A. COURSE INFORMATION

Course number/section: BIOL 2416
Class meeting time: Lecture 001: Tuesdays & Thursdays 8:00 am -9:15 am
                    Lecture 002: Tuesdays & Thursdays 11:00 am – 12:15 pm
                    Rec 101: Thursday 3:00 pm – 4:50 pm
                    Rec 102: Thursday 2:00 pm – 3:50 pm
                    Rec 103: Friday 12:00 pm – 1:50 pm
                    Rec 104: Friday 10:00 am – 11:50 am
                    Rec 105: Friday 1:00 pm – 2:50 pm
                    Rec 107: Friday 1:00 pm – 2:50 pm

Class location: Lecture: CS 101
                Rec 101: OCNR 259
                Rec 102: EN-108
                Rec 103: CS 112
                Rec 104: OCNR 222
                Rec 105: OCNR 258
                Rec 107: CS 108

Course Website: bb9.tamucc.edu

B. INSTRUCTOR INFORMATION

Instructor: Xavier F. Gonzales, PhD, MSPH
Office location: Engineering 310C
Office hours: Tuesday & Thursday 9:30 am – 10:30 am & 12:30 pm – 1:30 pm
              Wednesday 8:00 am- 9:00 am
Telephone: 361-825-3824
e-mail: Xavier.Gonzales@tamucc.edu
Appointments: email me to set up appointments

C. COURSE DESCRIPTION

Catalog Course Description
Principles of genetic transmissions and molecular basis of heredity and variation. Weekly
recitation periods will involve team assignments, problem solving activities, and seminars.

Extended Course Description
This course introduces students to the basic principles of inheritance and expression of
-genetic information. Current topics in and applications of molecular genetics are briefly
covered as well. Emphasis will be placed on critical thinking and problem solving in the
context of inheritance and the molecular basis of heredity.
The recitation period is designed for discussion, idea exchange, and active learning activities
to reinforce lecture material. Emphasis will be placed on problem-solving activities, critical
thinking skills for data analysis and collaborative learning.
D. PREREQUISITES AND COREQUISITES

<table>
<thead>
<tr>
<th>Prerequisites</th>
<th>Corequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 1406</td>
<td>CHEM 1311</td>
</tr>
<tr>
<td>BIOL 1407</td>
<td>CHEM 1312</td>
</tr>
</tbody>
</table>

E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES

Required Textbook(s)

Required Course Registration:
Section 2416.001: [https://connect.mheducation.com/class/x-gonzales-2416001](https://connect.mheducation.com/class/x-gonzales-2416001)


Optional Textbook(s) or Other References
- Primary literature as directed by instructor: student will be responsible for obtaining the assigned reading from the library or online database

Supplies
- Textbook, paper, and pencil (scantrons when indicated)

F. STUDENT LEARNING OUTCOMES AND ASSESSMENT

Assessment is a process used by instructors to help improve learning. Assessment is essential for effective learning because it provides feedback to both students and instructors. A critical step in this process is making clear the course’s student learning outcomes that describe what students are expected to learn to be successful in the course. The student learning outcomes for this course are listed below. By collecting data and sharing it with students on how well they are accomplishing these learning outcomes students can more efficiently and effectively focus their learning efforts. This information can also help instructors identify challenging areas for students and adjust their teaching approach to facilitate learning.

By the end of this course, students should be able to:
1. Describe Mendelian inheritance and its extensions, including basic quantitative genetics
2. Discuss the connection between mitosis, meiosis, and Mendelian Genetics
3. Describe Non-Mendelian inheritance
4. Demonstrate linkage, recombination and chromosome mapping
5. Recognize chromosome number and structure
6. Discuss DNA structure and replication
7. Assess transcription, RNA processing, genetic code, translation, and protein structure
8. Describe basic mechanisms of regulation of gene expression
9. Support connections between Mendelian and molecular genetics
10. Analyze \( \chi^2 \) tests in Genetics

G. INSTRUCTIONAL METHODS AND ACTIVITIES
Learner-Centered Teaching: Collaborative work, control of content selection, personal reflection, learning skill demonstration

H. MAJOR COURSE REQUIREMENTS AND GRADING

Exams: Three written exams and a Final Exam will mostly consist of multiple-multiple choice, but may also include a mixture of short answer, essay, multiple-multiple matching, descriptive T/F. Exams will be cumulative. Final Exam can be used to replace your lowest grade or a missed exam. A poor score on the Final Exam can bring down your exam average. Reviews for exams will be given at instructor’s discretion. Exams will be assessed at 100 points per exam. Final will be assessed at 200 points.

Quizzes: Quizzes will be over every covered chapter; therefore, with each new chapter you must complete a quiz beforehand. Quizzes will be administered in order to get you thinking about the lecture material BEFORE it is presented.
- Quizzes will be conducted prior to class, online at http://connect.mheducation.com/. 
- To register, see web address above
- Register with the code in your newly purchased book or if you have a used book you will have to purchase access.

Quizzes are due by 7:00 AM, on the day of the lecture (check the schedule). You get two chances to take your quiz and I will take the points for the best score. Quizzes allow you to obtain up to 20 points. You can obtain a maximum of 300 points for you total quiz grade.

Recitation: Recitation Assignments (200 points total) will vary depending on the activity conducted each week. All activities will involve group work. Groups will be assigned at the beginning of the semester after the first recitation. Most weeks, you first review the homework and then work on an activity as a group. Homework assignments will be turned in as a group; however, each group member will be expected to assess their peers by providing your TA through email with a percent score and justification of that score for each assignment. Assignments may involve solving problems, data analysis, and homework. Outside reading may be assigned and provided on reserve at the library or online via BlackBoard.

Attendance/Participation to/in recitation is worth 10 points per session.

All assignments and examination answers must be legible to the Instructor. Illegible answers will receive no credit.

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>% of FINAL GRADE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exams</td>
<td>50</td>
</tr>
<tr>
<td>Quizzes</td>
<td>30</td>
</tr>
<tr>
<td>Recitation Assignments</td>
<td>20</td>
</tr>
<tr>
<td>Rec Participation/Attendance</td>
<td>10</td>
</tr>
</tbody>
</table>
Grading scale: A>90% B=80-89.9% C=70-79.9% D=60-69% F<60%
### I. COURSE CONTENT/SCHEDULE

<table>
<thead>
<tr>
<th>Date</th>
<th>Lecture Topic</th>
<th>Reading/Quiz</th>
<th>Recitation Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>01/21</td>
<td>Genetics Introduction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01/26</td>
<td>Mendelian Inheritance I</td>
<td>Ch 2</td>
<td>Mendel, Discovery</td>
</tr>
<tr>
<td>01/28</td>
<td>Mendelian Inheritance II</td>
<td></td>
<td>Mendel, Probability, and Statistics</td>
</tr>
<tr>
<td>02/02</td>
<td>Mendelian Inheritance III</td>
<td>Ch 4</td>
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<tr>
<td>02/04</td>
<td>DNA and Molecular Basis of Inheritance</td>
<td>Ch 9</td>
<td>Mendelian Inheritance</td>
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<tr>
<td>02/09</td>
<td>Chromosomal Organization</td>
<td>Ch 10</td>
<td></td>
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<tr>
<td>02/11</td>
<td>Reproduction &amp; Transmission of Genetic Material</td>
<td>Ch 3</td>
<td>DNA and Chromosome Structure</td>
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<tr>
<td>02/16</td>
<td>Reproduction &amp; Transmission of Genetic Material</td>
<td>Ch 3</td>
<td></td>
</tr>
<tr>
<td>02/18</td>
<td>Linkage &amp; Mapping I</td>
<td>Ch 6</td>
<td>Transmission of Genetic Material; X-Linked Traits</td>
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<tr>
<td>02/23</td>
<td>Linkage &amp; Mapping II</td>
<td>Ch 6</td>
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<td>02/25</td>
<td>Linkage &amp; Mapping III</td>
<td>Ch 22</td>
<td>Exam Review Session</td>
</tr>
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<td>03/01</td>
<td></td>
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<td>Exam I</td>
</tr>
<tr>
<td>03/03</td>
<td>Chromosomal Mutation</td>
<td>Ch 8</td>
<td>Mutations</td>
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<tr>
<td>03/08</td>
<td>Recombination &amp; Transposition</td>
<td>Ch 19</td>
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<tr>
<td>03/10</td>
<td>DNA Replication</td>
<td>Ch 11</td>
<td>DNA Replication</td>
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<td>03/17</td>
<td>Spring Break</td>
<td></td>
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<tr>
<td>Date</td>
<td>Topic</td>
<td>Chapter</td>
<td>Notes</td>
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<tr>
<td>03/22</td>
<td>DNA Replication II &amp; PCR</td>
<td>Ch 20.2-3</td>
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<td>03/24</td>
<td>Central Dogma in Inheritance: I</td>
<td>Ch 12</td>
<td>Transcription</td>
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<td>03/29</td>
<td>Central Dogma in Inheritance: II</td>
<td>Ch 13</td>
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<td>03/31</td>
<td>mRNA Translation II</td>
<td>Ch 13</td>
<td>Exam Review</td>
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<td>Exam II</td>
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<td>04/07</td>
<td>Regulation of Gene Expression: I</td>
<td>Ch 14</td>
<td>Gene Regulation</td>
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<td>Regulation of Gene Expression: II</td>
<td>Ch 15</td>
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<tr>
<td>04/14</td>
<td>Regulation of Gene Expression: III</td>
<td>Ch 16</td>
<td>Epigenetics</td>
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<td>04/19</td>
<td>Non-Mendelian Inheritance</td>
<td>Ch 5</td>
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<td>04/21</td>
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<td>Exam III</td>
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<tr>
<td>04/26</td>
<td>Developmental Genetics</td>
<td>Ch 25</td>
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<td>04/28</td>
<td>Gene Mutation</td>
<td>Ch 18</td>
<td>Developmental Genetics &amp; Gene Mutation</td>
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<td>05/03</td>
<td>Review</td>
<td></td>
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<tr>
<td>05/04</td>
<td>Reading Day</td>
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<tr>
<td>05/11</td>
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<td></td>
<td>Final Exam</td>
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</tbody>
</table>

Note: Changes in this course schedule may be necessary and will be announced to the class by the Instructor. The assignments and exams shown are directly related to the Student Learning Outcomes described in Section F.

J. COURSE POLICIES

Attendance/Tardiness
Attendance: Students are expected to attend every scheduled class and recitation meeting. It is the responsibility of the student to obtain any material missed during an
absence from his/her classmates. Power Points are not placed in the library, and only Power Points from certain sections will be placed on BlackBoard, or on a website. For recitation, the instructor (TA) should be notified PRIOR to recitation if the student will be absent (except in emergency situations). Students must attend the recitation section for which they originally registered. “Make-up” by attending other recitation sections is NOT permitted except in emergencies, only with prior approval.

Tardiness: Students may enter when late but be respectful of your peers and do not disrupt the class as you enter.

**Late Work and Make-up Exams**
No late work will be accepted. I teach several different courses with items due at different times. I will always tell you to look at the syllabus for when items are due. It is your responsibility to get it turned in through the appropriate outlet on the designated day. I will not remind you.

No make-up exams will be given; one exam can be dropped and replaced by the grade from the Cumulative Final Exam.

**Extra Credit**
Missed extra credit opportunities--Instructor is not obligated to give make-up assignments for extra credit opportunities, whether excused or unexcused.

**Cell Phone Use**
Lecture: Students may utilize their cell phones as long as it does not disrupt others in class; therefore keep them on silent. The instructor reserves the right to ask you to turn off the cell phone or step outside of class while using the cell phone.
Recitation: Students are not allowed to use cell phones in recitation. Students will be asked to leave the room if found using cell phones in recitation. If it is urgent for you to use your phone feel free to exit the room to utilize your phone.

**Laptop Use**
Lecture: Students may utilize their laptops as long as it does not disrupt others in class.
Recitation: Students are allowed to use laptops as long as it does not disrupt the activities.

**Food in Class**
Lecture/Recitation: Students may eat food as long as it does not disrupt others in class. It is the student’s responsibility to clean up after themselves. If you fail to do so, you will no longer be allowed to have food in class.

**Missed Exam**
No make-up exams will be given; one exam can be dropped and replaced by the grade from the Cumulative Final Exam.

**Participation**
Lecture: Students are required to participate in all group activities. Peer evaluations will be given with each activity to determine your final assessment. Recitation: Students are expected to attend every session and have an equal contribution in the completion of the group activities. Peer evaluations will be given with each session to determine your final assessment.

Communicating with Instructors: All students should communicate with the instructors using their TAMUCC Black Board account or your islander.tamucc.edu email address. Your instructors will not discuss grades and related info via email unless the message originates from your islander account. Information for using and accessing this account can be found on BlackBoard (see below). If you run into difficulties that are not being resolved by the student computer help desk, please contact Dr. Gonzales ASAP.

BlackBoard Genetics Course and Other Electronic Resources:
Students are responsible for visiting the course BlackBoard site regularly. Updates to lecture outlines or study guides and other information, such as homework assignments, will be available on this site.

Others
Any other policies will be updated if necessary.

K. COLLEGE AND UNIVERSITIY POLIC

L. IES

- Academic Integrity (University)
  It is expected that university students will demonstrate a high level of maturity, self-direction, and ability to manage their own affairs. Students are viewed as individuals who possess the qualities of worth, dignity, and the capacity for self-direction in personal behavior.
  See Full University Policy at http://catalog.tamucc.edu/content.php?catoid=10&navoid=313#Academic_Integrity

- Classroom/Professional Behavior
  Texas A&M University-Corpus Christi, as an academic community, requires that each individual respect the needs of others to study and learn in a peaceful atmosphere. Under Article III of the Student Code of Conduct, classroom behavior that interferes with either (a) the instructor’s ability to conduct the class or (b) the ability of other students to profit from the instructional program may be considered a breach of the peace and is subject to disciplinary sanction outlined in article VII of the Student Code of Conduct. Students engaging in unacceptable behavior may be instructed to leave the classroom. This prohibition applies to all instructional forums, including classrooms, electronic classrooms, labs, discussion groups, field trips, etc.

- Deadline for Dropping a Course with a Grade of W (University)
  The grade of W will be assigned to any student officially dropping a course by
Friday, April 08, 2016. No student is eligible to receive a W without completing the official drop process by this deadline. Visit the Office of the University Registrar for the Course Drop Form that must submitted. After April 08, 2016 a student will not be allowed to drop a course.

- **Grade Appeals (College of Science and Engineering)**
  As stated in University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules website at [http://www.tamucc.edu/provost/university_rules/index.html](http://www.tamucc.edu/provost/university_rules/index.html), and the College of Science and Engineering Grade Appeals webpage at [http://sci.tamucc.edu/students/GradeAppeal.html](http://sci.tamucc.edu/students/GradeAppeal.html). For assistance and/or guidance in the grade appeal process, students may contact the chair or director of the appropriate department or school, the Office of the College of Science and Engineering Dean, or the Office of the Provost.

- **Disability Services**
  The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please call (361) 825-5816 or visit Disability Services in Corpus Christi Hall 116.

  If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816.

  [http://disabilityservices.tamucc.edu/](http://disabilityservices.tamucc.edu/)

- **Statement of Academic Continuity**
  In the event of an unforeseen adverse event, such as a major hurricane and classes could not be held on the campus of Texas A&M University–Corpus Christi; this course would continue through the use of BlackBoard and/or email. In addition, the syllabus and class activities may be modified to allow continuation of the course. Ideally, University facilities (i.e., emails, web sites, and BlackBoard) will be operational within two days of the closing of the physical campus. However, students need to make certain that the course instructor has a primary and a secondary means of contacting each student.
M. OTHER INFORMATION

Have a great semester and enjoy your journey to discover new knowledge

GENERAL DISCLAIMER

I reserve the right to modify the information, schedule, assignments, deadlines, and course policies in this syllabus if and when necessary. I will announce such changes in a timely manner during regularly scheduled lecture periods.