

Zoology 141L Anatomy and Physiology Laboratory Section

One (1) Credit

Monday 10:00 am to 12:45 pm, 103 Imiloa

INSTRUCTOR: Allison Beale
OFFICE: 118 Imiloa
OFFICE HOURS: 9:00-10:00 am Mondays
TELEPHONE: Please use email **EMAIL:** abeale@hawaii.edu
EFFECTIVE DATE: Fall 2013

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

This is the laboratory meant to accompany the lecture in Zoology 141. The lab 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 hours of lab).

Activities Required at Scheduled Times Other Than Class Times

None.

STUDENT LEARNING OUTCOMES

The course student learning outcomes (SLOs) are:

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, skeleton models and real and virtual animal dissections.
3. Use basic laboratory equipment (microscopes, slides, and dissecting tools) to observe and characterize human tissues.
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 terms, topics, or concepts students should know or understand)

- **Scientific method**
- **Chemistry including biochemistry related to osmosis, diffusion, metabolism and respiration.**
- **Homeostasis**
- **Anatomical terms**
- **Cell anatomy and physiology**
- **Organ system anatomy and physiology**
 - **Fat (adipose tissue)**
 - **Skeletal (bone, cartilage and joints)**
 - **Muscle, including origins and insertions of major muscles.**
 - **Nervous and sensory**
 - **Cardiovascular**
 - **Respiratory**
 - **Digestive system**
 - **Endocrine**
 - **Blood and Lymphatic systems**
 - **Urogenital system**
- **Tissue anatomy and physiology**
 - **Connective**
 - **Epithelial**
 - **Muscular**
 - **Nervous**

Skills or Competencies (what students should be able to do in order to complete the student learning outcomes)

1. *Identify the anatomy of major organ systems;*
2. *Explain the physiology of major cell types;*
3. *Explain the physiology of major tissues;*
4. *Explain the physiology of major organs.*
5. *Identify the major cellular components of major tissues and organs.*
6. *Use the “tools of the trade” appropriately, including microscopes, dissection tools, and microscope slides.*
7. *Interpret visual, hands-on materials, including slides, models and virtual dissections into an oral and written presentation and lab notebook.*
8. *Interpret visual, hands-on materials and data into clinical profiles.*

COURSE TASKS

1. Attend class at scheduled times, not arriving late or leaving early without prior consent of instructor.
2. Participate in all lab activities, including:
 - a. Making yourself familiar with all lab safety procedures
 - b. Taking appropriate precautions at all times to ensure your own safety and the safety of others and the environment
 - i. Know the locations of important safety equipment and the fundamentals of their use including:
 1. Eyewash stations
 2. Safety shower(s)
 3. Fire extinguisher
 4. First Aid kit
 5. Who to summon in the event of an accident or emergency
 - c. Follow instructions

- d. Dress appropriately for lab
 - i. Closed toed shoes are REQUIRED
 - ii. Safety glasses and gloves are REQUIRED for any lab using chemicals, hot-plates or which may expose you or others to body fluids.
 - e. Report any chemical spills, broken glassware or other hazardous situations immediately to the instructor
 - i. Place all broken glass, sharps and dissected specimens in the appropriate receptacles, NOT IN THE TRASH.
 - ii. All tissues and body fluids, human or otherwise, including saliva, blood, or other tissues, must be disposed of in the appropriate bio-hazard container, NOT IN THE TRASH.
 - f. Chemicals used in lab may be poisonous, corrosive or flammable.
 - i. Do not ingest any chemical, even those known to be safe, in the lab.
 - ii. Do not touch any chemical in the lab without wearing gloves unless specifically instructed by your instructor to do so.
 - iii. Unless otherwise instructed, chemical wastes should NOT GO DOWN THE DRAIN.
 - iv. DO NOT CONSUME FOOD OR BEVERAGES IN LAB.
 - v. Again: NO FOOD OR BEVERAGES ALLOWED IN THE LAB!
 - g. Know how to safely use and operate all lab equipment and tools, including:
 - i. Microscopes
 - ii. Glass microscope slides
 - iii. Hematology supplies
 - iv. Scalpels and other dissection tools
 - h. Treat all organisms, living or dead, with care and respect.
 - i. Always handle dissection specimens with gloves.
 - ii. Wash your hands, even if you have been wearing gloves, after handling dissection specimens.
 - i. Clean all lab supplies and return them to their proper location before leaving lab.
 - j. WASH YOUR HANDS immediately following lab to reduce the possibility of infection or contamination.
3. Record results of lab activities in a lab notebook.
 - a. Number, prior to the start of class, all the pages of your lab notebook using a pen (not a pencil).
 4. Complete weekly quiz.
 5. Complete 2 in-class practical exams.
 6. Present (orally and in writing) results of lab activities.

ASSESSMENT TASKS AND GRADING

Quizzes – one per week, 10 total. 10 points each quiz, for a total of **100 points**.

Quizzes cover:

1. Material from the previous lab.
2. A student arriving late will receive a zero on the quiz.

Practical Exams – two in-class practical exams. 100 points each, for a total of **200 points**.

Practical exams cover:

1. Anatomy (gross and cellular) and physiology (function) of major systems covered in lab.

Lab Notebook – submitted twice, 100 points each time for a total of **200 points**.

Lab Reports – four written lab reports, one on each of the following topics, worth 50 points each,

for a total of **200 points**:

1. Histology
2. The Integumentary system
3. The Skeletal system, including joints
4. The Nervous system

Oral Lab Report – one oral lab report

- Completed as a team to include visuals,
- Based on a lab not covered by the written lab reports and
- Focused on the clinical use of information from that lab.
- Worth **200 points**.

Participation and attendance – Attendance is mandatory.

- Each student is allowed one absence without penalty. Each unexcused late arrival or early departure will result in a deduction of 20 points from the student's attendance "bank". The "bank" consists of **100 points**.
- Make up labs are not an option, so two unexcused absences will result in a failing grade (an "F").
- Some labs involve non-invasive clinical measurements (such as skin-fold measurements or reflex testing). If you have a health condition or other reason why you should not be required to participate in these activities, you must notify the instructor. Experiments involving invasive or semi-invasive procedures will be performed on volunteers only. Such procedures may include finger sticks and urinalysis.

NOTE: All assignments are due ON or BEFORE the due date (at the START of lab on the due date). The following are NOT ACCEPTED:

1. Late assignments
2. eMailed work
3. Left in my office or mailbox.
4. Anything other than HAND DRAWN diagrams (no tracings, no computer-generated work, no photocopies).

Extra Credit – up to 100 EC points will be made available in 10, 10 point activities.

Total points for the course: 1,000.

Total optional, EC: 100 points.

LEARNING RESOURCES

Lab manual: Marieb, EN. 2011. *Human Anatomy and Physiology Laboratory Manual*. 10th Ed (Cat Version). Pearson Benjamin Cummings, San Francisco, CA ISBN 0-321-61612-X. Available in the WCC bookstore.

Laulima: <https://laulima.hawaii.edu/portal>. Students need a UH email account and access to a computer (available in Imiloa and the WCC Library Learning Commons). Laulima hosts a webpage for our course where you will find additional resources including, guidance and instructions, updates, announcements, links to lab activities and the Extra Credit materials.

Additional Information

LAB ATTIRE, CONDUCT AND HYGEINE

1. Biology labs often involve the use of chemicals, including potentially hazardous materials, and potentially dangerous equipment, including sharps such as scalpels and glassware.
 - a. Therefore students **MUST** wear:
 - i. Closed toe shoes
 - ii. And may be required to wear safety glasses and/or protective gloves or other protective equipment.
 - b. Therefore students **MUST** adhere to a strict code of conduct.
 - i. Any student engaging in conduct that threatens the safety of themselves or others in lab will be expelled from class and receive an “F” grade for the course.
2. Some lab activities involve body measurements (such as body fat determination through skin fold analysis), light exercise, or the placement of electrodes or sensors on the body. Therefore, students should wear:
 - a. Loose-fitting clothing that allows for a free range of movement
 - b. Students failing to wear appropriate clothing will not be allowed to participate in lab exercises and will be considered absent for the day.
3. Some lab activities involve contact with chemicals as described in #1 above, other students, as described in #2 above, or with biological fluids during dissections. Therefore, students should:
 - a. Maintain a clean lab bench, free of excess personal belongings;
 - b. Promptly clean up any spills;
 - c. NEVER bring food or beverages into the lab;
 - d. ALWAYS WASH YOUR HANDS at the end of lab.

DISABILITIES ACCOMMODATION STATEMENT

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.

Zoology 141L General Schedule
Fall 2013
M 10:00 am 0 12:45 pm, 103 Imiloa

Session	Topic	Exercise
1. 8/26	Orientation and introduction to scientific method	Syllabus
9/2 LABOR DAY HOLIDAY		
2. 9/9	The Microscope	3
	Cell anatomy and division	4
3. 9/16	Cell Transport Mechanisms – diffusion and osmosis	5A
	Classification of tissues	6A & B
4. 9/23	Histology	
5. 9/30	The integumentary system, Body size and composition	7
6. 10/7	Bone tissue and the axial skeleton	9 & 10
7. 10/14	Appendicular skeleton and joints	11 & 13
8. 10/21	Lab Practical #1	
9. 10/28	Muscle tissue	14 & 15
	Gross anatomy and classification of muscles, part 1	
10. 11/4	Gross anatomy and classification of muscles part 2	15, 16
	Skeletal muscle physiology	
11/11 VETERAN'S DAY HOLIDAY		
11. 11/18	Nervous tissue histology	17, 19, 21
	Gross anatomy of the brain and spinal cord	
12. 11/25	General senses and reflexes	22, 23
13. 12/2	Special senses	24-26
14. 12/9	Lab practical #2	

Revised 3 August 2013