

Course Syllabus

Program of Study Bachelor of Science Program
 Bachelor of Arts Program
 Bachelor of Business Administration Program
 Bachelor of Nursing Science Program

Faculty/Institute/College Mahidol University International College

Course Code ICNS 112 **Course Title** Principles of Biology

Number of Credits 4 (Lecture/lab) (4 - 0)

Prerequisite (s) None

Type of Course Natural Sciences (General Education)

Trimester / Academic Year every trimester/ every academic year

Course Description

Diversity and development of life; origin of life; cell; energy transformation; genetics; natural selection and evolution, and ecology

Course Objective (s)

By the end of the course students should be able to describe and explain:

- why biology is important
- the chemistry and properties of life
- the organization of cells
- the processes of respiration and photosynthesis
- mitosis and meiosis
- the chromosomal and molecular basis of inheritance
- the mechanisms of evolution
- the factors affecting the distribution of organisms
- the components of aquatic and terrestrial biomes
- the characteristics of populations and communities
- primary and secondary production
- the importance of biodiversity conservation

Additionally, the students will gain experience in giving scientific presentations.

Course Outline

| Week | Topic | | Instructor | |
|------|--|------|------------|--|
| | Lecture | Hour | | |
| 1 | Introduction: The Properties of Life The Chemical Context of Life | 4 | Wayne | |
| 2 | Metabolism The Cell, Cellular Membranes and | 4 | Wayne | |

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|----|---|----|-------|
| | Cellular Communication | | |
| 3 | Cellular Respiration Photosynthesis | 4 | Wayne |
| 5 | Mitosis + meiosis Mendel and the Gene Idea | 4 | Wayne |
| 6 | Chromosomes and Inheritance (+ Mid-term exam) | 4 | Wayne |
| 7 | The Molecular Basis of Inheritance From Genes to Proteins | 4 | Wayne |
| 8 | DNA Technology Descent with Modification | 4 | Wayne |
| 9 | The Evolution of Populations The Origin of Species Biodiversity | 4 | Wayne |
| 10 | Introduction to Ecology Population and Community Ecology | 4 | Wayne |
| 11 | Ecosystems Student Presentations | 4 | Wayne |
| 12 | Final exam | | Wayne |
| | Total | 44 | |

Teaching Method (s)

Lectures, practical exercises, discussion and self-study.

Teaching Media

Text and teaching materials, Powerpoint, handouts.

Measurement and evaluation of student achievement

Assessment made from stated criteria: students with 85%+ obtain grade A

Course evaluation

- | | | |
|------------------|-----|-----|
| 1. Quizzes | 25% | |
| 2. Presentation | | 10% |
| 3. Mid-term exam | 30% | |
| 4. Final exam | 35% | |

Reference (s)

Campbell and Reece, 2002. Biology – 6th Ed (International Edition)
Additional readings set by instructor.

Instructor (s)

Dr Wayne Phillips

Course Coordinator
Dr Wayne Phillips

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