Course Number and Title: BIOL 1106 Biology for Science Majors I Laboratory

Course (Catalog) Description: This laboratory-based course accompanies Biology 1306, Biology for Science Majors I. 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.
Prerequisite: BIOL 1306 Biology for Science Majors I (lecture)
Corequisite: BIOL 1306 Biology for Science Majors 1 (lecture)

Instructor Information:
Instructor: Michael Gay
Office: Eddie Lucio HST – U141
Office Hours: To be determined – will be posted in Moodle
Office Phone #: 956-364-4856
Address: 1902 North Loop 499, Harlingen, Texas, 78550
Fax: 956-364-5160
E-Mail: Always use Moodle messaging when possible – if Moodle is not available for some reason, then use michael.gay@harlingen.tstc.edu

Major Course Requirements:
The following are the topics that will be covered in the course.
A. Scientific Method, Basic Chemistry
B. Cell Structure and Function
C. Membrane Structure and Function
D. Metabolism: Energy and Enzymes
E. Photosynthesis and Cellular Respiration
F. Mitosis and Meiosis
G. Mendelian Genetics
H. DNA Replication, Transcription & Translation
I. Processes of Evolution
J. Classification

Student Learning Outcomes (LO):
Upon successful completion of this course, students will:
1. Apply scientific reasoning to investigate questions and utilize scientific tools such as microscopes and laboratory equipment to collect and analyze data.
2. Use critical thinking and scientific problem-solving to make informed decisions in the laboratory.
3. Communicate effectively the results of scientific investigations.
4. Describe the characteristics of life.
5. Explain the methods of inquiry used by scientist.
6. Identify the basic properties of substances needed for life.
7. Compare and contrast the structures, reproduction, and characteristics of viruses, prokaryotic cells, and eukaryotic cells.
8. Describe the structure of cell membranes and the movement of molecules across a membrane.
9. Identify the substrates, products, and important chemical pathways in metabolism.
10. Identify the principles of inheritance and solve classical genetic problems.
11. Identify the chemical structures, synthesis, and regulation of nucleic acids and proteins.
12. Describe the unity and diversity of life and the evidence for evolution through natural selection.
CORE OBJECTIVES (CO):
1. **Critical Thinking** – to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
2. **Communication Skills** – to include effective development, interpretation and expression of ideas through written, oral and visual communication
3. **Empirical and Quantitative Skills** – to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions
4. **Teamwork** – to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal

**Tentative Schedule (Subject to change by your instructor)**

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<tr>
<th>Unit</th>
<th>Topic/Lecture</th>
<th>Measurable Activities</th>
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<tbody>
<tr>
<td>1</td>
<td>The Scientific Method</td>
<td>Pre-lab quizzes, topic worksheet evaluations in class, topic assignments due after class</td>
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<td>Metric Measurement and Microscopy</td>
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<td>Chemical Composition of Cells</td>
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<td><strong>Exam 1</strong> (LO 1,2,4,5,6; CO 1,3)</td>
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<td>2</td>
<td>Cell Structure and Function</td>
<td>Pre-lab quizzes, topic worksheet evaluations in class, topic assignments due after class, tonicity lab report</td>
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<td><strong>Exam 2</strong> (LO 4,6,7,8; CO 1,2,3,4)</td>
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<td>3</td>
<td>How Enzymes Function</td>
<td>Pre-lab quizzes, topic worksheet evaluations in class, topic assignments due after class</td>
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<td>Photosynthesis</td>
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<td>Cellular Respiration</td>
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<td><strong>Exam 3</strong> (LO 9; CO 1,2,3)</td>
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<td>4</td>
<td>Mitosis and Meiosis</td>
<td>Pre-lab quizzes, topic worksheet evaluations in class, topic assignments due after class</td>
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<td>Mendelian Genetics</td>
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<td>Human Genetics</td>
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<td><strong>Exam 4</strong> (LO 10; CO 1,2,3)</td>
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<td>5</td>
<td>DNA Biology and Technology</td>
<td>Pre-lab quizzes, topic worksheet evaluations in class, topic assignments due after class</td>
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<td>Natural Selection</td>
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<td><strong>Exam 5</strong> (LO 11; CO 1,2,3)</td>
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Spring 2014

Biology I for Science Majors Lab – Course Syllabus

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<th>Unit</th>
<th>Topic/Lecture</th>
<th>Measurable Activities</th>
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<td>6</td>
<td>Bacteria and Protists</td>
<td>Pre-lab quizzes, topic worksheet evaluations in class, topic assignments due after class</td>
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<td>Fungi</td>
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<td>Organization of Flowering Plants</td>
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<td><strong>Exam 6 (LO 12; CO 1,2,3)</strong></td>
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<td><strong>Final Exam (LO 1-12; CO 1-4)</strong></td>
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**Required Text & Materials:**

- **Textbook Website:** [www.mhhe.com/maderbiology11](http://www.mhhe.com/maderbiology11)
- **Moodle:** mycourses.tstc.edu

**Materials:** Scantron form 882-E (7), black marker, safety glasses, lab apron, closed-toe shoes

**Grading:** Your grade will be based on lab assignments, pre-lab quizzes, tests, and various other assignments.

Lab grades will be calculated using the following point values:

Tests = 600 pts.
Lab assignments = 180 pts.
Pre-lab quizzes = 90 pts.
Lab report = 30 pts.
Case study/Virtual lab = 100 pts.
Participation = 50 pts.
Final exam = 100 pts.

**Total points** = 1150 pts.

**Grading Scale:**

- 90-100% (approx.1150-1029pts.)........A
- 80-89% (approx.1028-914pts.).........B
- 70-79% (approx.913-799pts.)..........C
- 60-69% (approx.798-684pts.).........D
- 0-59% (approx.683-0pts.).............F

**Tests:** Tests must be taken during the period in which they are originally given. **There are no make-up tests.**

One test missed during the semester may be replaced with the final exam grade.

**Lab Assignments:** For each lab exercise, you will be required to complete an assignment that will contain questions about data gathered during the lab and terms and concepts covered in the lab. The assignments will be completed in Moodle and **will not be reopened once the deadline has passed.**

**Pre-Lab Quizzes:** Before each lab activity or experiment, there will be a short quiz over the experiment to be completed. Therefore, you **must** read the lab for that day in your lab manual and complete the quiz **before** coming to class. The quizzes will be completed in Moodle and **will not be reopened once the deadline has passed.**

**Lab Report/Case Study/Virtual Lab:** You will be required to write a lab report and complete a case study or virtual lab exercise that will require you to research topics and apply your knowledge from the lab. More information about these assignments will be given during the semester.
**Participation Grade:** Your participation grade will be determined by a check of your completed lab worksheets at the end of class. The daily participation grade cannot be made up. If you are not in class to complete the lab, you do not receive credit for that lab exercise.

**Participation Policy:** Only absences of an extreme or catastrophic emergency may be excused and must be corroborated in writing by an appropriate authority (hospital, doctor), merely phoning in does not excuse an absence. Students must file a withdrawal form with the Admissions Office to be withdrawn from the course. It is the responsibility of the student to drop the course prior to the last date for withdrawal without incurring an “F” grade. The withdrawal process will no longer be initiated by the instructor.

**Lab Safety:** No food or drinks are allowed in the labs. Safety rules listed in the front of your lab manual must be followed and the lab must be kept orderly and clean at all times. **Always wear closed-toe shoes and clothing that covers your arms and legs when in the lab.** For labs that require dissection or experimental procedures, all students must wear safety glasses and a covering of some kind (lab coat, apron) and provide their own dissection tools. Notify the instructor if something breaks or spills. You must make sure that all materials are put away and your work area is clean before you leave the lab. **Do not throw trash in the sinks! Always clean your table with disinfectant spray when you arrive and before you leave the lab.**

**Class Policies:**
It is necessary for students to consistently attend lab in order to successfully complete this course. Therefore the student is expected to attend every lab period. If a lab is missed, it is the student’s responsibility to acquire any information covered during that class. Lab review sheets may still be completed, but **any activities missed cannot be made up.** Cell phones must be muted during lab. Any ringing phones will be extremely disruptive to the class. **Phones must be put away and not used at all during tests. A student may not leave the room while taking a test.**

**Leaving Class Early:**
**Do not leave before the end of class without speaking to me first.** If you have to leave early for a medical appointment or some other legitimate reason, let me know in advance. Leaving class early without the instructor’s approval will count as an absence for that class period, unless the lab work is completed before leaving.

**Accommodations:** If you have a documented disability which will make it difficult for you to carry out classwork as outlined and/or if you need special accommodations due to a disability, please contact (956) 364-4520 or visit the Support Services Office in the Consolidated Student Services Center (Bldg. EK) Room # 216 as soon as possible to make appropriate arrangements.

**Copyright Statement:** The materials used in the course (textbooks, handouts, media files (podcast, MP3, Videos, RSS Feeds), and all instructional resources on the colleges Learning Management System (Moodle) are intended for use only by students registered and enrolled in this course, and are only to be used for instructional use, activities associated with, and for the duration of the course. By "handouts," this means all materials generated for this course, which includes but are not limited to syllabi, quizzes, exams, lab problems, in-class materials, review sheets, and any additional materials.

These materials may not be retained in another medium or disseminated further. They are provided in compliance with the provisions of the Teach Act. These materials may not be reproduced, displayed, modified
Communicating with your instructor: Your instructor will correspond with you within your TSTC Moodle course via the News Forum, Discussion Forums, and Moodle Messaging. Although you may receive messaging notifications to your personal email account, your responses should be made within the Moodle environment by responding to the appropriate Discussion Forum post or Moodle message. It is your responsibility to check Course Discussion Forums and Messages on a daily basis. In the event that Moodle is down or if the instructor advises, you may email the instructor at michael.gay@harlingen.tstc.edu. All correspondence to the instructor at this email address must come from your TSTC student mymail.tstc.edu email address and must contain the course you are enrolled in within the email subject line. Any technical questions should be directed to the TSTC Help Desk at 1-800-592-8784, tstchehelpdesk@tstc.edu or Yahoo IM: tstchehelpdesk. The use of Your Mymail TSTC College student email account will be the only way to receive official notices from the college. If you choose to forward your e-mail to another account, please be advised that all communication from and within the college will use your Mymail student e-mail.

You may message me in Moodle, call me, or come to my office if you need to contact me. If I am not in my office or I do not answer the phone when you call, please message me in Moodle or leave a message on my phone and I will get back to you as soon as I can, usually within 24 hours. If you contact me on Friday, the weekend, or a holiday, I may not respond until Monday (or the first working day after you leave a message).

Safety: "TSTC Harlingen faculty, staff, and students are asked to report all threats, perceived or real, immediately to College Police located in the Auxiliary Building. If the threat is imminent, the College Police emergency phone line at 364-4234 or 9-911 should be called. College Police will then coordinate the proper response in accordance with State and federal laws and TSTC System/College rules and regulations."

Midterm Grade Reporting – Ds and Fs: At the midterm of the semester, grades of D or F will be entered into the school computer system. These students will receive a letter from the school informing them of their academic status.

General Education Program Assessment: Assignments from this course are subject to being archived for general education assessment. Procedures will follow protocols as prescribed by the research guidelines of the Association for Institutional Research.

Tutoring Services:

The Supplemental Instruction & Tutoring Program at TSTC offers free tutoring and academic support services to help you achieve your academic and career goals. You can access the most up-to-date Supplemental Instruction & Tutoring Schedule, as well as MyTSTC Video Tutor Library, by using your smart phone to scan over the QR code below or visiting our webpage at: http://www.tstc.edu/harlingenoss/situtoringprogram

For more information, please contact the Office of Student Success at 956.364.4163 or the Supplemental Instruction & Tutoring Program at 956.364.4170.