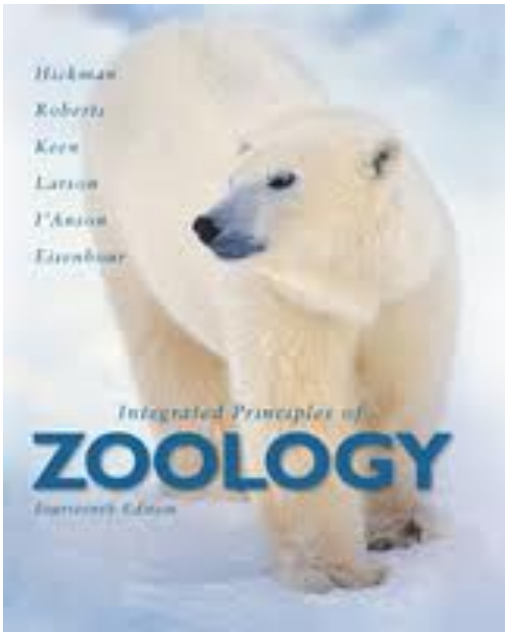
Integrated Principles of Zoology

Comparative Anatomy



Course Syllabus:

This course syllabus will provide you with information pertaining to Zoology coursework, classroom expectations, grading policies, and what is expected of you as students. A syllabus is designed to give an overview of course requirements and answer general questions.

Topics Covered in the Zoology Syllabus

1. **Overview:**
2. **What You Will Learn:**
3. **Expectations for Students:**
4. **Expectations for Teachers:**
5. **Classroom Materials**
6. **Lab Policies and Materials:**
7. **Grading Scale**
8. **Evaluation**

9. **Semester Outline**
10. **Safety Contract**

1. Overview

This course provides an introduction to zoology concepts as they relate to biological practices and studies. Specifically, this course will focus on the comparative anatomy of both vertebrates and invertebrates, distribution of animals, the animal kingdom, classification, structure and embryology.

2. Student Learning

The goal of this course is to develop your personal work ethic to manage greenhouse and complete work in greenhouse lab and take pride in one's own skills and abilities. At the end of the course the student will:

1. Give students the knowledge base for making decisions on the farm.
2. Familiarize students with the economic principles affecting farm management.
3. Show students how to determine production costs and returns.
4. Develop students abilities to plan labor, capitol, and land needs for farm production.
5. Show students how to improve efficiency of production.
6. Demonstrate how to fit livestock, crops, and machinery to the farm.
7. Understand sound financial planning and record keeping practices.

3. Instructor Expectations of Students

1. To take increasing responsibility for educational decisions on a daily and long-term basis.
2. To complete academic work both independently and cooperatively in a productive manner.
3. To think critically and solve problems using inductive and deductive reasoning.
4. To read effectively and communicate ideas and information using a variety of formats.
5. To demonstrate respect for individual differences.
6. To understand and demonstrate a sense of community.
7. Be polite!

4. Student Expectations of Instructor

1. To respect students, their ideas, thoughts, and personalities.
2. To provide a safe and effective environment for learning.

3. Establish trust and earn your respect.
4. To maintain order and provide organization.
5. Establish an environment where each student can be successful regardless of their past experiences.

5. Course Materials

Students will need the following materials for classroom work:

1. Three ring binder
2. Calculator
3. Colored pencils
4. Pen or pencil
5. Mac Book

6. Laboratory Policies and Materials

All science courses will require laboratory assignments. While the lab provides the application of theory presented during class, the lab is still an extension of the classroom. While in the lab, students will abide by the following procedures or will be removed from class or reduction in grade. No excuses!

1. No running, throwing, yelling, or horseplay. Warning will not be given. You are young adults!
2. If you need equipment ask the instructor and it will be provided.
3. If you borrow materials from another student, please return them.
4. When using gas burners, the instructor will check your setup before lighting.
5. When using glassware please be careful. If breakage occurs, notify Mr. Clemons and dispose of glass properly.
6. All lab materials, chemicals, and equipment will be cleaned and stored before leaving the lab.
7. Failure to follow any of the above procedures will result in removal and zero lab grade.
8. Your expectations of the instructor are to provide a safe environment while in the lab.

7. Grading Scale

Quarter and Semester grades will be determined using the guidelines established within the 2012-2013 VHS Student Handbook. Additionally, the following requirements are established within the Agriculture Program:

1. Students will complete daily review questions at the beginning of class.
2. Notes from lecture will be kept in a notebook or binder.
3. Chapter quizzes will be given each Friday.
4. Chapter tests will follow the completion of each chapter. We will complete

the chapter review during class and it will serve as 25% of your test grade.
5. This class will rely heavily upon lab exercises. A lab form will be provided and will due at the end of the lab experiment.

Virginia High School Grading Scale

96%-100%	A
93%-95%	A-
90%-92%	B+
87%-89%	B
84%-86%	B-
81%-83%	C+
78%-80%	C
75%-77%	C-
72%-74%	D+
69%-71%	D
68% and Below	F

8. Evaluation

Each of the activities in this course have been chosen with the aim of generating discussion, application, creativeness, and academic discipline.

Quarter grades will be determined by the following:

- **Chapter Tests 50%**
    - Chapter tests will be given once per month and you are expected to prepare for the exams. Tests will cover all materials given in class through lecture, readings, activities, group work, and lab exercises.
- **Chapter Notes and Notebook 20%**
    - Chapter notes, handouts, and lab materials will be checked each week after Friday quizzes. All materials are to be organized in your notebook with tabs in the following order:
        - Chapter number or name
        - Chapter notes
        - Lab exercises
        - Chapter handouts
        - Chapter activities

        - Quizzes

- **Lab** **15%**
    - Labs will consist of computer, elementary classroom teaching, record keeping, and simulation problems.
- **Homework** **15%**
    - The majority of your homework will be completed in class or in group settings. The exception to this will be individual or group projects.

Expectations for Written Assignments

All written assignments for this class must be **typed**, **double-spaced**, and use **1-1.25 inch margins all around** and **10-12 point font (the one exception is your final one page handout which can be single spaced)**. You do not need a cover page; simply make sure at least your name and the title of the paper or assignment are on the first page. In general, the following criteria apply for each assignment. More specific detail will be given in class.

A level work is clearly outstanding and reflects substantial effort. All aspects of the assignment are responded to in a cogent, organized and cohesive manner. Well-chosen, supportive examples and persuasive reasoning are utilized. There is an introduction, conclusion, and transition between sections. The mechanics of the paper are excellent – there are very few grammatical or spelling errors. The paper is handed in on time.

B level work is of high quality. Most of the aspects of the assignment are covered in an adequate and organized manner. Supportive examples are given and arguments are organized and sensible. There is a clear structure to the paper. The mechanics of the paper are good – there are some minor grammatical and/or spelling errors, but these do not detract substantially from the content of the paper. The paper is handed in on time, unless an extension is granted.

C level work and below is unsatisfactory. The main aspects of the assignment are not addressed, and the paper shows serious weaknesses. Examples are not offered or developed. The paper lacks a clear organizational structure. The mechanics of the paper are poor.

There are a number of grammatical and/or spelling errors. The paper may be late.

Suggestions for written work

- **Outline** your assignments before writing them, particularly the final reflective letter. Make sure you offer specific points and clear arguments in support of those points.

- **Proofread** all work before you hand it in. If you are not a good proofreader, have a friend proofread your papers also. Make sure your argument is clear and examples are provided. Watch out for abrupt transitions, run-on sentences, and sentence fragments.

- Use **spell and grammar check**.

Plagiarism

The most common form of plagiarism has been taking material from the Internet and handing it in as your own. You are plagiarizing if:

- You use another person's words, expressions or ideas in your writing without directly citing them by using quotation marks and including an appropriate reference.

- You significantly paraphrase an author's argument (e.g., through rearranging words, or changing only some of the words) without providing an appropriate reference.

- You hand in work that someone else wrote.

Papers for this class require you to do outside research (although you certainly welcome to do so. <u>You simply must put the last name of the author and the page number in parentheses at the end of a quote or a paraphrased passage</u>. If you use additional material beyond the articles or required books, you must include a works cited page with a full bibliographic reference for each of the additional sources (you can use any citation style you like, e.g., APA, MLA, Chicago)

PLEASE NOTE: If you plagiarize any aspect of any of the written assignments, you will receive a grade of F for both the assignment and the class.

9. Tentative Course Content and Readings-subject to change

Month	Week	Topic	Activity
September	1	Biological Principles and the Science of Zoology	
September	2	Architectural Pattern of an Animal	
September	3	Architectural Pattern of an Animal	Comparative Dissection
September	4	Architectural Pattern of an Animal	
October	1	Taxonomy and Phylogeny of Animals	Comparative Dissection
October	2	Taxonomy and Phylogeny of Animals	Dissection
October	3	Protozoans	
October	4	Sponges and Placozoans	Dissection
November	1	Radiate Animals	Dissection
November	2	Crustaceans	Dissection
November	3	Hexapods	Dissection
December	1	Fishes	Dissection
December	2	Chordates	Dissection
December	3	Final Exam Review	
January	2	Biosphere and Animal Distribution	
January	3	Biosphere and Animal Distribution	
January	4	Animal Ecology	Comparative Dissection
February	1	Mammals	
February	2	Mammals	Comparative Dissection
February	3	Mammals	
February	4	Support, Protection and Movement	Comparative Dissection
March	1	Support, Protection and Movement	
March	2	Homeostasis	Comparative Dissection
March	3	Homeostasis	
March	4	Internal Fluids and Respiration	Comparative Dissection
April	1	Internal Fluids and Respiration	

April	2	Digestion and Nutrition	Comparative Dissection
April	3	Digestion and Nutrition	
April	4	Nervous Coordination	
May	1	Nervous Coordination	
May	2	Immunity	
May	3	Animal Behavior	

Dissection will occur in a comparative analysis environment. Each half of the class will dissect a different organism at a given time. This type of practical dissection allows for multiple species of animals, both vertebrate and invertebrate to be explored and comparisons made simultaneously.

I have read and understand the requirements of this class as listed in the syllabus.

(Name): _____Date: ___/____/____

Safety Contract-To be signed by student and parent

Flinn Scientific's Student Safety Contract

PURPOSE

Science is a hands-on laboratory class. You will be doing many laboratory activities which require the use of hazardous chemicals. Safety in the science classroom is the #1 priority for students, teachers, and parents. To ensure a safe science classroom, a list of rules has been developed and provided to you in this student safety contract. These rules must be followed at all times. Two copies of the contract are provided. One copy must be signed by both you and a parent or guardian before you can participate in the laboratory. The second copy is to be kept in your science notebook as a constant reminder of the safety rules.

GENERAL RULES

1. Conduct yourself in a responsible manner at all times in the laboratory.
2. Follow all written and verbal instructions carefully. If you do not understand a direction or part of a procedure, ask the instructor before proceeding.
3. Never work alone. No student may work in the laboratory without an instructor present.
4. When first entering a science room, do not touch any equipment, chemicals, or other materials in the laboratory area until you are instructed to do so.
5. Do not eat food, drink beverages, or chew gum in the laboratory. Do not use laboratory glassware as containers for food or beverages.
6. Perform only those experiments authorized by the instructor. Never do anything in the laboratory that is not called for in the laboratory procedures or by your instructor. Carefully follow all instructions, both written and oral. Unauthorized experiments are prohibited.
7. Be prepared for your work in the laboratory. Read all procedures thoroughly before entering the laboratory.
8. Never fool around in the laboratory. Horseplay, practical jokes, and pranks are dangerous and prohibited.
9. Observe good housekeeping practices. Work areas should be kept clean and tidy at all times. Bring only your laboratory instructions, worksheets, and/or reports to the work area. Other materials (books, purses, backpacks, etc.) should be stored in the classroom area.
10. Keep aisles clear. Push your chair under the desk when not in use.
11. Know the locations and operating procedures of all safety equipment including the first aid kit, eyewash station, safety shower, fire extinguisher, and fire blanket. Know where the fire alarm and the exits are located.
12. Always work in a well-ventilated area. Use the fume hood when working with volatile substances or poisonous vapors. Never place your head into the fume hood.
13. Be alert and proceed with caution at all times in the laboratory. Notify the instructor immediately of any unsafe conditions you observe.
14. Dispose of all chemical waste properly. Never mix chemicals in sink drains. Sinks are to be used only for water and those solutions designated by the instructor. Solid chemicals, metals, matches, filter paper, and all other insoluble materials are to be disposed of in the proper waste containers, not in the sink. Check the label of all waste containers twice before adding your chemical waste to the container.
15. Labels and equipment instructions must be read carefully before use. Set up and use the prescribed apparatus as directed in the laboratory instructions or by your instructor.
16. Keep hands away from face, eyes, mouth and body while using chemicals or preserved specimens. Wash your hands with soap and water after performing all experiments. Clean all work surfaces and apparatus at the end of the experiment. Return all equipment clean and in working order to the proper storage area.
17. Experiments must be personally monitored at all times. You will be assigned a laboratory station at which to work. Do not wander around the room, distract other students, or interfere with the laboratory experiments of others.
18. Students are never permitted in the science storage rooms or preparation areas unless given specific permission by their instructor.
19. Know what to do if there is a fire drill during a laboratory period; containers must be closed, gas valves turned off, fume hoods turned off, and any electrical equipment turned off.
20. Handle all living organisms used in a laboratory activity in a humane manner. Preserved biological materials are to be treated with respect and disposed of properly.
21. When using knives and other sharp instruments, always carry with tips and points pointing down and away. Always cut away from your body. Never try to catch falling sharp instruments. Grasp sharp instruments only by the handles.
22. If you have a medical condition (e.g., allergies, pregnancy, etc.), check with your physician prior to working in lab.

CLOTHING

23. Any time chemicals, heat, or glassware are used, students will wear laboratory goggles. There will be no exceptions to this rule!
24. Contact lenses should not be worn in the laboratory unless you have permission from your instructor.
25. Dress properly during a laboratory activity. Long hair, dangling jewelry, and loose or baggy clothing are a hazard in the laboratory. Long hair must be tied back and dangling jewelry and loose or baggy clothing must be secured. Shoes must completely cover the foot. No sandals allowed.
26. Lab aprons have been provided for your use and should be worn during laboratory activities.

ACCIDENTS AND INJURIES

27. Report any accident (spill, breakage, etc.) or injury (cut, burn, etc.) to the instructor immediately, no matter how trivial it may appear.
28. If you or your lab partner are hurt, immediately yell out "Code one, Code one" to get the instructor's attention.
29. If a chemical splashes in your eye(s) or on your skin, immediately flush with running water from the eyewash station or safety shower for at least 20 minutes. Notify the instructor immediately.
30. When mercury thermometers are broken, mercury must not be touched. Notify the instructor immediately.

HANDLING CHEMICALS

31. All chemicals in the laboratory are to be considered dangerous. Do not touch, taste, or smell any chemicals unless specifically instructed to do so. The proper technique for smelling chemical fumes will be demonstrated to you.
32. Check the label on chemical bottles twice before removing any of the contents. Take only as much chemical as you need.
33. Never return unused chemicals to their original containers.

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