BIOL121 Biological Principles I

Department of Science, Technology, Engineering & Mathematics: Biology

I. Course Number and Title

BIOL121 Biological Principles I

II. Number of Credits

4 credits

III. Number of Instructional Minutes

4500

IV. Prerequisites

CHEM101 (C or better) or CHEM121 (C or better) or permission of the Department of Science, Technology, Engineering and Mathematics.

Corequisites

None

V. Other Pertinent Information

Lecture-laboratory format to include in-class and/or online presentation of content material and participation in hands-on and/or virtual laboratory exercises. Topics are presented in various modes including, but not limited to, traditional lecture style, online presentation, group exercises, computer simulations, and/or online research.

VI. Catalog Course Description

This course is a comprehensive introduction to molecular and cellular biology. Structure/function relations of macromolecules and cellular organelles are studied. Other topics include transformation of energy in plants (photosynthesis) and in other types of cells (cellular respiration), cellular reproduction (mitosis and meiosis), and Mendelian genetics.

VII. Required Course Content and Direction

A. Course Learning Goals

Students will:

1. explain the molecular logic of cells: structural functional relationships on molecules, organelles, and processes;
2. describe the energy transformations that occur in photoautotrophs and chemoheterotrophs;
3. explain the processes of mitosis and meiosis; and
4. describe the transmission of genetic information within a cell and between generations.

B. Planned Sequence of Topics and/or Learning Activities

1. chemistry review
2. macromolecules of the cell
3. energy and enzymes
4. cellular organization and function
5. cell membrane: structure - function
6. cellular metabolism
7. photosynthesis
8. cellular division: mitosis and meiosis
9. mendelian genetics
10. non-mendelian genetics

11. molecular genetics

C. Assessment Methods for Course Learning Goals

Exams, quizzes, laboratory exercises, reports and/or practicals, class participation, online activities and discussion, and projects as specified by the individual instructor's syllabus are utilized.

D. Reference, Resource, or Learning Materials to be used by Student:

Students use educational resources as approved by the department and specified in the individual instructor's syllabus.

Review/Approval Date - 12/1998; Revised 6/09; Dept name change, 8/21/2012; New Core 8/2015

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