Texas A&M University - Corpus Christi
SYLLABUS

BIOLOGY 2416.001- GENETICS
Recitation Sections 101,102, 103 105
Fall 2012

Lecture Meetings: Mondays/Wednesdays 2:30-3:45PM EN 101
Recitations: Thursdays 2:00 – 3:55 PM CI 108 (101), BH 127 (102)
Fridays 10-11:55AM CS 114 (103)
Fridays 1:00 – 2:55 PM CS 103 (105)

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

Instructor: Dr. R. Deborah Overath
Office: ST 312
Phone: 361-825-2467(Office)
Cell: 361-876-4542
E-mail: deborah.overath@tamucc.edu
Office Hours: M9-11AM, MW 4-5PM, W 1-2PM or by appointment
[Subject to change pending advance notice]
Please note that you are welcome to come by anytime, though you may wish to call first. I will be glad to help you if I am not busy. See schedule on BlackBoard.

Recitation Instructors: TBA
Office Hours: TBA

Tutors/ST: TBA

Direct to student pricing and eBook options are available. Links available on Blackboard.

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

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.

Qwizdom Responder
After the add deadline, you are required to bring your functioning Qwizdom responder to each lecture class meeting for in-class quizzes. You should also keep extra batteries as dead batteries are not an excuse for missing an in-class quiz (see below for more information).
Lecture Outlines and Study Guides (provided by instructor)
Lecture outlines and study guides 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 lectures and 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, 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

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, if used (at the Instructor’s discretion), will be performed only once, at the end of the semester. A 10-point 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)

- 3 Exams @ 100 pts = 300
- Final Exam (4\textsuperscript{th} exam + comprehensive final) = 200
- Recitation Assignments = 130
- Homework Assignments = 120
- In-class Quizzes = 100

\textbf{TOTAL} = 850 pts

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

\textbf{Nature of Assignments:}

\textbf{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 and your Qwizdom responder to every exam. The \textbf{Final Exam (Thursday, December 8\textsuperscript{th})} will consist of approximately one-half new material (will serve as Exam 4) and one-half comprehensive review of entire course content. \textbf{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.

\textbf{In-class Quizzes} will be conducted using the Quizdom Responder system. These quizzes will test basic knowledge of the material assigned in the text and lecture during the week. The objectives of these quizzes are to help you see if you are learning the basic facts that you need to apply to successfully complete the course, to prepare you for activities in recitation, and to be able to answer recommended chapter problems. There will be at least 15 unannounced in-class quizzes. They may occur at any point during the lecture. \textbf{ONLY your top 10 scores will count;} all others will be dropped. I will NOT drop scores for excused absences; these will come out of your 5+ quizzes that will be dropped. USE THEM WISELY!

\textbf{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 in-class quiz(zes) and 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 \textbf{your own words}. Assignments may involve solving problems, data analysis, or even homework.

\textbf{Homework Assignments} will be assigned in recitation each week and will be due at the beginning of the recitation the following week. Exact assignments will vary from week to week and will normally tie into that week’s recitation activity. You are encouraged to get together and work on problem-solving as a group. However, any assignments must be turned in individually (unless specified otherwise) and be written \textbf{in your own words, NOT COPIED from someone else}.

\textbf{Outside reading} may be assigned and provided on reserve at the library or online via BlackBoard. \textbf{All assignments and examination answers must be legible to the Instructor. Illegible answers will receive a “0”}. 
University Rules:
All TAMU-CC policies are in force and described in the TAMU-CC Undergraduate catalog (2010-2011 edition) and in the Student Handbook.

Course Policies:
1. Communicating with Instructors: ALL STUDENTS SHOULD COMMUNICATE WITH THE INSTRUCTORS 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. 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. Overath ASAP.

You will periodically receive grade reports via email from Dr. Overath to your Islander email. This will allow you to be sure that your grades are properly recorded. If you do not receive these emails, please check your “junk” or “spam” folder. 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. Overath 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 before, but not after, its scheduled time. Otherwise, your grade on the comprehensive part of the final exam will be counted twice to make up for a missed exam. For recitations, you may make arrangements to attend another time if you can do so without missing another class. If an excuse is granted and you cannot attend another recitation, the missing recitation assignment grade will not count against you (it will be “dropped”). In such cases, your homework will be due before you leave for the event. For in-class quizzes, only the top 10 scores (out of at least 15) will be counted. If you miss more than that, you will receive a “0” for any quiz missed EVEN IF IT IS FOR AN EXCUSED ABSENCE. Do not “waste” those “drops!”

ALL arrangements for exams or recitations under this policy MUST be made with Dr. Overath 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.

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 Quizdom and in-class quizzes: You MUST be present to receive credit for in-class quizzes. You are not permitted to use another student’s responder. Answering questions for another student not present in lecture is violation of academic honesty and will not be tolerated. If you are seen using two responders, both will be confiscated and you 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 and your Qwizdom Responders. Bring a calculator and Qwizdom responder to each exam. You must have your own calculator and your own Qwizdom Responder. Cell phone calculators are NOT acceptable.

5. Policy on Grade Appeals
As stated in the Texas A&M University-Corpus Christi University Rules and Procedures (Section B [Academic Program], Part 13 [Students]: 13.02.99.C2 [Student Grade Appeals] and 13.02.99C2.01 [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 on 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, consult the University Rules and Procedures specified above (accessible through the University Rules and Procedures website 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, pagers, gameboys, etc). Turn them off! Children are not allowed in class unless you make arrangements with the instructor ahead of time.
7. **Policy on Electronic Devices**

While laptops are encouraged in lecture and recitation, cell phones and other electronic devices should be **turned off and put away** at these class meetings. Note also that if you are observed visiting websites, updated Facebook, reading email, etc. on a laptop during class, you will be asked to turn it off. Repeated violations will result in loss of the privilege of using a laptop during lecture and/or recitation.

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>Recitation Topic(s)</th>
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<tbody>
<tr>
<td>8/22</td>
<td>Syllabus and Pretest</td>
<td>Syllabus</td>
<td>No Recitation</td>
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<tr>
<td>8/27</td>
<td>Introduction to Genetics</td>
<td>Chapt 1</td>
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<td>8/29</td>
<td>Mendelian Inheritance I</td>
<td>Chapt 2</td>
<td>Introduction to Genetics Problems</td>
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<td>9/3</td>
<td>Labor Day – No Class</td>
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<tr>
<td>9/5</td>
<td>Mendelian Inheritance II</td>
<td>Chapt 2</td>
<td>Pedigree Analysis</td>
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<td>9/10</td>
<td>Shark Genetics Special Lecture</td>
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<tr>
<td>9/12</td>
<td>Sex Linkage and Chromosomal Transmission I</td>
<td>Chapt 3</td>
<td>Probability</td>
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<tr>
<td>9/17</td>
<td>Sex Linkage and Chromosomal Transmission II</td>
<td>Chapt 3</td>
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<td>9/19</td>
<td>Extensions of Mendel I: Single Genes</td>
<td>Chapt 4</td>
<td>Solving Genetics Problems</td>
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<tr>
<td>9/24</td>
<td>Extensions of Mendel II: Interacting Genes and Polygenic Inheritance</td>
<td>Chapt 4, 25</td>
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<tr>
<td>9/26</td>
<td>Non-Mendelian Inheritance</td>
<td>Chapt 5</td>
<td>Polygenic Inheritance</td>
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<td>10/1</td>
<td><strong>EXAM 1 (Chaps. 1 – 4, 25)</strong></td>
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<td>10/3</td>
<td>Linkage and Mapping I</td>
<td>Chapt 6</td>
<td>Non-Mendelian Inheritance</td>
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<td>10/8</td>
<td>Linkage and Mapping II</td>
<td>Chapt 6, 7</td>
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<td>10/10</td>
<td>DNA and the Molecular Basis of Inheritance I</td>
<td>Chapt 9</td>
<td>Linkage</td>
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<td>10/15</td>
<td>DNA and the Molecular Basis of Inheritance II + Chromosomal Organization</td>
<td>Chapt 9, 10</td>
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<td>10/17</td>
<td>Chromosomal Mutations</td>
<td>Chapt 8</td>
<td>Chromosome Problems</td>
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<td>Date</td>
<td>Lecture Topic</td>
<td>Reading</td>
<td>Recitation Topic(s)</td>
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<td>10/22</td>
<td>Chromosomal Mutations and DNA Replication I</td>
<td>Chapt 11</td>
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<td>10/24</td>
<td>DNA Replication II</td>
<td>Chapt 11</td>
<td>Replication Review</td>
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<td>10/29</td>
<td>EXAM 2 (Chapts. 5-10)</td>
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<td>10/31</td>
<td>Gene Expression I: Overview and Transcription</td>
<td>Chapt 12</td>
<td>Transcription/Translation Review</td>
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<td>11/5</td>
<td>Gene Expression II: Translation</td>
<td>Chapt 13</td>
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<td>11/7</td>
<td>Regulation of Gene Expression I</td>
<td>Chapt 14</td>
<td>Gene Regulation</td>
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<td>11/12</td>
<td>Regulation of Gene Expression II</td>
<td>Chapt 15</td>
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<td>11/14</td>
<td>Gene Mutation</td>
<td>Chapt 16</td>
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<td>11/19</td>
<td>EXAM 3 (Chapt. 11-15)</td>
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<td>11/21</td>
<td>Take-home Assignment</td>
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<tr>
<td>11/26</td>
<td>Biotechnology I</td>
<td>Chapt 17</td>
<td>Biotechnology Related Problems</td>
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<tr>
<td>11/28</td>
<td>Biotechnology II</td>
<td>Parts of 18-21</td>
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<tr>
<td>12/3</td>
<td>Populations Genetics</td>
<td>TBA</td>
<td>Population Genetics and/or Ethics</td>
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<tr>
<td>12/10</td>
<td>FINAL EXAM (1:45-4:45PM) (Exam 4 + 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.