



National Taiwan University of Science and Technology

2016 Summer Program

BIOL 101 Introduction to Biology

Course Outline

Course Code: BIOL 101

Instructor: David Moreau

Home Institution: University of Auckland

Office Hours: TBA and by appointment

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Class Hours: According to the regulations of Minister of Education, R.O.C, 18 class hours could be counted as 1 academic credit in all universities in Taiwan. This course will have 72 class hours, including 30 lecture hours, 10 lab hours, 10 professor office hours, 10-hour TA discussion sessions, 2-hour review sessions, 10-hour extra classes.

Course Description:

Introduction to Biology will provide students with an overview of the current trends and body of knowledge in Biology, including basics of the scientific method and of the analysis of scientific data.

Course Objectives:

The main course goal is to allow students to reach a comprehensive understanding of the issues and methods in Biology, in order to decide whether to pursue studies in the field. In the process of reaching this goal, our objectives are that each student will:



- Become familiar with current scientific theories and research in the major topic areas of Biology;
- Discover the personal relevance of course material in their everyday and professional lives, in order to make fully informed decisions;
- Develop the skills necessary to evaluate and think critically about information concerning biological phenomena obtained from research, the general public, and the media;
- Be well prepared for advanced courses in Biology.

Required Textbooks

Textbook: *Human Biology - Concepts and Current Issues* 6th ed - M. Johnson (Pearson, 2012)

Several readings will be required throughout the course, either to prepare for class or to complete an assignment. All materials will be posted online to provide a free and easy access to everyone.

Grading & Evaluation:

Assignments/Labs (30%) – Midterm exam (30%) – Final exam (40%)

Intermediary assignments will be posted throughout the course, to help students assess their needs and to ensure that all the important topics are well understood. Assignments and labs are also an opportunity for students to ask questions concerning unclear notions, as the main objective is not to grade but to help everyone reach an optimal level of comprehension.

Midterm and final exams will target all topics previously covered in class. Lecture notes, labs and assignments are important to succeed in the midterm and final exams, yet some questions will be specifically intended to stimulate students' critical thinking.

Attendance is extremely important for success in this class. It is expected that each student will commit fully to the assignments and readings required. Exams will cover the required texts as well as material presented or discussed in class.



Course Schedule:

Week 1:

Lecture 1: Course Introduction – Syllabus

LAB 1: Hypothesis Testing

LAB 2: Statistics in Biology

Week 2:

Lecture 2: The Scientific Method: Basics & Core Principles

Lecture 3: Experimental Design in Science

Lecture 4: Genetics: Overview & Basic Principles

MIDTERM

Week 3:

Lecture 5: DNA and Heredity

Lecture 6: Genome Editing

Lecture 7: Physiological Systems

LAB 3: Biological Systems

Week 4:

Lecture 8: Nervous System

Lecture 9: Brain and Behavior

Lecture 10: Theory of Evolution

LAB 4: Natural Selection in Action

Week 5:

Lecture 11: Natural Selection, Mutation & Adaptation

Lecture 12: Analyzing Scientific Data

Lecture 13: Review

LAB 5: Data Analysis

FINAL EXAM