Instructor - Dr. Kent Schwaegerle

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Office Hours - Th 10:00 to noon, 307A Bunnell
By appointment anytime

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GRADING

1. Points will be awarded for performance on lecture and laboratory exercises.

2. Grades will be based on percentage of total possible points according to the scale:

   A  90-100%
   B  80-90%
   C  70-80%
   D  60-70%
   F  0-60%

3. Lecture and laboratory exercises

   400 pts Four midterm exams (one hour each) will cover assigned readings, lecture, and laboratory material. Point value of each exam is indicated on the course schedule.
   200 pts Final exam, two hours
   50 pts Lab report #1
   100 pts Lab report #2
   120 pts Ten lab quizzes; 15 points each; we will drop the two lowest quiz grades.

4. If you are going to miss an exam, it is essential that you contact Dr. Schwaegerle as soon as possible to discuss your excuse. Unexcused absences from exams will be recorded as a zero.

5. If you are going to miss lab, you must contact your teaching assistant as soon as possible to make arrangements for making up the exercises you will miss. If you miss a lab and don’t make arrangements, you are individually responsible for mastering material and completing assignments made during that lab. Unexcused absence from a lab quizz will be recorded as a zero.

6. Academic dishonesty - The UAF Honor Code is presented on page 19 of the 96-97 Undergraduate Catalog. No collaboration among students will be allowed on exams and quizzes, and although we will work together in collecting, analyzing, and interpreting data, no collaboration is permitted in writing of lab reprots and lab assignments. Copying or paraphrasing another student’s writing is a violation of the Honor Code. Evidence of academic dishonesty will be presented to the University Disciplinary and Honor Code Committee and may result in an F for the course and/or expulsion from the University.
COURSE SCHEDULE

SECTION ONE
Ecology

This section of the course explores the diverse ways that living organisms interact with their environment. These interactions are important because they determine the distribution and abundance of biological species on the surface of the earth. An understanding of these interactions is essential for making wise decisions about managing our environment and will provide a framework for studying life processes throughout Biology 105-106.

F Sep 6 Introduction - Life on Earth pp 1-6

M Sep 9 Science: a way of learning about nature pp 8-16
W Sep 11 What is ecology? pp 849-850
F Sep 13 Global patterns of life Ch 46

LAB 1 - Observation and hypothesis building; Tour of campus

M Sep 16 Population ecology - theory and observation Ch 43
W Sep 23 Population ecology - human population growth Ch 43
F Sep 21 Community ecology - consequences of coevolution Ch 44

LAB 2 - Testing hypotheses and reporting results; QUIZ 1

M Sep 23 Community ecology - succession Ch 44
W Sep 25 Ecosystem ecology Ch 45
F Sep 27 Exam 1 (11:45-12:45 Bunnell Auditorium) covers lecture and laboratory material from September 6 to September 23. 100 points.
LAB 3 - Computer simulation of population growth; QUIZ 2

M Sep 30 The role of science in building public policy Ch 45; pp 942-943

SECTION TWO
Genetics

The next two sections of the course will focus on the properties of organisms that explain evolution. You will see that biological species are made up of individuals that are genetically unique. Mendel's rules of inheritance explain how these genetic differences are passed from generation to generation. You will see that evolution is a necessary consequence of genetic variation in populations. You will also see that the prevailing scientific views on evolution have changed radically during the last 200 hundred years and that these views continue to change as we learn more about the genetics and ecology of living organisms.

W Oct 2 Variation in plant and animal populations Ch 9, (Ch 10)
F Oct 4 Patterns of inheritance - what is a gene?

LAB 4 - Paramecium population growth
LAB REPORT #1 due
M Oct  7  Meiosis and the sexual life cycle
W Oct  9  Gene expression
F Oct 11  Mendelian inheritance

LAB 5 - Paramecium competition and predation; QUIZ 3

M Oct 14  Chromosomes and gene linkage

SECTION THREE
Evolution

W Oct 16  Darwin and the scientific process
F Oct 18  EXAM 2 (11:45-12:45 Bunnell Auditorium) covers lecture and
laboratory material from September 25 to October 14.  100 points.
LAB 6 - Genetics problem solving; QUIZ 4

M Oct 21  Evolution - fact or theory?
W Oct 23  Population genetics
F Oct 25  Microevolution

LAB 7 - Computer simulation of genetic processes; QUIZ 5

SECTION FOUR
The Diversity of Life

This section of the course will help you become familiar with the diverse forms of life that have existed on the earth. When you are walking in the forest or on the beach the question often comes up, "What is THAT??!" as IT squirms away into the darkness. After completing this section of the course we hope you will often be able to answer that question, and if you don't know what IT is you will be able to use your knowledge of evolutionary relationships to speculate about what IT is.

M Oct 28  Species and speciation
W Oct 30  History of life on earth
F Nov  1  Classification

LAB 8 - Microbes in our environment
LAB REPORT #2 due

M Nov  4  Viruses; bacteria
W Nov  6  Protista; fungi
F Nov  8  Exam 3 (11:45-12:45 Bunnell Auditorium) covers lecture and
laboratory material from October 16 to November 4.  100 points.
LAB 9 - Monera, protista, fungi; QUIZ 6

M Nov 11  Rise of the invertebrates
W Nov 13  More invertebrates
F Nov 15  Vertebrates

LAB 10 - Animal diversity; QUIZ 7
SECTION FIVE
Plant Biology

We will examine the external and internal structures of plants and learn how these structures allow the plant to acquire materials from its environment that can be used for the construction of more structures. We will see that hormones coordinate the acquisition and deployment of growth resources. Ultimately, resources from the environment are used for construction and deployment of reproductive propagules. The structure of plant communities is determined primarily by these simple relationships between plants and their physical environment.

M Nov 18 Evolutionary trends in plants Ch 23
W Nov 20 Mosses; Ferns Ch 23
F Nov 22 Conifers; Angiosperms Ch 23

LAB 11 - Plant Diversity; QUIZ 8

M Nov 25 Angiosperm diversity none
W Nov 27 EXAM 4 (11:45 - 12:45 Bunnell Auditorium) covers lecture and laboratory material from November 6 to November 22. 100 points.
F Nov 29 NO CLASS - Thanksgiving

LAB 12 - NO LAB this week

M Dec 2 Structure of land plants Ch 25
W Dec 4 Acquisition of growth resources Ch 25
F Dec 6 Allocation of internal resources Ch 25, 28

LAB 13 - Plant structure and function; QUIZ 9

M Dec 9 Plant life cycles Ch 27
W Dec 11 Breeding systems Ch 27
F Dec 13 Retrospective - biology and the scientific process none

LAB 14 - Plant reproduction; QUIZ 10

M Dec 16 FINAL EXAM (10:15 am to 12:15 pm Bunnell Auditorium) covers lecture and laboratory material from November 25 to December 13 (100 points) and reviews material from earlier in the course (100 pts). 200 points total.