0.35) + (\text{Exam average})(0.40) + (\text{Lab grade})(0.25)
\]
Final Percentage Letter Grade

90 – 100% A
80 – 89% B
70 – 79% C
60 – 69% D
0 – 59% F

Expectations for Students in BIO 3453:
This course demands a high degree of student involvement. Most universities recommend that for every hour a student spends learning in the classroom, they spend three hours studying outside of class. Taking this class in a face-to-face format, you are expected to spend 3 hours per week in class AND roughly nine hours a week OUTSIDE OF CLASS reading, analyzing, synthesizing, studying, and completing assignments. This equates to, minimally, 12 hours per week of course engagement. And this is JUST FOR THE “LECTURE” PORTION OF BIOL 3453 – the co-requisite lab will require additional effort.

Due dates are firm. Late assignments are not accepted. Once an assignment or exam is closed, it will not be re-opened (see excused absence explanation above regarding make-up exams). The only exceptions are a natural disaster and / or an SFA closing.

E-mail policy
I will be periodically communicating with you via e-mail. I use your OFFICIAL SFA E-MAIL ADDRESS FOR THIS PURPOSE. It is your responsibility to check your e-mail regularly and, if you have your SFA account forwarded to some secondary account, to be certain this is not full and can receive messages (the University policy regarding e-mail can be read (here). As per the referenced SFA policy, D2L email IS NOT CONSIDERED OFFICIAL. If you wish me to see your email AND respond, DO NOT USE THE D2L e-mail function – ALWAYS USE YOUR OFFICIAL SFA address. For efficient responses, please follow the “e-mail etiquette” suggestions below:

• Include a subject line: Include your course number, section and reason for reaching out (for example, PSYC-2301-53240: Help with Assignment 3). Remember, I do teach other courses!
• Be courteous: Begin your email with a greeting that addresses your instructor respectfully and professionally, such as "Dear Mr. Smith" or "Hi Dr. Jones."
• Provide detail: Be specific about why you are reaching out and what you are having problems with. For example, “in section 6.1.2 Neurons, I’m not clear on...”. E-mail should be considered a professional form of communication – you should use proper grammar and spelling.
• Close with your full name: After your message, end with a closing and signature, such as "Sincerely, Jane Doe" or "Thanks, John Doe."
• A response may take time: I will try to get back quickly, but don’t expect a response within a few minutes. It can take up to 24 hours for an instructor to respond. If e-mails arrive during office hours, I will do my best to answer them on the same day as well. For e-mails that arrive AFTER office hours, it may take 24 hours or more for a response; this is especially true if you send the e-mail in the evening, on weekends, or on a holiday. I do not check e-mail in the evenings, weekends, or on holidays.
Class Attendance

Attendance is taken every lecture class and in every lab. You can find SFA’s official policy regarding absences here. Below is a relevant excerpt:

“At the discretion of the instructor, students may be excused from attendance for reasons such as health, family emergencies, or student participation in approved university-sponsored events. When possible, students should notify their instructors in advance about absences. Students are responsible for providing documentation in a timely manner to the instructor for each absence. The instructor determines whether such documentation is satisfactory.”

“Students with accepted excuses may be permitted to make up work for absences equaling no more than 15% of the scheduled course meeting time for the term, depending on the nature of the missed work. The timeline for completing make-up work will be determined by the instructor.”

Take note: Students missing more than SIX (6) lectures without university-approved excuses will fail the class due to lack of attendance. In lab, if you miss 3 labs without university-approved excuses, you fail the class.

ALL REQUESTS FOR AN EXCUSED ABSENCE MUST BE MADE THROUGH THE SFASU DEAN OF STUDENTS WEBSITE (as per new UT policy). You may navigate to: https://www.sfasu.edu/deanofstudents/about/welcome.

Once there, select “Student Outreach & Support” and then “Notify Faculty of Absence”. As per new policy, you will be required to provide documentation when requesting absence notification. If your documentation or reason for absence is accepted by this office, they will in turn notify me. There are time limits to this process so, if you miss for any reason, be sure to submit a request in a timely fashion. UNDERSTAND, EVEN IF THE OFFICE APPROVES YOUR REQUEST, IT IS STILL AT THE DISCRETION OF THE FACULTY TO ACCEPT YOUR REQUEST FOR MAKE UP WORK. IF THIS OFFICE DOES NOT APPROVE YOUR REQUEST FOR NOTIFICATION, NO ACCOMMODATION WILL BE MADE.

The pertinent applications in BIOL 3453 are:

• YOU MISS AN EXAM. YOU MUST SUBMIT A “NOTIFY FACULTY OF ABSENCE” request:
  o Once I receive this notification, I will contact you regarding the possibility of a make – up.
  o When a make-up exam is warranted, it will be given on the last lab day (Friday, May 3rd). Only ONE EXAM may be made up in this manner. Any more than one, we have to bring in the university for consideration.
• Mastering Homework Assignments are open for quite some time before being due so If you know you are going to be absent on a due date for to a University sponsored outing, TURN IN THE ASSIGNMENT EARLY!
  o Being ill on the day an assignment is due IS NOT AN EXCUSED ABSENCE, as you had days/weeks to complete the assignment. Don’t wait till the last minute to turn in assignments.
  o For make-up work to be allowed, you must proceed through the procedure detailed above. To be accepted, your excused absence, as approved by the Dean of Students, will have to cover the complete time period during which the homework exercises were open;
  o DUE DATES ARE FIRMA ND WON’T, EXCEPT IN THE CASE OF A NATURAL DISASTER OR SCHOOL CLOSING, BE EXTENDED.
• You will be permitted to make up a maximum of 15% of GRADED ASSIGNMENTS (as per policy above).
This equates to 5 exams and/or homework assignments. Missed work beyond this will be recorded as “0”.

SEE SFA MANDATED SYLLABI STATEMENTS BEGINNING ON THE NEXT PAGE. This includes information on:
- Academic Integrity and the new SFA code of student conduct
- Information for students with disabilities
- Grading policy, including WH grades
- Student mental health resources
- A required TEA statement

SFA MANDATED SYLLABUS STATEMENTS.

Academic Integrity (4.1)
The Code of Student Conduct and Academic Integrity outlines the prohibited conduct by any student enrolled in a course at SFA. It is the responsibility of all members of all faculty, staff, and students to adhere to and uphold this policy.

Articles IV, VI, and VII of the new Code of Student Conduct and Academic Integrity outline the violations and procedures concerning academic conduct, including cheating, plagiarism, collusion, and misrepresentation.

Cheating includes, but is not limited to: (1) Copying from the test paper (or other assignment) of another student, (2) Possession and/or use during a test of materials that are not authorized by the person giving the test, (3) Using, obtaining, or attempting to obtain by any means the whole or any part of a non-administered test, test key, homework solution, or computer program, or using a test that has been administered in prior classes or semesters without permission of the Faculty member, (4) Substituting for another person, or permitting another person to substitute for one’s self, to take a test, (5) Falsifying research data, laboratory reports, and/or other records or academic work offered for credit, (6) Using any sort of unauthorized resources or technology in completion of educational activities.

Plagiarism is the appropriation of material that is attributable in whole or in part to another source or the use of one’s own previous work in another context without citing that it was used previously, without any indication of the original source, including words, ideas, illustrations, structure, computer code, and other expression or media, and presenting that material as one’s own academic work being offered for credit or in conjunction with a program course or degree requirements.

Collusion is the unauthorized collaboration with another person in preparing academic assignments offered for credit or collaboration with another person to commit a violation of any provision of the rules on academic dishonesty, including disclosing and/or distributing the contents of an exam.

Misrepresentation is providing false grades or résumés; providing false or misleading information in an effort to receive a postponement or an extension on a test, quiz, or other assignment for the purpose of obtaining an academic or financial benefit for oneself or another individual or to injure another student academically or financially.

Withheld Grades Semester Grades Policy (5.5)
Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the coursework because of unavoidable
Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course to compute the grade point average. For additional information, go to https://www.sfasu.edu/policies/course-grades-5.5.pdf.

Students with Disabilities
To obtain disability-related accommodations, alternate formats, and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services promptly may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices/.

TEA Statement
This course meets educator preparation standards for one or more certification programs; a complete listing of all the educator preparation standards this course meets can be found at: https://sfasu.edu/docs/jacksteach/jacksteach-standards-alignment-chart.xlsx

Student Wellness and Well-Being
SFA values students’ overall well-being, mental health and the role it plays in academic and overall student success. Students may experience stressors that can impact both their academic experience and their personal well-being. These may include academic pressure and challenge associated with relationships, emotional well-being, alcohol and other drugs, identities, finances, etc.

If you are experiencing concerns, seeking help, SFA provides a variety of resources to support students’ mental health and wellness. Many of these resources are free, and all of them are confidential.

On-campus Resources:

**The Dean of Students Office** (Rusk Bldg., 3rd floor lobby)  www.sfasu.edu/deanofstudents  936-468-7249  dos@sfasu.edu

**SFA Human Services Counseling Clinic**: Human Services: Room 202  www.sfasu.edu/humanservices/139.asp  936-468-1041

**The Health and Wellness Hub** “The Hub” - Location: corner of E. College and Raguet St.

To support the health and well-being of every Lumberjack, the Health and Wellness Hub offers comprehensive services that treat the whole person - mind, body and spirit. Services include:

- Health Services
- Counseling Services
- Student Outreach and Support
• Food Pantry
• Wellness Coaching
• Alcohol and Other Drug Education

www.sfasu.edu/thehub  936-468-4008  thehub@sfasu.edu

Crisis Resources:

• Burke 24-hour crisis line: 1-800-392-8343
• National Suicide Crisis Prevention: 9-8-8
• Suicide Prevention Lifeline: 1.800.273.TALK (8255)
• jobCrisis Text Line: Text HELLO to 741-741