# General Biology 1406

## Instructor: Dr. Lucia B. Carreon Martinez

### SUMMER 2018

**Phone:** 956 882 5197  
**Email:** lucia.carreonmartinez@utrgv.edu

**Course Description**  
A study of the basic principles of Biology. Topics will include biological chemistry, cell structure and function, photosynthesis and respiration, DNA structure and function, mitosis, meiosis, Mendelian genetics, evolution, and the structure and function of bacteria, viruses, protozoan, algae, fungi, and plants.

### Teaching philosophy

As a teacher, I aim to help you understand how each of the individual parts and/or concepts come together as part a “whole”. To achieve this I use some examples and analogies, as well as asking questions during class so you exercise retrieving the information and try to explain it in your own words.

### Service Learning (SL)

**Service Learning** (SL) is a thoughtfully organized service experience that addresses a need in the community by establishing a reciprocal and mutually beneficial relationship between students and service partners. It integrates a reflective component that relates the service experience to academic course objectives to facilitate student learning.

The nature of our service learning will be the upkeep of a butterfly garden at the UTRGV Brownsville campus.

Required 9 hours per semester (aprox 2.5 hrs per week) worth 10% of your grade.  
Activities within service learning includes:  
1. **Planting and working in the garden** (e.g. taking weeds out, cutting unwanted grass, observe of living organisms interactions, etc),  
2. **Research of literature related to pollinators and native plants**,  
3. **Develop flyers or materials to teach the community about the importance of pollinators and native plants**  
4. Elaborate a written report of activities/ results, elaborate a power point presentation/ display with major findings.

Students will be expected to demonstrate what **they have learned from the service-learning component** either by elaborating and present a power point presentation or by displaying poster boards.

All of the previous activities are worth 10% of the final grade, a more precise breakdown is provided in the calendar of activities. Students who fail to participate in the SL component will be awarded 0 points.

### Texas Higher Education Coordinating Board (THECB) ACGM Learning Objectives

Fundamental principles of living organisms are covered, including physical and chemical properties of life, organization, function, evolutionary adaptation, and classification. Concepts of cytology, reproduction, genetics, and scientific reasoning are included. Laboratory activities will reinforce the fundamental principles of living organisms, including physical and chemical properties of life, organization, function, evolutionary adaptation, and classification. Study and examination of the concepts of cytology, reproduction, genetics, and scientific reasoning are included.

### Course Learning Objectives/Outcomes for the Course

Upon successful completion of this course, students will:
1. Describe the characteristics of life.
2. Explain the methods of inquiry used by scientists.
3. Identify the basic requirements of life and the properties of the major molecules needed for life.
4. Compare and contrast the structures, reproduction, and characteristics of viruses, prokaryotic cells, and eukaryotic cells.
5. Describe the structure of cell membranes and the movement of molecules across a membrane.
6. Identify the substrates, products, and important chemical pathways in metabolism.
7. Identify the principles of inheritance and solve classical genetic problems.
8. Identify the chemical structures, synthesis, and regulation of nucleic acids and proteins.
9. Describe the unity and diversity of life and the evidence for evolution through natural selection.

Texas Higher Education Coordinating Board (THECB) core learning outcomes
This course may be used to fulfill three hours of the natural science and technology component of the university core curriculum and addresses the following four core objectives established by the Texas Higher Education Coordinating Board: communication skills, critical thinking skills, teamwork and empirical and quantitative skills.

Learning Objective Activities/Assignments that Addresses Objective
Critical Thinking: Activities that include reading and analyzing information to answer questions
Communication Skills: Students will develop a 3D model of a topic covered in class and explain it to their classmates.
Teamwork: Activities will include working collaboratively to answer questions and to develop their 3D model.
Empirical and Quantitative Skills: In laboratory students will collect original data for several experiments and analyze these data using basic statistical tests and graphs

**Note: the assigned service learning activities will help you achieve the following learning objectives: leadership, teamwork, and communication skills.**

BIOLOGY DEPARTMENT SLOs

1. Role of the Cell: The Biology graduate knows the role of the cell in life and living systems, and understands the interrelationships among subcellular structures that contribute to its functioning as a unit.
2. Role of Genetics: The Biology graduate understands the role of genetics in inheritance and can explain how environmental conditions influence natural selection processes and contribute to adaptation.
3. Diversity of Life: The Biology graduate is aware of the diversity of life and interrelationships between an organism and its environment. **Aligns with our service learning activity**
4. Structure and Function: The Biology graduate understands how the organization of a specific structure within an organism related to its function, understands interrelationships among organs and organ systems within an organism. **Aligns with our service learning activity**
5. Scientific Method: The Biology graduate can formulate a testable hypothesis, evaluate and design experiments, analyze and interpret data, and communicate research findings in both oral and written form. **Aligns with our service learning activity**

Co-requisite: BIOL 1406 Lab - Biology Laboratory (25% of final grade)
Recommended prerequisite: MATH 1314 Successful completion of College Algebra or concurrent enrollment in higher-level mathematics is recommended.

Grading Policies
Your final grade will be determined by
300 pts 15 quizzes (20 pts each)
80 pts in class activities and homework
100 pts service learning hrs (50 pts for reflective presentation and essay)
120 pts group work activity, demonstration and attendance
400 pts 4 exams (out of 5, each 100 pts)
1000 total possible points (1000-900= A; 899.9-800= B; 799.9-700= C; 699.9-600= D; 599.9>= F)
Your final numeric grade in LECTURE is 75% of your final grade. The remaining 25% is from your laboratory grade.

If you missed one QUIZ you can make it up by taking a cumulative final exam, or if you want to improve your grade (the final exam would replace the lowest grade of a previous quiz).

Attendance: If you didn’t attend one class, you will not be able make up the activity done on that day.

Cell phone use is not allowed during lecture time or exams- in case of an emergency you need to notify the instructor BEFORE class. Cell phone use (except emergencies) will be penalized with minus 5pts on final grade per incident.

NOTE: If you decide to take Final Exam, it will be taken into account by replacing the lowest of the previous grades.

UTRGV’s grading policy is to use straight lettergrades (A, B, C, D, or F).

Important dates
The UTRGV academic calendar can be found at http://my.utrgv.edu at the bottom of the screen, prior to login. Important dates for Summer I 2017 include:

June 4 (Mon.) Summer I Classes Begin. Official First Class Day. Day to withdraw for 80% refund
June 5 (Tues.) Last day to add a class or register for Summer I classes
June 11 Last day to withdraw (drop all classes) for a 50% refund
June 7 (Thurs.) Census Date (Last day to drop without it appearing on the transcript)
June 28 (Fri.) Last day to drop (DR grade) a class or withdraw (grade of W)
July 4 (Tues.) Independence Day. No Classes.
July 9 (Mon.) Study Day. No Classes.
July 10 (Tues.) Final Exam

Other Course Information
ATTENDANCE:
• Students are required to attend all classes, and must be on time for pre-lecture quizzes and/or exams. Excessive absences will result in a loss of points from participation grade. I am required to report excessive absences (more than three) to the ALERT program.

Exams & Make-up Exam
• No make-up quizzes or activities will be given. In class activities CANNOT be made up
• You will be assigned a zero (0) for all missed quizzes or activities. If you know you are to miss a quiz or activity, inform the professor as soon as possible and before the scheduled event.
• Students will not be allowed to start an exam/quiz once the first exam has been turned in.
• During examinations your tabletop must be devoid of books, notes, calculators, cell phones, etc.
• Cell phones/earphones/I-pods/Laptops/etc, and text messaging are not allowed during class time. Phones must be off and stored in a bag and off the table and off your pockets. Five points will be deducted from your final grade if you use any of these electronic devices. Let you know your instructor, at the beginning of class, if you need the cell phone (on vibrate) during lab exercise, and if you take a call during class, go outside to talk. Do not ever talk on the phone in class.
• For quizzes/exams and final exam YOU MUST BRING A SCANTRON (Form No. 882-E ONLY).
• YOU are responsible of providing pencils, pen and eraser. Exams must be returned with the SCANTRON at the end of the exam.
• Students are not allowed to leave the class (no restroom visits) during exams and quizzes. If you leave the class during an exam, you will lose the opportunity to complete the exam. If emergency make sure you bring a doctor’s note.
• **Cell phones and other electronic devices are not allowed during exams (or lecture).** All devices must be turned off and put away prior to the exam. If there is an emergency situation that requires flexibility in this policy, you must get approval from the instructor **prior to the start of the exam.**

• **Absences:** If I am given a notification within 24 hours of your absence, and a valid medical excuse is provided, I will justify your absence, **but your discussion points will not be taken into account.**

• **Issues concerning examinations and grading will be addressed for one week after each exam is given, but not latter.**

**NOTE:** “This syllabus is subject to change”. Any changes incorporated will be given to you in class as soon as possible or through Black. Therefore, it is very important you attend all classes.

### BIOL 1406 SUMMER 2018 Tentative Course Calendar*

<table>
<thead>
<tr>
<th>Quiz Due Date*</th>
<th>Quiz p/chapter</th>
<th>Topic</th>
<th>chapters</th>
<th>readings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td><strong>Themes in the study of life</strong></td>
<td>1</td>
<td>1.1-1.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>The Chemical context of life</strong></td>
<td>2</td>
<td>2.1-2.4</td>
</tr>
<tr>
<td>06/11/18</td>
<td>Quiz 1, 2, 3</td>
<td><strong>Water and life</strong></td>
<td>3</td>
<td>3.1-3.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Carbon and Molecular Diversity of life</strong></td>
<td>4</td>
<td>4.1-4.3</td>
</tr>
<tr>
<td>06/17/18</td>
<td>Quiz 4,5</td>
<td><strong>The structure and function of large biological molecules</strong></td>
<td>5</td>
<td>5.1-5.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>A tour of the cell</strong></td>
<td>6</td>
<td>6.2-6.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Membrane Structure and Function</strong></td>
<td>7</td>
<td>7.1-7.5</td>
</tr>
<tr>
<td>06/17/18</td>
<td>Quiz 6,7,8</td>
<td><strong>An introduction to Metabolism</strong></td>
<td>8</td>
<td>8.3-8.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Cellular respiration and fermentation</strong></td>
<td>9</td>
<td>9.1-9.6</td>
</tr>
<tr>
<td>06/24/18</td>
<td>Quiz 9, 10</td>
<td><strong>Photosynthesis</strong></td>
<td>10</td>
<td>10.1-10.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>The Cell cycle</strong></td>
<td>12</td>
<td>12.1-12.3</td>
</tr>
<tr>
<td>06/24/18</td>
<td>Quiz 12, 13</td>
<td><strong>Meiosis and sexual life cycles</strong></td>
<td>13</td>
<td>13.1-13.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Mendel and the gene idea</strong></td>
<td>14</td>
<td>14.1-14.2</td>
</tr>
<tr>
<td>07/01/18</td>
<td>Quiz 14, 15</td>
<td><strong>The chromosomal basis of inheritance</strong></td>
<td>15</td>
<td>15.1-15.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>The molecular basis of inheritance</strong></td>
<td>16</td>
<td>16.1-16.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>From gene to protein</strong></td>
<td>17</td>
<td>17.1-17.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Regulation of gene expression</strong></td>
<td>18</td>
<td>18.1-18.2</td>
</tr>
<tr>
<td>07/08/18</td>
<td>Quiz 16,17, 18</td>
<td><strong>Viruses and Biotechnology</strong></td>
<td>19</td>
<td>19.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Descent with Modification: A Darwinian view of life</strong></td>
<td>22</td>
<td>22.1-22.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>The evolution of populations</strong></td>
<td>23</td>
<td>23.1-23.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>The Origin of species</strong></td>
<td>24</td>
<td>24.1-24.2</td>
</tr>
<tr>
<td>July 5-6th</td>
<td></td>
<td><strong>3D GROUP WORK PRESENTATION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>July 9th</td>
<td></td>
<td><strong>Study day</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>July 10th</td>
<td></td>
<td><strong>FINAL EXAM- TBA</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Exact Dates of subjects covered and all quizzes (except the final exam) are tentative and may change as needed to coincide with progress in course.

**IMPORTANT:**

Each student must complete and submit their own work at all times.
Failure to follow instructions on any assignment, participation, quiz or exam will result in a grade of zero (0).
The contents of this syllabus is subject to change. Any changes incorporated will be announced to you in class or Blackboard. Therefore, it is very important you attend all classes and check Blackboard Announcements regularly.

UTRGV Policy Statements

STUDENTS WITH DISABILITIES:
If you have a documented disability (physical, psychological, learning, or other disability which affects your academic performance) and would like to receive academic accommodations, please inform your instructor and contact Student Accessibility Services to schedule an appointment to initiate services. It is recommended that you schedule an appointment with Student Accessibility Services before classes start. However, accommodations can be provided at any time. Brownsville Campus: Student Accessibility Services is located in Cortez Hall Room 129 and can be contacted by phone at (956) 882-7374 (Voice) or via email at accessibility@utrgv.edu. Edinburg Campus: Student Accessibility Services is located in 108 University Center and can be contacted by phone at (956) 665-7005 (Voice), (956) 665-3840 (Fax), or via email at accessibility@utrgv.edu.

MANDATORY COURSE EVALUATION PERIOD:
Students are required to complete an ONLINE evaluation of this course, accessed through your UTRGV account (http://my.utrgv.edu); you will be contacted through email with further instructions. Online evaluations will be available July___ – July___th 2018. Students who complete their evaluations will have priority access to their grades.

ATTENDANCE
Students are expected to attend all scheduled classes and may be dropped from the course for excessive absences. UTRGV’s attendance policy excuses students from attening class if they are participating in officially sponsored university activities, such as athletics; for observance of religious holy days; or for military service. Students should contact the instructor in advance of the excused absence and arrange to make up missed work or examinations.

SCHOLASTIC INTEGRITY:
As members of a community dedicated to Honesty, Integrity and Respect, students are reminded that those who engage in scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and expulsion from the University. Scholastic dishonesty includes but is not limited to: cheating, plagiarism, and collusion; submission for credit of any work or materials that are attributable in whole or in part to another person; taking an examination for another person; any act designed to give unfair advantage to a student; or the attempt to commit such acts. Since scholastic dishonesty harms the individual, all students and the integrity of the University, policies on scholastic dishonesty will be strictly enforced (Board of Regents Rules and Regulations and UTRGV Academic Integrity Guidelines). All scholastic dishonesty incidents will be reported to the Dean of Students.

SEXUAL HARASSMENT, DISCRIMINATION, and VIOLENCE: Required on all syllabi. Do not modify.
In accordance with UT System regulations, your instructor is a “responsible employee” for reporting purposes under Title IX regulations and so must report any instance, occurring during a student’s time in college, of sexual assault, stalking, dating violence, domestic harassment, or sexual harassment about which she/he becomes aware during this course through writing, discussion, or personal disclosure. More information can be found at www.utrgv.edu/equity, including confidential resources available on campus. The faculty and staff of UTRGV actively strive to provide a learning, working, and living environment that promotes personal integrity, civility, and mutual respect in an environment free from sexual misconduct and discrimination.

COURSE DROPS:
According to UTRGV policy, students may drop any class without penalty earning a grade of DR until the official drop date. Following that date, students must be assigned a letter grade and can no longer drop the class. Students considering dropping the class should be aware of the “3-peat rule” and the “6-drop” rule so they can recognize how dropped classes may affect their academic success. The 6-drop rule refers to Texas law that dictates that undergraduate students may not drop more than six courses during their undergraduate career. Courses dropped at other Texas public higher education institutions will count toward the six-course drop limit. The 3-peat rule refers to additional fees charged to students who take the same class for the third time.