Zoology 141L  Anatomy and Physiology Laboratory Section

One (1) Credit  CRN 64033
Mondays 11:30 a.m. to 2:15 p.m., 103 ʻImiloa

INSTRUCTOR:  Allison Beale
OFFICE:  Hale ʻImiloa 118
OFFICE HOURS:  TBA
TELEPHONE:  Please use email  EMAIL:  abeale@hawaii.edu
EFFECTIVE DATE:  Fall 2018

WINDWARD COMMUNITY COLLEGE MISSION STATEMENT

Windward Community College offers innovative programs in the arts and sciences and opportunities to gain knowledge and understanding of Hawaiʻi and its unique heritage. With a special commitment to support the access and educational needs of Native Hawaiians, we provide ʻOʻahu’s Koʻolau 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 discussed in ZOOL 141 through dissections, examination of models, laboratory activities, and other hands-on experiences. This course is intended for students entering health care or other medically related fields such as nursing, physical therapy, and medical technology. (3 hours laboratory)

Prerequisite: Credit for or registration in ZOOL 141 or equivalent preparation or consent of instructor.

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
      1. You will not be allowed to participate in lab without closed-toed shoes.
   ii. A lab coat or other appropriate coverage is REQUIRED
      1. Lab coats may be purchased from the Book Store
   iii. Safety glasses and gloves are REQUIRED for any lab using chemicals, hot-plates or which may expose you or others to body fluids.
      1. Safety glasses and gloves are provided in the lab.
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.
   iii. Wash your lab bench down after lab using paper towel and spray cleaners provided in lab.
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.**
      1. Do not bring food or beverages of any kind into the lab.
      2. Do not apply cosmetics 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.
4. Complete weekly quiz if scheduled.
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, approximately 12 total. 10 points each quiz, for an approximate total of 120 points.

Quizzes cover:
1. Material from lab.
2. Quizzes are based on review sheet for each lab and are used to make sure you have studied BEFORE coming to lab.

Practical Exams – two in-class, non-cumulative 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.
2. The practical exams will be similar in content to the quizzes, but completely multiple-choice in format.

Lab Notebook – Worth 250 points

1. THREE (3) lab notebook sections will be submitted. See lab schedule for due dates. Some sections encompass multiple lab exercises.
   a. Microscope and cell anatomy/division (Exercises 3-4) – 80 points
   b. Integumentary system (Exercises 7) – 80 points
   c. Axial and appendicular skeleton, joints, movements (Exercises 8-11) – 90 points
2. Using a rubric and standard science lab write-up style guides, each of these three labs will be thoroughly documented and submitted for grading.
3. Due at the start of the subsequent (next) lab. No late work accepted.
4. May be handwritten or created on a computer, but all figures must be labeled by the student.
5. Each of these three labs must include ONE (1) primary literature citation that reflects the primary objectives of the lab exercise. This may include a Clinical Trial evaluation.
   a. Primary literature is peer-reviewed and written by someone who has actually done the research being described.

Lab Reports – ONE written lab report, on Osmosis and Diffusion related to membranes, worth 50 points. A rubric and guidance are provided for the student.

Lab Presentations – One (1) presentation per lab group of two (2) people. Worth 100 points each.

1. Each lab team will choose and present a 10-minute oral presentation summarizing the activities of the previous lab. A rubric and guidance is provided.
   a. One student covers basic data collected and it’s analysis.
   b. One student covers application of lab results to clinical medicine topics.

Participation and attendance – Attendance is mandatory.

• Each student is allowed one absence without penalty, if the student brings a doctor’s work-release note to the following lab. Students will not be reminded.
  o Second, or any unexcused absence will result in the student not achieving points for the daily quiz (10 points), lab write-up (50 points) and EC (5 points).
  o If a student arrives after the start of the daily quiz, the quiz will not be reset to accommodate them. EC will not be accepted from late students, nor will late lab reports resulting a potential point loss of 55 points.
  o 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. Work 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
  - May be used as an aide on the quiz if 100% complete.

**METHOD OF GRADING**

Total points for the course: 700.
Total optional, EC: 55 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**

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Number</th>
<th>Type</th>
<th>Points each</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quizzes</td>
<td>Up to 10</td>
<td>Matching, fill-in-the blank, multiple-choice</td>
<td>10</td>
<td>100</td>
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<tr>
<td>Lab practical</td>
<td>Two</td>
<td>Multiple-choice</td>
<td>100</td>
<td>200</td>
</tr>
<tr>
<td>Notebook</td>
<td>Three</td>
<td>Written</td>
<td>80-90</td>
<td>250</td>
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<tr>
<td>Paper</td>
<td>One</td>
<td>Written</td>
<td>50</td>
<td>50</td>
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<tr>
<td>Oral report</td>
<td>One</td>
<td>Oral</td>
<td>100</td>
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<tr>
<td><strong>TOTAL AVAILABLE POINTS</strong></td>
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<td><strong>700</strong></td>
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| Extra credit    | Up to 11| Matching, fill-in-the blank, multiple-choice     | 5           | 55    |

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<th>POINTS</th>
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<td>90-100</td>
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<td>560-629</td>
<td>80-89</td>
<td>B</td>
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<td>490-559</td>
<td>70-79</td>
<td>C</td>
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<td>420-489</td>
<td>60-69</td>
<td>D</td>
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<td>350-419</td>
<td>50-59</td>
<td>F</td>
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LEARNING RESOURCES


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
    - Testing center
    - eCafe

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 online at http://www.hawaii.edu/policy/?action=search
  o EP 1.204 – Sexual Harassment and Sexual Assault
  o EP 7.205 – System-wide Student Disciplinary Sanctions
  o EP 7.208 – System-wide Student Conduct Code

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

Academic dishonesty includes, but is NOT LIMITED to:
• Cheating on exams, or helping someone else cheat
• Plagiarism

Students can upload papers to http://www.TurnItIn.com to have papers checked for authenticity, highlighting where the paper potentially fails to appropriately reference sources.

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 the College’s 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, 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/.

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 or Kaahu Alo, Designated Confidential Advocate for Students, at 808-235-7354 or kaahualo@hawaii.edu. To make a formal report, contact the Title IX Coordinator at 808-235-7393 or wcctix@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
<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topics</th>
<th>Lab Exercise</th>
<th>HW pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8/20</td>
<td>Lab Introduction: How to keep a notebook and how to write a scientific report.</td>
<td>Syllabus 1 (p. 7), 2 (p. 23)</td>
<td>17-20; 33-34</td>
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<td>Language of Anatomy and Organ System overview</td>
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<td>2</td>
<td>8/27</td>
<td>The Microscope</td>
<td>3 (p. 37), 4 (p. 49)</td>
<td>45-48; 59-62</td>
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<td>Cell Anatomy and Division</td>
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<td>EC &amp; QUIZ: Microscope and Cell anatomy/division</td>
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<td>DUE: NONE</td>
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<td>PRESENTATION: Language of anatomy &amp; organs</td>
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<td>3</td>
<td>9/3</td>
<td>Labor Day</td>
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<tr>
<td></td>
<td>9/10</td>
<td>Cell Transport Mechanisms: Osmosis and Diffusion</td>
<td>5 (p. 65)</td>
<td>75-78</td>
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<td>4</td>
<td>9/17</td>
<td>Classification of Tissues</td>
<td>6 (p. 79)</td>
<td>99-104</td>
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<td>5</td>
<td>9/24</td>
<td>The Integumentary System</td>
<td>7 (p. 107)</td>
<td>117-120</td>
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<td>7</td>
<td>10/1</td>
<td>Bone Tissue</td>
<td>8(p. 123), 9 (p. 137)</td>
<td>133-136; 157-163</td>
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<td>Axial Skeleton</td>
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<td>EC &amp; QUIZ: Bone tissue and axial skeleton</td>
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<td>DUE: Integumentary system</td>
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<td>PRESENTATION: Integumentary system</td>
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<tr>
<td>8</td>
<td>10/8</td>
<td>Appendicular Skeleton</td>
<td>10 (p. 165), 11(p. 187)</td>
<td>179-185; 201-204</td>
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<td>Joints: Articulations and Body Movements</td>
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<td>EC &amp; QUIZ: Appendicular skeleton, joints</td>
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<td>DUE: NONE</td>
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<td>PRESENTATION: Bone tissue, axial skeleton</td>
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<td>9</td>
<td>10/15</td>
<td>Lab Practical #1 (up to joint movements)</td>
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<tr>
<td>10</td>
<td>10/22</td>
<td>Muscle Tissue</td>
<td>12 (p. 207), 13 (p. 217)</td>
<td>213-216; 247-254</td>
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<td>Gross Anatomy and Classification of Muscles</td>
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<td>EC &amp; QUIZ: Muscle tissue and muscle gross anatomy</td>
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<td>DUE: Axial and appendicular skeleton, joints (#3)</td>
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<td>PRESENTATION: Appendicular skeleton, joints</td>
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<td>10</td>
<td>10/29</td>
<td>Muscle Physiology</td>
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<td>EC &amp; QUIZ: Muscle physiology</td>
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<td>PRESENTATION: Muscle as a tissue</td>
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<tr>
<td>12</td>
<td>11/5</td>
<td>Histology of Nervous Tissue</td>
<td>14 (p. 255), 15 (p. 267), 16 (p. 293)</td>
<td>263-266; 285-290</td>
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<td>Gross Anatomy of the Brain &amp; Cranial Nerves</td>
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<td>Spinal Cord &amp; Nerves</td>
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<td>EC &amp; QUIZ: Nervous tissue, brain and cranial nerves</td>
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<td>DUE: NONE</td>
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<td>PRESENTATION: Muscle physiology</td>
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<tr>
<td>13</td>
<td>11/12</td>
<td>HOLIDAY</td>
<td></td>
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<tr>
<td>14</td>
<td>11/19</td>
<td>Human Reflex Physiology</td>
<td>17 (p. 309), 18 (p. 323)</td>
<td>319-322; 329-330</td>
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<tr>
<td></td>
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<td>General Senses</td>
<td></td>
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<td>EC: Human reflex physiology (no quiz)</td>
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<td>PRESENTATION: Nervous tissue, brain and cranial nerves</td>
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</tbody>
</table>

See next page....
Continued from previous page.

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topics</th>
<th>Lab Exercise</th>
<th>HW pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>11/26</td>
<td>Anatomy of Visual system</td>
<td>19 (p. 333)</td>
<td>341-344</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Visual Tests &amp; Experiments</td>
<td>20 (p. 347)</td>
<td>353-355</td>
</tr>
<tr>
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<td>Hearing &amp; Equilibrium</td>
<td>21 (p. 357)</td>
<td>355</td>
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<tr>
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<td>Olfaction &amp; Taste</td>
<td>22 (p. 375)</td>
<td>369-372</td>
</tr>
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<td>EC &amp; QUIZ: Vision, hearing, smell and taste</td>
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<td>381-382</td>
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<td>DUE: NONE</td>
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<td>PRESENTATION: Human reflexes</td>
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<td>12/3</td>
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<td>Lab Practical #2 Muscle tissue through special senses</td>
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