Bio 123.001 Human Biology Lecture Syllabus and Policy Fall 2019

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* All contact via e-mail should be professional in manner with proper punctuation and grammar. E-mails sent in an unacceptable format will not be answered.
* Do not contact me through D2L, I will not respond. Only use my SFA email (sullivanjb@sfasu.edu).

Phone: (936) 468-5987
Office: S108
Office Hours: M 1:00 P.M. - 2:00 P.M., W 10:00 A.M., 2:00 P.M., or by appointment.
Class Meeting Time & Place: Bio 123.001 MW 2:30-3:45 S233
Mastering Biology and Learning Catalytics – mandatory by week 2
Pre-requisites: TSI compliance in English and Reading
Co-requisite: BIO 123 Lab

| Tentative Bio 123 Fall 2019 Schedule |
|-------------------------------|-----------------|-----------------|
| Weeks | Chapter | Topic |
| 1-4 | 1 | Human Biology: Science and Society |
| | 2 | The Chemistry of Living Things |
| | 3 | Structure and Function of Cells |
| | 4 | From Cells to Organ Systems |
| | 5 | The Skeletal System |
| | 6-5 | Review |
| Sept. 18 | 1-5 | Exam 1 |
| 4-7 | 6 | The Muscular System |
| | 11 | The Nervous System: Integration and Control |
| | 12 | Sensory Mechanisms |
| | 7 | Blood |
| | 8 | Heart and Blood Vessels |
| | 6-8, 11 and 12 | Review |
| Oct. 14 | 6-8, 11 and 12 | Exam 2 |
| 8-11 | 9 | The Immune System and Mechanisms of Defense |
| | 10 | The Respiratory System: Exchange of Gases |
| | 14 | The Digestive System and Nutrition |
| | 13 | The Endocrine System |
| | 15 | The Urinary System |
| | 9,10, 13-15 | Review |
| Nov. 6 | 9,10, 13-15 | Exam 3 |
| 12-15 | 17 | Cell Reproduction and Differentiation |
| | 16 | Reproductive Systems |
| | 21 | Development and Aging |
| | 19 | Genetics and Inheritance |
| | 18 | Cancer: Uncontrolled Cell Division and Differentiation |
| | 22 | Evolution and the Origins of Life |
| | 16-19, 21, 22 | Review |
| Dec. 4 | 16-19, 21, 22 | Exam 4 |
| Dec. 9 | Cumulative | Final Exam 10:45 a.m. – 1:15 p.m. |
Course Description: Three semester hours, three hours lecture per week. Biological principles for non-science majors. Study of the evolution of man, organ systems, and the human organism. May not be used to meet graduation requirements of students majoring in the College of Sciences and Mathematics.

BIO 123 is a biological principles course for non-science majors. Human Biology Lab (BIO 123L) is a co-requisite with BIO 123 lecture. This course is designed to give you an introduction to human biology, both at the cellular level and the organismal level. I have broken down all lecture topics into one of three broad categories:

(1). Molecules to Organs. We begin with a discussion of the various types of molecules required for a cell to function properly. We discuss the individual components of a cell, what they are composed of, and their function in the cell. We will discuss the important cellular processes that allow a cell to survive, grow, and divide. We will learn about the various cell types found in the human body and how they are organized into tissues, organs, and finally organ systems. By the time we are finished with this section, you will
- Have become familiar with basic biological terminology as it pertains to human biology
- Be able to describe the basic types of biological molecules and their function found in a cell
- Be able to describe the components of a cell and their function
- Be able to describe important cellular processes such as transport, energy production, protein production, and division
- Know the different types of cells found in the body, their function, and their organization into tissues and organs
- Be able to describe how the body is organized into cavities and planes

(2). Organ Systems. We will discuss the human body’s 11 different organ systems. For historical reasons, the integumentary system (the only one not given its own heading) is discussed in the chapter on tissues, organs, and body organization. By the time we have finished with this section, you will
- Have mastered basic biological terminology as it pertains to organs and organ systems
- Have an understanding of each human organ system. This includes
  - The components of each system
  - The structure of each component
  - The function of each component and how this contributes to the function of the entire organ system
- An understanding of some of the more common disorders of each organ system

(3). Organismal Biology. This is the study of how the human organism functions as a whole, as well as how we came to be and how we interact with our environment. We will begin by looking at the central dogma: how cellular functions are controlled, including cellular division. We will then move onto genetics: how all aspects of our bodies are controlled by genes. We will be looking at inherited genetic disorders, as well as developmental defects (birth defects) that may, or may not, be attributable to genetics. We will look at cancer as a cellular process that involves acquired or inherited defects in specific genes and how these defects allow out of control cell growth and division, ultimately affecting the entire body. We will finish out the semester with a look at the basics of evolutionary theory and evolutionary tree of Homo sapiens – us! By the time we are finished with this section, you will
- Have mastered basic biological terminology as it pertains to organismal biology
- Understand the central dogma & the different processes that are included in it
- Understand the basics of cellular division (both mitosis & meiosis)
- Understand how meiosis functions to produce sperm and ova
- Understand the basic principles of reproduction and development, from zygote to fetus
- Have a basic understanding of the mechanisms that govern inheritance patterns
- Be able to use basic probabilities to predict the incidence of some common genetic disorders
- Be familiar with the types and causes of birth defects, as well as how to reduce their occurrence
- Have a basic understanding of the cellular processes disrupted in cancer development, as well as the epidemiology of cancer
- Understand basic evolutionary principles and be able to describe the evolutionary history of humans

By the time you are finished with BIO 123, I hope you have gained a greater appreciation of how remarkable the human body is.

**Determination of Lecture Grade:**

1. **Lecture Exams:** Lecture exams will include a variety of question types, which may include multiple choice, true/false, matching, and fill-in-the-blank. A make-up exam will only be given in cases of excused absences (medical or personal emergency) with adequate documentation. Only ONE make-up exam is allowed. The optional cumulative final exam will act as the make-up exam and will be given on **Friday, 13 December 2019**. If you are late to an exam, you will be allowed to take the exam as long as no one has turned it in yet. However, the class tardiness policy will still apply (see below), and you will have no extra time to finish the exam. If you are late to an exam and someone has already turned in the exam, you will not be allowed to take the exam.

2. **Optional Cumulative Final Exam:** The final exam is optional and will replace a student’s lowest regular exam score if they decide to take it. It will be a cumulative exam where students will be expected to synthesize material presented throughout the semester so it will include short answer and essay questions. If a student missed a regular exam, the cumulative final exam will act as the make-up exam.

3. **Mastering Biology Assignments:**

    Mastering Biology (www.masteringbiology.com) assignments will be posted at the beginning of new exam material and will be due upon completion of the exam material. The assignments will be worth 100 of your 900 course points and will be calculated at Mid semester (50 points) and the semester’s end (50 points). For each calculation point your lowest assignment grade will be dropped and the percentage of total points earned will be multiplied by 50 to determine your total assignment points.

4. **Course Evaluations:** A course evaluation at the end of the semester is considered a mandatory part of course participation. If you do not participate in the evaluation, one percentage point will be deducted from your lecture grade.

Your final grade in this course is determined by grades from the laboratory, lecture and participation in the course evaluation.

**Determining Final Grade:**

Final grades will be based on student performance on exams and will be assigned according to the following scale:

- 100 – 90%: A (Exceptional)
- 89.9 – 80%: B (Above Average)
- 79.9 – 70%: C (Average)
- 69.9 – 60%: D (Below Average)
- < 59.9%: F (Failing)
The following weights will be used to calculate an overall grade:

**Lecture Grade**
- Lecture Exams (4 @ 100 points each) 400 pts
- Mastering Biology 1 (Exams 1 and 2) 50 pts
- Mastering Biology 2 (Exams 3 and 4) 50 pts
Total Lecture Points: 500 pts

**Overall Grade**
- Lecture 67%
- Lab 33%

Biology 123 course grade = \((2)(\text{Bio 123 lecture grade}) + (\text{Bio 123L grade})\) / 3

**Acceptable Student Behavior:**

Classroom behavior should not interfere with the instructor’s ability to conduct the class or the ability of other students to learn from the instructional program (see the Student Conduct Code, policy D-34.1, http://www.sfasu.edu/policies/student_conduct_code.asp). Unacceptable or disruptive behavior will not be tolerated. Students who disrupt the learning environment may be asked to leave class and may be subject to judicial, academic or other penalties. This prohibition applies to all instructional forums, including electronic, classroom, labs, discussion groups, field trips, etc. The instructor shall have full discretion over what behavior is appropriate/inappropriate in the classroom. Students who do not attend class regularly or who perform poorly on class projects/exams may be referred to the Early Alert Program. This program provides students with recommendations for resources or other assistance that is available to help SFA students succeed.

The following policies will be strictly enforced:

- Students are to arrive on time and stay for the entire class period. Those who leave early will be counted as absent.
- Students are not to hold private side conversations as this is distracting and disrespectful.
- Reading unrelated publications is not allowed.
- Use of cellular phones, for any reason, will not be tolerated.

**Students who exhibit unacceptable classroom behavior will be dismissed from class and counted as absent.**

Students who behave in a disrespectful manner (towards the professor or classmates) will be given one warning via e-mail. Further disruptive behavior will result in the student being banned from the classroom for the remainder of the semester.

**Academic Integrity (A-9.1):**

Abiding by university policy on academic integrity is a responsibility of all university faculty and students. Faculty members must promote the components of academic integrity in their instruction, and course syllabi are required to provide information about penalties for cheating and plagiarism as well as the appeal process.
Definition of Academic Dishonesty

Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations on an assigned exercise; and/or (3) helping to attempting to help another in the act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one’s own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from an Internet source or another source; and (3) incorporating the words or ideas of an author into one’s paper without giving the author due credit.

Please read the complete policy at http://www.sfasu.edu/policies/academic_integrity.asp

ANY act of academic dishonesty will result in receiving a grade of F for the course and will be reported to the student's dean.

Withheld Grades Semester Grades Policy (A-54)

Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average. The circumstances precipitating the request must have occurred after the last day in which a student could withdraw from a course. Students requesting a WH must be passing the course with a minimum projected grade of C.

Students with Disabilities

To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices/.

Program Learning Outcomes:
There are no specific program learning outcomes for this major addressed in this course. It is a general education core curriculum course and / or a service course.

General Education Core Curriculum Objectives/Outcomes:
Texas State Exemplary Educational Objectives in the Natural Sciences addressed by this course are:

Objective one requires that students “Understand and apply method and appropriate technology to the study of natural sciences.”

Objective two states that students must be able “To recognize scientific and quantitative methods and the differences between these approaches and other methods of inquiry and to communicate findings, analyses, and interpretations both orally and in writing.”

Objective three states that students must be able “To identify and recognize the differences among competing scientific theories.”

Objective four states that students must be able “To demonstrate knowledge of the major issues and problems facing modern science, including issues that touch upon ethics, values, and public policies.”
Objective five states that students must be able “To demonstrate knowledge of the interdependence of science and technology and their influence on, and contribution to, modern culture.”

Student Learning Outcomes:
Students who complete Concepts of Biology will be able to:
1. Explain the scientific method and critically evaluate scientific information (EEO 1, 2, 5)
2. Identify the chemical basis for life and the characteristics that distinguish living things from inanimate matter (EEO 3, 4, 5).
3. Illustrate how genetic information is passed from parents to offspring and how this genetic information is expressed by cells (EEO 2, 4, 5).
4. Classify the diversity of life forms from the species to kingdom level (EEO 2, 4).
5. Analyze biological interactions that occur from the sub-cellular to the ecosystem level of organization (EEO 1, 2, 4, 5).
6. Discuss the role of evolution in the history of life on Earth (EEO 1, 3).