

**Zoology 141L
Anatomy and Physiology Laboratory**

M 5:30-8:15 PM (CRN 60125)

‘Imiloa 103

INSTRUCTOR: Ross Langston, PhD
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EFFECTIVE DATE: Fall, 2015

WINDWARD COMMUNITY COLLEGE MISSION STATEMENT

Windward Community College offers innovative programs in the arts and sciences and opportunities to gain knowledge and understanding of Hawai‘i and its unique heritage. With a special commitment to support the access and educational needs of Native Hawaiians, we provide O‘ahu’s Ko‘olau region and beyond with liberal arts, career and lifelong learning in a supportive and challenging environment — inspiring students to excellence.

CATALOG DESCRIPTION

Laboratory to accompany ZOOL 141. Reinforces major concepts of human anatomy and physiology through dissections, examination of models, laboratory experiments, and other hands-on activities. This course is intended for students entering health care or other medically related fields such as nursing, physical therapy, and medical technology. (3 hrs. lab)

Activities Required at Scheduled Times Other Than Class Times: None

STUDENT LEARNING OUTCOMES

Upon successful completion of ZOOL 141L, the student should be able to:

- 1) Use the scientific method to design and conduct a clinical research study.
- 2) Describe the anatomy of the integumentary, skeletal, muscular, and nervous systems from prepared slides, models, and real and virtual animal dissections.
- 3) Use basic laboratory and medical equipment to evaluate functions of the above body systems.
- 4) Use critical thinking to analyze and interpret clinical data.
- 5) Prepare an oral presentation and written summary of lab activities using the scientific method.

COURSE CONTENT

Concepts or Topics

The student will describe and integrate basic biological principles and define basic biological terms presented in lecture, required texts, and other instructional materials. These principles include the following areas:

- Scientific Method
- Chemical Reactions
- Homeostasis
- Osmosis and Diffusion
- Cell Anatomy and Cell Division
- Classification of Tissues
- Body Fat
- Skeletal System and Bone Tissue
- Joints
- Muscular System and Muscle Tissue
- Nervous System and Nervous Tissue
- Sensory Systems
- Reflex Physiology

COURSE TASKS

- 1) Attend class at scheduled times.
- 2) Participate in lab activities.
- 3) Record results of lab activities in lab notebook.
- 4) Complete weekly quizzes.
- 5) Complete 2 in-class practicums.
- 6) Present results of lab activities.

ASSESSMENT TASKS AND GRADING

QUIZZES (100 points total- 10 points for each quiz). Students will take a short quiz at the beginning of each class (11 total). Each quiz will be based on the material covered in the previous lab. Students who show up late to lab will receive a zero score on the quiz. **(NO EXCEPTIONS!)**. The lowest quiz score will be dropped.

LAB REPORTS (50 points each- 100 points total). Formal lab reports are required for activities indicated by an '*'. These reports are generally due 1-2 weeks after the indicated lab activity, and must be submitted using the turnitin.com website. The reports will be graded for completeness, accuracy, clarity, and effort. The format for the lab reports will be discussed during the first laboratory session. Students are required to complete TWO lab reports. Students may not submit a lab report for the lab on which they conduct their research presentation. I will subtract 10 points a day for late reports. Note that the last report (Reflex Physiology) may not be turned in late.

LAB PRACTICUMS (200 points total-100 points for each practicum). The student will take two lab practicums (non-cumulative) to demonstrate knowledge and understanding of information presented in lab activities. These practicums will cover anatomy (e.g., organ identification and histology) and physiology of major systems covered during lab and will be similar in content and scope to the lab quizzes.

RESEARCH PRESENTATION (50 points).

Students will work together in groups of 3-4 individuals. Each lab group will give an oral presentation (15-20 minutes) summarizing the activities of a chosen laboratory session. Students may not submit a lab report for the lab on which they conduct their research presentation

ATTENDANCE & CLASS PARTICIPATION (50 points): Attendance and class participation are mandatory. Each student is allowed **one** absence without penalty. Each unexcused absence above one will result in a deduction of points from the student's attendance score. Students with more than two un-excused absences will receive an "F" grade in the class. Because most laboratory sessions require special equipment and preparation, make-up labs will NOT be given. Finally, students who leave early, do not properly clean up their lab area, do not wear required attire, or fail to turn in class data at the end of each lab will be counted as absent.

METHOD OF GRADING

The assignment of points will be according to the following:

Quizzes (10)	100 points
Lab Reports (2 x 50)	100 points
Practicums (2 x 100)	200 points
Oral Presentation	50 points
Attendance	50 points
TOTAL	500 points

GRADING SCALE

Total Points	Percentage Points	Grade
448-500	90-100	A
398-447	80-89	B
348-397	70-79	C
298-347	60-69	D
<298	0- 59	F

Grades may be curved at the instructor's discretion; however, the student should use the above grading scale to evaluate their performance throughout the class. If you miss an examination because of an illness or legitimate documentable emergency, you must contact the instructor **within 24 hours** to arrange a time to take a make-up exam. The instructor may request that the student present evidence of the illness or emergency that caused the student to miss the exam. If the student misses an exam for any other reason, the student may be prohibited from taking a make-up exam, thus failing to receive any points for the missed exam. While make-up exams will cover the same content area as a missed exam, the exam format and specific questions may be different. **No retests will be given for any reason.**

LEARNING RESOURCES

Lab Manual: Marieb, E.N., Mitchell, S.J., and L.A. Smith. 2014. Human Anatomy & Physiology Laboratory Manual. 9th Ed. Cat Version. Pearson Education, Inc. ISBN: 978-0-321-82219-2

Textbook: **Textbook:** Marieb, E.N. and K. Hoehn. Human Anatomy and Physiology. 9th Ed. Pearson Education, Inc. ISBN: 978-0-321-74326-8

Laulima: <https://laulima.hawaii.edu/portal> Contains links to lecture outlines, lab activities, and

review materials. Students will need a UH email account and access to a computer to access the Lualima site.

* In addition, many students find it helpful to bring a **digital camera** and **USB flash drive** to class in order to photograph anatomical specimens and exchange data and picture files.

Additional Information

LAB ATTIRE, CONDUCT, AND HYGEINE

Because biology labs often involve working with chemicals or hazardous materials, **students MUST wear close-toed shoes**. In addition, some lab activities will require students to wear gloves and safety glasses (provided by the college). Several labs will involve body measurements (e.g., body fat), light exercise, or the placement of electrodes or sensors on the body. Students should therefore wear loose-fitting clothing that allows for a free range of movement (i.e. no tight-fitting pants or jeans). Students failing to dress appropriately for lab will not be permitted to participate in laboratory exercises and will be considered absent. Students engaged in conduct that threatens themselves or others in the lab will be refused access to the lab for the remainder of the semester and receive an "F" grade for the course.

LAB SUBJECT POLICY

Most labs involve non-invasive clinical measurements (e.g., skin-fold measurement, reflex tests, etc). ALL students are required to participate in these activities. If you have a health condition or other reason why you should not participate you should inform the instructor. Experiments involving invasive or semi-invasive procedures (e.g., finger sticks and urinalysis) will be performed on volunteers only.

ACADEMIC DISHONESTY

Students involved in academic dishonesty will receive an "F" grade for the course. Academic dishonesty includes cheating on exams and plagiarism. See page 20-21 of the 2011-2013 course catalog for a description of the College's policies concerning academic dishonesty.

ACCOMODATION FOR STUDENTS WITH DISABLITIES

If you have a physical, sensory, health, cognitive, or mental health disability that could limit your ability to fully participate in this class, you are encouraged to contact the Disability Specialist Counselor to discuss reasonable accommodations that will help you succeed in this class. Ann Lemke can be reached at 235-7448, lemke@hawaii.edu, or you may stop by Hale 'Akoakoa 213 for more information.

LAB SAFETY RULES

- 1) Be familiar with lab safety procedures and take appropriate precautions at all times to insure the safety of all lab students.
- 2) Follow all instructions carefully, especially when hazardous materials are being used.
- 3) Know the locations of important safety equipment: eyewash, safety shower, fire extinguisher, and first aid kit.
- 4) Report all injuries to the instructor immediately.
- 5) Dress appropriately for lab. Closed-toe shoes are required for ALL labs. Safety glasses and gloves are required for labs utilizing chemicals, bodily fluids, or hot-plates.
- 6) Report any hazardous conditions (e.g. chemical spills or broken glass) to the instructor immediately.
- 7) NO FOOD ALLOWED IN LAB
- 8) Chemicals used in lab may be poisonous, corrosive, or flammable. No chemicals, even those known to be safe, should be ingested or touched with un-gloved hands unless you are specifically directed to do so by your instructor.
- 9) Know how to safely operate all lab equipment and tools (e.g., microscopes, scalpels, and hematology supplies). Safe usage will be demonstrated by your instructor.
- 10) Clean all lab supplies and return them to their proper location before leaving lab.
- 11) Treat all organisms, living or dead, with care and respect. Use gloves when handling dissected specimens.
- 12) Place broken glass, sharps, and dissected specimens in the appropriate receptacles (NOT IN THE TRASH!)
- 13) Unless otherwise instructed, chemical wastes should NOT be disposed of down the drain.
- 14) Human tissues and bodily fluids (e.g., saliva and blood) must be disposed of in appropriate bio-hazard containers (NOT IN THE TRASH!).
- 15) Wash your hands immediately following each lab to reduce the possibility of contamination or infection.

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* Please note: this schedule is subject to change. Any changes will be announced in-class or on the course website.

Week	Date	Day	Topics	Reading
1	8/24	M	Lab Introduction/Orientation Scientific Method	Syllabus Supplement
2	8/31	M	The Microscope Cell Anatomy	Exercise 3 & 4
3	9/7	M	Labor Day	
4	9/14	M	Cell Transport Mechanisms: Osmosis and Diffusion Classification of Tissues	Exercise 5A Exercise 6A
5	9/21	M	The Integumentary System Body Size and Composition And membranes (Osmosis Research Paper Due)	Exercise 7 & 8 Supplement
6	9/28	M	Bone Tissue and Axial Skeleton	Exercise 9 & 10
7	10/5	M	Appendicular Skeleton Joints: Articulations and Body Movements	Exercise 11 & 13 Supplement
8	10/12	M	Lab Practical #1 (up to joint movements)	
9	10/19	M	Muscle Tissue Gross Anatomy and Classification of Muscles I	Exercise 14
10	10/26	M	Gross Anatomy and Classification of Muscles II	Exercise 15
10	11/2	M	Muscle Physiology PhysioEx 9.1 Computer simulation	Exercise 16b back of lab manual
12	11/9	M	Histology of Nervous Tissue Gross Anatomy of the Brain and Spinal Cord	Exercise 17, 19, 21
13	11/16	M	Human Reflex Physiology General Senses	Exercise 22, 23
14	11/23	M	Special Senses	Exercises 24-26
15	11/30	M	Study Day	
	12/7	M	Lab Practical #2	

Important Dates:

- Last day to drop without “W” grade: September 14th
- Last day to Withdraw (“W” entered on transcript): October 30th