Cell Physiology  
(BIOL-3345)  
Department of Life Sciences  
Spring 2020

A. COURSE INFORMATION
Course number/section: BIOL-3345.001  
Class meeting time: 9:30-10:45 am Tuesdays and Thursdays  
Class location: OCNR-259  
Course Website: https://bb9.tamucc.edu/

B. INSTRUCTOR INFORMATION
Instructor: Dr. Wei Xu  
Office location: TH-331  
Office hours: 1:00-2:30 pm on Tue and Thu; 9:30-11:30 on Wed, OTBA  
Telephone: 361-825-2676  
e-mail: wei.xu@tamucc.edu

C. COURSE DESCRIPTION
Emphasis on cellular functions that underlie physiological processes, transport across membranes, membrane potential and excitability, the cell nucleus, and organelles and their relationship to energy, metabolism, and transport mechanisms within the cell.

D. PREREQUISITES AND COREQUISITES
Prerequisites  
BIOL 1406 - Biology I and BIOL 1407 - Biology II. Cell Biology 3428 is the other prerequisite, but the latter course can be waived with successful completion of Biochemistry I CHEM 4401

Corequisites  
None.

E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES
Required Textbook(s)  
None.

Optional Textbook(s) or Other References  

Supplies
F. STUDENT LEARNING OUTCOMES AND ASSESSMENT

Assessment is a process used by instructors to help improve learning. Assessment is essential for effective learning because it provides feedback to both students and instructors. A critical step in this process is making clear the course’s student learning outcomes that describe what students are expected to learn to be successful in the course. The student learning outcomes for this course are listed below. By collecting data and sharing it with students on how well they are accomplishing these learning outcomes students can more efficiently and effectively focus their learning efforts. This information can also help instructors identify challenging areas for students and adjust their teaching approach to facilitate learning.

By the end of this course, students should be able to:
1. use the vocabulary of cell physiology;
2. understand the concepts related to diffusion, osmosis, and membrane potential;
3. understand the functions of: molecules, organelles, energy, temperature, oxygen, carbon dioxide, water, and salts;
4. learn the integrative nature of physiology by studying the role of cells in producing/maintaining homeostasis;
5. gain experience in reading and critically evaluating high-level articles written about relevant topics

G. INSTRUCTIONAL METHODS AND ACTIVITIES

The instructional methods include classroom lectures, group discussions, as well as Blackboard forums.

H. MAJOR COURSE REQUIREMENTS AND GRADING

The following grading scale will be used to determine final letter grades:
90-100%=A, 80-89.9%=B, 70-79.9%=C, 60-69.9%=D, and <60%=F.

The final exam will be comprehensive. The format for all exams may vary and may include multiple choice, short answer, essay, matching and definitions.

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>% of FINAL GRADE</th>
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<tbody>
<tr>
<td>Exam I</td>
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<tr>
<td>Exam II</td>
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<td>Final Exam</td>
<td>30</td>
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### I. COURSE CONTENT/SCHEDULE

<table>
<thead>
<tr>
<th>DATE (BY DAY OR WEEK)</th>
<th>TOPIC</th>
<th>HOMEWORK</th>
<th>ASSIGNMENTS</th>
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<tbody>
<tr>
<td>Wk1 (1/21, 1/23)</td>
<td>Cell membranes and cytoskeleton</td>
<td>Homework 1</td>
<td>Reading assignment 1</td>
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<tr>
<td>Wk2 (1/28, 1/30)</td>
<td>Passive diffusion and transport proteins</td>
<td>Homework 2</td>
<td>Reading assignment 2</td>
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<td>Wk3 (2/4, 2/6)</td>
<td>Ion channels and diseases</td>
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<td>Wk4 (2/11, 2/13)</td>
<td>Epithelial transportation</td>
<td>Homework 3</td>
<td>Reading assignment 3</td>
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<td>Wk5 (2/18, 2/20)</td>
<td>Neuronal signaling</td>
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<td>Wk6 (2/25)</td>
<td>Cell signaling through receptors and ligands</td>
<td>Homework 4</td>
<td>Reading assignment 4</td>
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<td>Wk6 (2/27)</td>
<td>Review for Exam I</td>
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<td>Wk7 (3/3)</td>
<td><strong>Exam I</strong></td>
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<td>Wk7 (3/5)</td>
<td>Insulin signaling</td>
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<td>Wk8 (3/10, 3/12)</td>
<td><em>Spring Break</em></td>
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<td>Wk9 (3/17, 3/19)</td>
<td>Cell-cell junction and communications</td>
<td>Homework 5</td>
<td>Reading assignment 5</td>
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<td>Wk10 (3/24, 3/26)</td>
<td>Protein degradation</td>
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<td>Wk11 (3/31)</td>
<td>Stress response</td>
<td>Homework 6</td>
<td>Reading assignment 6</td>
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<td>Wk11 (4/2)</td>
<td>Review for Exam II</td>
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<td>Wk12 (4/7)</td>
<td><strong>Exam II</strong></td>
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<td>Wk12 (4/9)</td>
<td>Endocytosis</td>
<td>Homework 7</td>
<td>Reading assignment 7</td>
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<td>Wk13 (4/14, 4/16)</td>
<td>Integrating cells into tissues</td>
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<td>Wk14 (4/21, 4/23)</td>
<td>Cell movement</td>
<td>Homework 8</td>
<td>Reading assignment 8</td>
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<td>Wk15 (4/28, 4/30)</td>
<td>Muscle</td>
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<td>Wk16 (5/5)</td>
<td>Review for Exam II</td>
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<td><strong>8:00– 10:30 a.m.</strong></td>
<td><strong>Final Exam</strong></td>
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<td><strong>5/14/2019 (Thu)</strong></td>
<td><strong>Final Exam</strong></td>
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Note: Changes in this course schedule may be necessary and will be announced to the class by the
Instructor. The assignments and exams shown are directly related to the Student Learning Outcomes described in Section F.

J. COURSE POLICIES

Attendance/Tardiness
The attendance of each class will be recorded and contribute to 5% of the final grade of each student.

Late Work and Make-up Exams
Late homework will be assessed a penalty of 50% of the total point value of the homework. Any homework missed without a valid reason will receive a grade of zero. Excused absences due to medical reasons, extenuating circumstances, participation in professional conferences, etc., will be granted.

Extra Credit
No extra credit can be earned for the final grade.

Cell Phone Use
Cell phones are not allowed in classes or exams.

Laptop Use
Laptop use is not encouraged during the class and is not allowed during the exams.

Missed Exam
Any student who knows in advance that they will miss an exam due to official University business must notify Dr. Xu at least fourteen days in advance with official documentation of the absence to make arrangements to take the exam early. It is the student’s responsibility to obtain official documentation in a timely fashion. The date and time for the final exam are non-negotiable for any reason.

K. COLLEGE AND UNIVERSITY POLICIES

• Academic Integrity (University)
University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, falsification, forgery, complicity or plagiarism. (Plagiarism is the presentation of the work of another as one’s own work.) In this class, academic misconduct or complicity in an act of academic misconduct on an assignment or test will result in a failing grade.

• Classroom/Professional Behavior
Texas A&M University-Corpus Christi, as an academic community, requires that each
individual respect the needs of others to study and learn in a peaceful atmosphere. Under Article III of the Student Code of Conduct, classroom behavior that interferes with either (a) the instructor’s ability to conduct the class or (b) the ability of other students to profit from the instructional program may be considered a breach of the peace and is subject to disciplinary sanction outlined in article VII of the Student Code of Conduct. Students engaging in unacceptable behavior may be instructed to leave the classroom. This prohibition applies to all instructional forums, including classrooms, electronic classrooms, labs, discussion groups, field trips, etc.

• Statement of Civility
Texas A&M University-Corpus Christi has a diverse student population that represents the population of the state. Our goal is to provide you with a high quality educational experience that is free from repression. You are responsible for following the rules of the University, city, state and federal government. We expect that you will behave in a manner that is dignified, respectful and courteous to all people, regardless of sex, ethnic/racial origin, religious background, sexual orientation or disability. Behaviors that infringe on the rights of another individual will not be tolerated.

• Deadline for Dropping a Course with a Grade of W (University)
I hope that you never find it necessary to drop this or any other class. However, events can sometimes occur that make dropping a course necessary or wise. Please consult with your academic advisor, the Financial Aid Office, and me, before you decide to drop this course. Should dropping the course be the best course of action, you must initiate the process to drop the course by going to the Student Services Center and filling out a course drop form. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. Please consult the Academic Calendar (http://www.tamucc.edu/academics/calendar/) for the last day to drop a course.

• Grade Appeals (College of Science and Engineering)
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.tamucc.edu/provost/university_rules/index.html, and the College of Science and Engineering Grade Appeals webpage at 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.

- **Disability Services**
  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 (361) 825-5816 or visit Disability Services in Corpus Christi Hall 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.

[http://disabilityservices.tamucc.edu/](http://disabilityservices.tamucc.edu/)

- **Statement of Academic Continuity**
  In the event of an unforeseen adverse event, such as a major hurricane and classes could not be held on the campus of Texas A&M University–Corpus Christi; this course would continue through the use of Blackboard and/or email. In addition, the syllabus and class activities may be modified to allow continuation of the course. Ideally, University facilities (i.e., emails, web sites, and Blackboard) will be operational within two days of the closing of the physical campus. However, students need to make certain that the course instructor has a primary and a secondary means of contacting each student.

L. **OTHER INFORMATION**

- **Academic Advising**
  The College of Science & Engineering 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. Meetings are by appointment only; advisors do not take walk-ins. Please call or stop by the Advising Center to check availability and schedule an appointment. The College’s Academic Advising Center is located in Center for Instruction 350 or can be reached at (361) 825-3928.

**GENERAL DISCLAIMER**
I reserve the right to modify the information, schedule, assignments, deadlines, and course policies in this syllabus if and when necessary. I will announce such changes in a timely manner during regularly scheduled lecture periods.