Laboratory Manual (Required): Lab manual available on D2L
Publisher Website Access (Required): Pearson Mastering Genetics
Supplemental Materials (Suggested): Class notes & additional readings on D2L
Class Time & Place: Lecture – MWF 11 – 11:50 am in S323 / Lab – T 12:30 – 3:20 pm in S216
Office: Room 204 Miller Science Bldg
Office phone: 468-2147 / rwiggers@sfasu.edu
Office hours: M: 1 – 3; T: 10 – 11; W: 1 – 3; F: 10 – 11; by appointment

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: Bio 130, 131, 133, Che 133, 134
Co-requisites: Bio 341

Program Learning Outcomes: PLO #3 – Analysis of Quantitative Data

Student Learning Outcomes:

- Be able to design an experiment to answer questions regarding inheritance patterns
- Be able to collect, analyze, and professionally report data sets generated by a variety of techniques routinely used in genetic analysis

<table>
<thead>
<tr>
<th>Transmission Genetics (8 laboratory exercises)</th>
<th>Cytogenetics (1 laboratory exercise)</th>
<th>Molecular Genetics (5 laboratory exercises)</th>
<th>Population genetics (1 laboratory exercise)</th>
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</thead>
<tbody>
<tr>
<td>Cellular division</td>
<td>Karyotyping</td>
<td>The Protein Product</td>
<td>Human Population Structure</td>
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<td>Probabilities</td>
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<td>DNA Isolation</td>
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<td>Statistical Techniques</td>
<td></td>
<td>Electrophoresis</td>
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<td>Epistasis</td>
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<td>Bioinformatics</td>
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<td>Quantitative Genetics</td>
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<td>DNA Diagnostics</td>
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<td>Human Inheritance Patterns</td>
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<td>Genetic Linkage</td>
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The anticipated order of the experiments is detailed on the next page
<table>
<thead>
<tr>
<th>Class Day</th>
<th>Lab Topic</th>
<th>Lab Wksht / Other Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self - Paced</td>
<td>Probabilities: Online D2L module</td>
<td>Wksht #1: Probabilities (found on D2L)</td>
</tr>
</tbody>
</table>
| 8/28 | Cell Division: Mitosis & Meiosis | Wksht #2: Cell Division (found on D2L)  
Mastering Genetics “Cell Division: Mitosis & Meiosis”  
Lab quiz 1 (optional this first week only) |
| 9/4 | Chi – Square Test In Genetics | Wksht #3  
Lab quiz 2; due by 10 pm 9/3 |
| 9/11 | Epistasis | Wksht #4  
Lab quiz 3; due by 10 pm 9/10 |
| 9/18 | Linkage Analysis | Wksht #5  
Lab quiz 4; due by 10 pm 9/17 |
| 9/25 | No Lab – Review of Exam 1 | -- |
| 10/2 | Cytogenetics | Wksht #6  
Lab quiz 5; due by 10 pm 10/1 |
| 10/9 | Quantitative Genetics | Wksht #7; to be submitted via D2L  
Mastering Genetics: “Quantitative Genetics”  
Lab quiz 6; due by 10 pm 10/8 |
| 10/16 | Introduction to Molecular Biology I: DNA Isolation | No wksht  
Lab quiz 7; due by 10 pm 10/15 |
| 10/23 | No Lab – Review of Exam 2 | -- |
| 10/30 | Genes & proteins | Wksht #8  
Lab quiz 8; due by 10 pm 10/29 |
| 11/6 | Introduction to Molecular Biology II: Determination of DNA Fragment Size | Wksht #9  
Lab quiz 9; due by 10 pm 11/5 |
| 11/13 | Lecture catch-up (?); Review of Exam 3  
DNA Databases and Sequence Analysis | Wksht #10  
Lab quiz 10; due by 10 pm 11/12 |
| 11/20 | NO – LABS; THANKSGIVING | -- |
| 11/27 | DNA Diagnostics | Wksht #11  
Lab quiz 11; due by 10 pm 11/26 |
| 12/4 | Population Genetics & Make – Up Exams | Wksht #12  
Lab quiz 12; due by 10 pm 12/3 |
| 12/11 | FINALS WEEK – NO LABS | -- |

Schedule subject to change based on progress in lecture and availability / delivery of materials.
Attendance

Attendance is required. In the case of an excused absence, you will be allowed to turn in any worksheets with no penalty. Hands on laboratory work CAN NOT BE MADE UP; you will have to get the data necessary to complete the worksheet from a classmate. In the case of any absence, you are responsible for obtaining any notes you missed from your classmates. If you miss three weeks of lab (3 meetings) you will not be allowed to make up any further work or turn in any late papers for the rest of the semester.

As in lecture, turn off all cell phones / pagers.

Grading

Your grade in lab is determined by:

- your cumulative score on (12) lab worksheets, each worth 30 points;

- (2) Mastering Genetics lab exercises assignments for 76 points;

- 11 lab quizzes, each worth 5 points. These quizzes will be available on D2L. They will open the Thursday (at 12:01am) prior to lab and are due by 10 PM THE DAY BEFORE THE SCHEDULED LABORATORY EXERCISE. They are intended to ensure that all students are familiar with the lab exercise and know generally what is happening. When you take the lab quiz, your first attempt will constitute your grade BUT YOU MUST GO BACK AND CORRECT ANY QUESTIONS YOU MISSED. D2L must reflect that you eventually scored a 100% on the lab quiz or YOU WILL NOT BE ALLOWED TO PARTICIPATE IN THE SUBSEQUENT LAB EXERCISE AND YOU WILL RECEIVE A “0” FOR THAT LAB WORKSHEET.

- Collectively, this means there a maximum of 491 points available (360 worksheet points, 76 homework points, and 55 lab quiz points). To calculate your grade, I will determine your percentage, with respect to the maximum possible 491 points. All grades will be posted on D2L.

Hardcopy worksheets are due at the beginning of the next scheduled lab period; D2L based worksheets are due when stipulated on D2L. The first page of all hardcopy worksheets must be a cover page (unlined paper with no holes in it) with your name typed on it (improperly formatted worksheets will result in the loss of 2 points or may be rejected at the time you try to turn them in). All pages of worksheets must be stapled together. I don’t keep a stapler in class (I used to, but they inevitably walked off), so be prepared before arriving. Write legibly, because if I can’t read your work I won’t grade it. Late papers will not be accepted. Worksheets should not be printed double sided.

Lab Manual

The lab manual for this course is available on D2L, as are other laboratory materials.
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.