RESEARCH & DESIGN: BIOL 4350
Department of Life Sciences
SUMMER II 2015

A. COURSE INFORMATION

Course number/section: BIOL 4350
Class meeting time: Lecture: M,T,W,R 9:00 am - 11:50 am
Class location: Lecture: EN 107
Course Websites: bb9.tamucc.edu

B. INSTRUCTOR INFORMATION

Instructor: Xavier F. Gonzales, PhD, MSPH
Office location: Engineering 310C
Office hours: M,T,W,R,F: 2:00pm-3:00pm
Telephone: 361-825-3824
e-mail: Xavier.Gonzales@tamucc.edu
Appointments: email me to set up appointments

C. COURSE DESCRIPTION

Catalog Course Description

Course will include experimental design, literature review of a research topic and laboratory work on the research topic.

Extended Course Description

This course provides students with a range of experiences in conducting and communicating research. Students will learn major research methods and techniques. Experiences will be gained in all stages of research: reviewing literature, writing a proposal, designing an approach, and reporting results. Critical reading/writing assignments and weekly class discussions on state-of-the-art research in Biology will provide students with major research aspects.

D. PREREQUISITES AND COREQUISITES

Prerequisites
Consent of Instructor

D. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES

Required Items
Students must purchase a lab notebook: http://www.staples.com/National-Brand-Quad-Ruled-Computation-Lab-Notebooks/product_SS1027512

Recommended Textbook(s)

E. 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. Create their own experiments to answer scientific questions
2. Design experiments to reduce systematic and random errors and use statistics to interpret results.
3. Utilize probes and computers to gather and analyze data.
4. Utilize statistics to interpret experimental results and deal with sampling errors.
5. Treat living research subjects in an ethical fashion
6. Identify safe laboratory procedures
7. Identify and assesses relevant primary scientific literature
8. Perform scientific review of papers and presentations
9. Present scientific work in oral and written fashion
10. Apply scientific arguments in matters of social importance

F. INSTRUCTIONAL METHODS AND ACTIVITIES

Learner-Centered Teaching: Collaborative work, control of content selection, personal reflection, learning skill demonstration

Discovery based teaching

G. MAJOR COURSE REQUIREMENTS AND GRADING

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>% of FINAL GRADE</th>
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<tbody>
<tr>
<td>In Class &amp; Online Discussion</td>
<td>20</td>
</tr>
<tr>
<td>Oral Presentation</td>
<td>30</td>
</tr>
<tr>
<td>Research Proposal</td>
<td>40</td>
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<tr>
<td>Lab Notebooks</td>
<td>10</td>
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</tbody>
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Grading scale: A>90%  B=80-89.9%  C=70-79.9%  D=60-69%  F<60%
H. COURSE CONTENT/SCHEDULE

Please refer to the course website for an up-to-date schedule.

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.

I. COURSE POLICIES

Submitted Work
- Assignments are due at the beginning of the class on the due date. Late submissions will be graded at 50% of the maximum score. Under no circumstances, submissions will be accepted after 24 hours of the due date.
- Assignments must be submitted in a neat computer-generated format. Handwritten submissions will not be accepted.
- Assignments can only be submitted in class; email submissions will be discarded unless instructed otherwise. In case of late submissions, please stop by my office. If I am not available, ask the secretary to date and time your submission and put it in my mailbox.
- Graded work can only be discussed after 48 hours and no later than one week of releasing the scores.
- Start working on your assignments early; last day questions that show carelessness will not be responded to.
- It is always recommended to keep your graded work.

Exams and Quizzes
- Exams and quizzes are NOT open-book unless instructed otherwise.
- Not all quizzes times will be announced; pop-up quizzes are likely.
- NO makeup exams or quizzes will be allowed unless I have agreed prior to the exam or quiz time and been provided with official supporting documents.

Class Participation
Class discussions and information provided in class are considered regular course material; it is your responsibility to take appropriate notes. You are expected to attend lectures and actively participate in class discussions. I will be frequently taking attendance. You are also required to turn off your cell phone and/or pager in class and pay attention to class discussions. Use of laptops and other electronic devices is restricted to taking notes. Unethical behavior will result in final grade deduction or an automatic F.

Announcements
Announcements will be made available in class, on course web page, and/or through email. It is your responsibility to regularly check for announcements.

Attendance/Tardiness
- Attendance: Students are expected to attend every scheduled class and laboratory
meeting. It is the responsibility of the student to obtain any material missed during an absence from his/her classmates. Power Points are not placed in the library, and only Power Points from certain sections will be placed on Blackboard, or on a website. For labs, the instructor (TA) should be notified PRIOR to lab if the student will be absent (except in emergency situations). Students must attend the laboratory section for which they originally registered. “Make-up” by attending other lab sections is NOT permitted except in emergencies, only with prior approval.

Tardiness: Students may enter when late but be respectful of your peers and do not disrupt the class as you enter.

Late Work and Make-up Exams
No late work will be accepted. I teach several different courses with items due at different times. I will always tell you to look at the syllabus for when items are due. It is your responsibility to get it turned in through the appropriate outlet on the designated day. I will not remind you.

No make-up exams will be given; one exam can be dropped and replaced by the grade from the Cumulative Final Exam.

Extra Credit
Missed extra credit opportunities—Instructor is not obligated to give make-up assignments for extra credit opportunities, whether excused or unexcused.

Cell Phone Use
Lecture: Students may utilize their cell phones as long as it does not disrupt others in class; therefore keep them on silent. The instructor reserves the right to ask you to turn off the cell phone or step outside of class while using the cell phone.
Lab: Students are not allowed to use cell phones in lab. Students will be asked to leave the lab if found using cell phones in lab. If it is urgent for you to use your phone feel free to take off your gloves and lab coat and exit the lab to utilize your phone.

Laptop Use
Lecture: Students may utilize their laptops as long as it does not disrupt others in class.
Lab: Students are allowed to use laptops as long as it does not disrupt the lab or creates a danger. Do not use when biohazardous materials are being utilized and be sure to wipe down your keyboards before exiting.

Food in Class
Lecture: Students may eat food as long as it does not disrupt others in class. It is the student’s responsibility to clean up after themselves. If you fail to do so, you will no longer be allowed to have food in class.
Lab: Students are never allowed to have food in lab. You can keep meals outside of class and take a moment to eat if necessary but be sure to remove your gloves and wash your hands, as well remove your lab coats prior to exiting lab.
**Missed Exam**
No make-up exams will be given; one exam can be dropped and replaced by the grade from the Cumulative Final Exam.

**Communicating with Instructors**
All students should communicate with the instructors using their TAMUCC Black Board account or your islander.tamucc.edu email address. Your instructor 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. If you run into difficulties that are not being resolved by the student computer help desk, please contact Dr. Gonzales ASAP.

### J. COLLEGE AND UNIVERSITY POLICIES

- **Academic Integrity (University)**
  It is expected that university students will demonstrate a high level of maturity, self-direction, and ability to manage their own affairs. Students are viewed as individuals who possess the qualities of worth, dignity, and the capacity for self-direction in personal behavior. See Full University Policy at [http://catalog.tamucc.edu/content.php?catoid=10&navoid=313#Academic_Integrity](http://catalog.tamucc.edu/content.php?catoid=10&navoid=313#Academic_Integrity)

- **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.

- **Deadline for Dropping a Course with a Grade of W (University)**
  The grade of W will be assigned to any student officially dropping a course by July 24th, 2015. No student is eligible to receive a W without completing the official drop process by this deadline. Visit the Office of the University Registrar for the Course Drop Form that must submitted. After July 24th, 2015 a student will not be allowed 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**  
  Disability Services (DS) is the hub for coordinating services and accommodations to ensure accessibility and utilization of all programs for all Texas A&M University-Corpus Christi students with disabilities. Our services are designed to meet the unique educational needs of enrolled students with documented permanent or temporary disabilities. DS provides intake and consultation services to students seeking to register with our office. DS reviews an individual’s documentation of disability and assesses eligibility for services and the determination of reasonable accommodations. For more information visit the Disability Services Office at 116 Corpus Christi Hall or go to 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.

**K. OTHER INFORMATION**

Audience Defined: Junior and senior Biology and BIMS students with knowledge of Microbiology, Genetics, Cell Biology or Physiology, and Biochemistry, and the ability to integrate knowledge from these fields in learning and expanding upon how organisms identify and eliminate invaders. This course is very useful for those majors planning to attend graduate (MS, PhD) and professional schools (MD, DO, PharmD, PA, OD, DDS), and for future clinical laboratory science (CLS) professionals.

**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.