

July 18, 2013

1. College: **Sciences and Mathematics**
2. Department: **Biology**
3. Course status: **existing; does not require modification**
4. Course prefix and number: **BIO 121**
5. Course title: **Concepts of Biology**
6. Course catalog description: **Four semester hours, three hours lecture per week, 2 hours laboratory per week. Concepts oriented course for the non-science major. Study of the origin of life, the cell, growth and reproduction, genetics and evolution. May not be used to meet graduation requirements by students majoring in the College of Sciences and Mathematics or for certification of high school teachers in biology.**
7. Number of semester credit hours: **4**
8. Estimated total course enrollment per year: **850**
9. Course prerequisites and/or required qualifications for enrolling in the class: **none**
10. Course **is not/will not be** available online.
11. Foundational Component Area: **Life and Physical Sciences**
12. Explain why this course fits into this foundation component area: **Concepts of Biology will expose students to multiple topics in life sciences. They will learn what characteristics distinguish living things from inanimate matter and how chemical interactions are the basis for life. They will learn the scientific method and how scientists use it to explain and predict natural phenomena. Students will study the history and evolution of life on Earth and how these very diverse life forms are classified from the species to kingdom level. Students will gain an understanding of how genetic information is passed from parents to offspring and how genetic information controls cell function. They will also analyze biological interactions that occur from the sub-cellular to the ecosystem level of organization. Thus, students will explore how furthering our understanding of interactions among natural phenomena (at many levels of biology) can have a significant impact on the physical world and human experience.**
13. Core Objectives
 - Critical Thinking - Students will be provided instruction in critical thinking throughout this course in several ways. Activities will include use of the Scientific Method, Critical Readings and Comparing and Contrasting different observed phenomena. • Scientific Method: Students will learn to use the scientific method to draw conclusions based on observations of some aspect of nature. Students will be exposed to the scientific method in lecture and will gain the ability to identify the components (hypothesis, experimental groups, conclusions, etc.). This skill will be further developed in eight labs where the students will utilize the scientific method to set up and conduct their own experiments, gather data and draw conclusions based on that data. • Critical Reading: activities will give students the opportunity to read passages about topics in biology that are relevant to today's human experience. Nine assignments will be utilized throughout the semester. • Compare and Contrast: Students will have opportunities to practice compare and

contrast skills in two topics in lecture (mitosis and meiosis; modes of inheritance) and in five different lab exercises.

- Communication Skills - Students will be provided instruction in this objective through lecture and laboratory presentations identifying skills appropriate to scientific communication. Students will develop their written and visual communication skills through a number of course assignments. • Written skills will be developed in the laboratory as students describe the experimental methods and outcomes of each of the 13 lab activities. • Visual communication will be developed through the process of converting experimental data into a meaningful graphical representation of that data. Students will prepare drawings, tables and/or graphs for ten of the lab activities. • Students will also complete one major lab report that will include both written and visual elements to describe their experimental procedures, data and conclusions.
- Empirical and Quantitative Skills - Students will be instructed in this objective through lecture presentations where quantitative analysis is incorporated (chromosome numbers during cell division; punnett squares to analyze inheritance patterns; metabolic calculations). They will develop their empirical and quantitative skills through a number of lab activities. • Microscope observations: Students will use the microscopes in lab to observe a variety of structures too small to see with the naked eye. Students will be instructed on the magnification power of the microscope and its common uses. Students will practice using the microscope in five different labs. • Calculation: Students will practice empirical and quantitative during four labs in which they will generate their own experimental data by making measurements and analyze the data by performing calculations.
- Teamwork - Students will be instructed on good teamwork practices in the first week of lab. They will develop these skills by working in groups to complete each lab exercise. This will require the students to divide tasks, communicate results with one another and discuss the results to reach a conclusion. They will complete peer evaluations using a multiple choice Likert Scale Questionnaire, and the teamwork experience as a whole by responding to short answer questions.

Contact person for questions about this submission:

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