I. INTRODUCTION

A. This laboratory accompanies Biology 2402 lecture, and provides a hands-on learning experience for exploration of human system components and basic physiology. Systems to be studied include endocrine, cardiovascular, immune, lymphatic, respiratory, digestive (including nutrition), urinary (including fluid and electrolyte balance), and reproductive (including human development and genetics).

B. This course is designed primarily for the career nursing and med-tech student but might satisfy requirements for other curricula in the allied health fields.

C. Prerequisite: Biol 2401 with a grade of “C” or better; must have been taken within the last 5 years.

E. Recommended Prerequisite: Biol 1406

II. LEARNING OUTCOMES

Upon successful completion of this course, Biology 2402 lab the student will:

A. Apply appropriate safety and ethical standards.

B. Locate and identify anatomical structures.

C. Appropriately utilize laboratory equipment, such as microscopes, dissection tools, general lab ware, physiology data acquisition systems, and virtual simulations.

D. Work collaboratively to perform experiments.

E. Demonstrate the steps involved in the scientific method.

F. Communicate results of scientific investigations, analyze data and formulate conclusions.

G. Use critical thinking and scientific problem-solving skills, including, but not limited to, inferring, integrating, synthesizing, and summarizing, to make decisions, recommendations, and predictions.

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. The Instructor will not withdraw/drop a student from the course at any time. If a student ceases to attend class and does not withdraw from the course, then an appropriate course grade will be submitted at the end of the semester.

   The student will be provided a lab schedule that links dates to lab exercises, exams/projects and holidays. If you must be absent from any lab meeting, it is your responsibility to try to compensate for missing the lab experience since there are no lab makeups.

V. EXAMINATIONS:

   There will be THREE lab exams that students will take during their regularly scheduled lab time. If a student is late to class on exam day no extra time will be allotted for taking the exam. The exams may consist of multiple choice, matching, true/false, short answer, labeling, definitions, and essay questions. Each lab period is an opportunity for the student to deepen his/her understanding of some of the key concepts of the course. Missed exams will result in a zero being recorded in the gradebook. Emergencies will be handled on an individual basis. Students are encouraged to come by my office to see which questions were missed on an exam and to seek understanding of the missed material. The opportunity to view a previously taken exam will made available for two weeks after the exam results have been provided to students. The three unit exams will not be available for viewing at the end of the semester. Under no circumstances are you allowed to copy the exam, copy questions from the exam, photograph the exam or reproduce the exam in any other way. Reproducing exam questions in any way constitutes scholastic dishonesty which will lead to disciplinary action that may include suspension and expulsion.

VI. SEMESTER GRADE COMPUTATIONS

Biology 2402 course grade is based on a total of 1000 points.

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
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<tbody>
<tr>
<td>UNIT EXAMS- Four @ 100 points</td>
<td>400 points</td>
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<tr>
<td>FINAL EXAM- One @ 100 points</td>
<td>100 points</td>
</tr>
<tr>
<td>TOTAL LAB POINTS (3 exams)</td>
<td>300 points</td>
</tr>
<tr>
<td>HOMEWORK</td>
<td>100 points</td>
</tr>
<tr>
<td>QUIZZES</td>
<td>100 points</td>
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<tr>
<td>COURSE TOTAL</td>
<td>1000 points</td>
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COURSE GRADE:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-</td>
<td>900-1000</td>
</tr>
<tr>
<td>B-</td>
<td>800-899</td>
</tr>
<tr>
<td>C-</td>
<td>700-799</td>
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<tr>
<td>D-</td>
<td>600-699</td>
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<tr>
<td>F-</td>
<td>0-599</td>
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Extra credit may be offered during class duration.

*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. **CourseWithdrawal:** 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:** Cellular phones will be turned off while the student is in the
classroom or laboratory. **Use of a cell phone during an exam will result in a
zero for that exam.** A student who in any way makes a copy of exam questions
will be committing scholastic dishonesty which will 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. Endocrine System (Glands on models, and microscope. Lab book exercises)
B. Hormones/Glands (Lab book exercises, activities with critical thinking)
C. Blood (Lab book exercises, blood grouping, blood typing, hematocrit procedures)
D. Cardiovascular (Lab book exercises)
E. Blood Vessels (Identify blood vessels on model and microscope)
F. Heart (Identify blood vessels and parts of the heart)
G. Lymph system (Lab exercise identifying lymph node)
H. Immune system (Identifying major parts of immune system)
I. Respiratory system (Lab exercises, spirometer procedures, volumes, models)
J. Digestive system (Lab critical thinking exercise, identify models)
K. Blood pressure (Lab exercises, heart sounds)
L. ECG analysis (Lab activities, ECG procedures, interpretation)
M. Urinary system (Lab exercises, urinalysis, lab models)
N. Reproductive system (Lab models)
O. Genetics (Lab exercises and activities)