Syllabus: Introductory Biology

Course number: BIO 101
Number of credits: 4
Course instructor: name and e-mail will be provided at the beginning of the term

BIO 101 Introductory Biology fulfills the requirement for a Foundational Area of SCIENTIFIC PERSPECTIVES. Any course that fulfills that requirement will assure that students gain a greater understanding of scientific discoveries in today's world and interconnections of various scientific disciplines. Students will address complex questions about foundations of biology and new discoveries in biology and biomedical fields in order to understand multiple perspectives they face in daily life. Students will work to:

1. **Understand the philosophy of biology as a daily life science.**
2. **Interpret experiences from the perspectives of biomedical impact on every individual.**
3. **Outline the impact of biology on human society and the world.**

BIO 101 will seek to accomplish all of these outcomes, with the greatest emphasis on Learning Outcome # 1. The instructor will present the 'scientific background' for each of the covered topics and will expect all students, the community of active learners, to get involved in discussing the topics. The instructor expects and greatly values critical thinking and discussion. Various movies dealing with current biology topics will be shown and discussed.

TEXTBOOK: Raven Peter, George Johnson, Susan Singer, and Jonathan Losos. Biology. 9th Edition. 2010 McGraw-Hill. ISBN 9780078936494.

COURSE 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.

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. Students will explore various aspects of biology and related scientific disciplines.

In addition to FAK learning outcomes, learning outcomes specific to this course:

- Students will learn how to apply scientific knowledge into daily decisions regarding healthy lifestyle, exercise and eating habits.
- Students will become aware of the new discoveries in genetics, bioengineering and human genome.
- Students will understand how biology and biotechnologies have been changing society.
- Students will know the most important events in the field of biology of the 20^{th} century.

<u>Topics for lecture, discussion, video and readings</u>

- **Overview of Biology as the science studying living systems.**

- **Chemistry of life. Overview of anatomy and physiology of a cell, the basic unit of life.**

- **Introduction to molecular biology. DNA, the molecule of life.**

- **A brief introduction to genetics, genetic engineering and human genome.**
- **Biodiversity. Why we have so many different species around?**
- **Integrating principles of human physiology.**
- **Social and ethical issues of current biological research.**

Student Projects: (presentations will be made at the end of the term). Your presentations will include your own research of various biological topics. We will discuss how the research will be accomplished during the first class.

Areas for research and presentations

1. Biology and society:

2. Biology and etiology of common human diseases:

3. Biological diversity and humans:

4. Ethical aspects of biological research and experiments:

5.Current biological research and new discoveries:

6. Is biology changing our lives?

ASSESSMENT

ATTENDANCE & PARTICIPATION:
Each class will include lecture, class discussion, question-answer interaction, hands on experience and watching movies. Each movie will be followed by a student generated and led discussion. Because of the importance of student interaction, no class can be successfully replicated. You are strongly encouraged to attend each class. Your active class **participation will account for your grade.**

CLASS PRESENTATIONS:
You will give one 5-minute presentations to the class that reflects your own research of a selected topic. **Your class presentations will account for your grade.**

RESEARCH PAPER:
You are given a choice concerning your research papers as follows:

1.You will write two 4-5 page papers on two different topics.

2. You will write a single, 8 -10 page, in-depth paper on one topic.

GRADING SCALE:

100 – 95 = A
94 – 90 = A-
89 – 87 = B+
86 – 84 = B
83 – 80 = B-
79 – 77 = C+
76 – 74 = C
73 – 70 = C-
69 – 67 = D+
66 – 64 = D
63 – 60 = D-
59 & below = F

Doane College Academic Integrity Policy:

The Doane College Academic Integrity Policy will be adhered to in this class. All projects and tests will represent your own work. Any use of others' ideas and words without proper citation of sources is plagiarism and will result in penalties to be determined by the instructor and/or the dean of undergraduate studies.

Attendance:

Students are expected to attend every lecture/field trip during the course. Each class meeting is highly interactive and the learning is impossible to recreate in a make-up assignment. But we understand that, sometimes, life interrupts our plans. In the case of an illness, work requirement, or family emergency, you must contact the teacher or a designated college official to explain your absence. You will be required to complete an additional assignment due the week following the missed class. In the event that you are forced to miss two or more class meetings, special arrangements must be made with the teacher to determine if the requirements for the course can be met.