

ZOOLOGY (ANSC) CTY COURSE OUTLINE

DATE	TOPIC	ACTIVITIES/ASSIGNMENTS
Sunday 4:30-5:30 PM	Ice breaker/Introduction Classroom expectations Honor Code Personal goal setting Course Objectives/Expectations	Puzzle game Animal Charade or CTY Genius

DATE	TOPIC	ACTIVITIES/ASSIGNMENTS
Week 1, Day 1 Monday Morning 9:00 -12:00	CTY Lab Safety and Protocol Pre-Test The Basic Concepts and skills in research: <ul style="list-style-type: none"> • How to use the library • Tracking down current research • Utilizing the internet • How to write a research paper What is Science? Review of Science and Scientific Method <ul style="list-style-type: none"> • Famous Biologists • Division of Science • Branches of Biology • Proper Scientific Attitude • Steps of scientific method • Inductive and deductive reasoning The basics of experimental design <ul style="list-style-type: none"> • Employ proper lab techniques • Carry out formal investigations and inquiries • Interpret results of the investigation- Graph analysis • Justify conclusions with supporting data • Synthesize a formal written laboratory report 	SMART Goals MLA: Provide reading material and use as research material Students produce a written paper with proper citation. Group poster project Zoology-related fields Scientific method
Afternoon 1:00-3:00 PM	The Basics of Lab Procedure and Lab Safety Issue <ul style="list-style-type: none"> • Formulation of hypothesis • Making inferences/predictions/patterns Observation techniques Collecting data Analysis and presentation of data STUDENT-DESIGNED LAB: Challenge: Identify an environmental factor that affects fish behavior Finish Lab Report: Focus on data collection, data analysis, and evaluation	Lab walk through, safety demos, common lab equipment Mathematical games to determine patterns and use of critical thinking and scientific method Experiment
Evening Study Hall 7:00-9:00	Characteristics of living things-MRS GREN Biological classification Vertebrate and Invertebrate Life	Submit lab report Comic strips

DATE	TOPIC	ACTIVITIES/ASSIGNMENTS
<p>Week 1, Day 2 Tuesday</p> <p>Morning 9:00-1200</p>	<p>The basics of animal behavior observation</p> <p>Factors affecting animal behavior</p> <ul style="list-style-type: none"> • Food • Territory • Courtship • Defense • Reproductive manner • Care of young <p>Ecological relationships</p> <ul style="list-style-type: none"> • Competition • Commensalism • Predation • Mutualism • Symbiosis • Parasitism-ecto-endoparasitism <p>Review of characteristics of living things:</p> <ul style="list-style-type: none"> • Organization • Reproduction • Growth and Development • Homeostasis <p>Ecology Preserving the animal kingdom</p> <p>Animals and their abiotic factors</p> <p>Biotic factors: population and interspecific interactions</p> <p>Adaptation</p> <ul style="list-style-type: none"> • Camouflage • Protective coloration • Protective resemblance • Mimicry • Hibernation/aestivation • migration <p>Communities</p> <p>Trophic structure of the ecosystem</p> <p>Food chain and food web</p> <p>Classes of heterotrophs</p> <ul style="list-style-type: none"> • Carnivore • Herbivore <p>Omnivore</p>	<p>Text pages 263-264; 372-373</p> <p>Bear Activity: hunting for food</p> <p>Activity: Dissection: Owl Pellet Put the skeletons together Finish the worksheet</p>
<p>Afternoon 1:00-3:00 PM</p>	<p>Effects of Temperature on the heart beat of <i>Daphnia magna</i></p>	<p>Student-own designed lab Data collection</p>
<p>Evening SH 7:00-9:00</p>	<p>Full lab report about student-own designed lab</p>	<p>Full report-use lab report checklist for complete reporting</p>

DATE	TOPIC	ACTIVITIES/ASSIGNMENTS
Week 1, Day 3 Wednesday Morning 9:00-12:00 Afternoon 1:00-3:00 PM	FIELD TRIP TO LEHIGH VALLEY ZOO	Jordan creek study of invertebrates
Evening Study Hall 7:00-9:00 PM	Chapter 2: Cell, Tissue, Organs, and Organ systems of Animals Cell Membrane-biochemical composition, fluid-mosaic model Diffusion Osmosis Active transport Facilitated diffusion Phagocytosis and pinocytosis Endocytosis and Exocytosis Cellular organelles Prokaryote and Eukaryote Nucleus	Finish Enzyme full Lab report 2 Assignment: Read chapter 2 pages 11-33 and chapter 3 pages 34-53 SA:V relationship Microscopy: Identification and function of the parts of cell Cell model Answer the following: 1. Explain the origin of eukaryotic cells. 2. Answer critical thinking questions on page 33 numbers 2, 3, and 4.

DATE	TOPIC	ACTIVITIES/ASSIGNMENTS
Week 1, Day 4 Thursday Morning 9:00-12:00	Introduction to Biochemistry <ul style="list-style-type: none"> • Matter, Elements, compounds, and Mixtures • Water • Proteins-Enzyme • Carbohydrates • Lipids • Nucleic acids The cell and cellular organelles Chapter 30 Chapter 3. Cell Division and inheritance Eukaryotic chromosomes Cellular reproduction: binary fission (amitosis), mitosis, and meiosis DNA: the genetic material Inheritance patterns in animals	Discussion about the characteristics of living things Introduce dichotomous key www.mhhe.com/millerharley7e Teacher Notes Chapter 31 Energy and enzymes www.mhhe.com/millerharley7e Chapter 3 pages 34-53 DNA model Breeding Bebops
Afternoon 1:00-3:00	Lab Activity: Looking for Protozoa under the microscope	Data collection
Evening SH 7:00-9:00	Computer lab session 1 7:00-8:00 Lab write up 8:00-9:00 Chapter 10 The triploblastic, acoelomate body plan Pages 144-172 Chapter 11 The Pseudocoelomate Body Plan: Aschelminthes Chapter 12 The Molluscs	Lab report focused on data collection and analysis and evaluation Readings: Chapters 10-12

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Week 1, Day 5 Friday Morning 9:00-12:00	Chapter 8: Protozoa Chapter 9: Evolution of Metazoans Levels of Organization and body plans Primitive animals: Sponges, Hydras, Anemones, Jelly fish, corals	Vocabulary review Chapter 9 pp 134-154 Observation: Various Protozoa Dissection: Jellyfish Students are to be assigned topics for Parasitology research focusing on: lifestyle, mode of transfer (locomotion), and prevalence
Afternoon 1:00-3:00	Lab on regeneration in <i>Planaria dugesia</i>	Lab report: drawing

DATE	TOPIC	ACTIVITIES/ASSIGNMENTS
Sunday SH 7:00-9:00 PM	First night research in the computer lab session 2 on PARASITOLOGY Research also about food tests lab procedure Diseases: Lipoma in dogs and cats, mastitis in cow, parvovirus in dogs, pneumonia in horses, canine distemper, diabetes in cats, tapeworm, whipworm, rabies, scabies, Creutzfeld-Jakobs Disease and BSE, food and mouth disease, swine flu, melanoma in dogs and cats, and heartworm.	Students submit 5 important things about their parasitology assignment: name of disease, causative agent, mode of infection, symptoms, and treatment

DATE	TOPIC	ACTIVITIES/ASSIGNMENTS
Week 2, Day 1 Monday Morning 9:00-12:00	Molluscs: Gastropoda, Bivalva, Cephalopoda, Polyplacophora, Scaphopoda, Monoplacophora, Aplacophora	Vocabulary Reviews
Afternoon 1:00-3:00 PM	Dissections: snail, clam, mussel	
Evening SH 7:00-9:00	The Amphibians Read about the reptiles in preparation for the zoo trip-Galapagos and Aldabra tortoises	Read pages 310-325 Answer key terms o page 325 and critical thinking questions numbers 1-5

DATE	TOPIC	ACTIVITIES/ASSIGNMENTS
Week 2, Day 2 Tuesday Morning 9:00-12:00	Diploblastic/triploblastic Acoelomate/pseudocoelomate/eucoelomate Protostome/Deuterostome	Gallery walk
Afternoon 1:00-3:00 PM	Dissection: Perch Anatomy of a shark	
Evening SH 7:00-9:00	Comp Lab Session 3 7:00-7:30 Continuation of unfinished dissections 7:30-9:00 Finish PowerPoint presentation on Parasitology	Finish Power point on parasitology Write animal report

DATE	TOPIC	ACTIVITIES/ASSIGNMENTS
Week 2, Day 3 Wednesday Morning 9:00-12:00	Philly Zoo Field Trip	Animal observations, methods of conserving endangered species, and animal rehabilitation
Afternoon 1:00-3:00 PM	Philly Zoo Field Trip Upon return and with enough time, students finalize their parasitology report for this evening's presentation	Return at 2:30 PM
Evening SH 7:00-9:00 PM	7:00-8:15 PM Report on Parasitology (SMART ROOM) 8:15-9:00 PM Read about amphibians, reptiles, and birds	Student reporting

DATE	TOPIC	ACTIVITIES/ASSIGNMENTS
Week 2, Day 4 Thursday Morning 9:00-12:00	Chapter 13: The Annelids	Group reports
Afternoon 1:00-3:00	Dissections: starfish earthworm	
Evening SH 7:00-9:00	7:00-7:15 PM assigning animal research to student 7:15-9:00 PM Computer Lab Session 3 Research on animal assignment- presentation in the form of magazine Groupings: three kinds of mammals, endangered terrestrial mammals, endangered aquatic mammals-Echidna, platypus, kangaroo, koala, rhinoceros, Asian and African elephants, ring-tailed lemurs, golden tamarins, giant river otters, manatees, beluga whales, bottled-nose dolphins, blue whales, gorillas, and elephant seals. Research also on two topics: procedure on tests for starch, simple sugars, protein, and lipids	Animal assignment: geographic distribution, general and special characteristics, courtship habit, care for young Students submit five important things about their assigned animals-geographic distribution, scientific name of the animal, special characteristics

DATE	TOPIC	ACTIVITIES/ASSIGNMENTS
Week 2, Day 5 Friday Morning 9:00-12:00	Chapter 14: Arthropods-Insects and Myriapods Chapter 15: The Echinoderms QUIZ: THE INVERTEBRATES	Dissections: butterfly, beetle, Lubber grasshopper and crayfish Dissection: Starfish Animal trivia questions: in pairs, focus on animal behavior and characteristics
Afternoon 1:00-3:00 PM	Dissection: Perch and Frog	

DATE	TOPIC	ACTIVITIES/ASSIGNMENTS
Sunday Evening SH 7:00-9:00 PM	Three Students report about Scabies, Whipworm, and Lipoma in dogs and cats	

DATE	TOPIC	ACTIVITIES/ASSIGNMENTS
Week 3, Day 1 Monday Morning 9:00-12:00	The Vertebrates The Fishes: Chondrythyes and Osteichthyes Characteristics, swim bladders and buoyancy regulation, locomotion, nutrition and digestion, circulation and gas exchange, nervous and sensory functions, excretion and osmoregulation, and reproduction and development Amphibians: Locomotion, Nutrition and Digestion, Circulation, Gas Exchange, and temperature regulation, nervous and sensory functions, excretion and osmoregulation, reproduction, development, and metamorphosis Reptiles: Locomotion, Nutrition and Digestion, Circulation, Gas Exchange, and temperature regulation, nervous and sensory functions, excretion and osmoregulation, and reproduction and development Birds: Locomotion, Nutrition and Digestion, Circulation, Gas Exchange, and temperature regulation, nervous and sensory functions, excretion and osmoregulation, reproduction and development, nesting activities, and migration and navigation Mammals: Subclass Theria Infraclass: Ornithodelphia (Monotremes) Infraclass: Metatheria (Marsupials) Infraclass; Eutheria (Placentals)	Animal adaptation activity: Ease of movement with taped fingers Chapter 1 pages 2-10 Chapter 4 pages 55-71 Chapter 34 www.mhhe.com/millerharley7e bird behavior Talking birds Anatomy of birds page 349

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Week3, Day 1 Monday Afternoon 1:00-3:00 PM	Dissection of Fetal Pig QUIZ: The Vertebrates	Data collection Data analysis Evaluation
Evening SH 7:00-9:00	Computer Lab session 4 Finalization of Animal report Magazine Layout finished by this session	Submission of finished lab write-up

DATE	TOPIC	ACTIVITIES/ASSIGNMENTS
Week 3, Day 2 Tuesday 8:30-12:00	Field trip to the Wright's Veterinary Hospital Reading x-ray films Hospital facilities and equipment Animal care and grooming	Tour of the hospital
Afternoon 1:00-3:00 PM	LAB 3. Food Tests 1:00-2:15 PM Lab: Food Test (Lab 3) 2:15-3:00 PM Start writing full lab report	
Evening SH 7:00-9:00 PM	Computer Lab session 5 Reports	

DATE	TOPIC	ACTIVITIES/ASSIGNMENTS
Week 3, Day 3 Wednesday 9:00-12:00	Discussion on comparative anatomy and physiology Comparative Anatomy and Physiology Nutrition and Digestion <ul style="list-style-type: none"> Anabolism, catabolism Intracellular and extracellular digestion General Anatomy and Physiology of a Mammalian Tract Anatomical Digestive Adaptation <ul style="list-style-type: none"> Dentition Monogastric digestion Rumination Hind-gut fermentation Circulation and Gas Exchange <ul style="list-style-type: none"> Respiratory quotient analysis Mechanics of human respiration Measurement of human lung volumes Dissections of sheep heart, sheep pluck, and cow eye	Demonstration: Digestion of starch Animal Bites Activity Energy in food

DATE	TOPIC	ACTIVITIES/ASSIGNMENTS
Week 3, Day 3 Wednesday Afternoon 1:00-3:00	<p>Animal Health and Productivity Endangered Species Evolution by Natural Selection: Overpopulation of species, variation, competition, and inheritance</p> <p>Discussion on atavism and vestigial organs</p> <p>Evolution and Gene frequencies</p> <ul style="list-style-type: none"> • Population and gene pools • Evolutionary mechanisms • Rates of evolution • Molecular and mosaic evolution <p>Lab write-ups: Biochemical Basis of Evolution Mimicry of Peppered Moths for Survival</p>	Students work in pairs Data collection
Evening SH 7:00-9:00 PM	<p>7:00-8:15 PM Reports on Diseases 8:15-9:00 PM Animal Magazine Report</p>	Lab report: includes data analysis and evaluation

DATE	TOPIC	ACTIVITIES/ASSIGNMENTS
Week 3, Day 4 Thursday Morning 9:00-12:00	<p>SPE's Integumentary system Muscular Skeletal system Nervous system Immune system Endocrine System Reproductive system Selective breeding and in-breeding for pigs and cows Mimicry of Peppered Moths for survival</p>	<p>Chapter 5 pages 72-84 Chapter 23 pages 386-404 Chapter 23 pages 386-404 Chapter 23 pages 386-404 Chapter 24 pages 405-431</p> <p>Chapter 25 pages 433-443 Chapter 29 pages 515-534 Handout</p>
Afternoon 1:00-4:00	<p>1:00-2:45 LAB: Effects of T⁰ On Enzyme Activity 2::45-4:00 Posttest</p>	
Evening SH 4:00-6:00		

DATE	TOPIC	ACTIVITIES/ASSIGNMENTS
Week 3, Day 5 Friday Morning 9:00-11:00	<p>9:00-10:30 Wrapping up all requirements Finish Animal Magazine Report 10:30-11:00 Zoology jeopardy game</p>	
Afternoon	Parent-Teacher's Conference	

The BLUE entries were the adjustments/re-scheduling made in the course.