First Year Learning Community. Biology 1406, Introductory Biology I, Fall 2011
We meet in CI 138 MWF 11:00 or MWF 1:00
Sections meeting at these times are 1406.730 (1S), 1406.731 (2S), 1406.732 (3S),
1406.733 (3S), 1406.801 (1V), 1406.802 (2V), 1406.803 (3V), 1406.804 (4V),
1406.851 (1W), 1406.852 (2W), 1406.853 (3W), and 1406.855 (5W)

Labs meet in CI 207 or CI 208

The instructor of record is Dr. David J. Grisé who is assisted by Trevor Brue, Abbie
Johnson, Cori Speights, Megan Arnold, Mariela Rivera and Caitlin Bailey. In
addition, several CELLS mentors assist with the course and your transition to
TAMUCC by visiting first-year seminar sections on a regular basis.

Please be sure you know your biology mentor and meeting times for their mentoring
sessions.

<table>
<thead>
<tr>
<th>Tetrad</th>
<th>Biology mentor</th>
<th>Biology</th>
<th>Chemistry</th>
<th>Seminar</th>
<th>Composition</th>
<th>Bio lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>1V</td>
<td>Abbie</td>
<td>MWF 11:00</td>
<td>MWF 1:00</td>
<td>TR 12:30</td>
<td>TR 11:00</td>
<td>R 2:00</td>
</tr>
<tr>
<td>2V</td>
<td>Abbie</td>
<td>MWF 11:00</td>
<td>MWF 1:00</td>
<td>TR 11:00</td>
<td>TR 12:30</td>
<td>T 8:00</td>
</tr>
<tr>
<td>3V</td>
<td>Trevor</td>
<td>MWF 11:00</td>
<td>MWF 1:00</td>
<td>MW 2:00</td>
<td>MW 3:30</td>
<td>R 11:00</td>
</tr>
<tr>
<td>4V</td>
<td>Trevor</td>
<td>MWF 11:00</td>
<td>MWF 1:00</td>
<td>MW 3:30</td>
<td>MW 2:00</td>
<td>R 8:00</td>
</tr>
<tr>
<td>1S</td>
<td>Caitlin and Mariela</td>
<td>MWF 1:00</td>
<td>MWF 10:00</td>
<td>TR 12:30</td>
<td>----</td>
<td>R 2:00</td>
</tr>
<tr>
<td>2S</td>
<td>Caitlin and Mariela</td>
<td>MWF 1:00</td>
<td>MWF 10:00</td>
<td>TR 2:00</td>
<td>----</td>
<td>T 11:00</td>
</tr>
<tr>
<td>3S</td>
<td>Megan</td>
<td>MWF 11:00</td>
<td>MWF 9:00</td>
<td>MW 12:00</td>
<td>----</td>
<td>M 2:00</td>
</tr>
<tr>
<td>4S</td>
<td>Megan</td>
<td>MWF 11:00</td>
<td>MWF 9:00</td>
<td>TR 9:30</td>
<td>----</td>
<td>T 11:00</td>
</tr>
<tr>
<td>1W</td>
<td>Caitlin and Mariela</td>
<td>MWF 1:00</td>
<td>MWF 10:00</td>
<td>MW 11:00</td>
<td>MWF 9:00</td>
<td>R 11:00</td>
</tr>
<tr>
<td>2W</td>
<td>Caitlin and Mariela</td>
<td>MWF 1:00</td>
<td>MWF 10:00</td>
<td>MW 9:00</td>
<td>MWF 11:00</td>
<td>R 8:00</td>
</tr>
<tr>
<td>-------</td>
<td>---------------------</td>
<td>---------</td>
<td>-----------</td>
<td>---------</td>
<td>-----------</td>
<td>--------</td>
</tr>
<tr>
<td>3W</td>
<td>Cori</td>
<td>MWF 1:00</td>
<td>MWF 10:00</td>
<td>TR 9:30</td>
<td>TR 11:00</td>
<td>T 2:00</td>
</tr>
<tr>
<td>5W</td>
<td>Cori</td>
<td>MWF 1:00</td>
<td>----</td>
<td>TR 11:00</td>
<td>TR 2:00</td>
<td>W 11:00</td>
</tr>
</tbody>
</table>

Session times:

<table>
<thead>
<tr>
<th>Mentor</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mariela</td>
<td>2:00-3:30</td>
<td>11:00-12:00</td>
<td>5:00-6:30</td>
<td>11:00-noon</td>
<td></td>
</tr>
<tr>
<td>Caitlin</td>
<td>2:00-3:30</td>
<td>11:00-12:00</td>
<td>5:00-6:30</td>
<td>2:00-3:00</td>
<td></td>
</tr>
<tr>
<td>Megan</td>
<td>10:00</td>
<td>10:00</td>
<td>10:00</td>
<td></td>
<td>10:00</td>
</tr>
<tr>
<td>Cori</td>
<td>6:00</td>
<td>12:00</td>
<td>6:00</td>
<td>12:00</td>
<td></td>
</tr>
<tr>
<td>Trevor</td>
<td>4:00</td>
<td>2:00</td>
<td>4:00</td>
<td>6:00</td>
<td></td>
</tr>
<tr>
<td>Abbie</td>
<td>2:00</td>
<td>5:00</td>
<td>2:00</td>
<td>5:00</td>
<td></td>
</tr>
</tbody>
</table>

Office ST 311, e-mail david.grise@tamucc.edu, phone 825 3477

class web site: Please see BlackBoard
Office hours, other hours by appointment

**Overall context**

**Course description:** Presentation of basic biological concepts including scientific method, cytology, energetics, nucleic acids and genetics. This course is suitable for all majors. This course counts toward the natural science component of the University Core Curriculum.

**Exemplary education objectives for core courses met by bio 1406** *(big hint: These are the broad areas that are covered by all core science courses in the state of Texas. I must demonstrate that I cover these points and that you have a working knowledge of these points. Therefore, I will ask questions on assignments and exams related to each of these points in some way during the semester.)*

1. To understand and apply method and appropriate technology to the study of natural sciences. *(design and conduct experiments in lab, enzyme lab and yeast lab)*
2. To recognize scientific and quantitative methods and the differences between these approaches and other methods of inquiry and to communicate findings, analyses, and interpretation both orally and in writing. *(interdisciplinary experience)*
3. To identify and recognize the differences among competing scientific theories. *(questions on assignments and exams)*
4. To demonstrate knowledge of the major issues and problems facing modern science, including issues that touch upon ethics, values, and public policies. *(questions on assignments and exams)*
5. To demonstrate knowledge of the interdependence of science and technology and their influence on, and contribution to, modern culture. *(questions on assignments and exams, PCR lab)*
-General student learning outcomes for all sections of bio 1406
1. To recognize scientific and quantitative methods and the differences between these approaches and other methods of inquiry.
2. Understand the chemical basis of processes in living organisms.
3. Have a functional knowledge of the theory of evolution and understand its importance as the unifying theme in biology.
4. Understand the process of inheritance.
5. To recognize DNA technology as an interdependence of science and technology and understand the influence of DNA technology on, and contribution to, modern culture.

-Specific learning outcomes for these sections of bio 1406 (another big hint: Because I need to show that students have mastered these learning outcomes, I will ask questions related to these learning outcomes on assignments and exams! Read these learning outcomes before exams so you have an idea what I am going to ask about on the exam.)
1. To recognize scientific and quantitative methods and the differences between these approaches and other methods of inquiry. (questions on assignments and exams)
2. Be able to formulate testable hypotheses and predictions from these hypotheses. (questions on assignments and exams, enzyme lab and yeast lab)
3. Have a functional knowledge of the theory of evolution and understand its importance as the unifying theme in biology. (questions on assignments and exams)
4. Understand the importance of biochemical pathways and the importance of cellular respiration and photosynthesis to organisms and the relationship between these processes. (questions on assignments and exams)
5. To identify and recognize the differences among competing theories about DNA as the genetic material and the mechanism of DNA replication. (questions on assignments and exams)
6. To understand the importance of DNA to organism function and the basic mechanisms of inheritance. (questions on assignments and exams, genetics lab)
7. To recognize DNA technology as an interdependence of science and technology and understand the influence of DNA technology on, and contribution to, modern culture. (questions on assignments and exams, PCR lab)
8. To understand and apply method and appropriate technology to the study of problems with a biological basis. (questions on assignments and exams, design and conduct experiments in lab such as enzyme lab and yeast lab)
9. Be able to collect, analyze and interpret results from experiments and communicate your findings to your colleagues. (questions on assignments and exams, lab experiments and the interdisciplinary experience)

-A community of learners. You are part of the first year learning community at Texas A&M University-Corpus Christi. I hope you are, or will become, an active member of this learning community. Each time I teach a course, I learn from students. I hope to establish an atmosphere in which students learn from each other. As a result of taking my class and working with your fellow students, I hope you learn how to learn about issues that have a biological basis. We should all be learning from each other and learning how to learn from each other. As a result of our collective efforts, I hope I continue to improve as an instructor and that you benefit from taking my course.
RESOURCES TO ASSIST YOU IN BIO 1406.

STEP sessions
In the past, these sessions were only available to students in a STEP math class. As a result of the success of this mentoring program, this semester, STEP sessions are available to ALL students in biology 1407 and general chemistry. The data below indicate that students participating in sessions on a regular basis, about once a week, do better in the course than do students participating in sessions less often. Scientists make decisions based upon data. Here are the data! The conclusion from these data are that you should **participate in sessions on a regular basis**!

-Please attend the STEP session for your section (see above). STEP sessions are for all students of all abilities. STEP sessions are NOT in any way remedial or only intended for students not doing well in the course. There is abundant evidence that participating in STEP sessions increases student understanding of the course material. Participating in STEP sessions is an efficient use of your time and will increase your performance in the course. Participating in a STEP session is about the same as working two or three hours on the course on your own. Be efficient. Attend STEP sessions.

### Effect of attending STEP mentoring sessions Spring 2009

<table>
<thead>
<tr>
<th>Sessions attended</th>
<th>Mean grade in the course (+ standard deviation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-6</td>
<td><img src="image" alt="Bar a" /></td>
</tr>
<tr>
<td>7-12</td>
<td><img src="image" alt="Bar a" /></td>
</tr>
<tr>
<td>13 or more</td>
<td><img src="image" alt="Bar b" /></td>
</tr>
</tbody>
</table>

Bars with different letters are significantly different (Tukey’s multiple range test)

Keep in mind that the STEP mentors are mentors. They can be a great resource for information about core classes and instructors of those core classes and information about your future biology, chemistry or math courses.

A great way to prepare for the comprehensive final is to participate in the STEP sessions just after an exam. At these sessions, your STEP mentor can go over any questions on the exam you had
difficulty answering correctly. Asking questions about the questions you did not answer correctly on the exam will help you answer the question correctly on the comprehensive final.

-Captivating and Engaging Leaders in Life Sciences (CELLS) mentoring program.

All students will be assigned a CELLS mentor. CELLS mentors are sophomore, junior, or senior level students who have done well in my 1406 and 1407 classes. Your CELLS mentor will regularly visit your seminar class to answer questions and provide perspective on how to do well in my class and your future biology classes. They will also be able to answer questions about core classes and instructors for those classes. Please contact your CELLS mentor if you have questions about anything at the University. Because they are students, they have had to contact many of the University offices that you will deal with during your time at TAMUCC. Your CELLS mentor will be able to direct you the proper University resource. Take advantage of their experience for both class-related and University-related issues.

I am extremely grateful that so many students are volunteering their time to be a CELLS mentor. Their willingness to take time out of their busy schedule to assist students in this class is evidence of their commitment to the University, the Department of Life Sciences and to this class. Please take advantage of their willingness to help you succeed during your first year.

STUDENT-CENTERED LEARNING

-Team Learning: We will use a team learning approach in this class. Permanent team learning groups will be established at the start of the course. Students will answer questions on their own then team learning groups will answer the SAME questions. Team learning groups will submit group consensus answers to questions. Research examining team learning assignments shows that the group score is HIGHER than individual scores and that students understand concepts much better as a result of discussing questions and course material in groups. We will use the team learning approach on in-class team learning assignments as described below.

In-class team learning assignments: Students will come to class having read the assigned portion of the text. These readings will be announced in lecture in advance of the in-class team learning assignment. These readings will also be listed on BlackBoard. On Friday class meetings, using the Qwizdom responders, students will INDIVIDUALLY submit their own answers to questions about the text reading. Then, each team learning group will discuss the same questions and submit a group answer to the questions.

Each in-class team learning assignment is worth 30 points. Your individual answers to these questions count for 40% of your score (12 points) for the in-class team learning assignment. The other 60% of the score (18 points) for each in-class team learning assignment will be based on your group’s answers to the questions. You are not permitted to use the text or notes about the readings for either portion of the assignment. After the group portion of the exam is completed, you may use the text to better understand the answers to the questions or to appeal questions.

Team learning exams. We use team learning techniques for exams. On Wednesday, groups will answer questions on the team learning exam. I expect that all members of the group will participate in answering these questions and understand the group’s answer to these questions. On the Friday class meetings when we have an exam, individuals will answer different exam questions. Because many of the questions on the group and individual exams are similar, I hope the team learning exams help you to prepare for the individual portion of the exam.
Appeals: Students may not use the text, notes, or other resources during either the individual or group portions of in-class team learning assignments or team learning exams. However, once the assignment or exam has been completed, students may use any resource they wish to appeal any question for which the group feels the answer is incorrect or the question or answer choices are 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.

Peer evaluations: After the second exam, you will evaluate your group members. You will turn in this evaluation the Monday after the second exam. I will try to have you submit these evaluations electronically. Over the weekend, you will type a short evaluation of each of your group members. Your name will be on this evaluation but your peer members will not see your name. This is for points. After all evaluations are received, they will be distributed to the appropriate group member. Please leave space after your name and between the evaluations of your group members. An example of an evaluation is:

Group 3  Steve Smarts

Jane Yess. Jane comes to class prepared to discuss the TLA questions and participates in the discussion of the questions.

Joe Kno. Joe does not prepare for the TLA. It seems that he has not read the chapter and almost never participates in the discussion of the question. Joe needs to read the chapter before coming to class for the TLA.

At the final, you will turn in another typed evaluation of group members. Place your name on this evaluation. Your group members will not read this evaluation. Explain to me why you think each group member should receive full points for group work or why they should receive less than full points for group work. An example of an evaluation is:

Group 3.  Steve Smarts

Jane Yess. Jane continued to be prepared for each TLA and discussed the questions. Jane should receive full credit for group assignments.

Joe Kno. Joe turned things around during the second half of the course. Joe read the chapters before coming to the TLAs and participated in discussions. Joe should receive full credit for group assignments.

-Summary papers
To become better at anything, you need to work on that task. Sitting in lecture and taking notes is not how you will come to understand the material. To help you better understand the course material, we have built into the course an assignment for points. This assignment is the summary
paper assignment. In your summary papers you will summarize the material covered that week and ask questions you have about this material. Please see the below examples.

Following the calendar below, students will submit a Word file to the drop box on BlackBoard. STEP mentors working under my direction will read these summary papers and assign points to them.

The standard summary paper: This piece of reflective writing will contain a summary of what you learned as a result of attending class each week (a summary of all three classes per week) as well as a question you have about the material covered during these class meetings. Standard summary papers are worth 10 points. Each student will do four of these.

For the week before exams: students will not write the standard summary paper. Rather, some students will write a question you think will be on the exam and answer your question. 10 points. Each student will do one of these. Please see the schedule below.

For the week after exams: students will not write the standard minute paper. Rather some students will write a reflection on how they prepared for the exam, how that strategy worked and how/if they will prepare differently for the next exam. In addition, students will attend a STEP mentoring session on Monday, Tuesday or Wednesday and discuss a question they missed with the STEP mentor. Students will write a summary of that discussion and what they learned about the material as a result of that discussion. 10 points. Each student will do one of these. Please see the schedule below.

Each student will do the “what do I want from this course” paper on 26 August and the STEP reflection on 7 December. 5 points each.

-Example of how to write a question you think will be on the exam and an answer to that question.
A potential question is: A girl has PKU and her grandmother on her father’s side has PKU. Her parents do not show any signs of PKU. What are genotypes of her parents, and brother?
Answer: For the annotation of having the trait for the enzyme is A, and the annotation for the trait that does not have the enzyme is a. Her mother is Aa, her father is Aa, and her brother is A_. Her grandmother on her father’s side is aa and her grandfather on her father side is A_.

Example of how to write about a question you missed on the exam.
I went to STEP on both Monday and Tuesday to discuss the test and understand what I did incorrectly during the test. Once again the multiple-choice were the answers I got incorrect. Question number one was a silly question to miss and I cannot even explain why I missed such a simplistic question. However, I did miss question number four for a small misunderstanding I had from the material. I answered the question assuming that one phenotype had a higher fitness than the other and that the heterozygous organisms presented the dominant phenotype. However, those were assumptions I should not have made because the question was not asking for that type of scenario. The question merely stated in which situation would reduction of variation occur very slowly and the answer to that question is that a small difference between the fitness of the dominant and the recessive alleles would lead to a very slow reduction of variation. The STEP mentors reminded me that I must answer the question presented not the question I would like to be asked.
Example of how to write a summary paper for when the assignment was to summarize each lecture and lab and ask a question about this material and to provide a question from this week’s material you think will be on the exam.

Monday the 12th: The lecture today started with a question about how cellular respiration is most efficient in the presence of a lot of oxygen. In addition, factors that affect enzymes were discussed as well. These factors are temperature, pH, cofactors, and inhibitors which are either competitive or noncompetitive inhibitors. This topic was then more focused on the inhibitors and how the competitive and noncompetitive work on the enzyme. Competitive inhibitors attach to the active site and do not allow the substrates to attach to the active site. Noncompetitive attaches to the enzyme through another site in the cell. The example presented was the chair example once again. Competitive inhibitors compete with the substrate so if more substrates are added there is more of a chance that the enzyme will react with substrate instead of being inhibited. However, since noncompetitive inhibitors do not attach to the active site even when substrate is added the enzyme only reacts when the noncompetitive inhibitors detach from the enzyme. The question today is: If adding substrates can increase the reaction in enzymes in the presence of competitive inhibitors. Could the same be said if competitive inhibitors are added to the environment?

Wednesday the 14th: In lecture the discussion was about cellular respiration and the electron transport chain. The electron transport chain was explained in more detail and Dr. Grisé discussed lactate and alcoholic fermentation. Lactate fermentation pathway and the alcoholic fermentation pathway occur when there is not enough oxygen present. The example given was the sparkling wine and yeast. Also the citric acid cycle was described in more detail. This lecture helped me understand that from the beginning of cell respiration to the end there is a relationship between each step. The question for today is: Are there any other differences between lactate fermentation and alcoholic fermentation other than the waste products?

Thursday the 15th: At lab today that students had a little more freedom than usual. My group started by getting all the necessary materials which were yeast, glucose, hotplates, beakers, water, pipettes, ice, and graduated cylinders. Our experiment was to see what hot and cold temperatures affect alcoholic fermentation in yeast. The results were that the cold water slowed the process and that hot water sped up the production process. The group now must meet once before next week to prepare a lab report with our results and data. Also we must be sure to present the information in a professional manner in APA format. The question for today is: Does yeast use alcohol fermentation for all its cellular respiration processes?

Friday the 16th: Today was another team learning assignment over chapter 10. As an individual I missed two questions but as a group we got every question correct. My group was able to explain why the answers I selected was incorrect and why the correct answers were correct. Also Dr. Grisé reminded the class that the test was next week and informed us about the date of the question session. I feel like I have a good understanding of all the material and will be attending all of the sessions next week to be sure. A potential test question is:
The black solid line represents the enzyme production with just a substrate and the red solid line represents the introduction of an inhibitor. More substrate has been added to the environment. The blue solid line and the black dashed line represent two different types of inhibitors. Explain which inhibitor is which and why?

Answer: The solid blue line represents a competitive inhibitor and the black dashed line represents the noncompetitive inhibitors. The competitive inhibitor line increased enzyme production when more substrate was added because the inhibitor must now compete with more substrate. Competitive inhibitors and substrate join in the same active site so if there is more substrate there is more of a chance a substrate will reach the active site then an inhibitor. The slope of the enzyme production is not the same as an enzyme without any inhibitors but raises more with the increase of substrate. The black dashed line represents the noncompetitive inhibitor which is not affected by the amount of substrate in the environment. The noncompetitive inhibitor does not attach to the active site and therefore does not have to compete with the substrates. Also, the noncompetitive inhibitor changes the shape of the enzyme which changes the shape of the active site.

**Example of how to write an explanation of how you prepared for the exam**

Friday the 13th: Today was the day of the exam. I finally understand how to answer Dr. Grisé’s short answer questions, and I checked on WebCT to find my grade for the multi-choice portion and I received 100 percent. I am so excited to finally understand how to take Dr. Grisé’s tests effectively. I finally realized how to use the STEP sessions, question sessions, and the time I use to study individually to my advantage to learn the information and be able to display my knowledge during the tests. A good method is to start studying more than a week ahead of time because unlike other classes the information is to in-depth to review in one week. I learned that when you take the time to read and underline the important information on the multiple-choice finding the answer is not hard. In addition, I learned that in order to get the right answer paying attention to detail is an important factor. I think what helped me most was planning out my time so that I could study every day two weeks in advanced for thirty minutes. Also, the STEP sessions helped because I could
explain the information I knew to other students, which not only helped me but also helped the other students learn the information.

**Due dates for summary papers**
26 August, a description of what you hope to gain from the class and what you hope to gain from regular attendance of STEP mentoring sessions. Total of 5 points. ALL students submit this assignment

2 September, standard summary paper for 1V, 3V, 3S, 1W, 2W and 3W

9 September, standard summary paper for 2V, 4V, 4S, 1S, 2S, and 5W

16 September. 1V, 3V and 3S. Question you think will be on the 1st exam. Be sure you answer your question.

28 September, 5W, 2S, 1S and 4S. Write about a question you missed on the 1st exam. You will only get credit for this assignment if you attended a session on Monday, Tuesday or Wednesday. Note that the assignment is due Wednesday evening.

30 September, standard summary paper for 1V, 3V, 3S, 1W, 2W and 3W

7 October, standard summary paper for 2V, 4V, 4S, 1S, 2S, and 5W

14 October. 1W, 2W, and 3W. Question you think will be on the 2nd exam. Be sure you answer your question.

26 October. 1V, 3V, 3S and 1W. Write about a question you missed on the 2nd exam. You will only get credit for this assignment if you attended a session on Monday, Tuesday or Wednesday. Note that the assignment is due Wednesday evening.

28 October, standard summary paper for 2V, 4V, 4S, 1S, 2S, and 5W

4 November, standard summary paper for 1V, 3V, 3S, 1W, 2W and 3W, note your question is due the same day as your standard summary paper

4 November. 2V, 4V and 4S. Question you think will be on the 3rd exam. Be sure you answer your question.

16 November. 2W, 3W, 4V and 4S. Write about a question you missed on the 3rd exam. You will only get credit for this assignment if you attended a session on Monday, Tuesday or Wednesday. Note that the assignment is due Wednesday evening.

18 November, standard summary paper for 1V, 3V, 3S, 1W, 2W and 3W

2 December, standard minute paper for 2V, 4V, 4S, 1S, 2S, and 5W

6 December. 1S, 2S and 5W. Question you think will be on the 4th exam. Be sure you answer your question.
7 December, All students. A reflection on your bio 1406 experience including your experience with STEP mentoring sessions. 5 points.

-Daily in-class assignments: For almost every lecture, there will be a question worth a small amount of points to start lecture. Also, during lecture there will be questions for points. Students are encouraged to discuss these questions with other students. In addition, there will be a few times when groups will work on questions related to course material. These questions are designed to help students understand how to answer questions on the exams.

-Calibrated Peer Review (CPR) assignments. Using guiding questions, you will summarize parts of chapters containing material covered in the course. Doing these assignments should help you to better understand the material and better understand the process of scientific writing. Questions on exams will ask you about material covered in these assignments. The link to access the CPR system is on BlackBoard. All students are expected to be able to access this system, submit their summaries and complete the assignments on time.

Be sure you access the system for the first time well in advance of the deadline for submission of your summary for the first assignment. Report any problems to Dr. Grisé immediately. Dr. Grisé will NOT submit summaries for any student. If a student misses the deadline for text entry, they will not be able to complete the remaining portions of the assignment and will receive a zero out of 25 points for the assignment. Should a student submit their summary but fail to complete the assignment, it is likely that their score for the assignment will be about 4 points out of 25 points. Missing a CPR deadline may drop in your grade in the course down by a whole letter grade. Don’t let this happen to you! Because you have several weeks to complete these assignments, there will be no exceptions to this policy. Please do not allow these assignments to negatively affect your grade in the course. Take time to write your summary, complete the calibrations and review other students work. Be sure you complete the assignments in a timely manner. Remember that the material on these assignments is very important and may not also be covered in lecture. However, exam questions will be based on this material.

Because I have approximately 500 students in my sections of 1406, I cannot review grades on CPR assignments. I will not review a grade on a CPR assignment for any student. I have to trust that students will carefully and fairly review other student’s work.

The CPR assignments are a significant amount of work for both you and me. I only use teaching techniques and technology that improve student understanding and skills. One important skill to have as a scientist is the skill to review other people’s work. The analysis below indicates that students become more competent reviewers over the course of the semester. These data are the reason I continue to use the CPR system. Please put time and effort into the CPR assignments. Doing so will help you gain a valuable and useful skill that will be useful in your career.

Results of repeated measures Analysis of Variance (ANOVA) where the student is the repeated unit indicate that students become more competent reviewers over the course of the semester.

<table>
<thead>
<tr>
<th>Source</th>
<th>Degrees of freedom</th>
<th>Sum of squares</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student reviewer competency</td>
<td>3</td>
<td>25.9</td>
<td>5.28</td>
<td>0.0014</td>
</tr>
<tr>
<td>Program 1</td>
<td>2</td>
<td>3.6</td>
<td>0.71</td>
<td>0.4955</td>
</tr>
<tr>
<td>-----------</td>
<td>-----</td>
<td>-----</td>
<td>------</td>
<td>--------</td>
</tr>
<tr>
<td>Reviewer competency over time*program</td>
<td>6</td>
<td>7.0</td>
<td>0.72</td>
<td>0.6372</td>
</tr>
<tr>
<td>Error for program</td>
<td>132</td>
<td>332.2</td>
<td>2.5</td>
<td></td>
</tr>
<tr>
<td>Error (time)</td>
<td>396</td>
<td>646.7</td>
<td>1.6</td>
<td></td>
</tr>
</tbody>
</table>

*Program = STEP calculus, STEP pre-calculus and non-STEP learning community

**Points from the points slush fund**
Because so many students in the spring didn’t turn in assignments, I have lots of points in my points slush fund. I will redistribute the wealth this semester! After each exam, I will calculate the mean and standard deviation for the exam for each of the STEP session groups. The groups are as follows:
For the 11:00 section the groups will be 1V and 2V, 3V and 4V, and 3S and 4S.
For the 1:00 section the groups will be 1W and 2S, 2W and 1S, and 5 W and 3 W.

I will rank the exam mean, standard deviation and number of students attending at least 4 STEP mentoring sessions for the exam period for each group. The group with the combination of highest exam mean, lowest standard deviation around the exam mean and highest number of students attending at least 4 STEP sessions will get 10 of 10 points. The next highest group will get 6 of 10 points and the lowest group will get 3 of 10 points. Work together on this to be the top group!

One way to increase your chances of being the top group is to be sure that all students attend and participate in STEP mentoring sessions as well as attend and participate in the review sessions for the biology exam in your seminar class.

**EXAMS**
There are a total of five individual exams (three individual exams given during a lecture period and the fourth exam and comprehensive exam given at the time scheduled for the final). The three individual exams given during a lecture period are 100 points each. The final is a two part exam for a total of 200 points. The first 100 points of the final covers the last block of material (it is the blocks of material. You may use calculators during all exams. However, use of cell phone calculators or calculators on devices that can connect to the internet is NOT permitted. No other electronic devices of any kind are permitted during exams.

I do not assign a curve to each exam. For dates of the exams, CPR assignments and due dates for the team learning assignments, please see the calendar on BlackBoard.

**RESOURCES REQUIRED FOR BIO 1406**
- **Lab coats.** All students are required to have a lab coat when entering the labs for any reason. In addition, to the lab coat, students must be wearing long pants and closed-toe, close-heal shoes to enter the labs at any time. For more details about lab coats, please contact your CELLS mentor. They may be able to suggest where to buy a lab coat, etc.

- **All students must have a TAMU-CC e-mail account**
All students must have a TAMU-CC e-mail account (your Islander account). I e-mail your grades to your islander e-mail account. Grades will NOT be posted anywhere! If you don’t have an account, please go to [http://www.tamucc.edu/ise.html](http://www.tamucc.edu/ise.html) to obtain a new islander account. Either
check your islander e-mail account on a regular basis or forward your islander e-mail to your hotmail, yahoo, etc. e-mail account.


- **Qwizdom responders.** You are required to bring your functioning Qwizdom responder to each class meeting. You MUST be present to receive credit for in-class assignments. The only exceptions are medical appointments and University sponsored events. In the case that you have a scheduled medical appointment or University sponsored event that prevents you from attending lecture, please let me know in advance of lecture. Should you not be able to attend lecture due to a medical emergency, please let me know about the situation as soon as possible. You are not permitted to use another student’s responder. Answering questions for another student not present in lecture is cheating and will not be tolerated. If you are seen using two responders, both will be confiscated and we will all sort it out later.

I will not accept a piece of paper with your answers for ANY question answered using Qwizdom responders. There are no exceptions to this policy.

I will NOT check the results of a Qwizdom assignment for ANY student. When you take an assignment using Qwizdom, the Qwizdom responder shows you the answer you selected. Be sure you see the answer you intended to select. Since I have been using the Qwizdom system, I have checked answers at the request of students well over one hundred times. I have never found a problem with the Qwizdom system. Most of the time, a student mistakenly selected an incorrect answer or didn’t answer the question at all.

Dead batteries or “missing” responders: If you do not bring your Qwizdom responder to class, you might be able to sign out one of my three responders. You will leave me your ID and pick up your ID when you return the responder. I only have three responders. If all are signed out and you do not have your responder, I will NOT accept a paper copy of the answers to that day’s questions. The same is the case for batteries. If batteries in your responder go low, please get the attention of one of my assistants. They may be able to help you sign out batteries.

Please note that you will answer multiple choice exam questions with your Qwizdom responder! This will reduce my impact on the environment because using the Qwizdom responders rather than paper scantrons uses significantly less paper.

**UNIVERSITY AND CLASS POLICIES**

- **Class attendance**
  
  My attendance policy is the same as the University's. Please read the University’s attendance policy in the catalog. I expect students to attend every scheduled class meeting including labs. Attendance is not used to determine grades. If you come to class often, you should do well in my course. In addition, there will be in-class assignments during most lectures, so coming to lecture on a regular basis should result in a higher grade.

- **Scores sent by e-mail**
Please check your scores I send to your Islander e-mail account! It is your responsibility to be sure that I have correctly recorded your scores. From the time I e-mail grades for an assignment or exam, you have five class days to inform me there might be a problem with your score. After five class days, I will assume that scores for that assignment or exam are correctly recorded.

-Dropping the course
If you drop the class between 1 September and 4 November, you will be assigned a grade of W. Please be sure you read and understand the University’s drop policy found in the University catalog before you drop any class. Please consult me before dropping this class. If we decide dropping the class is the best option, you must initiate the process of dropping the course by going to Student Services Center (the round building) and fill out a course drop form.

-Academic Honesty
All students are expected to be familiar with TAMU-CC’s Academic Honesty Statement found in the University catalog.

-Students with Disabilities and Veterans
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 Driftwood 101.

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.

-Grade Appeal Process. 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.

-Academic Advising
The College of Science and Technology requires that students meet with an Academic Advisor as soon as they are ready to declare a major. The Academic Advisor will set up a degree plan, which must be signed by the student, a faculty mentor, and the department chair. The College’s Academic Advising Center is located in Faculty Center 178, and can be reached at 825-6094.

-Make-up exams and other work
Because of my workload and the number of students in my courses, I strictly adhere to the University policy regarding make-up exams. If you miss an exam for personal reasons, medical reasons or family circumstances, your exam score will be the average of the other exams you do take during the semester. For example, if you miss the second exam to because you attended a funeral, at the end of the semester I will use the average of your first, third, fourth and comprehensive final exams as your second exam score.

If you miss an exam for an approved University-related event (attendance at a scientific meeting, athletic event, etc.) you will be allowed to take a make-up exam.

- **Religious obligations**
  Any student missing class for religious obligations will be excused from class assignments for the days they miss. A student must tell me in advance of the days they will miss and I will excuse them.

- **Extra credit**
  **THERE IS NO EXTRA CREDIT!**
  **THERE IS NO EXTRA CREDIT!**
  **THERE IS NO EXTRA CREDIT!**
  **THERE IS NO EXTRA CREDIT!**

  **Evaluation of students**
  There are a total of xxxx points. Grades will be assigned as follows:

  A= 89.5-100 % of total points  
  B= 79.5-89.4 % of total points  
  C= 69.5-79.4 % of total points  
  D= 54.5-69.4 % of total points

  I use the above percentages to assign grades. After reading this section, you should know how I am going to assign grades. Please be sure you get enough points to get the grade you want. There will always be someone who just missed a D, or a C, or a B, or an A. I have to draw lines between grades. No matter where I draw the line, someone is on the wrong side of the line. Don't let that someone be you. You have plenty of help in my class. Take advantage of the resources I offer.

  **Learning community fall 2011**

<table>
<thead>
<tr>
<th>Points</th>
<th>% of grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>500</td>
<td>28.6</td>
</tr>
<tr>
<td>100</td>
<td>5.7</td>
</tr>
<tr>
<td>300</td>
<td>17.1</td>
</tr>
<tr>
<td>130</td>
<td>7.4</td>
</tr>
<tr>
<td>100</td>
<td>5.7</td>
</tr>
<tr>
<td>100</td>
<td>5.7</td>
</tr>
<tr>
<td>400</td>
<td>22.9</td>
</tr>
<tr>
<td>40</td>
<td>2.3</td>
</tr>
<tr>
<td>10</td>
<td>0.6</td>
</tr>
</tbody>
</table>
The interdisciplinary experience is the First Year Research Conference poster. The grade on this poster is used in all your other learning community courses. In my class, the grade on the poster will account for a total of 100 points.

**EXAM DATES**

Exam dates for all sections are 23 September, 21 October, and 11 November.

The final exam for MWF 11:00 sections is scheduled for Friday, 9 December 11:00-13:30. The final exam for MWF 1:00 sections is scheduled for Wednesday, 14 December 11:00-13:30. ALL students MUST take the final exam at the proper time. Please let me know in advance if you are unable to take the exam at the proper time.

Check these dates

Chemistry exams 16 September, 14 October and 18 November.

Pre-calculus exams 27 September and 8 November.

College Algebra exams 30 September and 4 November.

Poster presentations for grading 21-23 November. Presentation of poster to the University Community 29 November.

Schedule of Lecture topics

I accordance with HB 2504, syllabi are to include a schedule of topics to be covered each lecture. Today, when I wrote this, is 19 May. I pace the class based on student understanding of the course material. I do not move on unless I think the majority of students understand the material. I use many methods to convey material during class. Because it is difficult for me to determine what I am doing on 17 November, this is a tentative schedule and is subject to change. Actually, what is below is mostly a total guess. There is not chance that the schedule below will actually match up with what occurs in the classroom. I doubt anybody is reading the syllabus down to this page. I only include this section because I must. To get a realistic appreciation of what we will cover and when we will cover that material, please see the lecture slides posted on BlackBoard. We cover about 20-25 slides per lecture. I spend a lot of time working on the lecture slides for the course. I will not spend time repeating the contents of those slides here.

24 August, first day of class. Introduction of myself, CELLS mentors, SI leaders and STEP mentors. Expectations for the course. How lab relates to the course. Why bio 1406 is a core science course and the reason why we have core courses. Why this is a great time to be a scientist and how you can become a scientist

26 August. The nature and logic of science including hypotheses and predictions from hypotheses
29 August. The nature and logic of science including why science cannot be used to prove anything to be true.

31 August, examples of how a person’s background affects the questions they ask as a scientist and why it is important that not all scientists look like me (bald white guy). Basic experimental design. Inductive and deductive reasoning (again)

2 September, first team learning assignment, chapter 2

7 September, validity and truth, truth table, hypothesis testing, basic experimental design

9 September, second team learning assignment, chapter 3

12 September, standard deviation, experimental design and hypothesis testing, creativity in science

14 September, presentation of data on graphs, interpretation of graphs, trade offs

16 September, third team learning assignment, chapter 6

19 September, characteristics of living organisms, evolution, natural selection

21 September, 1st group exam.

23 September, 1st individual exam.

26 September, natural selection, adaptive traits, sexual selection, genetic drift

28 September, carbon, macromolecules, cell size and diffusion

30 September, fourth team learning assignment, chapter 6, metabolism

3 October, active transport, enzyme function, factors affecting enzyme function, competitive and non-competitive enzyme inhibitors

5 October, Cellular respiration

7 October, fifth team learning assignment, chapter 9, cellular respiration

10 October, cellular respiration, fermentation pathways

12 October, the cell cycle

14 October, mitosis and meiosis

17 October, the importance of meiosis to sexually reproducing organisms

19 October, 2nd group exam.
21 October, 2nd individual exam.
24 October, DNA structure, chromosomes, homozygous and heterozygous
26 October, dominance relationships, PTC case study
28 October, 7th Team Learning assignment
30 October, regulation of RUBISCO, chi square test to determine location of loci
2 November, chi square test to determine location of loci, incomplete dominance
4 November, 8th Team Learning assignment
6 November, codominance, allele frequencies
9 November, 3rd group exam.
11 November, 3rd individual exam.
14 November, PCR so that can better understand lab, multiple alleles, ABO blood types
16 November, ABO blood types, lethal alleles, interacting genes, polygenic inheritance, environmental effect on phenotype
18 November, 9th Team Learning assignment
21 November, X chromosome inactivation, genes on X chromosome, protein structure, linkage and mapping, operons
23 November, buying local at farmers’ markets, reducing carbon footprint by buying local at farmers’ markets, problems on interaction genes, X chromosome, lethal alleles and DNA gels
28 November, genetics
30 November, DNA technology, PCR
2 December, DNA technology, determining what is present in PCR products
5 December, DNA technology, biological races, the lack of biological races in humans