I. INTRODUCTION

A. This laboratory-based course accompanies Biology 1413, General Zoology. Laboratory activities will reinforce fundamental biological concepts relevant to animals, including systematics, evolution, structure and function, cellular and molecular metabolism, reproduction, development, diversity, phylogeny, and ecology. (This course is intended for science majors.)

B. This lab is part of a course that satisfies the Biology requirement in most curricula. Please check your degree plan to determine the status of this course in your program of study.

C. This course is occupationally related and serves as preparation for careers in science.

D. Recommended Prerequisite: MATH 1314 - Successful completion of College Algebra or concurrent enrollment in higher level mathematics is recommended.

II. LEARNING OUTCOMES

Upon successful completion of this course, students will:

A. Apply scientific reasoning to investigate questions and utilize scientific tools such as microscopes and laboratory equipment to collect and analyze data.

B. Use critical thinking and scientific problem-solving to make informed decisions in the laboratory.

C. Communicate effectively the results of scientific investigations.

D. Compare and contrast the structures, reproduction, and characteristics of animals.

E. Describe the characteristics of life and the basic properties of substances needed for life.

F. Identify the principles of inheritance and solve classical genetic problems.

G. Describe phylogenetic relationships and classification schemes.

H. Identify the major phyla of life with an emphasis on animals, including the basis for classification, structural and physiological adaptations, evolutionary history, and ecological significance.

I. Identify the chemical structures, synthesis, and regulation of nucleic acids and proteins.

J. Identify the substrates, products, and important chemical pathways in respiration.

K. Describe the unity and diversity of animals and the evidence for evolution.
through natural selection.
L. Describe the reasoning processes applied to scientific investigations and thinking.
M. Describe basic animal physiology and homeostasis as maintained by organ systems.
N. Describe modern evolutionary synthesis, natural selection, population genetics, micro and macroevolution, and speciation.
O. Describe the structure of cell membranes and the movement of molecules across a membrane.

III. INSTRUCTIONAL MATERIALS

A. The instructional materials identified for this course are viewable through www.ctcd.edu/books

IV. COURSE REQUIREMENTS:

A. **Reading Assignments:**
   Students should thoroughly read through each lab exercise prior to lab class and answer/complete parts of the reading that one can as this will ensure timely completion of each of the lab exercises.

B. **Class Performance:**
   Students are expected to attend lab during their regularly scheduled time. It is the responsibility of the student to sign-in during lab time. If for any reason a student cannot or decides not to complete the course, then it is the responsibility of the student to withdraw from the course prior to the withdrawal date. All students that remain enrolled will receive a letter grade. The Instructor will not withdraw/drop a student from the course at any time.

V. EXAMINATIONS:

   There will be 6 lab quizzes during your scheduled lab time. Each lab quiz will occur during the first half of the lab time.
   • Lab quizzes consist of material covered in lab. It is important to: complete exercises, answer assigned questions, then check answers to those questions. Additional resources to help you study for lab quizzes are posted on BlackBoard.
   • There are no make-up lab quizzes, but your lowest lab quiz grade will be dropped.

VI. SEMESTER GRADE COMPUTATIONS

   Your best 4 lecture exams are worth 125 points each. Your best 5 lab quizzes are worth 100 points each. Your course grade is based on a total of 1000 points:
   A: 900-1,000   B: 800-899   C: 700-799   D: 600-699   F: 000-599
*There are no opportunities for extra credit.
*To determine one’s standing in the course at any point in time, divide total points earned by total possible points for both lab & lecture.
VII. NOTES AND ADDITIONAL INSTRUCTIONS FROM THE INSTRUCTOR

A. Course Withdrawal: It is the student’s responsibility to officially drop/withdraw from a class if circumstances prevent attendance or if the student decides not to continue with the course and this must be done before the withdrawal date. An instructor cannot initiate a withdrawal or drop a student based on the student’s request. GoArmyEd students should contact their ACES counselor before withdrawing and withdraw through the GoArmyEd portal. All other students who desire to or must officially withdraw from a course on or after the first scheduled class meeting must file an Application for Withdrawal with the local CTC representative by the last date to withdraw. Students enrolled in distance learning courses and who do not have access to a local CTC representative should submit a withdrawal form to EaglesOnCall@ctcd.edu or the CTC Records Office in Killeen, Texas.

*Applications for Withdrawal will be accepted at any time before the completion of the 12th week of classes for 16-week courses, the sixth week of classes for eight-week courses, or the fourth week of classes for six-week courses.

*For non-GoArmyEd active military students, the effective date of withdrawal is the filing date with the Education Center. For all other students, the effective date of withdrawal is the date that the withdrawal application is received by the Central Texas College representative.

*Students who used financial aid, military tuition assistance, VA benefits, or other non-personal funds may be required to repay tuition and fees to the funding agency. For specific repayment requirements, contact the Office of Student Financial Aid or Veterans Services Office before withdrawing. Military tuition assistance students should visit their military Education Center or Navy College Office.

*Students may not withdraw from a class for which the instructor has previously issued a grade of “F.”

B. Administrative Withdrawal: A student may be administratively withdrawn by a designated member of the administrative staff of the College under the following conditions:

- The student has been placed on Academic Suspension or Disciplinary Suspension;
- The student has an outstanding financial obligation owed to the college; or
- The student registered for a course without the required prerequisite or departmental permission.

The college is under no obligation to refund tuition and fees, or other costs associated with a student who is administratively withdrawn.

C. Incomplete Grade: Incomplete, Course in Progress (for non-developmental courses): An “IP” grade may be assigned by an instructor if a student has made satisfactory progress in a course with the exception of a major quiz, final exam, or other project. The “IP” grade may also be assigned for extenuating circumstances beyond a student’s control such as personal illness, death in the immediate family,
military orders, or in the case of distance learning courses, institutional technology failures and mail delays. Notice of absences with supporting documentation may be required by the instructor. The instructor makes the final decision concerning the granting of the incomplete grade. The instructor may set a deadline for completing the remaining course requirements. In no case will the deadline exceed 110 days after the scheduled end of the course. An “IP” grade cannot be replaced by the grade of “W.” If a student elects to repeat the course, the student must register, pay full tuition and fees and repeat the entire course.

At the end of the 110 calendar days if the student has not completed the remaining coursework as required by the instructor, the “IP” will be converted to an “FI” and appear as an “F” on the student’s official transcript. A student who merely fails to show for the final examination will receive a zero for the final and a “F” for the course.

D. **Cellular Phones:** During a test students cannot leave the room or use unauthorized materials such as notes or cell phones. Cell phones will be turned off while the student is in the classroom or laboratory. Use of a cell phone during an exam constitutes cheating. Committing scholastic dishonesty can lead to disciplinary action that may include suspension and expulsion. The number for your family members to call in an emergency is 254-526-1200. Appropriate personnel will immediately communicate the message to you.

E. **Americans With Disabilities Act (ADA):** Disability Support Services provide services to students who have appropriate documentation of a disability. Students requiring accommodations for class are responsible for contacting the Office of Disability Support Services (DSS) located on the central campus. This service is available to all students, regardless of location. Explore the website at [www.ctcd.edu/disability-support](http://www.ctcd.edu/disability-support) for further information. Reasonable accommodations will be given in accordance with the federal and state laws through the DSS office.

F. **Instructor Discretion:** The instructor reserves the right of final decision in course requirements.

G. **Civility:** Individuals are expected to be cognizant of what a constructive educational experience is and respectful of those participating in the learning environment. Failure to do so can result in disciplinary action up to and including expulsion.

H. Absolutely no food or drinks in the lecture classroom or the laboratory room.

I. Courtesy dictates that you discuss any problem with your instructor first. If the issue cannot be resolved, then contact the Chair of the Science Department.

**VIII. LAB OUTLINE**
A. Microscope, Cells
B. Scientific Experiment
B. Scientific Method Practice
C. Natural Selection
D. Microevolution
E. Cladistics
F. Reproduction, Development
G. Mitosis, Meiosis
H. Protozoa
I. Porifera
J. Cnidaria
K. Platyhelminthes
L. Molluscs
M. Annelids
N. Nematodes
O. Arthropods
P. Echinoderms
Q. Chordates