

Syllabus – Introductory Biology

Course number: 101

Course title: Introduction to Biology

Number of credits: 4

Course instructor: Josef Kren; e-mail: jokr59@yahoo.com

Catalog description: An introductory course in biology utilizing the scientific method in the study of molecular, cellular, organismal, taxonomic, genetic, ecological and evolutionary aspects of life. A weekly laboratory experience emphasizes observation and problem solving.

There is no textbook for this course. I will prepare a handout for each lecture.

Biology is the study of living systems. These systems range from the complex biochemistry occurring in individual cells to the magnificence of tropical rainforests with their overpowering stature, brightly colored birds and butterflies and millions of species. In this course, we repeat questions that have been asked for over 2,000 years, but obtain answers with increasing resolution.

We will cover the extent of biology in a single session. This is a huge goal that is not possible if we cover everything in depth. Rather, we will examine the general problems and selected examples that can be applied to a variety of other situations.

The laboratory is an integral part of the General Biology experience. It is designed to provide you with a series of experiments and observations to illustrate biological principles discussed in lectures.

Course policies

- **Attendance:** Students are expected to attend every lecture during the course. Please contact the instructor or designated Doane college official in a case of illness or family emergency
- **Grading:** There will be two papers. Please note; I value DISCUSSION, and I expect everyone to get involved in discussion various topics. Discussion participation is a part of the grade.
- Overall performance:
 - 100-96 % = A+
 - 95-93 % = A
 - 92-90 % = A-
 - 89-86 % = B+
 - 85-83 % = B
 - 82-80 % = B-
 - 79-76 % = C+
 - 75-70 % = C

69-60 % = D
< 59 % = F

Course objectives

- Describe what biology is and the philosophy of biology as a science.
- Outline some of the significant historical events in biological science and specific scientists.
- Outline the impact of biology on human society.
- Describe some of the methods routinely use for biological investigations.
- Describe the characteristics that distinguish the five kingdoms of life and the major division/phyla that comprise each of these kingdoms.

Lecture 1

Biology: Introduction, What is the study of life?

Lecture 2

Chemistry of life; water and organic molecules.
Cells; Origins, cellular organization.

Lecture 3

Introduction to genetics. Mendelian genetics, chromosomes.
Population genetics (how do genes move through time and space).
Human genetics.

Lecture 4

Molecular biology. What is DNA, why is DNA important?
Protein synthesis. Biotechnology.

Lecture 5

Midterm Paper

Biodiversity. Why we have so many different species around?
Classification. Paleobiology; Fossils and time.

Lecture 6

Integrating principles of human physiology.

Lecture 7

Plant form and function.

Lecture 8

Behavior and ecology

The future of biology. Biology and social issues.

Final Paper