SEP 1995

GRANDE PRAIRIE REGIONAL COLLEGE
BIOLOGY 0110
COURSE OUTLINE

Fall 95

INSTRUCTOR: Audrey Wells / Nancy Campbell

OFFICE: J115 / C310

OFFICE PHONE: 539-2038 / 539-2088

OFFICE HOURS: drop-in or make an appointment

TEXTBOOK: Modern Biology, by A. Towle

SUPPLIES: paper, lined and unlined
three-ring binder
stapler
lab coat is recommended but not mandatory

COURSE GOALS:

This course is designed to provide the student with an understanding of some of the basic biological principles: characteristics of life, scientific method, cell theory, structure, classification and diversity of living organisms. The course will explore the structure and function of living organisms using selected examples of organisms from the five biological kingdoms. The lab component of the course will give students a chance to get some hands-on experience with organisms and to develop biology lab skills and scientific skills

ATTENDANCE AND LATENESS:

Regular attendance is crucial for passing the course. Students who miss classes will soon find themselves falling behind and failing. A student will be barred from writing the final exam if he/she misses 10% or more of the classes.

Lateness will not be tolerated. Late individuals disrupt the class.

Students who fail to submit or to attend two labs will be barred from the final exam.

TESTS AND EXAMS:

There will be several tests and quizzes through out the term, a midterm exam and a final exam.. There will be no surprise tests. Absence from tests or quizzes will result in a mark of 0 for that test or quiz unless PREVIOUS arrangement is made with the instructor for medical or other legitimate reasons. There will be no make-up tests. Doctor certificates will be required for medical reasons. The date and time must be clearly indicated.

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LABS AND LAB REPORTS:

There will be approximately 9 labs during the course. Evaluation of labs is either through a lab quiz, or a lab report. Lab reports are due exactly one week following completion of the lab. No late labs will be accepted.

EVALUATION:

Lab reports/quizzes 20%
Tests and Quizzes 30%
Midterm Exam..... 20%
Final Exam 30%

TRANSCRIPTS:

Students are advised to follow the College Calendar for dates for withdrawing from courses without penalty. Percentage grades are converted into a 9-point grade system for the transcript.

9-point grade	Percentage Equivalence	Designation
9	90 - 100	
8	80 - 89	Excellent
7	72 - 79	
6	65 - 71	Good
5	57 - 64	
4	50 - 56	Pass
3	45 - 49	Fail
2	26 - 44	
1	0 - 25	

I am available to help you. If you find yourself floundering don't hesitate to ask for assistance. You have made the commitment to come back to education, I am here to help you reach your goal.

Quote for the year:

Live each day as if you only have one day to live, educate yourself as if you will live forever.

Have a great semester!!!!!

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UNIT 1: THE NATURE OF SCIENCE

1. Define science. Define Biology
2. List biological fields of study and biological themes
3. Outline and identify the main steps in the scientific method. Explain their importance.
4. Define the following terms: control, variable, experimental factor

UNIT 2: UNDERSTANDING BIOLOGICAL CONCEPTS AND TOOLS

1. Define magnification and resolution.
2. Differentiate between the light microscope and the electron microscope.
3. Label the parts of a light microscope.
4. Name two types of electron microscopes.
5. Identify a biological picture as drawn by an artist, taken with a light microscope, or taken with an electron microscope.
6. Understand the essential components of a lab report.
7. Draw lab diagrams and label correctly.
8. Define cross section, and longitudinal section.

UNIT 3: INTRODUCTION TO BIOLOGY

1. List the characteristics of living things.
2. Outline the hierarchy of living things.
3. State the cell theory and how it was developed.
4. List the basic requirements of living things.
5. Describe the structure and function of the following cell parts: protoplasm, nucleus, nucleolus, nuclear envelope, chromosomes, cell membrane, cytoplasm, ribosomes, endoplasmic reticulum, Golgi apparatus, mitochondria, lysosomes, cilia, flagella, cell wall, vacuoles, and plastids.
6. Label all the above parts on diagrams
7. Distinguish between plant and animal cells
8. Distinguish between prokaryotic, and eukaryotic cells
9. Explain the concept of cellular specialization.
10. Distinguish between tissues, organs, organ systems and organisms.

UNIT 4: INTRODUCTION TO CLASSIFICATION

1. Explain the need for classification of organisms.
2. Outline toe contributions of Aristotle and Linnaeus to the Science of Classification.
3. Explain and use correctly the binomial nomenclature system for naming organisms.
4. Correctly use a taxonomy key.

5. List the groupings used in modern taxonomy in the correct sequence.
6. Distinguish between the five kingdoms of living organisms: Monera, Protista, Fungi, Plantae, Animalia.

UNIT 5: SIMPLE ORGANISMS

a. Viruses

1. Explain why viruses can be considered living or non-living.
2. Describe the basic structure of viruses
3. Describe the life cycle of a bacteriophage
4. List at least six diseases caused by viruses
5. Discuss the problems involved with studying viruses, and prevention and cure of viral diseases.

Kingdom Monera

a. Bacteria

1. Name and describe the three general shapes of bacteria
2. Describe the structure, nutritional requirements, respiration, and reproduction of bacteria
3. Name at least six diseases caused by bacteria. Discuss how bacteria cause disease.
4. State the importance of bacteria to humans and to the living world in general.

Kingdom Protista

1. List the general characteristics of the Kingdom Protista
2. Name the two groups of Protista
3. Define protozoan
4. Describe the structure, movement, reproduction, nutrition and response of the *Amoeba* and *Paramecium*
5. Name at least two diseases caused by protozoans
6. Describe the structure, movement, reproduction, nutrition and response of the autotrophic protista, the unicellular *Euglena* and the filamentous *Spirogyra*
7. State the importance of Algae

Kingdom Fungi

1. List the general characteristics of Fungi.
2. Describe the structure, nutrition, reproduction in Rhizopus.

Unit 6: THE PLANT KINGDOM

Non-Seed Plants

1. State how land plants are adapted to life on land.
2. State three characteristics of the phylum Bryophyta.
3. Relate the characteristics of mosses to their structure.
4. Describe the life cycle of the moss.
5. Explain "alternation of generations". Define the terms sporophyte, gametophyte, haploid, diploid, meiosis, and dominant generation.
6. List the general characteristics of the phylum Pterophyta..
7. Describe the structure and life cycle of the fern.

Seed Plants

1. Define seed, angiosperm, and gymnosperm.
2. List 5 ways seeds are dispersed.
3. Label diagrams of seeds.
4. List some general characteristics of gymnosperms.
5. Discuss how conifers are well adapted for life on land.
6. Outline the life cycle of Pinus.
7. Describe the general characteristics of Angiosperms.
8. State why Angiosperms are so successful.
9. Describe the functions of roots, stems, and leaves.
10. Distinguish between monocots and dicots.
11. Describe pollination, fertilization, seed formation, and fruit production in flowering plants.
12. Compare the life cycles of the moss, fern, pine and angiosperm.

Unit 7: THE ANIMAL KINGDOM

Simple organisms

1. Describe the general characteristics of animals.
2. Distinguish between asymmetry, radial, and bilateral symmetry.
3. Define lateral, dorsal, ventral, posterior, and anterior.
4. Describe the basic structure and functional characteristics of the porifera.

5. Describe the basic structure and functional characteristics of the coelenterates with emphasis on Hydra.
6. Describe the characteristics of the platyhelminthes, and distinguish between free-lining flatworms, flukes and tapeworms.
7. Describe the structure and life cycle of a tapeworm.
8. Describe the structure and organ systems of the earth worm.
9. Describe the characteristics of mollusks and echinoderms.

Complex Animals:

1. Discuss the characteristics of arthropods.
2. Distinguish among the major classes of arthropods: arachnids, crustaceans, insects, diplopods, and chilopods.
3. Describe the basic structure and organ systems of the crayfish, and the grasshopper.
4. Give reasons why insects are among the most successful or organisms.
5. Distinguish between complete, and incomplete metamorphosis in insects, giving examples of each.
6. Describe the main characteristics of chordates and vertebrates.
7. Describe the main characteristics and adaptations of each phylum of vertebrates: agnatha, cartilage fish, bony fish, amphibia, reptiles, birds and mammals.
8. Classify each organism or group discussed to phylum, class or order.