BIOLOGY 2416.001- GENETICS
Recitation Sections 101-106
Fall 2014

Lecture Meetings: Mondays/Wednesdays 2:00 -3:15PM  IH 160
Recitations: Thursdays 8:00 – 9:50 PM   IH 162 (104), Lauren
Thursdays 10:00 – 11:50 PM    CA 228 (106) * Lauren
Thursdays 14:00 – 15:50 PM    IH 160 (101) Tricia
Thursdays 14:00 – 15:50 PM    IH 156 (102) Jason
Fridays 10-11:50AM           BH 127 (103) Tricia
Fridays 12 – 1:50 PM         BH 127 (105) Jason

Prerequisites: Biology I, II (BIOL 1406, 1407) AND General Chemistry I, II (CHEM 1311, 1312);
Recommended: Organic Chemistry I as pre- or co-requisite

Lead Instructor: Dr. Christopher E. Bird
Office: CS 246
Laboratory: HRI 202
Phone: 361-825-6024(Office)
E-mail: PLEASE USE Bb MESSENGER ON BLACK BOARD
chris.bird@tamucc.edu
Office Hours: MW 3:15-5:45PM in CS 110 or by appointment
[Subject to change pending advance notice]
Please note that you should try to schedule appointments after 1 PM.

Recitation Instructors:
Jason Selwyn, Office hours: Th 4-5, F2-3, HRI 202 (Breakout Room)
Phone: 603-264-5548, Email: jselwyn@tamucc.edu

Lauren Gurski, Office hours: M 9-11
Phone: 610 888 5830, Email: lauren.gurski@tamucc.edu

Patricia Cockett, Office hours: M 9-11, CS239
Phone 808-651-6343, Email: pcockett@tamucc.edu

Note: A copy of the text should be available in the Library!

Required Supplies:
Lectures: Your brains and a pencil.
Recitations: Your brains, the text book, lecture notes, paper, and a pencil.
Tests: Calculators are banned from tests. Nobody uses scientific calculators in the real world
Lecture Slides (provided by instructor)
Lecture slides for each topic we cover will be given to each student officially enrolled in the course as course packets. Part of your course fees pay for this very useful resource. You should bring the packet to all recitations.

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
   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. Population and Evolutionary Genetics
   13. The use of statistical models in employing the scientific method to test hypotheses

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.

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 to adjust grades, if used (at the Instructor’s discretion), will be performed for each exam. A standard grading scale will be used:

A = 90 - 100 %
B = 80 - 89.9 %
C = 70 - 79.9 %
D = 60 - 69.9 %
F = 0 - 59.9 %
Components of Course Grade (Tentative)

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam 1</td>
<td>17</td>
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<tr>
<td>Exam 2</td>
<td>17</td>
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<tr>
<td>Exam 3</td>
<td>17</td>
</tr>
<tr>
<td>Final Exam (comprehensive)</td>
<td>17</td>
</tr>
<tr>
<td>Recitation Assignments</td>
<td>25</td>
</tr>
<tr>
<td>Quizzes</td>
<td>7</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>100 pts</strong></td>
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</tbody>
</table>

It is the student’s duty to attend each class session and be aware of all assignments, deadlines, etc.

Nature of Assignments:

**Exams** will be comprised of multiple choice and short answer 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. The Final Exam (Monday, Dec 8th) will consist of 100% comprehensive review of entire course content. Cell phones should be turned off and put away during all lecture and recitations meetings, including exams; you will not be permitted to use them as a calculator or look at them for anything else during the exam.

**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/](http://connect.mheducation.com/). To register go here: [http://connect.mheducation.com/class/c-bird-fall-2014](http://connect.mheducation.com/class/c-bird-fall-2014) and then register with the following code: 8UC9-VW74-FVQR-NU8V-NA3V

Completed quizzes should be emailed to both myself (chris.bird@tamucc.edu) and your TA. Quizzes are due by 1:55 PM, Noon, on the day of the lecture (check the schedule). In some cases, 2 quizzes may be due on the same day. You will NOT be graded on your quiz score – I want you to read the questions, think about them, and try to answer each one to the best of your ability. You will be graded on whether you turned your quiz on time, and whether you spent a reasonable amount of time answering the questions. You may take the quiz as many times as you wish and you may look through the chapters for answers if you wish.

**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 first review the homework and then 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, **NOT COPIED from someone else**. 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.

All assignments and examination answers must be legible to the Instructor. Illegible answers will receive no credit. We strongly encourage the use of word processing software to draft your answers, after all, it is 2014 and it was standard to complete assignments as such when I was a student. That being said, we understand that drawings and figures may be completed by hand.

University Rules:

All TAMUCC policies are in force and described in the TAMUCC Undergraduate catalog (2014-2015 edition) and in the Student Handbook.

Course Policies:

1. **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. Bird ASAP.

You will periodically receive grade reports via Black Board. This will allow you to be sure that your grades are properly recorded. You will have FIVE DAYS (not including weekends) to correct any new scores. After the five days, your instructors will assume that your scores were recorded correctly and will not make corrections. It is your responsibility to keep up with this.

2. ATTENDANCE and MAKE-UP Policy:

   Attendance is required for all lectures and recitations. You are responsible for the material covered in every lecture and recitation, even if it is not in the book, regardless of your attendance. Routine events (non-emergency medical visits, parent-teacher conferences, household or auto repairs) should be scheduled to avoid conflicts with class.

   Documentation is required for an absence to be excused. For example, if you are too ill to attend a recitation, you must provide a doctor’s excuse on official stationary or a prescription form with applicable dates. Dr. Bird will make the final determination as to whether an absence is excused or not. This policy also applies to students participating in University-sanctioned activities (such as athletics); however, in such cases, arrangements must be made at least two weeks ahead of time, and excuses must be documented via a letter or memo on official university letterhead or an email from a university address by the supervising coach or faculty member. If you participate in University Athletics, please inform your coach that a form letter with a list of students on the team or on several teams is NOT acceptable. I need a letter or a list of students in Genetics only.

   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!

   There are NO make-ups: For university-sanctioned events or activities, you may arrange to take a lecture exam at an alternate time. For recitations, you may make arrangements to attend another section if you can do so without missing another class. If an excuse is granted and you cannot attend another recitation, specifics should be worked out with your TA.

   ALL arrangements for exams or recitations under this policy MUST be made with Dr. Bird or your TA using the two weeks notice mentioned above. IF arrangements are NOT made using the two week notice, the instructor reserves the right to deny the student an excuse or a make-up.

3. 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).

   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 is available on BlackBoard. Access to this website is FREE with your textbook. To register go here: http://connect.mheducation.com/class/c-bird-fall-2014 and then register with the following code: 8UC9-VW74-FVQR-NU8V-NA3V

4. Policy on Academic Dishonesty:
Academic dishonesty in any form, including plagiarism, 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 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.

5. Policy on Grade Appeals
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.tamu.cc/provost/university_rules/index.html, and the College of Science and Engineering Grade Appeals webpage (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.

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 and insubordination. Children are not allowed in class unless you make arrangements with the instructor ahead of time.

7. Policy on Electronic Devices
If you create a distraction with your electronic device then all electronic device privileges will be taken away.

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. If you believe you have a disability requiring an accommodation, please call or visit Disability Services at (361) 825-5816 in Corpus Christi Hall, Room 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.
# TENTATIVE SCHEDULE FOR GENETICS

<table>
<thead>
<tr>
<th>Date</th>
<th>Lecture Topic</th>
<th>Reading</th>
<th>MC Quiz</th>
<th>Recitation Topic(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>08/27</td>
<td>Introduction to Genetics, Mendelian Inheritance I</td>
<td>Ch1, Ch2</td>
<td>No</td>
<td>Mendel, Probability, and Statistics</td>
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<tr>
<td>09/03</td>
<td>Mendelian Inheritance II Jason</td>
<td>Ch 4</td>
<td>Yes</td>
<td>Mendelian Inheritance</td>
</tr>
<tr>
<td>09/08</td>
<td>DNA and the Molecular Basis of Inheritance Lauren</td>
<td>Ch9</td>
<td>Y</td>
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<tr>
<td>09/10</td>
<td>Chromosomal Organization</td>
<td>Ch10</td>
<td>Y</td>
<td>DNA and Chromosome Structure</td>
</tr>
<tr>
<td>09/15</td>
<td>Reproduction and Transmission of Genetic Material I</td>
<td>Ch3</td>
<td>Y</td>
<td></td>
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<tr>
<td>09/17</td>
<td>Reproduction and Transmission of Genetic Material II</td>
<td>Ch3</td>
<td>N</td>
<td>Transmission of Genetic Material; X-Linked Traits</td>
</tr>
<tr>
<td>09/22</td>
<td>Linkage and Mapping I</td>
<td>Ch6</td>
<td>Y</td>
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<tr>
<td>09/24</td>
<td>Linkage and Mapping II: Genomic Analysis of DNA</td>
<td>Ch22</td>
<td>Y</td>
<td>Exam Review Session</td>
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<tr>
<td>09/29</td>
<td><strong>Exam 1</strong></td>
<td></td>
<td>N</td>
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<tr>
<td>10/01</td>
<td>Chromosomal Mutations</td>
<td>Ch8</td>
<td>Y</td>
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<tr>
<td>10/06</td>
<td>Recombination &amp; Transposition Lauren</td>
<td>Ch19</td>
<td>Y</td>
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<tr>
<td>10/08</td>
<td>DNA Replication Jason</td>
<td>Ch11</td>
<td>Y</td>
<td>DNA Replication</td>
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<tr>
<td>10/13</td>
<td>DNA Replication II &amp; PCR</td>
<td>Ch20.2-3</td>
<td>Y</td>
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<tr>
<td>10/15</td>
<td>DNA Transcription</td>
<td>Ch12</td>
<td>Y</td>
<td>Transcription</td>
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<tr>
<td>10/20</td>
<td>Transcription &amp; Translation</td>
<td>Ch13</td>
<td>Y</td>
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<tr>
<td>Date</td>
<td>Lecture Topic</td>
<td>Reading</td>
<td>MC Quiz</td>
<td>Recitation Topic(s)</td>
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<tr>
<td>10/22</td>
<td>mRNA Translation II</td>
<td>Ch 13</td>
<td>N</td>
<td>Exam Review</td>
</tr>
<tr>
<td>10/27</td>
<td><strong>Exam 2</strong></td>
<td></td>
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<tr>
<td>10/29</td>
<td>Regulation of Gene Expression in Prokaryotes</td>
<td>Ch 14</td>
<td>Y</td>
<td>Gene Regulation</td>
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<tr>
<td>11/03</td>
<td>Regulation of Gene Expression in Eukaryotes</td>
<td>Ch 15,16</td>
<td>Y</td>
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<tr>
<td>11/05</td>
<td>Non-Mendelian Inheritance I</td>
<td>Ch5</td>
<td>Y</td>
<td>Non-Mendelian Inheritance</td>
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<tr>
<td>11/07</td>
<td><em><strong>Last Day to Drop</strong></em>*</td>
<td>*****</td>
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<tr>
<td>11/10</td>
<td>Non-Mendelian Inheritance II</td>
<td>Ch5</td>
<td>Y</td>
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<tr>
<td>11/12</td>
<td>Developmental Genetics</td>
<td>Ch23</td>
<td>Y</td>
<td>Developmental Genetics &amp; Gene Mutation</td>
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<tr>
<td>11/17</td>
<td>Gene Mutation</td>
<td>Ch16</td>
<td>Y</td>
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<tr>
<td>11/19</td>
<td>Cultural Perspectives on Quantum Theory, Multiple Universes, and Metagenomic Coalescent Theory</td>
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<td>Thanksgiving, no recitation!</td>
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<tr>
<td>11/24</td>
<td>Population Genetics</td>
<td>Ch24</td>
<td>Y</td>
<td>Register for Pop Gen Spring 2015!</td>
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<tr>
<td>11/26</td>
<td>Evolutionary Genetics</td>
<td>Ch26</td>
<td>Y</td>
<td>Exam Review</td>
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<tr>
<td>12/01</td>
<td>EXAM 3</td>
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<tr>
<td>12/03</td>
<td>Final Exam Review Session</td>
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<tr>
<td>12/08</td>
<td>FINAL EXAM (1:45-4:15PM) (Comprehensive Final)</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.