Texas A&M University - Corpus Christi
Summer I 2012

BIOLOGY 2416.001- GENETICS
BIOLOGY 2416.101 - Recitation
SYLLABUS : Lecture and Recitation

The final exam will be Friday, July 6th, 12-3:25 in ST 108.

Prerequisites: Required: Biology I, II (Biol 1406, 1407) AND General Chemistry I, II
(Chem 1311, 1312); Recommended but not required: Organic Chemistry I
(If you have not successfully completed one or more of the prerequisites, please speak with me before
the end of the first day!)

Instructor: Dr. Brandi Kutil, Lecture and Recitation
Email: brandi.kutil@tamucc.edu
Office Hours: MTW immediately after Recitation in ST 108.
I am also happy to meet with you at any time. Please email me times that you
would be available, and I will schedule an appointment at your convenience.

Course SI Leader: TBD Times and Locations TBD

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 review of concepts.

Note: A copy of the text has been placed on reserve at the library for those students who do not want to
carry the text back and forth and also for those who are waiting for financial aid or other resources to
purchase your text book. I don’t want you to get behind in your reading!

Required Supplies:

Calculator: All students MUST have a functioning calculator suitable for basic calculations. You must
bring it to all lectures, all exams, and all recitations.

Lecture Outlines and Study Guides from Blackboard
Lecture slides will be posted on Blackboard to provide an outline for you to follow in lecture. They are
NOT meant to replace note-taking. I HIGHLY recommend that you print these and bring them with you
to class every day. We will cover a lot of material very quickly, and this will allow you to add additional
comments without falling behind during lecture. You will NOT have sufficient time to write down
everything that is posted during class. Study guides will also be posted to help you make better use of
your textbook. These guides include exact pages to read in the text and recommended chapter
problems.
**You will need computer access regularly.** Assignments and information will be posted on BlackBoard, the university’s online learning system. Lack of computer access and/or the inability to access BlackBoard is not an excuse. Computers are available for all students to use in open access labs on the second floors of CI and CCH.

**Student Learning Outcomes**

Upon successful completion of this course, the student will:

A. Have increased her/his:
1. Critical thinking skills
2. Problem-solving skills
3. Knowledge of science as a way of knowing, using Genetics as an example

B. Understand and be able to explain:
1. Mendelian inheritance and its extensions, including basic quantitative genetics
2. The connection between mitosis, meiosis, and Mendelian Genetics
3. Non-Mendelian inheritance
4. Linkage, recombination and chromosome mapping
5. Chromosome number, structure, and variations and mutations
6. DNA structure and replication
7. Transcription and RNA processing
8. The genetic code, translation, and protein structure
9. Basic mechanisms of regulation of gene expression
10. The connections between Mendelian and molecular genetics
11. Basics of recombinant DNA technology, genomics, and other new fields within genetics
12. Genetics of populations including Hardy-Weinberg equilibrium and evolution
13. The use, calculation, and interpretation of the $\chi^2$ tests in Genetics

**Evaluation:** Your final grade will be based on the percentage you earn out of the total possible points. Individual extra credit is not possible, but extra points may be built into exams or other assignments. Statistical manipulations, if used (at the Instructor’s discretion), will be performed only once, at the end of the semester.

**800 total points in the course**

A= 89.5% or more of 800 points
B= 79.5% to 89.4% of 800 points
C= 69.5% to 79.4% of 800 points
D= 54.5% to 69.4% of 800 points

**Points for Evaluation**

<table>
<thead>
<tr>
<th>Points</th>
<th>Exam Description</th>
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</thead>
<tbody>
<tr>
<td>100</td>
<td>Exam 1 - Individual</td>
</tr>
<tr>
<td>25</td>
<td>Exam 1 - Group</td>
</tr>
<tr>
<td>100</td>
<td>Exam 2 - Individual</td>
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<tr>
<td>25</td>
<td>Exam 2 - Group</td>
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<tr>
<td>50</td>
<td>Final Exam – New material</td>
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<tr>
<td>100</td>
<td>Final Exam - Comprehensive</td>
</tr>
<tr>
<td>150</td>
<td>Recitation assignments</td>
</tr>
<tr>
<td>120</td>
<td>Quizzes</td>
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<tr>
<td>130</td>
<td>Homework</td>
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</tbody>
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**Exam Schedule**

<table>
<thead>
<tr>
<th>Exam</th>
<th>Date</th>
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</thead>
<tbody>
<tr>
<td>Exam 1</td>
<td>Thursday, June 14</td>
</tr>
<tr>
<td>Exam 2</td>
<td>Thursday, June 28</td>
</tr>
<tr>
<td>Final</td>
<td>Friday, July 6 (12-3:25)</td>
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</tbody>
</table>

It is the student’s responsibility to attend each class session and be aware of all assignments, deadlines, etc.
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 of at least 50% multiple choice questions. Some may be setup as matching or fill-in the blank. Problems and/or essay questions will make up the rest of the exam. 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 6, 2012) will consist of approximately 50 pts new material and 100 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 80% of your 125 point exam score (100 points). The other 25 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 each 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.

Homework will be assigned in recitation each day and will be due BY THE BEGINNING of LECTURE the NEXT DAY. You must be present to submit the homework for credit. I will not accept homework via email or allow someone else to drop off your work for you. Assignments will vary from day to day but will tie into that day’s lecture and recitation activities. You are encouraged to get together and work on problem-solving as a group. However, all assignments must be turned in individually (unless specified otherwise) and be written in your own words, NOT COPIED from someone else.

Quizzes will be held at the beginning of lecture almost every day. Most quizzes will be multiple choice, 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.

Appeals: Once the assignments have been completed and grades have been returned, students may use any resource they wish to appeal any question (Recitation, Homework, Quiz, or Exam) for which the group feels the answer is incorrect or the question is unclear. All appeals must be in writing, must fully explain why the group feels there is a problem with the question and must be agreed to by the entire group. If the group’s appeal is granted, the scores of all group members will be adjusted.
Posting grades: I will use the unique number provided on your group-forming survey to anonymously post grades. If at any point you would like to change your posting number or request that your grades not be posted, please contact me privately. All students must have a TAMU-CC e-mail account (your islander account). This is the only account through which I am legally allowed to discuss grades.

After an assignment or exam, I will post your grades as soon as possible. Please check your grades! It is your responsibility to be sure that I have correctly recorded your grades. From the time I post grades for an assignment or exam, you have FIVE class days to inform me there might be a problem with your grades. After five class days, I will assume that grades for that assignment or exam are correctly recorded.

University Rules:
All TAMUCC policies are in force and described in the TAMU-CC catalog and in the Student Handbook.

Course Policies:

1. COMMUNICATING WITH INSTRUCTOR: ALL STUDENTS SHOULD COMMUNICATE WITH THE INSTRUCTOR USING THEIR TAMU-CC (islander) account. Your instructors will not discuss grades and related info via email unless the message originates from your islander account. If you run into difficulties that are not being resolved by the student computer help desk, please contact me ASAP.

2. ATTENDANCE and MAKE-UP Policy:

Class attendance: My attendance policy is the same as the University's. Please read the University's attendance policy on page 39 in the 2011-2012 undergraduate catalog.

I expect students to attend every scheduled class meeting including lecture and recitation! Routine events (work, non-emergency medical visits, household or auto repairs) should be scheduled to avoid conflicts with class. Attendance is not used to determine grades, but you will miss a significant number of points each day. You are responsible for the material covered in every lecture and recitation, even if it is not in the book, regardless of your attendance. If you come to class prepared every day, you will do much better in this course.

NOTE: If you are faced with an extensive illness or family emergency that keeps you out of all your classes for more than a day or two, you should contact the Vice President for Student Affairs, Dr. Eliot Chenaux. This office assists students in difficult circumstances. Take advantage of these and other University services as you may need!

Make up or late work: The Summer term goes by very quickly. If anything happens that causes you to miss an exam or more than one regular class day, please notify me immediately (e-mail is great for this purpose)! You cannot get behind in this class during the summer. There is very little time to catch up, so we need to get a plan in place as soon as possible in the unlikely event that something happens that causes you to fall behind. If you must miss an exam for approved university business, please contact me at least one week in advance so that arrangements can be made. If you unexpectedly miss an exam, contact me as soon as possible and we will discuss your options at that point.

In class recitations and quizzes MUST be completed in class! You must also be present to submit homework from the previous day. I will not accept late work, make-ups, or emailed homework, even for excused absences. If you miss class, it is your responsibility to contact your classmates and learn what you missed. On the day you return, you are expected to be caught up with homework and be prepared to take the quiz on new material with the rest of the class. If you are absent for more than one day, please email me to set a time to discuss your options for successfully completing the class.
3. **BlackBoard Genetics Course and other electronic resources:**

   Students are responsible for visiting the course BlackBoard 9.1 site regularly. Lecture PowerPoint slides/outlines, homework assignments, study guides (including exact pages to read in the text and recommended chapter problems), and other instructional material will be made available via the university’s Blackboard site http://iol.tamucc.edu. Then use your NetID to login. If you have any problems logging into Blackboard, please call the Online Help Desk at 825-2825.

   Students should also register for and use the class textbook-associated website. It contains answers to ALL textbook chapter problems, outlines, animations, self-quizzes, links, etc. A link to this website will be available on BlackBoard.

4. **Policy on Academic Dishonesty:**

   Academic dishonesty in any form, including plagiarism or attempting to copy answers from another student, will not be tolerated. Students found responsible for violating this policy WILL be prosecuted to the fullest extent of University Regulations (see the current TAMU-CC catalog).

   **Special NOTE for in class assignments and quizzes:** You MUST be present to receive credit for in-class assignments (including recitations, quizzes and homework). Submitting work with another student’s name on it or answering questions for another student not present in lecture is violation of academic honesty and will not be tolerated. If you are caught fraudulently earning points for another student, you both will be prosecuted according to the University Regulations on Academic Dishonesty.

   **Special Note for exams:**
   - You must be prepared to present a photo ID at all examinations.
   - Different test forms may be prepared for a single examination. Follow instructions!
   - Cell phones must be turned off AND put away. You will not be permitted to look at your cell phone or other electronic devices, except calculators.
   - Bring a calculator to each exam. You must have your own calculator. Cell phone calculators are NOT acceptable.

5. **Policy on Grade Appeal**

   As stated in University Rule 13.02.99.C2, Student Grade Appeals, 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 Rule 13.02.99.C2, Student Grade Appeals, and University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules Web site at http://www.tamucc.edu/provost/university_rules/index.html. For assistance and/or guidance in the grade appeal process, students may contact the Office of Student Affairs.

6. **Policy on Respect:**

   As adult university students, you are expected to act with courtesy and common sense. Disruptive, disrespectful, or abusive language/behavior towards anyone in class (student, staff, faculty) will not be tolerated and could result in permanent removal from class. This includes talking in class, insubordination, and electronic disturbances (cell phones, alarms, laptop audibles, etc). **Turn them off!** Children are not allowed in class unless you make arrangements with me ahead of time.

7. **Policy on Electronic Devices**

   While laptops are permitted in lecture and recitation, cell phones and other electronic devices should be turned off at these class meetings. Anyone wishing to record lectures or recitations should
seek the instructor’s permission first. If you have some kind of emergency that necessitates keeping a cell phone or pager on during class (e.g., a sick family member), please discuss it with your instructor.

8. Policy on Disability and Veterans’ Services

Texas A&M University-Corpus Christi is committed to providing persons with disabilities an equal opportunity to access campus facilities, resources and programs. 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. Support and accommodations are also available for returning veterans who experience cognitive and/or physical access issues in the classroom or on campus. Our Office of Disability Services arranges such support and academic accommodations. To make a request, or for more information, call (361) 825-5816 or visit Driftwood 101. It is important to contact the Office of Disability Services in a timely fashion as it will take time for them to review requests and prepare accommodations and accommodation letters.

TENTATIVE Schedule for Genetics

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<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Chapter</th>
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<tbody>
<tr>
<td>Mon, Jun 4</td>
<td>Introduction to Genetics, Pedigrees</td>
<td>Ch 1</td>
</tr>
<tr>
<td>Tues, Jun 5</td>
<td>Mendelian Inheritance, Probability</td>
<td>Ch 2</td>
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<tr>
<td>Wed, Jun 6</td>
<td>Meiosis and Mitosis</td>
<td>Ch 3</td>
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<tr>
<td>Thurs, Jun 7</td>
<td>Sex Chromosomes, Sex linked Inheritance</td>
<td>Ch 3</td>
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<tr>
<td>Mon, Jun 11</td>
<td>Extensions of Mendel</td>
<td>Ch 4</td>
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<tr>
<td>Tues, Jun 12</td>
<td>Non-Mendelian Inheritance</td>
<td>Ch 7</td>
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<tr>
<td>Wed, Jun 13</td>
<td>Polygenic Inheritance</td>
<td>Ch 25</td>
</tr>
<tr>
<td>Thurs, Jun 14</td>
<td>Exam 1</td>
<td></td>
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<tr>
<td>Mon, Jun 18</td>
<td>Linkage and Mapping</td>
<td>Ch 5</td>
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<tr>
<td>Tues, Jun 19</td>
<td>DNA, Organization</td>
<td>Ch 8-9</td>
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<tr>
<td>Wed, Jun 20</td>
<td>Chromosomal Mutations</td>
<td>Ch 10</td>
</tr>
<tr>
<td>Thurs, Jun 21</td>
<td>DNA Replication</td>
<td>Ch 11</td>
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<tr>
<td>Mon, Jun 25</td>
<td>Gene Expression, Transcription and Translation</td>
<td>Ch 12, 13</td>
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<tr>
<td>Tues, Jun 26</td>
<td>Regulation of Gene Expression</td>
<td>Ch 14, 15</td>
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<tr>
<td>Wed, Jun 27</td>
<td>Gene Mutation</td>
<td>Ch 16</td>
</tr>
<tr>
<td>Thurs, Jun 28</td>
<td>Exam 2</td>
<td></td>
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<tr>
<td>Mon, July 2</td>
<td>Biotechnology</td>
<td>Parts of Ch 17-24</td>
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<tr>
<td>Tues, July 3</td>
<td>Population Genetics</td>
<td>Ch 25</td>
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<tr>
<td>Wed, July 4</td>
<td>Independence Day Holiday</td>
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<tr>
<td>Thurs, July 5</td>
<td>Movie Day/ Ethics Discussion</td>
<td></td>
</tr>
<tr>
<td>Friday, July 6</td>
<td>Final Exam</td>
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General Disclaimer:

The Instructor reserves the right to modify the schedules and policies in this syllabus if and when necessary. Such changes will be announced during regularly scheduled lecture or recitation periods, but no attempt will be made to contact students who were absent when an announcement was made. Nevertheless, all students are responsible for abiding by all announced changes, and it is a student’s responsibility to obtain this information. Changes will be announced in a timely manner, but be aware that some modifications may be implemented without prior warning.