



UNIVERSITY of HAWAII®  
**WINDWARD**  
COMMUNITY COLLEGE

## **Zoology 142L Anatomy and Physiology Laboratory Section**

One (1) Credit CRNs 60046 and 60085

Mondays 8:30 am – 11:15 am or 11:30 am – 2:15 p.m., 103 'Imiloa

**INSTRUCTOR:** Allison Beale  
**OFFICE:** Hale 'Imiloa 118  
**OFFICE HOURS:** TBA – See office door or [Laulima Homepage](#) for course  
**TELEPHONE:** Please use email **EMAIL:** [abeale@hawaii.edu](mailto:abeale@hawaii.edu)  
**EFFECTIVE DATE:** Spring 2019

### **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 142. Reinforces the facts and concepts of human anatomy and physiology discussed in ZOOL 142 through dissections, examination of models, laboratory activities, and other hands-on experiences. This course is intended for students entering health care or medically-related fields such as nursing, physical therapy and medical technology.

Prerequisite: Credit for or registration in ZOOL/PHYL 142 or equivalent preparation or consent of instructor.

DY.

**Activities Required at Scheduled Times Other Than Class Times:** **Writing Lab**. There may be **OPTIONAL** activities.

### **STUDENT LEARNING OUTCOMES**

The student learning outcomes for the course are as follows:

1. Use the scientific method to design and conduct a clinical research study.
2. Describe the anatomy of the endocrine, circulatory, lymphatic, respiratory, digestive, urinary, and reproductive systems from prepared slides, models, and real and virtual animal dissections.
3. Use basic laboratory and medical equipment (microscopes, sphygmomanometers, stethoscopes, ECG apparatus, and respiratory spirometers) 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 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 system including sensory and motor aspects
  - Cardiovascular system
  - Respiratory system
  - Digestive system
  - Endocrine
  - Blood and Lymphatic systems
  - Urogenital and reproductive systems
- 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 gross and microscopic 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, microscope slides, blood pressure cuffs, ECG recording devices, tissue stains, spirometers, blood oximeters and other lab equipment.*
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.*
9. *Present findings orally to the class and in writing to the instructor.*

## COURSE TASKS

1. Attend class at scheduled times, **without 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.
    - iii. **Lab coat or other appropriate covering is REQUIRED**
  - 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 (usually red plastic sharps boxes), 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 red plastic 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.
    - iii. Use dissection trays. Never put dissection materials or equipment directly on the lab bench. Wash and dry trays after use.
  - i. **Clean all lab supplies and return them** to their proper location before leaving lab.
  - j. Clean your bench top before leaving by using the cleaning solutions available at the back of the lab and wiping down the counter with paper towels.
  - k. **WASH YOUR HANDS** immediately following lab to reduce the possibility of infection or contamination.
3. Record results of lab activities in a lab notebook or your computer.
    - a. You may keep your notes on a computer, but make sure to **personally** label all figures, drawings, and photos.
  4. Complete weekly in class quiz, if given.
  5. Complete 2 in-class practical exams.
  6. Present (orally and in writing) results of lab activities.

## ASSESSMENT TASKS AND GRADING

**Practical Exams** – 2 in-class practical exams. 100 points each, for **200 points**.

Practical exams cover:

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

2. Practical exams are not comprehensive; they cover blocks of labs.
3. Practical exams may be online and taken in lab.

**Quizzes** – One per lab session, 10 points per quiz. Planned: 10 quizzes for **100 points**. During the summer, some lab sessions will have two quizzes.

- Taken online, at the start of the lab and covering anatomy and physiology of the lab(s) to be done that day.
  - Based on review questions for each lab found online in the Lulima Assignments, Tests and Survey tool.
  - May be simple identification, as in matching the name to a structure, or require correct spelling of the name of a structure. Questions may be multiple-choice or fill-in-the blank.

**Lab Notebook** –3 reports for a total of **240 points**.

1. **Each requires a minimum of one Writing Lab appointment.** See our Lulima homepage for contact information.
2. The following labs will be assessed per rubrics to be found as links on our Lulima homepage:
  - a. Endocrine
  - b. Lungs and respiratory anatomy and physiology
  - c. Renal anatomy and physiology

**Lab Reports** – one written lab report, worth **50 points**:

1. Cardiovascular physiology (Lab Exercise 33 with Supplemental activities)
2. Requires a minimum of one Writing Lab appointment. See our Lulima homepage for contact information.

**Oral Report(s)** –

- **100 points each person**
- Each lab session starting the second week, a lab group will be tasked with presenting the findings and analysis from the previous week's lab.
  - One partner covers clinical relevance and applications (5 minutes)
  - One partner covers data collected and analysis (5 minutes)

**Participation and attendance** – **Attendance is mandatory.**

- Any unexcused absence, which includes late arrivals or early departures, will require the student to schedule an appointment with the instructor within one week of the absence to discuss how the student is going to ensure they meet the requirements for passing the lab.
  - Excused absences include a medical emergency for yourself or an immediate family member. Excused absences must be confirmed with a written, signed and dated waiver on official stationary (e.g., a doctor's work release note).
  - Being LATE or being absent (regardless of cause) will result in the inability of the student to attain the daily quiz points. You must be present and ON TIME to take the daily quiz.
- 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. Otherwise, all students are expected to fully participate and to share in the roles of subject and administrator.

**Optional lab**

- Cadaver lab at the UH John A. Burns School of Medicine (JABSOM)

- Scheduled for an evening and it replaces one normal lab session
- Cost: nonrefundable \$25.00 to cover JABSOM administration and personnel
- Details to be announced in class

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, including work submitted AFTER THE START OF LAB.
2. eMailed work
3. Materials left in my office or mailbox.

#### Extra Credit –

- **5 points per lab**
- Involves completion of **ALL** the review questions at the end of each lab manual exercise performed in class.
  - **No partial credit**, all the questions for any lab exercise performed must be completed
    - Must be **100% complete**, anything missing will result in no credit.
  - Due at the start of the following (subsequent) lab.
  - No late work

Total points for the course: approximately 690.

Total optional, EC: approximately 50 points. Doing the EC can raise your grade a full grade!!

Grade is a straight percentage of the total points.

#### SUMMARY OF ASSESSMENT AND EXTRA CREDIT AWARD STRUCTURE

Assessment	Number	Type	Points each	Total
Quizzes	Up to 10	Matching, fill-in-the blank, multiple-choice	10	100
Lab practical	Two	Multiple-choice	100	200
Notebook	Three	Written lab write ups	80	240
Paper	One	Written	50	50
Oral report	One	Oral	100	100
<b>TOTAL AVAILABLE POINTS</b>				<b>690</b>
Extra credit	Up to 10	Matching, fill-in-the blank, multiple-choice	5	45-50

POINTS	PERCENTAGE (%)	GRADE
621-690	90-100	A
552-620	80-89	B
483-551	70-79	C
414-482	60-69	D
345-413	50-59	F

#### LEARNING RESOURCES

**Lab manual:** Marieb, EN. 2011. *Human Anatomy and Physiology Laboratory Manual*. 11<sup>th</sup> Ed or 12<sup>th</sup> Ed. (Cat Version). Pearson Benjamin Cummings, San Francisco, CA. Available in the WCC bookstore.

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.

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.

A number of supplemental learning resources are available for the student, online in Laulima through our webpage.

- Camtasia recordings explaining lab procedures, and illustrating data collection, recording and analysis options.
- Links to lab images for use in lab write-ups and reports.
- Announcements with details of and links to resources to be used for each lab.
- Detailed rubrics for all assignments.
- Practice questions for quizzes and practical exams to help students master the Student Learning Objectives.
- Guidance documents such as “How to write an A&P paper” by Dr. Langston and guidance for the oral presentation.
- Supplemental sheets to tailor the experiments to our resources.
- Administrative links to:
  - The syllabus
  - Lab schedule
  - Rubrics
  - WCC services
    - Computer services
    - Counseling and advising
    - Disabilities
    - Library and Ka Piko Student Services
    - Testing center

## 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. A lab coat
    - iii. 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.

### STUDENT CONDUCT

- ANY student who engages in behavior or language inconsistent with accepted codes may be subject to academic disciplinary action. Please review the following policies if you have any question about what constitutes appropriate behavior. **Absolutely not tolerated** will be swearing, racist or sexist speech or behavior meant to intimidate any person in class. All UH policies may be found at <http://www.hawaii.edu/policy/?action=search>
  - EP 1.204 – Sexual Harassment and Sexual Assault
  - EP 7.205 – System-wide Student Disciplinary Sanctions
  - EP 7.208 – System-wide Student Conduct Code

### *MySuccess Student Support System*

At Windward Community College we want every student to be successful. **MySuccess** is a system-wide effort that seeks to support students early in the semester, if and when they first begin experiencing difficulty in class. If, within the first few weeks of the semester, your scores, or attendance record, indicate that you're having difficulty in this class (e.g. missing class, missing assignments, or low test scores) you may be referred to your assigned counselor. A referral is a tool to help you get on track. Once referred, MySuccess will:

- Call you and send an email to your Hawaii.edu account to let you know about the referral;
- Have a Counselor follow up with you by phone or by email to find out what kinds of help you might need. They can then connect you with the necessary resources to help you devise a strategy for success.

If you are referred, know that I am doing so in an effort to connect you with all of the help you may need to do well this semester as your success is important to me.

### ACADEMIC INTEGRITY

Work submitted by a student must be the student's own work. The work of others should be explicitly marked, such as through use of quotes or summarizing with reference to the original author. Such work must be credited using standard citation styles (MLA or APA for instance). Style guides may be found in the library, or:

- Modern Language Association (MLA): <https://style.mla.org>
- American Psychological Association (APA): [www.apastyle.org/index.aspx](http://www.apastyle.org/index.aspx)

Academic dishonesty includes, but is NOT LIMITED to:

- Cheating on exams, or helping someone else cheat
  - During quizzes and practicals, only ONE window may be open on the student's computer during the assessment.
- Plagiarism

In this class, students who commit academic dishonesty, cheating or plagiarism will have the following consequence(s):

- At a minimum, students will receive a failing grade for plagiarized assignments.
- All cases of academic dishonesty are referred to the Vice Chancellor for Student Affairs.

See the current WCC Course Catalog for a description of policies concerning academic dishonesty.

## DISABILITIES ACCOMMODATIONS

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](mailto:lemke@hawaii.edu), or you may stop by Hale ʻĀkoakoa 213 for more information.

## TITLE IX

Title IX prohibits discrimination on the basis of sex in education programs and activities that receive federal financial assistance. Specifically, Title IX prohibits sex discrimination; sexual harassment and gender-based harassment, including harassment based on actual or perceived sex, gender, sexual orientation, gender identity, or gender expression; sexual assault; sexual exploitation; domestic violence; dating violence; and stalking. For more information regarding your rights under Title IX, please visit: [https://windward.hawaii.edu/Title\\_IX/](https://windward.hawaii.edu/Title_IX/).

Windward Community College is committed to the pursuit of equal education. If you or someone you know has experienced sex discrimination or gender-based violence, Windward CC has resources to support you. To speak with someone confidentially, contact Karla Silva-Park, Mental Health Counselor, at 808-235- 7468 or [karlas@hawaii.edu](mailto:karlas@hawaii.edu) or Kaahu Alo, Designated Confidential Advocate for Students, at 808-235- 7354 or [kaahualo@hawaii.edu](mailto:kaahualo@hawaii.edu). To make a formal report, contact the Title IX Coordinator at 808-235-7393 or [wccitix@hawaii.edu](mailto:wccitix@hawaii.edu).

## ALTERNATE CONTACT INFORMATION

If you are unable to contact the instructor, have questions that your instructor cannot answer, or for any other issues, please contact the Academic Affairs Office:

Location: Alakai 121  
Phone: 808-235-7422  
Email: [wccaa@hawaii.edu](mailto:wccaa@hawaii.edu)



# Human Anatomy and Physiology Zoology/Physiology (ZOOL/PHYS) 142L

Spring 2019 – subject to change

MONDAY SCHEDULE – 8:30 - 11:15 am and 11:30 am – 2:15 pm – Imiloa 103

CRNs 60046 and 60085

Week	Date 2019	Topics	Reading
1.	1/7	Introduction, syllabus, safety Endocrine – Stress experiments	Syllabus Exercise 27
2.	1/14	Blood, blood type, hematocrit <ul style="list-style-type: none"> <li>• EC: Endocrine Exercise 27</li> <li>• Quiz: Blood cells, blood type, hematocrit</li> <li>• <b>Presentation on Endocrinology</b></li> </ul>	Exercise 29
<b>3.</b>	<b>1/21</b>	<b>HOLIDAY: MARTIN LUTHER KING DAY</b>	
4.	1/28	Anatomy of the heart and blood vessels <ul style="list-style-type: none"> <li>• EC: Blood Exercise 29</li> <li>• Quiz: Heart and blood vessel anatomy</li> <li>• <b>Endocrine lab write up due – see rubric</b></li> <li>• <b>Presentation on blood, blood tests</b></li> </ul>	Exercises 30 & 32
5.	2/4	Lymphatics and immunity <ul style="list-style-type: none"> <li>• EC: Exercises 30 &amp; 32</li> <li>• Quiz: Lymphatics and immunity</li> <li>• <b>Presentation on CV anatomy</b></li> </ul>	Exercise 35
6.	2/11	CV Physiology, EKG, Blood Pressure and Pulse <ul style="list-style-type: none"> <li>• EC: Exercise 35</li> <li>• Quiz: EKG, BP and HR</li> <li>• <b>Presentation on Immunity</b></li> </ul>	Exercise 31 & 33
<b>7.</b>	<b>2/18</b>	<b>HOLIDAY: PRESIDENT'S DAY</b>	
8.	2/25	Lung Anatomy & Physiology <ul style="list-style-type: none"> <li>• EC: Exercises 31 and 33</li> <li>• Quiz: Lung A&amp;P</li> <li>• <b>Cardiovascular report due – see rubric</b></li> <li>• <b>Presentation on CV physiology</b></li> </ul>	Exercises 36 & 37
<b>9.</b>	<b>3/4</b>	<b>Lab practical #1 – Endocrine, Lymphatics, Immunity, all CV and Lungs.</b>	
10.	3/11	<b>Cadaver lab TBA</b>	
<b>11.</b>	<b>3/18</b>	<b>SPRING BREAK</b>	
12.	3/25	Surface anatomy <b>Last day to drop with a “W”</b>	Exercise 46
13.	4/1	GIT anatomy and physiology <ul style="list-style-type: none"> <li>• EC: Exercises 36 &amp; 37</li> <li>• Quiz: GIT A&amp;P</li> <li>• <b>Lung A&amp;P lab write up due – see rubric</b></li> <li>• <b>Presentation on lung A&amp;P</b></li> </ul>	Exercise 38
14.	4/8	Kidney Anatomy and Physiology <ul style="list-style-type: none"> <li>• EC: Exercise 38</li> <li>• Quiz: Kidney A&amp;P</li> <li>• <b>Presentation on GIT A&amp;P</b></li> </ul>	Exercise 40
15.	4/15	Male and female reproduction, embryology and development <ul style="list-style-type: none"> <li>• EC: Exercise 40</li> <li>• Quiz: Repro, embryo, development</li> <li>• <b>Presentation on Kidney A&amp;P</b></li> </ul>	Exercise 42-44
16.	4/22	Heredity <ul style="list-style-type: none"> <li>• EC: Exercises 42-44</li> <li>• Quiz: NONE</li> </ul>	Exercise 45

17.	4/29	Lab practical #2 – Comprehensive final
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### Drop Dead Dates Spring 2019

1. Last day for 100% Refund ..... 15 January
2. Last day for 50% Refund..... 30 January
3. Last day to withdraw without a “W” grade ..... 30 January
4. Spring Break.....18-22 March
5. Last day to withdraw with a “W” grade ..... 25 March

### HOLIDAYS Spring 2019

1. MLK day ..... 21 Jan
2. President’s day ..... 18 Feb
3. Spring Break..... 18-22 Mar
4. Prince Kuhio day ..... 26 Mar
5. Good Friday ..... 19 Apr