Windward Community College Mission Statement

Windward Community College is committed to excellence in the liberal arts and career development; we support and challenge individuals to develop skills, fulfill their potential, enrich their lives, and become contributing, culturally aware members of our community.

Catalog Description

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

Student Learning Outcomes

Upon successful completion of ZOOL 142L, the student should be able to:

Describe the anatomy of the endocrine, circulatory, lymphatic, respiratory, digestive,
urinary, and reproductive systems from prepared slides, models, and real and virtual animal dissections.

Use basic laboratory and medical equipment (microscopes, sphygmomanometers, stethoscopes, ECG apparatus, & respiratory spirometers) to evaluate functions of the above body systems.

Use critical thinking to analyze and interpret clinical data.

COURSE SYLLABUS AND SCHEDULE

Introduction:
The course is designed to introduce the students to observe the basic principle of anatomy and physiology through experimentations. The course reinforces the basic concepts of anatomy and physiology being discussed in Zoology-142 lectures. Therefore, taking Zoology-142 lectures concurrently is strongly recommended. The hand on experience is provided with the use of anatomical models, laser discs, computer anatomical images, animal and organ dissections, and physiological and biochemical experimentations. The students must come to the laboratory well prepared for the scheduled experiments. All experiments shall be done in a group of two, unless instructed otherwise. All laboratory exercises MUST be taken seriously and any kind of disturbance could lead to serious consequences.

ALL QUIZZES AND EXAMINATIONS WILL BE ANSWERED ON SCANTRON FORMS ONLY AND STUDENTS SHALL BE RESPONSIBLE FOR PROVIDING THEIR OWN SCANTRONS.

Evaluation:
The student evaluation will be based on examinations, class attendance and laboratory reports of experiments and dissections. There will NOT BE A RETEST OR MAKE UP EXAMS under any circumstances. Though unexpected and extremely unpleasant to mention, but any unfair practices (cheating) during the course activities would automatically lead to a final grade of “F” without any compromises. In case of a missed class, student alone shall be responsible for the material covered or any announcements made during that class period.

ALL ASSIGNMENTS ARE TO BE HANDED OVER IN PERSON ON OR
BEFORE THE DUE DATE. LATE ASSIGNMENTS, ASSIGNMENTS LEFT IN MY MAILBOX, OR E-MAILED WOULD BE SUBJECT TO PENALTY. ONLY HAND DRAWN DIAGRAMS WILL BE ACCEPTED. TRACING OR COMPUTER IMAGING ARE NOT ACCEPTABLE.

Grading Policy:

Then distribution of points for the final grade shall be as follows:

<table>
<thead>
<tr>
<th>Type</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Examinations I, II, and III</td>
<td>60%</td>
</tr>
<tr>
<td>Laboratory reports, Dissections</td>
<td>40%</td>
</tr>
<tr>
<td>Extra Credit, Lab drawing, Photos,</td>
<td>5%</td>
</tr>
</tbody>
</table>

The final grade will be determined by the following range:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90 % and above</td>
</tr>
<tr>
<td>B</td>
<td>80-89 %</td>
</tr>
<tr>
<td>C</td>
<td>70-79 %</td>
</tr>
<tr>
<td>D</td>
<td>60-69 %</td>
</tr>
<tr>
<td>F</td>
<td>59 % and less</td>
</tr>
</tbody>
</table>

Additional Information:

Any further detailed information can be obtained from the WCC general catalog

Required Materials:


It would also be helpful to bring a digital camera and USB flash drive to class to photograph anatomical specimens to review at home.

ACCOMODATION FOR STUDENTS WITH DISABILITIES

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**

Be familiar with lab safety procedures and take appropriate precautions at all times to insure the safety of all lab students.

Follow all instructions carefully, especially when hazardous materials are being used.

Know the locations of important safety equipment: eyewash, safety shower, fire extinguisher, and first aid kit.

Report all injuries to the instructor immediately.

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.

Report any hazardous conditions (e.g. chemical spills or broken glass) to the instructor immediately.

**NO FOOD ALLOWED IN LAB**

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.

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.

Clean all lab supplies and return them to their proper location before leaving lab.

Treat all organisms, living or dead, with care and respect. Use gloves when handling dissected specimens.

Place broken glass, sharps, and dissected specimens in the appropriate receptacles (NOT IN THE TRASH!)

Unless otherwise instructed, chemical wastes should NOT be disposed of down the drain.

Human tissues and bodily fluids (e.g., saliva and blood) must be disposed of in appropriate bio-hazard containers (NOT IN THE TRASH!).

Wash your hands immediately following each lab to reduce the possibility of contamination.
or infection.

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topics</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>T 1/11</td>
<td>Lab Introduction</td>
<td>Syllabus</td>
</tr>
<tr>
<td>2</td>
<td>M 1/17</td>
<td><strong>Holiday: Dr. Martin Luther King, Jr. Day</strong></td>
<td></td>
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<tr>
<td></td>
<td>T 1/18</td>
<td>Endocrine System/ Stress Response*</td>
<td>Exercise 27</td>
</tr>
<tr>
<td>3</td>
<td>T1/25</td>
<td>Blood*</td>
<td>Exercise 29A</td>
</tr>
<tr>
<td>4</td>
<td>T 2/1</td>
<td>Anatomy of the Heart and Blood Vessels</td>
<td>Exercise 30, Exercise 32</td>
</tr>
<tr>
<td>5</td>
<td>T 2/8</td>
<td>Electrocardiography *</td>
<td>Exercise 31 Handout</td>
</tr>
<tr>
<td>5</td>
<td>T 2/15</td>
<td>Human Cardiovascular Physiology*</td>
<td>Exercise 33A</td>
</tr>
<tr>
<td></td>
<td>M2/21</td>
<td><strong>HOLIDAY-PRESIDENT’S DAY</strong></td>
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<tr>
<td>7</td>
<td>T2/22</td>
<td>Anatomy of the Respiratory System</td>
<td>Exercise 36, 37A</td>
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<td></td>
<td><em>Dissection Exercise #6</em></td>
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<tr>
<td>8</td>
<td>T, 3/1</td>
<td>Respiratory System Physiology*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Date</td>
<td>Lab Activity</td>
<td>Notes</td>
</tr>
<tr>
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<td>-----------------------------------------------------------------------------</td>
<td>--------------------------------------------</td>
</tr>
<tr>
<td>9</td>
<td>T 3/8</td>
<td>FIRST EXAMINATION</td>
<td>LABS 1-6, WEEKS 1-6</td>
</tr>
<tr>
<td>10</td>
<td>T 3/15</td>
<td>Anatomy of the Digestive System</td>
<td>Exercise # 38 Dissection Exercise # 7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Exercise 39A Handout</td>
</tr>
<tr>
<td>11</td>
<td>M 3/21</td>
<td>Spring Break</td>
<td></td>
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<tr>
<td></td>
<td>F 3/25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>T3/29</td>
<td>Chemical &amp; Physical Processes of Digestion*</td>
<td>Exercise # 38 Dissection Exercise # 7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Exercise 39A Handout</td>
</tr>
<tr>
<td>13</td>
<td>T4/5</td>
<td>SECOND EXAMINATION, Anatomy of the Urinary System</td>
<td>LABS 7-10,11,12 WEEKS 7-9,11,12 Exercise 40</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Dissection Exercise # 8</td>
</tr>
<tr>
<td>14</td>
<td>T 4/12</td>
<td>Urinalysis*</td>
<td>Exercise 41A Handout</td>
</tr>
<tr>
<td>15</td>
<td>T4/19</td>
<td>Anatomy and Physiology of Reproduction Embryonic Development</td>
<td>Exercise 42 Exercise 43, 44, 45</td>
</tr>
<tr>
<td>16</td>
<td>T 4/26</td>
<td>Heredity</td>
<td>Exercise 42 Exercise 43, 44, 45</td>
</tr>
<tr>
<td>17</td>
<td>T 5/3</td>
<td>THIRD EXAMINATION</td>
<td>LABS 13-16, WEEKS 13-16</td>
</tr>
</tbody>
</table>

*WET LABS- SHOES REQUIRED*
Zoology 142L (CRN 60214 & 60215)
Anatomy and Physiology Laboratory II

W: 1:30-4:15 PM
MW: 7:15-8:35 PM

‘Imiloa 103

INSTRUCTOR: Ross Langston, PhD
OFFICE: Hale ‘Imiloa 104
EMAIL: langston@hawaii.edu
OFFICE HOURS: TBA
TELEPHONE: 236-9119
EFFECTIVE DATE: Spring, 2009
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CATALOG DESCRIPTION

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

Activities Required at Scheduled Times Other Than Class Times: None

STUDENT LEARNING OUTCOMES

Upon successful completion of ZOOL 142L, the student should be able to:

Use the scientific method to design and conduct a clinical research study.

Describe the anatomy of the endocrine, circulatory, lymphatic, respiratory, digestive, urinary, and reproductive systems from prepared slides, models, and real and virtual animal dissections.

Use basic laboratory and medical equipment (microscopes, sphygmomanometers, stethoscopes, ECG apparatus, & respiratory spirometers) to evaluate functions of the above body systems.

Use critical thinking to analyze and interpret clinical data.

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:

- Anatomy of the endocrine systems and physiology of hormone actions
- Functions and components of blood
- Anatomy of the heart and regulation of heart rate and cardiac output
- Anatomy of blood vessels and regulation of blood pressure and blood flow
- Mechanisms of general and specific resistance
- Anatomy and physiology of the respiratory system
- Digestive anatomy, processes, nutrition, and metabolism
- Anatomy of the urinary system, renal physiology, and fluid & electrolyte homeostasis
- Anatomy and physiology of male and female reproductive systems
- Physiology of pregnancy and fetal development
- Genetics and inheritance

**COURSE TASKS**

- Attend class at scheduled times.
- Participate in lab activities.
- Complete required lab reports.
- Complete weekly quizzes.
- Complete 2 in-class practicums.
- 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. The 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!**).

**LAB REPORTS** (100 points total). Formal lab reports are required for all activities indicated by an ‘*’. These reports are due one week after the indicated lab activity. The reports will graded for completeness, accuracy, clarity, and effort. The format for the lab reports will be discussed during the first laboratory session.

**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.

**ATTENDANCE & CLASS PARTICIPATION** (50 points): Attendance is 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.

**METHOD OF GRADING**
The assignment of points will be according to the following:

<table>
<thead>
<tr>
<th></th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quizzes (10)</td>
<td>100</td>
</tr>
<tr>
<td>Lab Reports</td>
<td>100</td>
</tr>
<tr>
<td>Practicums (2 x 100)</td>
<td>200</td>
</tr>
<tr>
<td>Presentation</td>
<td>50</td>
</tr>
<tr>
<td>Attendance</td>
<td>50</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>500 points</strong></td>
</tr>
</tbody>
</table>

**GRADING SCALE**

<table>
<thead>
<tr>
<th>Total Points</th>
<th>Percentage Points</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>450-500</td>
<td>90-100</td>
<td>A</td>
</tr>
<tr>
<td>400-449</td>
<td>80-89</td>
<td>B</td>
</tr>
<tr>
<td>350-399</td>
<td>70-79</td>
<td>C</td>
</tr>
<tr>
<td>300-349</td>
<td>60-69</td>
<td>D</td>
</tr>
<tr>
<td>&lt;300</td>
<td>0-59</td>
<td>F</td>
</tr>
</tbody>
</table>

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 emergency, you must contact the instructor **within 48 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


* 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 files and pictures from the digital microscopes.

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 and “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 the 2007-2008
course catalog for a description of the University’s policies concerning academic dishonesty.

**ACCOMODATION FOR STUDENTS WITH DISABILITIES**
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Report all injuries to the instructor immediately.

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