BIOLOGICAL BASIS OF AGING: BIMS 4330  
Department of Life Sciences  
SPRING 2019

A. COURSE INFORMATION

Course number/section: BIMS 4330.001  
Class meeting time: 25-49% Online/ 51% Lecture on Wednesday 4:20pm-6:50pm  
Class location: Lecture: CS 114  
Course Websites: bb9.tamucc.edu

B. INSTRUCTOR INFORMATION

Instructor: Xavier F. Gonzales, PhD, MSPH  
Office location: Engineering 310C  
Office hours: W 10am-12pm & 1pm-4pm  
Telephone: 361-825-3824  
e-mail: Xavier.Gonzales@tamucc.edu  
Email me at any time but my responses will be limited after 5pm weekdays and all weekend.  
Appointments: email me to set up appointments

C. COURSE DESCRIPTION

Catalog Course Description

Molecular aspects of aging and disease, including biological mechanisms and theories involving cells, tissues, and organ systems

Extended Course Description

This course will develop the students in Core Competencies that are common to professional and graduate schools through lectures, reading, quizzes, and activities centered around aging biology and public health. The Core Competencies include Science, Interpersonal, Intrapersonal, Thinking and Reasoning. In particular, you will be challenged to achieve the following:

Science Competencies:

Living Systems - Applies knowledge and skill in the biological and chemical sciences to solve problems related to aging biology

Interpersonal Competencies:

Teamwork - Works collaboratively with others to achieve shared goals; shares information and knowledge with others and provides feedback  
Oral Communication - Effectively conveys information to others using spoken words and sentences; listens effectively; recognizes potential communication barriers and adjusts approach or clarifies information as needed.

Intrapersonal Competencies:
Ethical Responsibility to Self and Others - Behaves in an honest and ethical manner; cultivates personal and academic integrity; adheres to ethical principles and follows rules and procedures; resists peer pressure to engage in unethical behavior and encourages others to behave in honest and ethical ways; develops and demonstrates ethical and moral reasoning.

Reliability and Dependability - Consistently fulfills obligations in a timely and satisfactory manner; takes responsibility for personal actions and performance.

Resilience and Adaptability - Demonstrates tolerance of stressful or changing environments or situations and adapts effectively to them; is persistent, even under difficult situations; recovers from setbacks.

Capacity for Improvement - Sets goals for continuous improvement and for learning new concepts and skills; engages in reflective practice for improvement; solicits and responds appropriately to feedback.

**Thinking and Reasoning Competencies:**

Critical Thinking - Uses logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions, or approaches to problems.

Quantitative Reasoning - Applies quantitative reasoning and appropriate mathematics to describe or explain phenomena in the natural world.

Scientific Inquiry - Applies knowledge of the scientific process to integrate and synthesize information, solve problems and formulate research questions and hypotheses; is facile in the language of the sciences and uses it to participate in the discourse of science and explain how scientific knowledge is discovered and validated.

Written Communication - Effectively conveys information to others using written words and sentences.

For student development in the Core Competencies, this course will introduce the students to the molecular and cellular basis of aging. Research papers on mechanisms of aging development will be discussed to provide awareness of scientific approaches used to investigate these processes.

What this all means is that in this course you will work in TEAMS, you will be asked to read primary research literature as well as review articles, you will be taking assessment quizzes to determine your understanding of the information, you will have to present information in oral and written form to your peers, and the instructor will be guiding you throughout the semester to make sure you are successful in the final project assessment.

All the Core Competencies will be addressed by providing you with a broad overview of aging from the perspective of public health and from molecular science. On non-lecture weeks, students will be encouraged to visit 1 nursing home facility and 1 senior recreation center. Students will be expected to spend time at various locations. The goal is to allow students opportunities to assist activity directors, interact with residents/participants. Students will be encouraged to communicate with residents and participants each meeting in order to make observations associated to material previously covered during face-to-face discussions. Students will share some of their observations on Blackboard discussions. During face-to-
face meetings, students will be exposed to public health aspects of aging and molecular aspects of aging. Reading and discussion are major components of the course. The course is student centered therefore you should be prepared for interactive discussions amongst your peers.

D. PREREQUISITES AND COREQUISITES
Prerequisites
BIOL 1407
CHEM 3411

E. REQUIRED TEXTBOOK(S), READINGS AND 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. Demonstrate a general knowledge base in the area of aging through the cellular, molecular and public health aspects as determined by class discussions, bi-weekly quizzes, blackboard discussion, and group presentations.
2. Find, read, understand, critically evaluate, summarize, analyze and interpret quantitative biological data as reported by literature as determined through group presentation.
3. Communicate scientific information through oral presentations on aging as determined by group presentation.
4. Develop conclusions on the aging process based on public health principles and molecular perspective as determined by short answer quizzes given in class.

G. INSTRUCTIONAL METHODS AND ACTIVITIES
Learner-Centered Teaching: Collaborative work, control of content selection, personal reflection, learning skill demonstration
H. MAJOR COURSE REQUIREMENTS AND GRADING

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<thead>
<tr>
<th>ACTIVITY</th>
<th>% of FINAL GRADE</th>
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<tr>
<td>Quizzes</td>
<td>25</td>
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<tr>
<td>Group Presentation</td>
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<tr>
<td>Blackboard/Classroom Discussion</td>
<td>25</td>
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<td>Site Visits</td>
<td>25</td>
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Grading scale: A>90%  B=80-89.9%  C=70-79.9%  D=60-69%  F<60%

Nature of Assignments:

**Team Learning:** We will use a team learning approach in this class. **Groups will be established at the start of the course.** Research examining team learning assignments show that the group score is HIGHER than individual scores and that students understand concepts much better as a result of discussing questions in groups. Sometimes each group member will submit answers individually and sometimes groups will submit group consensus answers to questions. We will use the team learning approach on in-class assignments.

**TEAMS:** Groups of Five. Each TEAM will consist of five roles:

- **Manager:** Manages the group by helping to ensure that the group stays on task, is focused, and that there is room for everyone in the conversation. Sets GOALS for the team during each assignment. Evaluates each goal to determine if they are being met in a timely fashion. Reports accomplishments and challenges to the instructor through Blackboard. (Reports goals: 5 goals/online submission)

- **Recorder:** Keeps a record of each member’s role that they play in the group during the assignment. The recorder also records critical points from the small group’s discussion along with findings or answers.

- **Spokesperson or Presenter:** Presents the group’s ideas to the rest of the class. The Spokesperson should rely on the recorder’s notes to guide their report.

- **Reflector or Strategy Analyst:** Observes team dynamics and guides the consensus-building process (helps group members come to a common conclusion). Encourages group members to continue to think through their approaches and ideas. Lays out the plan for developing presentations.

- **Questioner:** Pushes back when the team comes to consensus too quickly, without considering a number of options or points of view. The questioner makes sure that the group hears varied points of view, and that the group is not avoiding potentially rich areas of disagreement. Checks over work in problem solving contexts before the group members finalize their answers.
Each TEAM member will be required to be in each of these roles throughout the semester.

**Attendance:** Attendance in this class is mandatory. There are no formal lectures, and no notes/PowerPoint slides to be posted online, so attendance to the class is integral, furthermore, participation in class discussions will make up a large portion of your grade.

**Participation:** This is a discussion-based course. Students will get credit toward their grade by participating in Blackboard Reflections online and through in class discussions and sharing of ideas. Vigorous discussion and debate is welcome, but respect for your fellow colleagues is expected at all times. Discussions will be moderated by the professor. In class participation will be evaluated on the following three criteria:
- Asking questions regarding the literature
- Answering questions regarding the literature
- Making comments regarding the literature

**Goals Update:** The Goals Update is done by the manager for that week. There should be a new manager selected the week prior to the goals update. Which means when the manager is selected, they need to set at least five goals for the week and on the Goals Update present the goals with the accomplishments and needs.

**Quizzes:** will be comprised mainly of multiple choice questions. Some may be setup as matching or fill-in the blank. Problems and/or essay questions may appear on the exams. Most questions, including multiple choice questions typically require analysis and interpretation of data or experimental design to assess critical thinking skills.

*Quiz 5 will be Comprehensive and Online; Each Quiz is worth 25 pts. I am only counting your top 4 quizzes.*

**Quizzes:** There will be a quiz at the start of class during face-to-face meetings. The quiz will be over the assigned reading.

**Group Presentation:** Students will select their own groups. The goal is to get together to develop a presentation on a topic in Aging research. As part of the presentation, students are to utilize their experiences at the site visits as well as the material discussed in class for developing their presentations. Presentations are expected to be within 12-15 min in length. Students will provide an Introduction describing why they choose to address the selected research topic. Further, students will describe how they would research said topic followed with expected results. The expected results should be backed by citations from primary research journals.

**Blackboard/Classroom Discussion:** Students will be assessed on the percentage of contribution to Discussion.
Site Visits: In class, we will be covering concepts regarding the public health aspect of aging. The purpose of the site visits is to make first hand observations regarding the public health aspect of aging.

Students are expected to attend at least three of the four sites listed each week. You are to spend at least 1hr at each one of these sites. Have the director listed from each site initial your participation form. Participation forms will be provided in the second in-class meeting date. While at the sites, you will have the opportunity to help with activities for the Seniors.

You will be expected to be responsible and respectful to Seniors as well as the directors of facilities. The general process for visiting sites will be that you are to provide me with a schedule of when and where you plan to make your site visits before 01/22/2018. I will be providing the site directors with a schedule of when you will be making your visits. If for any reason you need to change a day or time on your schedule. Please try to give me at least 24hrs notice to let the site director know. Review Blackboard for the process of site visits as well as days and times that you can visit sites.

### COURSE CONTENT/SCHEDULE

<table>
<thead>
<tr>
<th>Date</th>
<th>Activity</th>
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<tbody>
<tr>
<td>01/16</td>
<td>1. Course Introduction</td>
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| 01/23      | 1. Quiz 1 over reading  
2. Discussion over 01/17 reading  
3. Reading assigned:  
PH: Planned & Built Environments: Chp. 15 PHAS  
C&M: Genomics & Aging (Crosstalk paper)/ Measuring biological aging: Chp. 2: BofA |
| 01/23- 02/06 | Visit Sites (Group 1). See specific schedule on Blackboard. (Read chp 1-3 of Live, Long, Die Short) Submit Blackboard Discussion regarding site visit and book chapters |
| 02/06      | 1. Quiz 2 over reading (not the Landry book)  
2. Discussion over assigned reading from 01/24  
3. Reading assigned:  
PH: Roles of Public Health in an Aging Society: Chp. 2 PHAS  
C&M: Cellular Aging; Chp. 4: BofA |
| 02/07- 02/19 | Visit Sites. (Group 2) See specific schedule on Blackboard. (Read chp 4-8 of Live, Long, Die Short) Submit Blackboard Discussion regarding site visit and book chapters |
| 02/20      | 1. Quiz 3 over reading (not the Landry book)  
2. Discussion over assigned reading from 02/07  
3. Reading assigned:  
2. PH: Social Determinants of Health Inequities & Health care in old age; Chp. 5 PHAS  
3. C&M: Genetics of longevity; Chp. 5 BofA |
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<tr>
<th>Date</th>
<th>Activity</th>
<th>Details</th>
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<td>02/21 – 03/05</td>
<td>Visit Sites. (Group 3) See specific schedule on Blackboard. (Read chp 9, 10 &amp; In a Nutshell of Live, Long, Die Short) Submit Blackboard Discussion regarding site visit and book chapters</td>
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<td>03/06</td>
<td>1. Continue Reading assigned reading and Landry book</td>
<td>2. See posted video on Social Determinants of Health Inequities &amp; Health care in old age</td>
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<td>03/07 – 03/19</td>
<td>Visit Sites. (Group 3) See specific schedule on Blackboard. (Read chp 9, 10 &amp; In a Nutshell of Live, Long, Die Short) Submit Blackboard Discussion regarding site visit and book chapters 1</td>
<td>Continue Reading: PH: Social Determinants of Health Inequities &amp; Health care in old age; Chp. 5 PHAS C&amp;M: Genetics of longevity; Chp. 5 BofA</td>
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<td>03/20</td>
<td>1. Quiz 4 over reading (not the Landry book)</td>
<td>2. Discussion over assigned reading from 02/28</td>
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<td>3. Reading assigned: PH: Social Engagement &amp; a healthy aging society; Chp 10 PHAS</td>
<td>C&amp;M: Age related disease in humans: Chp 9 BofA</td>
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<td>03/21 – 04/02</td>
<td>Visit Sites. (Group 4) See specific schedule on Blackboard. (Read chp. 16 &amp; 17 of Live, Long, Die Short) Submit Blackboard Discussion regarding site visit and book chapters</td>
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<td>04/03</td>
<td>1. Quiz 5 over reading (not the Landry book)</td>
<td>2. Discussion over assigned reading from 03/21</td>
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<td>3. Reading assigned: PH: Assessing the Health &amp; Quality of life of older populations Chp. 4 PHAS</td>
<td>C&amp;M: Physiology of human aging; Chp 8 BofA</td>
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<td>04/04 – 04/16</td>
<td>Visit Sites. (Group 5) See specific schedule on Blackboard. (Read chp. 18 &amp; Conclusion of Live, Long, Die Short) Submit Blackboard Discussion regarding site visit and book chapters. Start Deciding on Presentation Topic: “How would you address Aging through research?”</td>
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<td>04/17</td>
<td>1. Quiz 6 over reading (not the Landry book)</td>
<td>2. Discussion over assigned reading from 04/04</td>
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<td>3. Discussion on Technology in Aging Research.</td>
<td>4. Submit Topic that Group will be presenting</td>
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<td>5. Reading assigned: PH: Next steps in public health of Aging Population: Read Health Aging in Action Report</td>
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<td>04/18- 04/30</td>
<td>Visit Sites. (Group 6) See specific schedule on Blackboard. Submit Blackboard Discussion regarding site visit.</td>
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<td>05/01</td>
<td>1. Quiz 7 over reading (not the Landry book)</td>
<td>Discussion on Course and Development of Group Presentations for Final</td>
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<td>05/08</td>
<td>Final: Group Presentations on topics in aging from public health or molecular aspect. “How would you address Aging in research?”</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.
I. COURSE POLICIES

Attendance/Tardiness
Attendance: Students are expected to attend every scheduled in-class 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. Tardiness: Students may enter when late but be respectful of your peers and do not disrupt the class as you enter.

Students expected to make all necessary site visits.

Late Work and Make-up Quizzes
No late work will be accepted. You must refer to Blackboard to identify when items will be 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 quizzes will be given. There are 7 quizzes in the course. I will only be grading the top 6 quizzes.

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 NOT utilize their cell phone; therefore, keep them on silent and put away.

Laptop Use
Lecture: Students may utilize their laptops as long as it does not disrupt others in class.

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.

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

Participation
Lecture: Students are required to participate in all discussions and group activities. Peer evaluations will be given with group presentation to determine your final assessment if necessary.
Communicating with Instructors
All students should communicate with the instructors using their TAMUCC Black Board account or your islander.tamucc.edu email address. 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. 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)**
  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/

• 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

- 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.