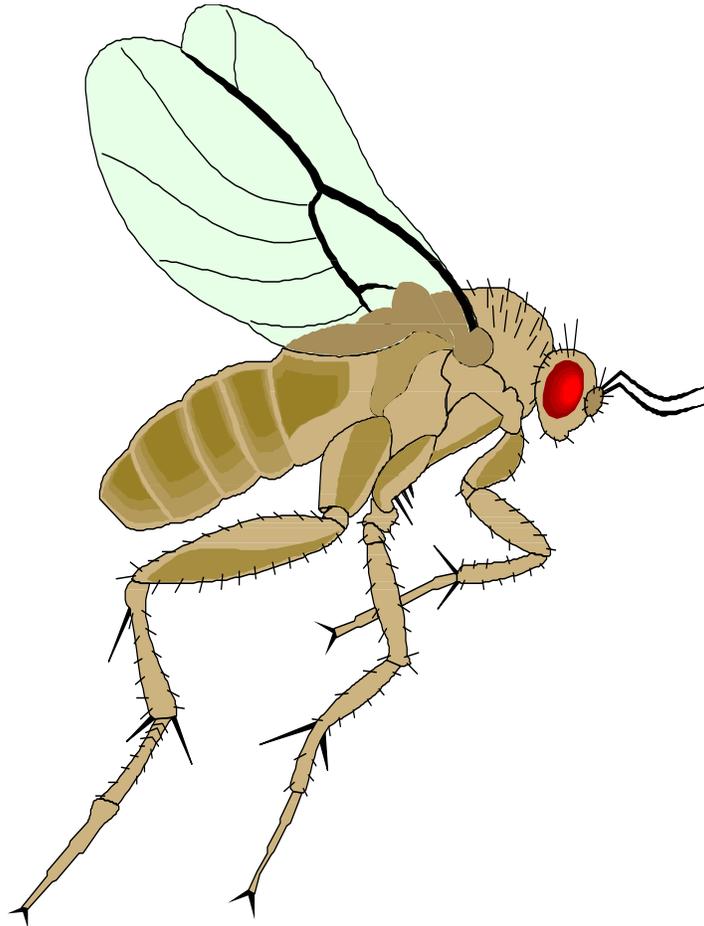


ADVANCED PLACEMENT BIOLOGY
(UVU BIOL 1010/1015, GENERAL BIOLOGY)
COURSE SYLLABUS/DISCLOSURE DOCUMENT
2011/2012



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COURSE OUTLINE/DISCLOSURE DOCUMENT

TEACHER: Mr. Sterling Wadley – 801-785-6405 (Pleasant Grove): feel free to call anytime before 10:00 pm.

This class is equivalent to a beginning college course in biology. If you do well and pass the AP test given in May, you will receive up to 8 semester credit hours in biology when you start college. **It is expected that you will take the AP Test. As per SHS policy, you must submit a written waiver letter to the teacher if you decide not to take it.**

You can also take this class concurrently with Utah Valley University (UVU Concurrent Enrollment) which gives you another way to earn college credit (BIOL 1010, 3 semester hours, BIOL 1015 – 1 semester hour). You will take the UVU BIO 1010 final exam at the end of the year. It will count 20% of your UVU grade. The enrollment deadline is: **September 9th for admissions, September 16th for class registration** . Instructions will be given in class on how to apply for admissions and register for classes. **You must have an ACT composite score of 21 or better, a PLAN Test score of 21 or better, or have completed English 1010 with a C- or better grade. You can take the Residual ACT at UVU if you need a score or want to improve your score.**

CLASS PROCEDURES/GRADES:

You will not take unit exams in this class. Your grade will be determined from daily homework assignments, handing in lecture notes, and lab write-ups. We will usually cover one chapter in the textbook each period. You will receive a set of questions, which you will complete as homework, while you read. **Answers must be in your own handwriting on a separate sheet of paper.** Questions turned in on time will receive 100 points. One period late will receive 70 points. More than one period late will receive 0 points. ****A MISSED SET OF QUESTIONS WILL RESULT IN AN “F” GRADE FOR THE TERM****

A syllabus outline will be provided for each unit which will be completed during lecture. They will be turned in and graded after each unit for quality and completeness and will receive approximately 300 points.

Labs will be done about every two weeks. Write-ups will receive approximately 200 points.

Extra Credit: Generally, extra credit is not given in college classes. However, one project for the entire year will be accepted. You can apply it to the current term or a future term. You cannot apply it to a past term. The two acceptable projects are: 1) an original research paper on a biological subject (4-5 pages, 2 references) and 2) blood donation at one of our school blood drives or at a donation center. Extra credit will improve your grade no more than one step on the grade scale.

ATTENDANCE

It is my intention to follow Nebo School District’s attendance policy. Attendance may count up to 20% of the academic grade. Grades are figured automatically by the district computer based on attendance taken during the day. This should provide adequate incentive to be in class on time

GRADE SCALE:

95 - 100% = A	87 - 90% = B+	75 - 80% = C+	60 - 65% = D+
90 - 95% = A-	83 - 87% = B	70 - 75% = C	55 - 60% = D
	80 - 83% = B-	65 - 70% = C-	50 - 55% = D-
			Below 50% = F

Student Signature _____ Parent Signature _____ Date _____

I. Molecules and Cells:

A. Basic biological chemistry.

1. Atoms, molecules, bonding, pH, water.
2. Carbon, functional groups.
3. Carbohydrates, lipids, proteins, nucleic acids.
4. Chemical reactions, free-energy changes, equilibrium.

B. Cells.

1. Prokaryotic and eukaryotic cells.
2. Plant and animal cells.
3. Structure and function of cell membranes.
4. Structure and function of organelles, subcellular components, cytoskeleton.
5. Cell cycle: mitosis, cytokinesis.

C. Energy transformations.

1. ATP, energy transfer, coupled reactions, chemosmosis.
2. C₃ and C₄ photosynthesis.
3. Glycolysis, fermentation, aerobic respiration.

II. Genetics and Evolution:

A. Molecular genetics.

1. DNA: structure and replication.
2. Eukaryotic chromosomal structure, nucleosome, transposable elements.
3. RNA: transcription, mRNA editing, translation.
4. Regulation of gene expression.
5. Mutations.
6. Recombinant DNA, DNA cloning, hybridization, DNA sequencing.
7. DNA and RNA viruses.

B. Heredity.

1. Meiosis.
2. Mendel's laws, probability.
3. Inheritance patterns: chromosomes, genes, alleles, interactions.
4. Human genetic defects.

C. Evolution.

1. Origin of life.
2. Evidence for evolution.
3. Natural selection.
4. Hardy-Weinberg principles, factors influencing allelic frequencies.
5. Speciation: isolating mechanisms, allopatry, sympatry, adaptive radiation.
6. Patterns of evolution, gradualism, punctuated equilibrium.

III. Organisms and Populations:

A. Principles of taxonomy and systematics, Domains, five kingdom system.

B. Survey of Monera, Protista, and Fungi.

C. Plants.

1. Diversity: classification, phylogeny, adaptations to land, alternation of generations in moss, fern, pine, and flowering plants.
2. Structure and physiology of vascular plants.
3. Seed formation, germination, growth, in seed plants.
4. Hormonal regulation of plant growth.
5. Plant response to stimuli: tropisms, photoperiodicity.

D. Animals.

1. Diversity; classification, phylogeny, survey of acoelomate, pseudocoelomate, protostome, and deuterostome phyla.
2. Structure and function of tissues, organs, and systems (emphasis on vertebrates), homeostasis, immune response.
3. Gametogenesis, fertilization, embryology, development.
4. Behavior.

E. Ecology.

1. Population dynamics, biotic potential, limiting factors.
2. Ecosystem and community dynamics: energy flow, productivity, species interactions, succession, biomes.
3. Biogeochemical cycles.