

ALABAMA STATE UNIVERSITY
UNIVERSITY COLLEGE
DEPARTMENT OF MATHEMATICS AND SCIENCE

BIOLOGY 128 – GENERAL BIOLOGY 3 Credit Hours

Textbook: Inquiry into Life
Publisher: McGraw-Hill

10th Edition, Sylvia S. Mader
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Instructor _____ **Office Extension** _____ **Office Hours** _____

Supporting Services – Tutoring Services available in **Math & Science Tutorial Center, PH 132**

ATTENDANCE POLICY: The University's attendance policy will be followed in this course.

***NOTE:** Any student requiring alternative formats for testing and/or handouts for this course, or other types of accommodations, due to a handicapping condition, should advise the instructor within the first week of classes.*

COURSE DESCRIPTION: This is the second part of a survey course in General Biology. The topics covered in this course are an overview of fungi, plant and animal taxonomy, a comparative study of the integumentary, muscular, skeletal, nervous, endocrine, circulatory, immune, respiratory, digestive, excretory, and reproductive systems. Besides covering these topics, the course is designed to: 1) help students recognize biological issues in daily life; 2) foster the development of academic skills: listening, studying, memorizing, writing, computing, and critical thinking.

COURSE OBJECTIVES: The following learning objectives will be addressed in this course. Each topic represents a broad study area in biology.

Objective 1. Taxonomy (Chapters 1, 27) and Animals (Chapters 30, 31)

Objective 2. Unifying Concepts of Animal Structures and Functions (Chapter 11)

Objective 3. Skeletal and Muscular Systems (Chapter 19)

Objective 4. Nutrition and Digestion (Chapter 12) and The Urinary System (Chapter 16)

Objective 5. Circulation and Respiration (Chapters 13, 15)

Objective 6. The Immune System (Chapter 14)

Objective 7. The Endocrine System (Chapter 20) and The nervous system and the senses (Chapters 17, 18)

Objective 8. Reproduction and Embryonic Development (Chapters 21, 22)

Objective 9. Writing exercise(s), quizzes and assignments.

EVALUATION AND MINIMUM STANDARDS

Testing

During the semester four exams will be given that will evaluate the objectives of the course. The first exam will test objectives 1-2, the mid-term exam will test objectives 3-4, the third exam will test objectives 5-6 and the final exam will test objectives 7-8.

Writing Exercise(s)

To achieve objective 9, (an) acceptable written report(s) must be prepared. The lecture/instructor will evaluate the assignments.

Tutorial Assistance:

If students do not perform satisfactorily on a test, they should seek help from their instructors or tutors in the Mathematics and Science Center (PH 132)

Summary of Evaluation Procedure

| Test | No. of Questions | Objectives | Points |
|---|------------------|------------|------------|
| Test 1 | 50 | 1-2 | 100 |
| Mid-Term | 50 | 3-4 | 100 |
| Test3 | 50 | 5-6 | 100 |
| Final | 50 | 7-8 | 100 |
| Writing exercises, quizzes and assignments | | 9 | 200 |
| Total Points Possible | | | 600 |

Grade Assignments

| Grade | Grade Percentiles |
|-------|-------------------|
| A | 90-100% |
| B | 80-89% |
| C | 70-79% |
| D | 60-69% |
| F | Below 60% |

All students with D or F as a Final grade will be required to repeat the course, a university college core course requirement.

DETAILED COURSE OBJECTIVES

Objective 1. Taxonomy and Animals (Chapters 1, 27, 30, 31)

Students should be able to:

1. Describe the basic principles of systematics
2. Explain phylogenetic lineage; name kingdoms of classification scheme
3. Describe evidences of origin of life
4. Explain the basic characteristics of animals
5. List the distinguishing characteristics of Phyla: Porifera, Cnidaria, Platyhelminthes, Nematoda, Mollusca, Annelida, Arthropoda, Echinodermata and Chordata
6. List the distinguishing characteristics of the classes in vertebrata
7. Distinguish between phyla in Kingdom Animalia based on species diversity

VOCABULARY

Binomial nomenclature, genus, species. Blastula, gastrula, larva, metamorphosis radial symmetry, amoebocyte, polyp, medusa; cnidocytes ; bilateral symmetry, anterior, posterior, dorsal, ventral, coelom mantle, radula ; exoskeleton, molting ; nerve cord, notochord ; ectothermic, endothermic .

Objective 2. Unifying Concepts of Animal Structures and Functions (Chapter 11)

Students should be able to:

1. Describe characteristics of cells, tissues, organ systems and the integumentary system
2. Identify the locations, functions, and types of epithelial tissues, connective tissues, muscle tissues and nervous tissues
3. Identify the structures and the major functions of the major organ systems of the human body

VOCABULARY

Tissue , basement and mucous membrane ; connective tissues, cartilage; muscles-skeleton, cardiac, and smooth ; organ systems ; homeostasis, negative feedback.

Objective 3. Skeletal and Muscular Systems (Chapter 19)

Students should be able to:

1. Name and locate the major bones in the human skeletal system
2. Distinguish between the cartilage tendons and ligaments
3. Distinguish between the axial and appendicular skeletal systems
4. Describe the functions of the skeletal system
5. Distinguish between the cartilaginous and fibrous joints
6. Explain the sliding filament theory of muscle contraction

VOCABULARY

Hydrostatic skeleton, exoskeleton ; endoskeleton ; axial and appendicular skeleton ; joints-ball-and-socket, hinge, and pivot ; arthritis, osteoporosis ; red and yellow bone marrow ; tendons; myofibril, sarcomere, thick/thin filament

Objective 4. Nutrition and Digestion (Chapter 12) The Urinary System (Chapter 16)

Students should be able to:

1. List the names and functions of the major parts in the digestive system
2. State the functions of the oral, gastric, pancreatic and intestinal digestive enzymes
3. Name the parts of the kidney from the micro- to the macro- levels
4. List the parts and functions of the urinary system

VOCABULARY

Omnivores, herbivores, carnivores, suspension/substrate/fluid feeders, ; peristalsis, pyloric sphincter ; gastrin ; acid chyme, gastric ulcers ; ruminant ; basal metabolic rate ; essential fatty acids, RDAs ; essential amino acids ; minerals ; LDLs, HDLs ; ectotherm, endotherm, thermoregulation, osmoregulation, excretion ; hibernation, aestivation, osmoregulation .

Objective 5. Circulation and Respiration (Chapters 13, 15)

Students should be able to:

1. Describe the fundamental aspect of respiration
2. Explain how carbon dioxide concentrations in the blood affect breathing
3. List the parts of the human respiratory system and give their functions
4. Describe the basic aspects of the circulation
5. Distinguish between arteries and veins
6. Give the function of the SA node and AV node
7. Name the chief components of blood and describe their characteristics

VOCABULARY

Alveoli, emphysema ; hyperventilation open/closed circulation ; pulmonary/systemic circuits ; cardiac cycle, diastole, systole ; pacemaker, SA node, AV node ; hypertension ; RBCs, anemia ; stem cells, leukemia

Objective 6. The Immune System (Chapter 14)

Students should be able to:

1. List the general structure of the lymphatic system
2. Distinguish between specific immunities and non-specific immunities
3. List various cells of the immune system and give their functions
4. Distinguish between humoral and cell mediated immunity
5. Describe the inflammatory process and its role in allergic reactions

VOCABULARY

neutrophils, macrophages, NK cells, interferons, complement proteins ; antigen, antibody, immunity, vaccination, active/passive immunity; B cells, T cells, humoral/cellular immunity; antigen receptors, antigenic determinants ; effector cells, primary/secondary immune response, memory cells); monoclonal antibodies ; T cells ; autoimmunity ; allergens, anaphylactic shock .

Objective 7. The Endocrine System (Chapter 20)

The nervous system and the senses (Chapters 17, 18)

Students should be able to:

1. Name the basic aspect of the endocrine system
2. Identify and give the functions of the hormones produced in the CNS
3. Identify and give the functions of the hormones produced by the reproductive organs, adrenal gland, pancreas, thyroid, parathyroids, stomach, small intestine and placenta
4. Describe the negative feedback control and hormonal levels
5. Discuss the basic characteristics of neurons and neural control system
6. Describe the general structure of a CNS neuron and a PNS neuron
7. Describe the changes in the action potential from a resting neuron to an activated neuron
8. State function of a chemical synapse
9. Distinguish between the somatic and autonomic nervous systems
10. Describe the sympathetic and parasympathetic nervous system
11. List the general areas of the human brain and their functions
12. List the human senses and their components

VOCABULARY

Hormone, neurotransmitters, prostaglandins ; steroid/nonsteroid hormones ; ADH, TSH, ACTH, LH, GH, prolactin, endorphin ; thyroxine, goiter ; PTH ; glucagon ; diabetes, hypoglycemia ; epinephrine, norepinephrine ; corticosteroids, mineralocorticoids, glucocorticoids ; estrogen, progesterin, androgen, testosterone . Sensory input, motor output, integration, neurons, cell body, dendrites, axon, myelin sheath, nodes of Ranvier, CNS, PNS, ganglia, interneuron ; resting potential ; action potential, threshold potential ; neurotransmitter ; biogenic amines ; cranial/spinal nerves, somatic/autonomous nervous system ; sympathetic/parasympathetic neurons ; medulla oblongata, pons, cerebrum, thalamus, hypothalamus, biological clock, cerebrum, corpus callosum, basal ganglia ; EEG, SW/REM sleep ; short/long term memory , sensory transduction, receptor potential ; blind spot, accommodation ; visual acuity, nearsightedness, farsightedness, astigmatism ; rods cones, rhodopsin, photopsin ; cochlea .

Objective 8. Reproduction and Embryonic Development (Chapters 21, 22)

Students should be able to:

1. State the roles and names of male and female reproductive organs
2. List the male and female reproductive hormones
3. Describe the process of spermatogenesis and oogenesis
4. List the effectiveness of various birth control methods
5. Describe the process of cleavage to implantation
6. Distinguish between fetal and adult circulations
7. List the major events in the formation of a fetus from a zygote

VOCABULARY

Sexual/asexual reproduction, budding, fission, fragmentation, regeneration ; hermaphroditism, external fertilization ; spermatogenesis ; primary/secondary spermatocyte, oogenesis ; ovarian/menstrual cycle, menstruation ; orgasm, STDs, contraception ; vasectomy, tubal ligation, MAPs ; fertilization, acrosomes, ; cleavage, blastula gestation, blastocyst, trophoblast, placenta, extraembryonic membrane, amnion, yolk sac, allantois chorion, HCG, chorionic villi, fetal alcohol syndrome ; in vitro fertilization (IVF) .

Objective 9. Writing exercise(s), quizzes and assignments.

Individual instructor will determine format and frequency of writing exercise(s), quizzes, assignments and scoring.

ALABAMA STATE UNIVERSITY
DEPT. OF MATH & SCIENCE
GENERAL BIOLOGY LABORATORY (BIO 128) Credit Hour - 01
Fall/Spring Semester

Laboratory Manual: Exploring Biology in the Laboratory

Shree R. Singh & Karyn D. Scissum-Gunn

Lab Section _____ Lab Hour & Day _____ Lab Room-SB 205
Instructor _____ Office Extension _____ Office Hours _____

Supporting Services- Tutoring/Audio-Visuals/Computer software

Math & Science Tutorial Center, PH 132 (8:00 a.m.-5:00 p.m., M-F)

Attendance Policy: Each student is expected to attend all lectures, seminars, laboratories and field work for each registered course, including the first class session. Attendance is required to verify official enrollment and continuance in each course. When students are absent from class for authorized reasons such as death in the family, illness, hindrance by true emergency situations or University activities, they will be allowed to make up assignments/ examinations that they missed. Instructors, of course, are not obligated to provide makeup opportunities for students who are absent, unless the absences have been officially approved. Official excuses can be obtained from the Office of Student Affairs.

NOTE: Any student requiring alternative formats for testing and/or handouts for this course, or other types of accommodations, due to a handicapping condition, should advise the instructor within the first week of classes.

Course Description:

This general biology laboratory course conforms to the second part of introductory biology course. This course enables students to learn about different plants, animals, fungi, and protozoans. The laboratory emphasizes study of major systems of animals with a special thrust to mammals. Students in this laboratory course will get an opportunity to learn an array of vertebral systems viz. skeleton system, muscular system, integumentary system, digestive system, urinary system, reproductive system, and nervous system. The study of these systems is facilitated by the use of live animals for dissection, video films, microscopy slides etc. Each laboratory exercise provides “hands-on” experience based on every day observation in life.

Course Goals:

To provide students an opportunity to learn human organ systems. Thus the knowledge gained in this laboratory could be effectively used to improve the life of humans. The course has following major goals:

1. To familiarize students with plants, animals, fungi and protozoans
2. To familiarize students with organ systems of animals with emphasis on human systems
3. To encourage students to explore the flora and fauna of the land for better understanding of nature.
4. To develop the student's skill in writing, reading, analytical thinking, and problem solving skills.

To meet the above goals, this course will focus on the following objectives. Each objective is diverse and covers different activities.

Objective*

1. Animal Kingdom I
2. Animal Kingdom II
3. Animal Organization
4. Basic Mammalian Anatomy I-Fetal Pig Anatomy
5. Musculoskeletal System
6. Digestive, and Respiratory Systems
7. Circulatory System
8. Basic Mammalian Anatomy II
(Urogenital, & Reproductive Systems)

Corresponding Labs in the Manual

- Laboratory 15& 16
Laboratory 17
Laboratory 18
Laboratory 19
Laboratory 20
Laboratory 19, 25
Laboratory 22 & 23
Laboratory 21 & 25

- 9. Nervous System, Senses and Endocrine System
- 10. Survey of Human Diseases
- 11. Laboratory Assignments

Laboratory 24

*Laboratory experiments may vary depending on the availability of instruments and supplies.

EVALUATION AND MINIMUM STANDARDS

Testing: During this laboratory course, students will be tested from each objective. **The midterm and final exams will be comprehensive.**

Number of Tests: There will be a total of four tests including midterm and final. Instructors may give additional quizzes during the semester.

Composition of Tests: Test items on the test may be multiple choice (MC), fill in the blanks (FB), matching (MT), completion (CP), and calculations (CAL). **Midterm and final exams will contain practical lab questions inclusive of identification (PR).** The instructors will determine the number of these questions. Each objective will be weighed equally in terms of testing. Students will be tested on the terms discussed in each objective.

Minimum Standard for Passing: To pass an objective students must obtain 70% of the points for each objective. To pass the lab, students have to score a total of **350 points and pass 7/10 objectives.** Students must pass **objective 10** to pass the course.

Testing Table

| Test | No. of Questions | Composition | Points |
|-----------------|------------------|--------------------------|------------|
| Test 1 | 50 | MC+FB+MT+CAL | 100 |
| Mid-term | 50 | MC+ PR +FB+MT+CAL | 100 |
| Test 3 | 50 | MC+FB+MT | 100 |
| Lab Assignments | | | 100 |
| Final | 50 | MC+ PR +FB+MT+CAL | 100 |
| Total | | | 500 |

Grading Table

| Grade | Range of total points | No. of Objectives to be passed |
|-------|-----------------------|--------------------------------|
| A | 450-500 | 9 |
| B | 400-449 | 8 |
| C | 350-399 | 7 |
| D | 300-349 | 6 |
| F | Below 300 | Below 6 |

All the students with D or F as a Final grade will be required to repeat the course, a university college core course requirement.

LABORATORY POLICIES

All students are expected to arrive for class ON TIME and leave ONLY after the work is completed. A student may not be allowed to attend the lab if he/she arrives late. You must abide by the University's attendance policy. All students are expected to read each exercise before coming to class. This includes the introduction, procedures and all the terminology in bold face. You may be tested on these exercises. The students should read and follow the instructions in the lab manual while performing the experiment. Attending one of the labs that meets during the week the lab experiment was missed can make up lab experiments. Examinations can be made up **only at the end of semester (last week of labs)**, if an official excuse is presented. Unexcused absences from any examination or laboratory will count as zero.

LISTED BELOW ARE A FEW RULES TO FOLLOW IN YOUR LABORATORY WORK:

1. Read and follow directions given in your lab manual.
2. Handle all equipment with care.
3. Do not remove solutions or other materials from demonstration table.
4. Always handle all the chemicals with care.

5. Always empty and rinse all glassware used and return it to your work place.
6. No smoking, drinking, gum chewing or eating at any time.
7. Beepers and telephones are not allowed in the lab.
8. Dress properly (No Hats).
9. ~~9. The following laboratory exercises are designed to meet the goals of this course. Each objective contains variety of reading/writing exercises, problem solving and scientific reasoning.~~

Detailed Course Objective

The following laboratory exercises are designed to meet the goals of this course. Each objective contains variety of reading/writing exercises, problem solving and scientific reasoning.

Objective 1. Animal Kingdom

Students should be able to:

1. list the characteristics of animals
2. recognize representatives of the phyla Porifera, Cnidaria, Platyelminthes, Nematoda
3. explain the body plan of members of Porifera and Cnidaria
4. identify the members of phylum Porifera and Cnidaria
5. identify the representatives of the phylum Platyhelminthes, Nematoda and Rotifera

Laboratory 15. Sponges, Cnidaria, Flatworms and Roundworms

Experiments:

- | | |
|------------------------------|----------|
| A. Classification of Animals | Lab 15.1 |
| B. Phylum Porifera | Lab 15.2 |
| C. Phylum Cnidarian | Lab 15.3 |
| D. Phylum Platyhelminthes | Lab 15.4 |
| E. Phylum Nematoda | Lab 15.5 |

Video Tape: Expansion of Life

Lab Assignments: Laboratory 15. Sponges, Cnidaria, Flatworms, and Roundworms.

Objective 2: Animal Kingdom II

Students should be able to:

1. define the distinctive features of these phyla
2. identify the members of Chordata and Echinodermata
3. identify the organisms of the phylum vertebrata

Laboratory 16. Mollusks, Annelids and Arthropods

Experiments:

- | | |
|-----------------------------------|----------|
| A. Characteristics of Protostomes | Lab 16.1 |
| B. Mollusks | Lab 16.2 |
| C. Annelids | Lab 16.3 |
| D. Arthropods | Lab 16.4 |

Laboratory 17. Echinoderms and Chordates

Experiments:

- | | |
|-------------------------------------|----------|
| A. Characteristics of Deuterostomes | Lab 17.1 |
| B. Echinoderms | Lab 17.2 |
| C. Chordates | Lab 17.3 |
| D. Vertebrates | Lab 17.4 |
| E. Comparative Vertebrate Anatomy | Lab 17.5 |

Lab Assignments: Laboratory 16. Mollusks, Annelids and Arthropods
Laboratory 17. Echinoderes and Chordates

Objective 3. Animal Organization Laboratory 18

Students should be able to:

1. define the degree of organization in animal structure
2. recognize basic tissues and their common mammalian subtypes
3. explain how the basic tissues are utilized to make organs
4. list systems of mammals and their salient features
5. state the basic plan of mammalian body
6. locate the major organs in a mammal's body

Video tape: Animal cells and tissues

Laboratory 18. Animal Organization

Experiments:

- | | |
|-----------------------|----------|
| A. Epithelial Tissues | Lab 18.2 |
| B. Muscular Tissues | Lab 18.3 |
| C. Nervous Tissue | Lab 18.4 |
| D. Connective Tissues | Lab 18.5 |
| E. Organs | Lab 18.6 |

Lab Assignments: Laboratory 18. Animal Organization

Objective 4. Basic Mammalian Anatomy I Laboratory 19
(Fetal Pig Anatomy)

Students should be able to:

1. describe and locate external features of a fetal pig
2. determine the sex of a fetal pig
3. describe the function of umbilical cord
4. identify and list the functions of thoracic and abdominal cavity

Laboratory 19. Basic Mammalian Anatomy I

Experiments:

- | | |
|----------------------------|----------|
| A. External Anatomy | Lab 19.1 |
| B. Oral Cavity and Pharynx | Lab 19.2 |
| C. Thoracic cavity | Lab 19.5 |
| D. Human Anatomy | Lab 19.7 |

Lab Assignment: Laboratory 19. Basic Mammalian Anatomy I

Objective 5. Musculoskeleton System Laboratory 20

Students should be able to:

1. identify the major bones of the human skeleton
2. define terms action, insertion and origin as they apply to skeleton muscles and their tendons
3. distinguish between isometric and isotonic contraction of skeleton muscles

4. provide examples of three classes of levers used in everyday life
5. describe the structure of a typical bone

Laboratory 20: Musculoskeleton System

Experiments:

- | | |
|--------------------------|----------|
| A. Human Skeleton | Lab 20.1 |
| B. Muscle Fibers | Lab 20.2 |
| C. Anatomy of Muscles | Lab 20.3 |
| D. Physiology of Muscles | Lab 20.4 |

Lab Assignments: Laboratory 20: Musculoskeleton System

Objective 6. Digestive and Respiratory and Systems Labs 19 & 25

Students should be able to:

1. locate the organs of digestive, respiratory, and circulatory systems in the fetal pig
2. describe the functions of the organ systems discussed in this exercise
3. list the significance of systems explained in this exercise
4. explain the importance of digestive, and respiratory systems to a living mammal

Laboratory 19. Basic Mammalian Anatomy I

Experiments:

- | | |
|--|------------------|
| A. Abdominal Incision and Abdominal Cavity | Labs 19.3 & 19.6 |
|--|------------------|

Laboratory 25. Basic Mammalian Anatomy II

Experiments:

- | | |
|---|----------|
| A. Respiratory, Digestive and Circulatory Systems | Lab 25.6 |
|---|----------|

Objective 7: Circulatory System Laboratory 22 & 23

Students should be able to:

1. describe the functions of different types of blood cells
2. differentiate among an artery, capillary, and vein
3. explain how blood flows through capillaries
4. name the four chambers of the heart and describe the route blood takes through them
5. describe the heart contraction
6. list the skeleton muscle involved in breathing
7. explain how air moves in and out of the lungs during respiration in humans and frogs

Laboratory 22. Ciculatory System

Experiments:

- | | |
|--|----------|
| A. Path of Blood in Adult versus Fetus | Lab 22.1 |
| B. Pulmonary Circuit | Lab 22.2 |
| C. Systemic Circuit | Lab 22.3 |
| D. Blood Vessel Comparison | Lab 22.4 |

Laboratory 23. Features of the Circulatory System

Experiment:

- | | |
|--------------------|----------|
| A. Mammalian Heart | Lab 23.1 |
| B. Mammalian Blood | Lab 23.2 |
| C. Heartbeat | Lab 23.3 |

Lab Assignment: Laboratory 22. Circulatory System
Laboratory 23. Features of the Circulatory System

Objective 8. Basic Mammalian Anatomy II (Urogenital & Reproductive Systems)

Laboratory 25

Students should be able to:

1. locate the organs of urinary system, and reproductive system
2. describe the organs of urinary system, and reproductive system
3. provide the functions of the organs of the urinary system, and reproductive system
4. explain the importance of the urinary system, and reproductive system to a living mammal
5. name and locate the internal structures of the kidney.

Lab 25. Basic Mammalian Anatomy II

Experiments:

- | | |
|---|----------|
| A. The Urinary System | Lab 25.1 |
| B. Male Reproductive System | Lab 25.2 |
| C. Female Reproductive System | Lab 25.3 |
| D. Male versus Female Reproductive System | Lab 25.4 |
| E. Anatomy of Testes and Ovary | Lab 25.5 |

Lab Assignment: Lab 25. Basic Mammalian Anatomy II

Objective 9. Nervous System, Senses and Endocrine System

Laboratory 24

Students should be able to:

1. describe the flow of information through the nervous system
2. state the function of sensations
3. explain the stretch reflex
4. describe a pupillary reflex
5. differentiate between a reflex and a reaction
6. locate major endocrine glands in humans and fetal pigs
7. state the hormones released by each glands

Lab 24. Nervous System and Senses

Experiments:

- | | |
|--------------------------------------|----------|
| A. The Mammalian Brain | Lab 24.1 |
| B. The Spinal Cord and Spinal Nerves | Lab 24.2 |
| C. The Human Eye | Lab 24.3 |
| D. The Human Ear | Lab 24.4 |
| E. Receptors in Human Skin | Lab 24.5 |
| F. Human Chemoreceptors | Lab 24.6 |

Lab Assignment: Lab 24. Nervous System and Senses

Objective 10. Survey of Human Diseases

Students should be able to:

1. describe major diseases in the U. S. population.
2. state the causes of the diseases
3. explain measures to prevent such diseases
4. describe other methods practiced to overcome these diseases

Topics:

- A. Bacterial Diseases
- B. Viral Diseases
- C. Genetic Diseases
- D. Immune system Diseases
- E. Nervous system Diseases
- F. Heart Diseases
- G. Other Diseases

Objective 11. Writing Exercises

Writing exercise(s), quizzes, and assignments.

Individual instructor will determine format, frequency, and scoring of writing exercise(s), quizzes and assignments.

At the end of each laboratory there are lab assignments. These lab assignments are to be completed after your instructor has taught the lab. You will be graded on the assignment that will contribute to a total of 100 points. You must answer 70% of the questions correctly to pass an assignment. Your instructor will determine the number of lab assignments. Following are some of the ways that can be used by your instructor to grade the lab assignments:

You may be required to turn in Ten (10) assignments each worth 10 points

OR

You may be required to turn in Five (5) selective lab assignments each worth 20 points