BIO 130 Principles of Cell & Molecular Biology  
Spring 2018  
MW 11:00 – 12:15 Miller Science 233

Dr. Sarah Canterberry  
Associate Professor, Biology  
*E-mail: canterbesc@sfasu.edu
Phone: 468-2168
Office: S202

Office Hours: S202  
Location: __________
Days: __________
Time: __________

* All contact via e-mail should be professional in manner with proper punctuation and grammar. E-mails sent in an unacceptable format will not be answered.

Text and Materials
Required:  
Pearson’s Modified Mastering with Learning Catalytics Access
Recommended:  
The World of the Cell, 9th Edition

Course Requirements:
Class Participation
D2L* Pre-lecture quizzes
Mastering Biology Homework
4 Major Exams

*You must score 100% on the syllabus quiz to unlock the course material on D2L!

Course Content (Tentative Schedule):

<table>
<thead>
<tr>
<th></th>
<th>Chapter</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weeks 1-5</td>
<td>1</td>
<td>An introduction to cells</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Macromolecules of the cell</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Cells and organelles</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>The Plasma Membrane</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>Cellular Transport</td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>Cell Signaling and Communication (9th edition Chpt. 23)</td>
</tr>
<tr>
<td>Feb 19</td>
<td></td>
<td><strong>Exam 1</strong></td>
</tr>
<tr>
<td>Weeks 6 - 9</td>
<td>6</td>
<td>Enzymes: The catalysts of life</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>Aerobic respiration</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Bioenergetics</td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>Photosynthesis</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>Glycolysis and fermentation</td>
</tr>
<tr>
<td>Mar 21</td>
<td></td>
<td><strong>Exam 2</strong></td>
</tr>
<tr>
<td>Weeks 10 - 12</td>
<td>18</td>
<td>Structural basis of DNA (9th edition Chpt. 16)</td>
</tr>
<tr>
<td></td>
<td>19</td>
<td>DNA Replication (9th edition Chpt. 17)</td>
</tr>
<tr>
<td></td>
<td>19</td>
<td>DNA Repair (9th edition Chpt. 17)</td>
</tr>
<tr>
<td></td>
<td>19</td>
<td>Mitosis (9th edition Chpt. 24)</td>
</tr>
<tr>
<td></td>
<td>19</td>
<td>Cell cycle and Cancer (9th edition Chpt. 26)</td>
</tr>
<tr>
<td>Apr 11</td>
<td></td>
<td><strong>Exam 3</strong></td>
</tr>
<tr>
<td>Weeks 13 - 15</td>
<td>20</td>
<td>Meiosis and Recombination (9th edition Chpt. 25)</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>Inheritance and Non-disjunction (9th edition Chpt. 25)</td>
</tr>
<tr>
<td></td>
<td>21</td>
<td>Gene Expression I – Transcription (9th edition Chpt. 18)</td>
</tr>
<tr>
<td></td>
<td>22</td>
<td>Gene Expression II – Translation (9th edition Chpt. 19)</td>
</tr>
<tr>
<td></td>
<td>23</td>
<td>Regulation of Gene Expression (9th edition Chpt. 20)</td>
</tr>
<tr>
<td>May 2</td>
<td></td>
<td><strong>Exam 4 (During Dead Week)</strong></td>
</tr>
</tbody>
</table>
Grading Policy:

<table>
<thead>
<tr>
<th>Category</th>
<th>Points</th>
</tr>
</thead>
</table>
| Class Participation             | 50 pts.
| Pre-lecture Quizzes             | 50 pts.
| Mastering Biology Homework      | 100 pts.
| 4 Major exams                   | 400 pts.
| **TOTAL COURSE POINTS**         | 600 pts.

A = 540 to 600 Points (90% to 100%)
B = 480 to 539 Points (80% to 89%)
C = 420 to 479 Points (70% to 79%)
D = 360 to 419 Points (60% to 69%)
F = less than 360 Points (less than 60%)

All students are required to complete a course evaluation at the end of the semester. Failure to complete this evaluation will result in a 1% deduction in your final grade for the course.

Class Participation:
Daily participation points are earned by answering each Learning Catalytics question in class. **Answering Learning Catalytics questions when you are not in class is considering cheating, and may result in a grade of F for the course.**

Pre-Lecture Videos:
Pre-lecture videos will be posted to D2L for each chapter, starting with Chapter 3. You will be responsible for the material covered in these videos. You must watch the video in order to unlock the pre-lecture quiz for that material.

Pre-Lecture Quizzes:
Pre-lecture quizzes will be posted to D2L and will be due prior to the start of class. You must watch the pre-lecture video in order to unlock the quiz. You will receive **no credit** for completing these assignments late.

Mastering Biology Homework:
Mastering Biology assignments will be posted upon completion of new material and will be due in one week. The percentage of total points earned will be multiplied by 100 to determine your total homework points.

Exam Policy:
The four major exams will be held during the regular class period. They will consist of 50 questions that will be an assortment of fill-in-the-blank, multiple choice and true false questions.
All personal belongings will be left at the front of the classroom during the exam. This includes hats, food, beverages, and cell phones.
Students will not be allowed to leave the room for ANY REASON during the exam. After the first exam is completed, no one will be allowed to start the exam.

Attendance Policy:
Attendance will be taken by participation in Learning Catalytics sessions. **Students that fail to answer ALL questions will be counted absent for the entire class period.** Students will be allowed up to 6 absences (excused or unexcused). Students that exceed this maximum will **no longer be eligible to make-up missed work.**
Make-up Work:
Make-up work will only be given to students with University excused absences. Make-up work will not be given to students that have absences in excess of 6 days (excused or unexcused). Students must provide notification within 48 hours of their return to classes in order to receive make-up work. Make-up learning catalystics will be given throughout the semester and must be submitted within 1 week of the student’s return to classes. Make-up exams will be given the week before finals and may be in an alternative format including fill in the blank, short answer, multiple choice and matching questions. Students are responsible for scheduling a time to take the make-up exam during this week with Dr. Canterberry via email.

Academic Integrity:
Academic Integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism.

Definition of Academic Dishonesty
Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations on an assigned exercise; and/or (3) helping or attempting to help another in the act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one’s own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from an Internet source or another source; and (3) incorporating the words or ideas of an author into one’s paper without giving the author due credit. Please read the complete policy at http://www.sfasu.edu/policies/student_academic_dishonesty.pdf

ANY act of academic dishonesty will result in receiving a grade of F for the course and will be reported to the student’s dean.

Withheld Grades Semester Grades Policy:
Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average.

The circumstances precipitating the request must have occurred after the last day in which a student could withdraw from a course. Students requesting a WH must be passing the course with a minimum projected grade of C.

Students with disabilities:
To obtain disability related accommodations and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, Room 325, 468-3004/ 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided.

Student Counseling Center:
Rusk Building 3rd Floor
(936) 468-2401
Email: counseling@sfasu.edu
The Student Counseling Center is available free of charge to students and is staffed with professional therapists to meet a variety of needs. All interactions with the Student Counseling Center are guaranteed confidential. Licensed Counselors are available from 8:00a.m.-5:00p.m. Monday-Friday.
The department is closed on certain holidays, Spring Break and Winter Break when the university is closed. If you are in need of assistance after hours or on the weekend please call: University Police: (936)468-2608 or MHMR Crisis Line: (800)392-8343. If the situation is life threatening please dial 911.

**Acceptable Student Behavior:**
Classroom behavior should not interfere with the instructor’s ability to conduct the class or the ability of other students to learn from the instructional program (see the Student Conduct Code, policy D-34.1). Unacceptable or disruptive behavior will not be tolerated. Students who disrupt the learning environment may be asked to leave class and may be subject to judicial, academic or other penalties. This prohibition applies to all instructional forums, including electronic, classroom, labs, discussion groups, field trips, etc. The instructor shall have full discretion over what behavior is appropriate/inappropriate in the classroom. Students who do not attend class regularly or who perform poorly on class projects/exams may be referred to the Early Alert Program. This program provides students with recommendations for resources or other assistance that is available to help SFA students succeed.

The following policies will be strictly enforced:

- Students are to arrive on time and stay for the entire class period. Those who miss the daily quiz, or leave early will be counted as absent.
- Students are not to hold private side conversations
- Reading unrelated publications is not allowed.
- Use of cellular phones, for any reason, will not be tolerated.
- Students who behave in a disrespectful manner (towards the professor or classmates) will be given one warning via e-mail. Further disruptive behavior will result in the student being banned from the classroom for the remainder of the semester.

**Students who exhibit unacceptable classroom behavior will be dismissed from class and counted as absent.**

**Course Description:**
An introductory cell biology course. Topics include the structure of the cell and cell components, both eukaryotic and prokaryotic. The processes of DNA replication and gene expression including protein processing and routing. Photosynthesis, respiration, and chemotrophy as means of energy production. The cell cycle and its regulation.

**Student Learning Outcomes (Course Competencies):**
Students who successfully complete Principles of Cell and Molecular Biology will demonstrate:

- The ability, for animal cells, to recognize and identify the function(s) of the following: centrioles, chromatin, Golgi apparatus, lysosome, microfilaments, microtubules, mitochondrion, nucleus, peroxisome, plasma membrane, rough and smooth endoplasmic reticulum, and ribosomes.
- The ability, for plant cells, to recognize and identify the function(s) of the following: cell wall, chloroplast, and central vacuole.
- An understanding of the ability of enzymes to facilitate chemical reactions. Explain how catalysts, including enzymes, affect and are affected by the chemical reactions in which they participate.
- An understanding of the biochemical processes of photosynthesis, glycolysis, citric acid cycle, and oxidative phosphorylation. Define cellular respiration and identify the cellular locations of the various stages of cellular respiration. Distinguish between the light reactions and the Calvin cycle of photosynthesis.
• An understanding of how cells grow and divide. Describe the major events of each of the stages of the cell cycle (Interphase, G1, G2, S, Mitosis, Prophase, Prometaphase, Metaphase, Anaphase, Telophase, Mitotic Phase and Cytokinesis).
• Explain how information flows from gene to protein. Describe the major events including transcription, translation and protein sorting. Explain the function of mRNA and tRNA. Describe how gene expression can be affected at various levels: DNA packing/unpacking and chemical modification.

**Program Learning Outcomes:**
Each of the student learning outcomes listed above address the Biology Department Program Learning Outcomes as follows:
#1 Demonstrate a good knowledge base in biological concepts and be able to integrate knowledge with critical thinking skills to become problem solvers. Knowledge base will include: levels of complexity (molecular/cellular through population/communities/ecosystems); biological principles and processes.
#6 Career building, demonstrate preparation for future career and educational goals utilizing the knowledge and training during their academic program by: awareness of personal competencies (strengths and weaknesses) and an understanding of professional and ethical behavior.