GENETICS: BIOL 2416.001
Department of Life Sciences
Summer I 2016

A. COURSE INFORMATION

Course number/section: BIOL 2416.001
Class meeting time: Blended Course: 50-84% Online Instruction
Meeting times: M,T,W,R 12:00 pm -1:50pm
Rec 101 & 102: M,T,W,R 2:00 pm – 3:25pm
Class location: Lecture: Online Instruction or CS 101
Rec 101: CS 111 & Rec 102: CS 115
Course Website: bb9.tamucc.edu

B. INSTRUCTOR INFORMATION

Instructor: Xavier F. Gonzales, PhD, MSPH
Office location: Engineering 310C
Office hours: T,W,R: 2:00pm-3:45pm
Telephone: 361-825-3824
e-mail: Xavier.Gonzales@tamucc.edu
Appointments: email me to set up appointments
Recitation Instructor: TBA

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 is a Blended Course; this indicates that lecture will be primarily through online instruction. Most recitation will be through face-to-face instruction.

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>
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<tbody>
<tr>
<td>BIOL 1406</td>
<td>CHEM 1311</td>
</tr>
<tr>
<td>BIOL 1407</td>
<td>CHEM 1312</td>
</tr>
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<td></td>
<td>NONE</td>
</tr>
</tbody>
</table>
E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES

Required Textbook(s)

Required Course Registration: https://connect.mheducation.com/class/x-gonzales-summer-i-2016-mtwr-1200pm

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 DNA structure and replication
3. Recognize chromosome number and structure
4. Discuss the connection between mitosis, meiosis, and Mendelian Genetics
5. Demonstrate linkage, recombination and chromosome mapping
6. Support connections between Mendelian and molecular genetics
7. Assess transcription, RNA processing, genetic code, translation, and protein structure
8. Describe basic mechanisms of regulation of gene expression
9. Describe Non-Mendelian inheritance

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
<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>% of FINAL GRADE</th>
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<tbody>
<tr>
<td>Exams</td>
<td>50</td>
</tr>
<tr>
<td>Quizzes</td>
<td>15</td>
</tr>
<tr>
<td>Recitation</td>
<td>35</td>
</tr>
</tbody>
</table>

Grading scale: A>90%  B=80-89.9%  C=70-79.9%  D=60-69%  F<60%

Lecture/Recitation
2 class Individual Exams @ 100 pts. Each = 200 pts
2 class Group Exams @ 50 pts. Each = 100 pts
Cumulative final exam = 200 pts
Quizzes = 150 pts
Recitation (assignments/participation/homework) = 350 pts
Total = 1000 pts

Nature of Assignments:

**Team Learning:** We will use a team learning approach in this class. **Permanent groups will be established at the start of the course.** Research examining team learning assignments show that the group score is HIGHER than individual scores and that students understand concepts much better as a result of discussing questions in groups. Sometimes each group member will submit answers individually and sometimes groups will submit group consensus answers to questions. We will use the team learning approach on in-class recitation assignments and lecture exams as described below.

**Exams** will be comprised mainly of multiple choice questions. Some may be setup as matching or fill-in the blank. Problems and/or essay questions may appear on the exams. Most questions, including multiple choice questions typically require analysis and interpretation of data or experimental design to assess critical thinking skills. You should bring a calculator to every exam. The **Final Exam** (Friday, July 1) will consist of approximately 25 pts new material and 175 pts comprehensive review of entire course content. Cell phones must be turned off and put away during exams.

For the first two exams, students will INDIVIDUALLY take the exam during the first half of the class period. **This score will constitute 67% of your 150 point exam score (100 points).** The other 50 points of your exam score will be from a GROUP exam. Without using any outside resources during the group portion of the exam or between the individual and group portions of the exam, your group will answer the same exam questions. Each group must reach a consensus on each question and submit a single set of answers for the whole group. There is no group component on the final exam.

I may allow students to use one sheet of handwritten notes on the cumulative final exam. This is not a right, but a privilege which must be earned and may be taken away by the instructor at any time. Only the front and back of a single 8.5” x 11” page with no typing, photocopying or
computer generated information of any kind will be allowed. If at any time during the semester you engage in academic dishonesty on any assignment, you will forfeit this privilege for the rest of the term. This includes cheating, helping others to cheat, and even failure to report the dishonest actions of others.

Recitation Assignments 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 will work on an activity as a group; however, you will complete and turn in most written assignments individually (unless otherwise specified) using your own words. Assignments may involve solving problems, data analysis, explaining concepts, or other hands-on applications of the concepts being covered in lecture. Occasionally we will cover a concept in recitation before it is covered in lecture, and some topics will be covered only in lecture or recitation, but not both.

The majority of the credit for recitation will be gained in development of active-learning activities to explain assigned topics to peers. (25 pts for each tidbit presentation; based on instructor and peer review) (Participation 50pts total: You will be evaluated by your peers after each tidbit)

Quizzes will be given at the instructor’s discretion. Quizzes may be multiple choice or short answer, primarily evaluating your mastery of the previous day’s material (lecture, recitation and homework). Quizzes must be completed individually, with no assistance from peers, notes or aids of any kind.

In most cases, Quizzes will be available through the text book Connect site. Students must purchase access. It is the student’s responsibility to constantly check the Connect site for quizzes that are due. Instructor reserves the right to administer pop-quizzes during class.
## I. COURSE CONTENT/SCHEDULE

<table>
<thead>
<tr>
<th>Date</th>
<th>Lecture Topic</th>
<th>Reading</th>
<th>HW Due</th>
<th>Quiz</th>
<th>Recitation Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>05/31</td>
<td>Genetics Introduction</td>
<td></td>
<td></td>
<td></td>
<td>Hands-on Assignment</td>
</tr>
<tr>
<td>06/01</td>
<td>Mendelian Inheritance I</td>
<td>Ch 2</td>
<td>Shrub Observation</td>
<td>Syllabus</td>
<td>Description of Tidbits</td>
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<tr>
<td>06/02</td>
<td>Mendelian Inheritance II</td>
<td>Ch 2</td>
<td>Ch 2</td>
<td>Ch 2</td>
<td>Mendelian Inheritance: Internal</td>
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<tr>
<td>06/06</td>
<td>Mendelian Inheritance III</td>
<td>Ch 4</td>
<td>Ch 4</td>
<td>Ch 4</td>
<td>Mendelian Inheritance: Swap (1&amp;3)</td>
</tr>
<tr>
<td>06/07</td>
<td>DNA and Molecular Basis of Inheritance</td>
<td>Ch 9</td>
<td>Ch 9</td>
<td>Ch 9</td>
<td>Hands-on Assignment</td>
</tr>
<tr>
<td>06/08</td>
<td>Chromosomal Organization</td>
<td>Ch 10</td>
<td>Ch 10</td>
<td>Ch 10</td>
<td>Reproduction and Transmission of Genetic Material: Internal</td>
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<tr>
<td>06/09</td>
<td>Reproduction &amp; Transmission of Genetic Material</td>
<td>Ch 3</td>
<td>Ch 3</td>
<td>Ch 3</td>
<td>Reproduction and Transmission of Genetic Material: Swap (2&amp;4)</td>
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### Individual Exam I

<table>
<thead>
<tr>
<th>Date</th>
<th>Lecture Topic</th>
<th>Reading</th>
<th>HW Due</th>
<th>Quiz</th>
<th>Recitation Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>06/13</td>
<td>Linkage &amp; Mapping I</td>
<td>Ch 6</td>
<td>Ch 6</td>
<td>Ch 6</td>
<td>Linkage &amp; Mapping: Internal</td>
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<tr>
<td>06/14</td>
<td>Linkage &amp; Mapping II</td>
<td>Ch 20</td>
<td>Ch 20</td>
<td>Ch 20</td>
<td>Linkage &amp; Mapping: Swap (1&amp;3)</td>
</tr>
<tr>
<td>06/16</td>
<td>DNA Replication</td>
<td>Ch 11</td>
<td>Ch 11</td>
<td>Ch 11</td>
<td>Hands-on Assignment</td>
</tr>
<tr>
<td>06/20</td>
<td>Central Dogma in Inheritance: I</td>
<td>Ch 12</td>
<td>Ch 12</td>
<td>Ch 12</td>
<td>Transcription &amp; Translation: Internal</td>
</tr>
<tr>
<td>06/21</td>
<td>Central Dogma in Inheritance: II</td>
<td>Ch 13</td>
<td>Ch 13</td>
<td>Ch 13</td>
<td>Transcription and Translation: Swap (2&amp;4)</td>
</tr>
<tr>
<td>06/22</td>
<td>Regulation of Gene Expression: I</td>
<td>Ch 14</td>
<td>Ch 14</td>
<td>Ch 14</td>
<td>Regulation of Gene Expression: Internal</td>
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<tr>
<td>06/23</td>
<td>Regulation of Gene Expression: II</td>
<td>Ch 15</td>
<td>Ch 15</td>
<td>Ch 15</td>
<td>Regulation of Gene Expression: Swap (1&amp;3)</td>
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### Individual Exam II

<table>
<thead>
<tr>
<th>Date</th>
<th>Lecture Topic</th>
<th>Reading</th>
<th>HW Due</th>
<th>Quiz</th>
<th>Recitation Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>06/27</td>
<td>Non-Mendelian Inheritance</td>
<td>Ch 5</td>
<td>Ch 5</td>
<td>Ch 5</td>
<td>Non-Mendelian Inheritance: Internal</td>
</tr>
<tr>
<td>07/29</td>
<td>Gene Mutation</td>
<td>Ch 18</td>
<td>Ch 18</td>
<td>Ch 18</td>
<td>Non-Mendelian Inheritance: Swap (2&amp;4)</td>
</tr>
</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

Emails
I am happy to communicate with you through emails but I do expect you to do so in a professional manner. Emails are not text messages, therefore, do not right them in that style. I expect an appropriate salutation followed by a brief explanation of the purpose of your email. I would prefer that you ask everything at once and it would be best to put all your questions in bullets to allow me to answer behind the question. Further, I do not answer emails on the weekend. If you sent your email during professional working hours (M-F: 9am-5pm) and it did not get answered after 24hrs it was more than likely lost in all my emails. Please resend the email.

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. 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. It is your responsibility to review the syllabus for when items are due. It is also your responsibility to get it turned in through the appropriate outlet on the designated day.

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/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 class or 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.

**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.

If you have never used BlackBoard before, click on Island Online on the homepage, choose BlackBoard under “Island Online Login” and then on “I am a new user” and follow the instructions. If you have any problems logging into BlackBoard, please call the Online Help Desk at x2825 (or 825-2825 from off-campus or 1-866-353-2491 for long distance).

**K. COLLEGE AND UNIVERSITY POLICIES**

- **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](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 June 17, 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 be submitted. After June 17, 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/

- **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.

L. **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.