3053 – Genetics Laboratory

Dr. Robert J. Wiggers, Dept. Biology

Instructor: Dr. Robert Wiggers, Dept. Biology
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Office hours: MTWRF 9 – 10:30 am (all office hours via ZOOM); by appointment via ZOOM
Required Materials: Access to Publisher Website “Mastering Genetics”. Packaged with textbook required for BIOL 3453, the co-requisite for BIOL 3053. ISBN: 9780135194157

Class Time & Place: Online, asynchronous

Course Description: Four semester hours, three hours lecture, three hours lab per week. 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. Required lab fee.

Pre-requisites: BIOL 1306 & 1106, 1307 & 1107, CHEM 1311 & 1111, 1312 & 1112
Co-requisites: Bio 3453

Credit Hour Justification. BIOL 3053 “Genetics Lab” is the (0) credit hour co-requisite of BIOL 3453 “Genetics” (4 credits lecture, 0 credits lab) and spans 15 weeks as a fully online experience. The lecture and lab must be taken concurrently. The grades for lecture exams 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 prior to attending laboratory and complete laboratory reports and worksheets. Students must complete periodic exams over the course content. Successful completion of all elements for the course requires at least 12 - 16 hours of student work each week.

Program Learning Outcomes: PLO #2 – Communication (written); PLO #3 – Critical Thinking

Student Learning Outcomes:

- SLO – 1: Be able to collect and professionally report data sets generated by a variety of techniques routinely used in genetic analysis (PLO #2)
- SLO – 2: Be able to analyze both qualitative and quantitative data sets, interpret the results, and effectively communicate those results. (PLO #3)

Course Requirements: Students are required to complete 12 worksheets and three Mastering Genetics based laboratory homework assignments.

What you need for this course:

- Access to D2L: It is here that you will find the course units, content modules, and exams.

- Mastering Genetics access: Access to the Publisher Mastering Genetics website. Text and access (both are required for co-requisite BIOL 3453) are available in a package: ISBN 9780135194157

- Technology Requirement: As you have elected to enroll in an online course, 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. Just as it is your responsibility to acquire and maintain adequate transportation to attend a face-to-face course, it is your responsibility to secure the technological means to participate in and complete this course. 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 CST 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 from 8 am to 5 pm.
### Semester Calendar: all times are central

<table>
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<th>Week of...</th>
<th>Lab Topic</th>
<th>Lab Wksht / Other Assignment</th>
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| August 23  | Exercise: Probabilities  
Exercise: Cell Division | Probabilities Worksheet, **DUE BY 5 pm, AUGUST 27**  
Cell Division Worksheet, **DUE BY 5 PM, AUGUST 30**  
Mastering Genetics “Cell Division” Lab Homework, **DUE BY 5 PM, AUGUST 30** |
| August 30  | Exercise: Chi – Square Test In Genetics | Chi-Square Test In Genetics  
**DUE BY 5 PM, SEPTEMBER 6** |
| September 6 | Exercise: Epistasis | Epistasis Worksheet  
**DUE BY 5 PM, SEPTEMBER 13** |
| September 13 | Exercise: Linkage Analysis | Linkage Analysis Worksheet  
**DUE BY 5 PM, SEPTEMBER 20** |
| September 20 | NO SCHEDULED LABS | NO ASSIGNMENT |
| September 27 | Exercise: Graphing | Graphing Worksheet  
**DUE BY 5 PM, OCTOBER 4** |
| October 4  | Exercise: Cytogenetics | Cytogenetics Worksheet  
**DUE BY 5 PM, OCTOBER 11** |
| October 11 | NO SCHEDULED LABS | NO ASSIGNMENT |
| October 18 | Exercise: Quantitative Genetics | Quantitative Genetics Worksheet  
Mastering Genetics: “Quantitative Genetics” Homework  
**BOTH DUE BY 5 PM, OCTOBER 25** |
| October 25 | NO SCHEDULED LABS | NO ASSIGNMENTS |
| November 1 | Exercise: Electrophoresis of DNA Restriction Fragments | Electrophoresis of DNA Restriction Fragments Worksheet  
**DUE BY 5 PM, NOVEMBER 8** |
| November 8 | Exercise: DNA Databases and Sequence Analysis | DNA Databases and Sequence Analysis Worksheet  
Mastering Genetics “DNA Databases & Sequence Analysis” Homework  
**BOTH DUE BY 5 PM, NOVEMBER 15** |
| November 15 | Exercise: DNA Diagnostics | DNA Diagnostics Worksheet  
**DUE BY 5 PM, NOVEMBER 22** |
| November 22 | TKHANKSGIVING – NO LABS | NO ASSIGNMENTS |
| November 29 | Exercise: Population Genetics | Population Genetics Worksheet  
**DUE BY 5 PM, DECEMBER 6** |
| December 6 | FINALS WEEK – NO LABS | NO ASSIGNMENTS |
Grading

Your grade in lab is determined by:

- your cumulative score on (12) lab worksheets, each worth 30 points, for 360 points. All worksheets are to be submitted in digital format to the appropriate DropBox on D2L. Only (4) file formats are acceptable: pdf, “.docx” (Word), “.xlsx” (Excel) and “.pptx” (PowerPoint). Generally, I will specify one of them in the laboratory instructions. If you submit any other format, you will receive a “0”.

- (3) Mastering Genetics lab exercises assignments for 106 points total;

- Collectively, this means there a maximum of 466 points available (360 worksheet points, 106 homework points). To calculate your grade, I will determine your percentage, with respect to the maximum possible 466 points. All grades will be posted on D2L.

Worksheet due dates are stipulated in D2L – no late papers are accepted. Don't wait until the last minute to try to submit an assignment as issues can arise that may prevent correct submission. Not waiting until the last minute will give you an opportunity to re-submit. It is your responsibility to ensure that the correct file(s) are submitted.

Your grade in BIOL 3053 constitutes 25% of your grade in BIOL 3453. A single grade is recorded for both BIOL 3453 and BIOL 3053.

Lab Manual

Instructions and background material for all labs are provided on D2L. There is no additional laboratory manual needed.

Expectations for Students in BIO 3053 online

1. **Technical Preparation:** The technical nature of the course demands preparation on your part. Students should submit all assignments early enough to account for technical difficulties. In the event of a technical catastrophe (e.g. the university's main fiber optic line gets severed, a hurricane floods telecommunications hubs in Houston, the D2L server goes down, etc.—all of these things have happened), please do not inundate the Biology Department with phone calls. I will communicate with the class as soon as is technically possible.

2. **This course is not self-paced.** It is your responsibility to read and analyze the information in each module, participate in the module activity, and complete any pertinent assignments by the due date(s). This course demands a high degree of student involvement. You are not sitting in a lecture hall listening to me three hours each week. Instead, you must discipline yourself to (a) devote the time you normally would spend in the classroom to being logged in to this online class and digesting the week's material, and (b) study a respectable amount in addition to the "in-class" time. Most universities recommend that for every hour a student spends learning in the classroom, he/she spend three hours studying outside of class. Thus, as this is a three-hour course, you should expect to spend roughly nine hours a week reading, analyzing, synthesizing, studying, and completing assignments. Online learning is far more active than traditional lectures and requires much more self-discipline.

3. **You should be logging onto D2L on a regular basis.** In addition to the detailed course calendar, all assignments are entered into the D2L calendar.

4. **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 in the event of a natural disaster and / or an SFA closing.
E-mail Policy:

I will be periodically communicating with you via e-mail. I use your D2L accounts & addresses for this purpose. It is your responsibility to check your e-mail regularly and, if you have your D2L 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). I check my e-mail once a day between 8 and 8:30 am when I arrive at my desk. I will answer e-mails as quickly as is feasible. E-mail should be considered a form professional communication; as such, all e-mail messages should contain proper spelling and grammar. If I can’t figure out what you are asking, I can’t help you (this happens more often than you might expect). I do not check e-mail in the evenings or weekends.

Class Attendance

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.”

The pertinent applications in BIOL 3053 are:

- Assignments are open for ONE WEEK before being due;
- If you know you are going to be absent on a due date for to a University sponsored outing, TURN IN THE ASSIGNMENT EARLY;
- Being ill on the day an assignment is due IS NOT AN EXCUSED ABSENCE, as you had a week to complete the assignment. Don’t wait till the last minute to turn in assignments;
- DUE DATES ARE FIRM AND WON’T, EXCEPT IN THE CASE OF A NATURAL DISASTER OR SCHOOL CLOSING, BE EXTENDED.

Academic Integrity

Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism.

Definition of Academic Dishonesty

Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one's own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from an Internet source or another source; and (3) incorporating the words or ideas of an author into one's paper without giving the author due credit.

The University's definitions of academic dishonesty as well as penalties for violations can be found in the larger Student Code Of Conduct.

Withheld Grades

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 course work because of unavoidable circumstances. 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 for the purpose of computing the grade point average. You may read the complete policy here.
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 in a timely manner may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices/.

Acceptable Student Behavior

Classroom behavior should not interfere with the instructor’s ability to conduct the class or the ability of other students to learn from the instructional program. Unacceptable or disruptive behavior will not be tolerated. Students who disrupt the learning environment may be asked to leave class and may be subject to judicial, academic or other penalties. This prohibition applies to all instructional forums, including electronic, classroom, labs, discussion groups, field trips, etc. The instructor shall have full discretion over what behavior is appropriate/inappropriate in the classroom. Students who do not attend class regularly or who perform poorly on class projects/exams may be referred to the Early Alert Program. This program provides students with recommendations for resources or other assistance that is available to help SFA students succeed. You may read the student code of conduct here.

Student Mental Health

SFASU values students’ mental health and the role it plays in academic and overall student success. 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:
SFASU Counseling Services
www.sfasu.edu/counselingservices
3rd Floor Rusk Building
936-468-2401

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

Crisis Resources:
Burke 24-hour crisis line 1(800) 392-8343
Suicide Prevention Lifeline 1(800) 273-TALK (8255)
Crisis Text Line: Text HELLO to 741-741