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Office hours—virtual
T, R 10-11;
MWF 9-10
sign up using canvas

TEXTBOOK:
Inanimate Life, Briggs, George
available on line

COURSE FORMAT:
face to face until Thanksgiving
• lecture and lab are combined

after Thanksgiving
• lectures on-line
• independent projects & writing



This course examines ‘inanimate life’, meaning it studies groups of organisms other than animals. In taxonomic coverage the course follows ‘traditional’ botany courses, courses that ‘surveyed’ groups of organisms that were considered to be members of the plant kingdom back when all life was grouped as either plants or animals. The ‘plant group’ included plants, fungi (thought to be ‘plant-like because of their structure’), algae (thought to be plant-like because of photosynthetic abilities), bacteria (some of whom photosynthesize) and an assemblage of odd organisms (e.g. ‘slime molds’) that had both animal and plant-like features and were hard to pigeon-hole into category. This grouping of organism has long been abandoned, replaced by a variety of more phylogenetically sound taxonomies. Nonetheless, this course, and its companion on-line textbook, covers the traditional ‘plant group’ because it includes a diversity of organisms that demonstrate a diversity of biological features.

Although the organisms covered is traditional, the manner in which they are covered is not at all like the botany courses of old. Instead of going group by group (e.g. green algae, brown algae, mosses, etc.) the course is focused on organisms, not groups of organisms, and is comparative, looking at four aspects of organisms: 1- their structure, 2- their manner of reproduction and sex, 3- their acquisition of matter and energy and 4- their interactions with other organisms and with the environment. Plants, fungi and assorted odd-ball characters can teach a wide variety of biological lessons and this is the aim of the course: to help students understand a variety of basic biological principles. It is also hoped that understanding the biology of these organisms will enhance students awareness of the natural world around them, something that will be developed by field trips and exercises outside.

LEARNING OUTCOMES

At the end of the course you will be able to:

- describe the processes and features that define the organism level of biological organization
- classify the diversity of inanimate organisms
- distinguish between 'artificial' and phylogenetically based classifications
- recognize the patterns of variability that support the reality of taxonomic entities
- distinguish between the cell membrane and cell wall and describe the physical and chemical nature of each
- illustrate and describe the cell walls of plants and fungi
- list, with examples, four different types of cellular composition that organisms exhibit, along with the constraints and possibilities associated with each
- give examples of the relationship of structure to function in the cells, tissues, and organs of vascular plants
- illustrate the basic structure of plant cells, tissues and organs
- describe the types of composition and form found in the Chlorophyta (green algae)
- contrast the developmental pattern found in most plants to that found in most animals
- distinguish sex from reproduction and describe the processes required for each
- explain the phenomenon of 'alternation of generations' and how this pattern is manifested in mosses, ferns, clubmosses and seed plants
- describe the transformation of an ovule into a seed
- describe the unique features of fungal sex and reproduction and distinguish between the sexual pattern found in the five major fungal groups
- distinguish between matter and energy and demonstrate how they are related in organisms
- give multiple examples of how organisms both affect and are affected by conditions
- classify biotic interactions using a system that is NOT based on benefit/harm to participants
- list processes that act to organize life at levels above that of organisms
- describe the basic biology (i.e. their phylogenetic position, structure, mode(s) of reproduction, mechanisms of material and energy acquisition) for roughly 50 different groups of 'inanimate' organisms
- give examples of the diverse ways that humans utilize plants and fungi
- recognize the botanical (also fungal, protist and bacterial) world around you

MY JOB

- to find and develop materials and exercises that will develop students' understanding of organismal biology, especially that of plants
- to stimulate students to think about and work with the subject
- to explain concepts, especially those topics that are difficult to understand from reading alone
- to point out where student understanding is deficient, allowing them to improve their understanding
- to develop students into better biologists by developing skills that allow them to learn on their own, both from reading or observation
- to develop skills that are important to being successful in college and after college
- to evaluate students' understanding of the subject and abilities as a student

LABORATORIES

Most weeks the lab will include an on-campus field trip that will sometimes utilize the entire lab time so be sure to dress accordingly!

GRADING -- Scores for each of the graded components are awarded following a three-point scale with 1 point for an acceptable job and the maximum 3 points for an excellent job. grades are determined by the number of points accumulated during the semester. Points are earned according to student performance in the following areas:

- 11 weekly quizzes — (maximum of 3 pts each; maximum total of 33 points)
- 3 projects — (maximum total of 18 points)
 - Book Report**, a 2-3 page written report on a book/article related to botany (points = score x 2; i.e. a score of 2.1 would earn 4.2 points)
 - Observation** (points = score x 2)
 - Independent Field Trip report**, a 2-3 page written report on a field trip related to botany (points = score x 2)
- final exam (points = score x 8, maximum total points = 24)

Grading is based on the total number of points accumulated (maximum points = 75)

A grade: 67 points or more (average of ~2.7 on each graded component)

A- grade: 61-66 points

B+ grade: 55-60 points

B grade: 49-54 points

B- grade: 43-48 points

C+ grade: 37-42 points

C grade: 31-36 points

C- grade: 25-30 points