Fall 2012 Course Syllabus

I. **Course Number:** BIOL 1308
II. **Course Title:** Biology for non-Science Majors I
III. **Semester Credit Hours:** 3
IV. **Instructor:** Nurul Alam, Ph.D.
   **Office:** SCIT 219
   **Office hours:** Tuesdays: 5:30p-7:30p; Wednesdays: 11:00am-5:00p; Thursdays: 5:30p-7:30p; other times by appointment only. Please call or e-mail.
   **Email:** nurul.alam@tamut.edu
   **Phone:** (903) 334-6671
V. **Course Description:** This course introduces the student to the nature of science and the application of science to contemporary issues. Content includes the chemistry of life, the cell, genetics and mechanisms of evolution. Concurrent enrollment in the laboratory portion (BIOL 1108) is recommended in order to gain maximum benefit from this course.
VII. **Student Learning Outcomes:** The Texas Higher Education Coordinating Board adopted Exemplary Educational Objectives (EEOs) to establish a common knowledge thread through the courses taught within the Texas Core Curriculum. For BIOL 1306 Biology I, the Natural Sciences EEOs are integrated into the Student Learner Outcomes below:
   • **Understand and apply** method and appropriate technology to the study of natural sciences by satisfactorily applying the scientific method to a research scenario provided by the professor. *This objective reflects the expectations of Natural Sciences Exemplary Educational Objective 1.*
   • **Recognize** scientific and quantitative methods and the differences between these approaches and other methods of inquiry and to communicate findings, analyses, and interpretation in writing by demonstrating proficiency with a satisfactory grade on an essay on methods of inquiry. *This objective reflects the expectations of Natural Sciences Exemplary Educational Objective 2.*
   • **Identify and recognize** the differences among competing scientific theories by demonstrating proficiency with a satisfactory grade on an essay on the nature of science. *This objective reflects the expectations of Natural Sciences Exemplary Educational Objective 3.*
   • **Demonstrate** knowledge of the major issues and problems facing modern science, including issues that touch upon ethics, values, and public policies. The student will demonstrate proficiency with satisfactory grades on an essay on a biologically related topic of their choice (such as global warming, extinction, human cloning, etc.) issue. *This objective reflects the expectations of Natural Sciences Exemplary Educational Objective 4.*
• **Demonstrate** knowledge of the interdependence of science and technology and their influence on, and contribution to, modern culture by demonstrating proficiency with satisfactory grades on a group presentation on a contemporary issue involving science, technology and culture. *This objective reflects the expectations of Natural Sciences Exemplary Educational Objective 5.*

**Upon successful completion of this course, the students will:**

<table>
<thead>
<tr>
<th>Course Objectives</th>
<th>EEO</th>
<th>Assessment</th>
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</thead>
<tbody>
<tr>
<td>Describe the levels of biological organization from molecules to the biosphere, noting the interrelationships between levels.</td>
<td>1, 2, 3</td>
<td>Quiz 1, Exam 1, Final Exam</td>
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<tr>
<td>Compare the definitions and use of inductive and deductive reasoning in scientific investigation.</td>
<td>1, 2, 3</td>
<td>Quiz 1, Exam 1, Final Exam</td>
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<tr>
<td>Describe the importance of chemical elements to living organisms.</td>
<td>1, 2</td>
<td>Quiz 2, Exam 1, Final Exam</td>
</tr>
<tr>
<td>Describe the chemical groups that are important to life.</td>
<td>1, 2</td>
<td>Quiz 2, Exam 1, Final Exam</td>
</tr>
<tr>
<td>Describe the structure and functions of cell.</td>
<td>1, 2, 3</td>
<td>Quiz 3, Exam 2, Final Exam</td>
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<tr>
<td>Describe the structure of cell membranes and membrane transport of biologically important molecules.</td>
<td>1, 2, 3</td>
<td>Quiz 3, Exam 2, Final Exam</td>
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<tr>
<td>Provide the overall chemical equation for cellular respiration to produce energy in the form of ATP</td>
<td>1, 2, 3</td>
<td>Quiz 3, Exam 2, Final Exam</td>
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<tr>
<td>Explain how photosystems capture solar energy. Describe the greenhouse effect. Explain how the ozone layer forms, how human activities have damaged it, and the consequences of the destruction of the ozone layer.</td>
<td>1, 2, 3, 4, 5</td>
<td>Quiz 4, Exam 2, Final Exam</td>
</tr>
<tr>
<td>Describe the stages of the cell cycle. List the phases of cell division. Explain how genetic variation is produced in sexually reproducing organisms. Describe the causes and symptoms of genetic disorders.</td>
<td>1, 2, 3</td>
<td>Quiz 4, Exam 3, Final Exam</td>
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<tr>
<td>Describe the genetic bases of heredity. Explain how recessive and dominant disorders are inherited.</td>
<td>1, 2, 3</td>
<td>Quiz 5, Exam 3, Final Exam</td>
</tr>
<tr>
<td>Compare the structures of DNA and RNA. Diagram the overall process of transcription and translation. Describe three processes that contribute to the emergence of viral disease.</td>
<td>1, 2, 3</td>
<td>Quiz 5, Exam 3, Final Exam</td>
</tr>
<tr>
<td>Explain the importance of recombinant DNA technology and genetic engineering. Describe the pros and cons of genetically modified organisms (GMOs).</td>
<td>1, 2, 3, 4, 5</td>
<td>Quiz 6, Exam 3, Final Exam</td>
</tr>
</tbody>
</table>

**VIII. Course Outline and Schedule:**

**Week-1**
Introduction: History of Biology (handout); The Scientific Study of Life (Ch1)

**Week-2**
The Chemical Basis of Life (Ch2)

**Week-3**
The Molecules of Cells (Ch3)

**Exam-1**

**Week-4**
A Tour of the Cell (Ch4)

**Week-5**
The Working Cell (Ch5)

**Week-6**
Photosynthesis: Using Light to Make Food (Ch7)
Exam-2

Week-7
How Cells Harvest Chemical Energy (Ch6)

Week-8&9
The Cellular Basis of Reproduction and Inheritance (Ch8)

Week-10&11
Patterns of Inheritance (Ch9)

Exam-3

Week-12&13
Molecular Biology of the Gene (Ch10)

Week-14
How Genes Are Controlled (Ch11)

Week-15&16
DNA Technology and Genomics (Ch12)

Reviews

Final Exam

IX. Methods of Evaluation:

Quizzes (6X30) .... 180 points
Lecture exams (3X100) .... 300 points
Group presentation ..... 50 points
Final exam ..... 100 points

Total 630 Points

X. Grading Scale:

A = 90-100%, B = 80-89%, C = 70-79%, D = 60-69%, F = 0-59%

XI. Library/Media Resources Assessment:

A. Books/Periodicals/Electronic Data Bases/Software/Programs:
N/A

B. Computing/Multimedia/Online Media Resources:
N/A

XII. Student Participation:

a. Participation Policy: You are expected to attend all lecture classes. Class attendance is very important since many of the exam questions will be drawn from the class lectures, demonstrations, and discussions. Taking good class notes is essential. Reading the chapter prior to coming to class is also recommended. You are expected to participate in all team project exercises.

b. Course Etiquette: You are expected to be courteous towards the instructor and your classmates. You are expected to be on time for lecture. Cell phones should be turned off during lecture. You should not talk to your classmates while I am talking or while one of your classmates is asking a question. If you
have a question about the course material, ask me and I will be more than happy to answer your question.

c. **Discussion Board Standards**: Not applicable to this course.

XIII. **Disability Accommodations**: Students with disabilities may request reasonable accommodations through the A&M-Texarkana Disability Services Office by calling 903-223-3062.

XIV. **Academic Integrity**: Academic honesty is expected of students enrolled in this course. Cheating on examinations, unauthorized collaboration, falsification of research data, plagiarism, and undocumented use of materials from any source constitute academic dishonesty and may be grounds for a grade of ‘F’ in the course and/or disciplinary actions. For additional information, see the university catalog.

XV. **A&M-Texarkana Email Address**: Upon application to Texas A&M University-Texarkana an individual will be assigned an A&M-Texarkana email account. This email account will be used to deliver official university correspondence. Each individual is responsible for information sent and received via the university email account and is expected to check the official A&M-Texarkana email account on a frequent and consistent basis. Faculty and students are required to utilize the university email account when communicating about coursework.

XVI. **Drop Policy**: University Drop Policy: To drop this course after the census date (see semester calendar), a student must complete the Drop/Withdrawal Request Form, located on the University website [http://tamut.edu/Registrar/droppingwithdrawing-from-classes.html](http://tamut.edu/Registrar/droppingwithdrawing-from-classes.html) or obtained in the Registrar’s Office. The student must submit the signed and completed form to the instructor of each course indicated on the form to be dropped for his/her signature. The signature is not an “approval” to drop, but rather confirmation that the student has discussed the drop/withdrawal with the faculty member. The form must be submitted to the Registrar’s office for processing in person, email Registrar@tamut.edu, mail (7101 University Ave., Texarkana, TX 75503) or fax (903-223-3140). Drop/withdraw forms missing any of the required information will not be accepted by the Registrar’s Office for processing. It is the student’s responsibility to ensure that the form is completed properly before submission. If a student stops participating in class (attending and submitting assignments) but does not complete and submit the drop/withdrawal form, a final grade based on work completed as outlined in the syllabus will be assigned.

XVII. **Student Technical Assistance**:

- Solutions to common problems and FAQ’s for your web-enhanced and online courses are found at this link: [http://www.tamut.edu/webcourses/index.php?pageid=37](http://www.tamut.edu/webcourses/index.php?pageid=37)
- If you cannot find your resolution there, you can send in a support request detailing your specific problem here: [http://www.tamut.edu/webcourses/gethelp2.php](http://www.tamut.edu/webcourses/gethelp2.php)
- Blackboard Helpdesk contacts:

  Office hours are: Monday - Friday, 8:00a to 5:00p

  Julia Allen (main contact) 903-223-3154 julia.allen@tamut.edu

  Frank Miller (alternate) 903-223-3156 frank.miller@tamut.edu

  Nikki Thomson (alternate) 903-223-3083 nikki.thomson@tamut.edu