

## Master Syllabus

### BIO 1171 - Principles of Biology I

**Division:** Science, Mathematics and Engineering

**Department:** Biology

**Credit Hour Total:** 5.0

**Lecture Hrs:** 3.0 **Lab Hrs:** 6.0

**Prerequisite(s):** DEV 0015AND MAT 0100

**Date Revised:** April 2017

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#### Course Description:

The first course of a two-semester university-parallel sequence for biology and science majors. Topics include scientific method; chemical and biochemical foundations; cell structure, function and reproduction; cellular respiration, photosynthesis, Mendelian genetics, chromosomal genetics, molecular genetics, protein synthesis, gene regulation, genomes, viruses and biotechnology. Three classroom, six lab hours per week.

#### General Education Outcomes:

- Oral Communication Competency
- Written Communication Competency
- Critical Thinking/Problem Solving Competency
- Information Literacy Competency
- Computer Literacy Competency

#### Course Outcomes:

##### Genetics

Relate Mendelian, chromosomal, and molecular genetics; describe protein synthesis; discuss the regulation of gene expression; discuss the nature of eukaryotic and prokaryotic genomes; explain the structure and reproductive cycles of viruses, and demonstrate the principle techniques of DNA technology.

**Assessment Method:** Locally developed exams

**Performance Criteria:** Accumulate a total of 60% of the available points in the course (Lecture exams, Quizzes, and Lab Tests)

##### Biochemistry

Apply the scientific method, solve problems by collection and analysis of experimental data, write scientific reports, describe inorganic and organic chemicals and reactions, and describe the metabolic pathways of cellular respiration and photosynthesis.

**Assessment Method:** Locally developed exams

**Performance Criteria:** Accumulate a minimum of 60% of the available points in the course (Lecture exams, Quizzes, and Lab Tests).

##### Cell Biology

Discuss the structure and function of cell components, explain cell communication, describe the cell cycle, and discuss the stages and significance of mitotic and meiotic cell division.

**Assessment Method:** Locally developed exams

**Performance Criteria:** Accumulate a total of 60% of the available points in the course (Lecture exams, Quizzes, and Lab Tests)

#### Outline:

Scientific method  
Chemical and biochemical foundations  
Cell structure and function  
Cell cycle and reproduction  
Cellular respiration  
Photosynthesis  
Mendelian, chromosomal and molecular genetics  
Protein synthesis  
Regulation of gene expression  
Genomes  
Viruses  
Biotechnology