UNIVERSITY OF HAWAI'I COMMUNITY COLLEGES

PROPOSAL TO INITIATE, MODIFY OR DELETE A COURSE

1. TYPE OF ACTION
   A. Addition ☑ Regular ☐ Experimental ☐ Other __________________________ (specify)
   B. Deletion ☐
   C. Modification ☐ in credits ☐ in title ☐ in number or alpha ☐ in prerequisites ☐ Other __________________________ (specify)

2. NEW ALPHA, NUMBER AND TITLE
   BIOL 172 General Biology II

3. CREDITS 3

4. OLD ALPHA, NUMBER AND TITLE

5. CREDITS

6. NEW CATALOG DESCRIPTION
   Continuation of BIOL 171. Anatomy, physiology, and systematics of plants and animals; behavior; ecosystems, populations, and communities.

7. PREREQUISITES
   BIOL 171 & 171L
   Co-requisite: BIOL 172L

8. STUDENT CONTACT HOURS PER WEEK
   Lecture __ Lecture/Lab __ Lab __
   Other (specify) ______

9. PROPOSED DATE OF FIRST OFFERING
   Spring 1998

10. THIS COURSE ☑ IS REQUIRED ☐ IS AN ELECTIVE FOR THE WCC PROGRAM/CORE (Please specify) (Circle approp.)
    ☑ CAN FULFILL Natural Science Group 1 (Biology) REQUIREMENT (Please specify)

11. THIS COURSE ☐ INCREASES ☐ DECREASES ☑ MAKES NO CHANGE IN NUMBER OF CREDITS REQUIRED FOR THE PROGRAM/CORE

12. SIMILAR COURSES OFFERED ELSE WHERE:
   College(s):
   U.H. Manoa
   Kap C.C.
   Alpha, Number, Title:
   BIOL 172 General Biology II
   BIOL 172 General Biology II

13. THIS COURSE IS
   ☑ ALREADY ARTICULATED ☐ NOT YET APPROPRIATE FOR ARTICULATION
   ☑ APPROPRIATE FOR ARTICULATION WITH BIOL 172 @ UHM & KCC
   ☐ NOT YET APPROPRIATE FOR ARTICULATION WITH __________________________
   (Provide details of existing or desired articulation (date, college(s), purposes, pre-major or major, etc.)

14. REASON FOR INITIATING, MODIFYING OR DELETING COURSE OR OTHER PERTINENT COMMENT:
   Facilitates completion of program requirements for transfer students intending to major in biological science at a four-year institution.

REQUESTED BY: __________________________ 12-2-96
Department Chairperson

APPROVED BY: __________________________ 1/16/97
Curriculum Committee

__________________________ Date
Faculty Senate

__________________________ Date
Dean of Instruction

__________________________ Date
Provost

Change recorded by Catalog Preparer: __________________________ Date

CCCM #6100
(Amended for WCC use Sept. 1991)
<table>
<thead>
<tr>
<th>Level</th>
<th>Signatures</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Subject Area (one or more instructors in the area)</td>
<td>Joseph E. Costi</td>
<td>12-2-96</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12/2/96</td>
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<tr>
<td></td>
<td>Clyde E. Potter</td>
<td>12-2-96</td>
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<td></td>
<td>Jacqueline Maly</td>
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<td>2. Department</td>
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<td></td>
<td>Department Chairperson</td>
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<td>Was this course discussed in a dept. mng.</td>
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<td>4. Curriculum Committee Review</td>
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<td>Disapproved</td>
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<td>Reason:</td>
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Curriculum Committee Chairperson

1/16/97
COURSE ARTICULATION FORM

ORIGINATING CAMPUS: Windward CC

COURSE ALPHA & NUMBER: BIOL 172

COURSE TITLE: General Biology II

DATE OF OUTLINE: (Fall or Spring) Spring Year 1998

(** Representative outline, no multiple syllabi, please.)

1. Articulation committee to review this course:

A. Standing Committees
   - Written Communication [ ]
   - Mathematical & Logical Thinking [ ]
   - World Civilizations [ ]
   - Languages [ ]
   - Arts & Humanities [ ]
   - Natural Science [X]
   - Social Science [ ]

B. Special Discipline/Program Committee [X] Biology Program
   Specify discipline/program

   Campus with which this course should be articulated (special articulation only):
   - UH Manoa [X]
   - UH Hilo [ ]
   - Community Colleges [ ]
   - UH West Oahu [ ]

2. In the opinion of the originating campus, this course is equivalent to the following and/or meets the criteria for the indicated core categories:

<table>
<thead>
<tr>
<th>Receiving Campus</th>
<th>Equivalent Course (Alpha and Number)</th>
<th>Core Category</th>
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</thead>
<tbody>
<tr>
<td>UH Hilo</td>
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<td>11.C.BIOL NSI</td>
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<tr>
<td>UH Manoa</td>
<td>BIOL 172</td>
<td>NSI</td>
</tr>
<tr>
<td>UH West Oahu</td>
<td>Unknown</td>
<td>NSI</td>
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<td>Hawaii CC</td>
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<td>Kauai CC</td>
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<tr>
<td>Leeward CC</td>
<td>BIOL 172*</td>
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<tr>
<td>Maui CC</td>
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<td>NSI</td>
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<tr>
<td>Windward CC</td>
<td>Unknown</td>
<td>NSI</td>
</tr>
</tbody>
</table>

3. Notes

*BIOI 172 is not listed in the LCC catalog, but the course is being developed there.

Revised 1/29/93
WOC FORM FOR TRANSFER COURSES

(To be completed for articulation with any 4-year UH campus)

Course  BIOL 172  Submitted by  D. Krupp  Date 11/18/96

1. List the counter part to this course on any 4-year UH campus. Describe the relationship between the course and any related baccalaureate program area.

   UH Manoa:  BIOL 172.
   This class is a continuation of BIOL 171 and is required for all biological science majors.

2. Is this course taught or accepted by major accredited colleges or universities? Give one or two examples.

   Yes, just about any four-year college or university.

3. Please attach a complete course outline, if you have not done so already. Your course outline should address all the items listed in the Guidelines for Course Outlines.

   WOC 9/91
1. How is this course related to the educational needs and goals of the College/Department/Community as reflected in the EDP?
Enhances opportunities for students intending to transfer to a four-year baccalaureate program in biological science after graduation from WCC.

2. Provide details of any additional staff, equipment, facilities, library/media material, faculty preparation and other financial support that would be required to implement this course. (Include an estimate of the actual cost of supplies and equipment.) What has been done to provide for these additional costs for the proposed date of offering? Who will teach the course?

No additional costs will be required. This course will be taught by Dr. Krupp as part of his normal teaching load.

3. Is a similar course taught elsewhere in the UH system? Yes
   If yes, provide details of how this course differs from existing similar courses.

   It does not differ substantially from BIOL 172 taught at other campuses within the U.H. system.

4. Is this course experimental and/or unique to Windward Community College? No
   If yes, provide rationale and details of its impact on the College curriculum.

5. Is a similar course taught on the upper division level by a 4-year UH college? No
   If yes, explain why this course is appropriate at the lower division or how it differs from its upper division counterpart.

6. Please attach a complete course outline. Your course outline should address all the items listed in the Guidelines for Course Outlines.

7. If this course is numbered 100 or above or appropriate for transfer to a 4-year college, complete and attach WCC Form for Transfer Courses (blue). (See attached criteria for transfer courses.)
OUTLINE OF COURSE OBJECTIVES

COURSE NAME: General Biology II
COURSE ALPHA: BIOL 172
CREDIT HOURS: 03

CATALOG DESCRIPTION:

Continuation of BIOL 171. Anatomy, physiology, and systematics of plants and animals; behavior; ecosystems, populations, and communities. (3 hrs. lect.)

REQUIREMENTS COURSE SATISFIES:

AT WCC: Partially fulfills AA degree Natural Science requirements as a biological science (Natural Sciences, Group 1).

AT UHM: Partially fulfills Natural Sciences area requirement for the UHM General Education Core and for the Colleges of Arts and Sciences. At UHM, this class is included in Natural Sciences Group 1, Biological Sciences. This class may fill one of the major requirements for a bachelor of arts (BA) or bachelor of science (BS) degree in any of the biological sciences.

PREREQUISITES BIOL 171 and 171L

CO-REQUISITE: BIOL 172L

RECOMMENDED SPECIAL PREPARATION: High school biology

RECOMMENDED BASIC SKILL LEVELS: College level reading/writing skills

ACTIVITIES REQUIRED AT SCHEDULED TIMES OTHER THAN CLASS TIME:

none

INSTRUCTOR: Dr. David Krupp
OFFICE: Haloa 108
TELEPHONE: 235-7316 (WCC office), 236-7437 (HIMB office)
EFFECTIVE DATE: Spring 1998
COURSE GOALS

Upon completion of this course, you should:

1. have an understanding of the characteristics and classification of plants and animals;
2. understand the relationships between living things and their environments;
3. appreciate the biological diversity of the Hawaiian Islands and the origin of this diversity.

COURSE OBJECTIVES

The student will describe and integrate basic biological principles and define basic biological terms presented in lecture and required texts, citing specific examples when asked for. These principles includes the following areas:

1. higher plant biology, including the following concepts: basic plant characteristics, plant adaptations to terrestrial versus aquatic life styles, classification and systematics, and vascular plant reproduction, growth, anatomy, and physiology;
2. characteristics and classification of major invertebrate animal groups, including: sponges, radiate animals, flatworms, pseudocoelomates, segmented worms, molluscs, arthropods, lophophorates, echinoderms, and chordates;
3. vertebrate biology, including: the basic vertebrate body plan, vertebrate diversity and classification, adaptations to terrestrial versus aquatic life styles, embryology, behavior, and the anatomy and physiology of vertebrate systems (i.e., digestion, respiration, circulation, osmoregulation, thermoregulation, immunity, reproduction, nervous, and endocrine system);
4. ecological principles, including: population dynamics, community ecology, ecosystems, biomes, the biosphere, and the impacts of human activities;
5. the Hawaiian Islands as a living laboratory for evolution.

To help you achieve the course objectives, you may be provided with lecture outlines that include vocabulary terms and study questions. You should use these materials as guides to help you focus on what materials to study.

MODE OF INSTRUCTION

The previously described objectives will be achieved through the aid of the following learning activities:

1. Assigned readings;
2. Class lecture and demonstrations;
3. Multimedia presentations, including computer-assisted and internet-assisted activities;
4. Essay assignments;
5. Examinations.

The material presented in all modes of instruction will be of an introductory nature but sufficient in content to allow continuation in higher level biological science courses required for biological science majors. Assigned readings will serve to provide background and supplemental information to provide a broad base for a basic study of biology. Class lectures will build upon this base, helping to focus the student to some of the more important details. Lecture study guides may be provided to help students focus upon the more significant details from the lecture.
and text. Multimedia presentations will graphically illustrate course content. Students may also be given the opportunity to access learning tools available through CD-ROM and internet technologies. Finally, students will complete assigned essays on relevant topics.

**EVALUATION OF OBJECTIVE ACHIEVEMENT**

**EXAMINATIONS.** The student will take 2 midterm examinations (100 points each) and a cumulative final examination (200 points) to demonstrate understanding of information presented primarily during lectures. **NO RETESTS** will be given. A student missing an exam because of an illness or legitimate emergency may take a make-up exam only during the **FIRST class meeting to which the student returns.** In such a circumstance, the student should make every reasonable attempt to contact the instructor before the exam is administered to the class (or as soon as possible). While make-up exams will cover the same content area as a missed exam, the exam format and specific questions may be different.

**ESSAY ASSIGNMENTS.** During the course of the semester, students will be assigned 5 essay questions (20 points each). Each essay response should be typed (normal fonts and double-spaced) grammatically correct and exhibit a logical organization. Its content should be objective and supported by factual information. While each essay will be evaluated primarily on content, rather than on quantity, I expect that each essay will require two to three typed (10-12 pt. font) double-spaced pages. **LATE ASSIGNMENTS RECEIVED WITHIN ONE WEEK OF THE DUE DATE WILL BE ASSESSED AN AUTOMATIC PENALTY OF THREE POINTS. ASSIGNMENTS WILL NOT BE ACCEPTED IF SUBMITTED MORE THAN ONE WEEK AFTER THE DUE DATE.**

**METHOD OF GRADING**

The assignment of points will be according to the following protocol:

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midterm Examinations</td>
<td>200</td>
</tr>
<tr>
<td>Final Examination</td>
<td>200</td>
</tr>
<tr>
<td>Essay Assignments</td>
<td>100</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>500</td>
</tr>
</tbody>
</table>

Letter grades will be assigned as follows:

- **A** --- 90% or above in total points.
- **B** --- 80-89.9% of total points.
- **C** --- 65-79.9% of total points.
- **D** --- 55-64.9% of total points.
- **F** --- Below 55% of total points or informal or incomplete official withdrawal from course.
- **I** --- Incomplete; given at the **INSTRUCTOR'S OPTION** when student is unable to complete a small part of the course because of circumstances beyond his or her control. It is the **STUDENT'S** responsibility to make up incomplete work. Failure to satisfactorily make up incomplete work within the appropriate time period will result in a grade change for "I" to the contingency grade identified by the instructor (see catalog).
- **CR** --- 65% or above in total points; the student must indicate the intent to take the course as **CR/NC** in writing by the end of the 10th week of classes (see catalog).
- **NC** --- Below 65% of total points; this grade only available under the **CR/NC** option (see above and see catalog).
- **N** --- **NOT GIVEN BY THIS INSTRUCTOR EXCEPT UNDER EXTREMELY RARE CIRCUMSTANCES** (e.g., documented serious illness or emergency that prevents the student from officially withdrawing from the course); never used as an alternative for an "F" grade.
- **W** --- Official withdrawal from the course after the third week and prior to the end of the 10th week of classes (see catalog).
Waiver of minimum requirements for a specific grade will be given only in unique situations at the instructor's discretion.

Students involved in academic dishonesty will receive an "F" grade for the course. Academic dishonesty is defined in WCC's college catalog.

STUDENT RESPONSIBILITIES

Students are expected to participate in all lectures activities and complete all course assignments on time.

Students are expected to be prepared in advance when they arrive to class. Being prepared includes the following: having already read text materials (e.g., textbook readings and handouts) assigned for that day's activities and bringing required work materials (e.g., textbook, handouts, writing supplies, etc.).

Any changes in the course schedule, such as examination dates, deadlines, etc., will be announced ahead of time in class. It is the student's responsibility to be informed of these changes.

It is the student's responsibility to be informed about deadlines critical to making registration changes (e.g., last day of erase period and last day for making an official withdrawal.

The student should expect a level of difficulty comparable to other 100-level science classes intended for majors in the discipline. When difficult concepts and detailed information are presented, it is the student's responsibility to take the appropriate steps to learn and understand these concepts and information.

Science courses at W.C.C. generally require two to three hours of independent private study time for each hour in class (depends upon the student's science background). It is the student's responsibility to allocate the appropriate time needed for study in an environment conducive to quality study. The student must budget time efficiently and be realistic about all personal and professional commitments that consume time.

HOW TO SUCCEED IN THIS CLASS

Understanding biological science involves understanding many difficult concepts and vocabulary, not just knowing facts. You should know that the details to these concepts are important. In addition, you will be introduced to hundreds of new words. In some cases, words that are familiar to you in a context other than biology will be introduced to you in the context of biology. You will need to understand and use these terms in a biological science context.

While you may be given lecture outlines that include study guides, you will not succeed in this class unless you take your own careful lecture notes and read the corresponding material in the textbook. The lecture outlines are not to be used in place of your own note taking. As soon as possible (best if you do it the same day), copy over your lecture notes filling in gaps and missing information by referring to the lecture outlines and textbook. You should carefully review these rewritten lecture notes as often as possible. In addition to reviewing these notes before an exam, it would be useful to try to rewrite these notes from memory.

In addition to copying over your lecture notes, your study activities should include drawing your own labelled diagrams or graphs that illustrate important biological phenomena (e.g., the internal structure of the cell, the stages of cell division, or the population growth curve). These diagrams need not be works of art, but should clearly illustrate significant information. Before an exam, it would be useful to redraw these labelled diagrams and graphs from memory.
Make flashcards for each new vocabulary word you learn (refer to study guides provided for a list of terms). On one side write the word. On the other side write the appropriate biological science definition for the word. Test your ability to provide the right definition as often as possible. Practise using the word to explain biological concepts.

Write out answers to all of the study guide questions as though you were required to turn them in. Allow someone else to read your answers and give you feedback. Read someone else's answers and provide constructive feedback.

Read the textbook materials corresponding to a particular lecture before and after that lecture. Review this material before exams.

**TEXTBOOK AND OTHER ASSIGNED INSTRUCTIONAL MATERIALS**


**OTHER INFORMATION**

Important Dates:

- Last day to add or drop a class .........................
- Last day of erase period ..............................
- Last day for official withdrawal .....................

Instructor's Office Hours (or by appointment):
<table>
<thead>
<tr>
<th>TOPIC</th>
<th>TEXT CHAPTERS</th>
</tr>
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<tbody>
<tr>
<td>• CHARACTERISTICS OF THE ENVIRONMENT SIGNIFICANT TO LIVING THINGS</td>
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</tr>
<tr>
<td>Terrestrial, Aquatic, and Arial Environments, Dimensionality,</td>
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<td>Temperature, Water and Solute Balance, Support and Buoyancy,</td>
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<td>Nutrient Availability, Solar Radiation, and Barriers and Boundaries</td>
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<tr>
<td>• PRIMITIVE TERRESTRIAL PLANTS</td>
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<td>Bryophytes and Seedless Vascular Plants</td>
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<td>• SEED-BEARING PLANTS</td>
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<td>Gymnosperms Versus Angiosperms, Basic Plant Anatomy, Monocots Versus</td>
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<td>Dicots, Growth, and Differentiation</td>
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<td>• TRANSPORT IN PLANTS</td>
<td>32</td>
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<tr>
<td>Roots, Vascular Tissues, and Transpiration</td>
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<tr>
<td>• PLANT NUTRITION</td>
<td>33</td>
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<tr>
<td>Nutritional Requirements, Soil, and Nitrogen Assimilation</td>
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<tr>
<td>• PLANT REPRODUCTION</td>
<td>34</td>
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<td>Flowering Plant Life Cycles, Seeds and Seed Germination, Asexual</td>
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<td>Reproduction, and Plant Morphogenesis</td>
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<td>• CONTROL SYSTEMS IN PLANTS</td>
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<td>Plant Hormones, Tropisms, and Photoperiodisms</td>
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<td>• ANIMAL ARCHITECTURE</td>
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<td>Levels of Structural Organization, Tissues, Organs, Organ Systems,</td>
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<td>Size, and Animal Body Plan Characteristics</td>
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<td>• INVERTEBRATE DIVERSITY</td>
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<td>Sponges, Radiata, Acoelomates, Pseudocoelomates, Molluscs,</td>
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<td>Segmental Worms, Arthropods, Lophophorates, Echinoderms, and</td>
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<td>Chordates</td>
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<tr>
<td>• THE VERTEBRATES</td>
<td>NA*</td>
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<tr>
<td>The Vertebrate Body Plan and Vertebrate Diversity</td>
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<tr>
<td>• ANIMAL NUTRITION</td>
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<tr>
<td>Intracellular Versus Extracellular Digestion, Animal Digestive</td>
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<td>Systems, Anatomy and Physiology of the Mammalian Digestive System,</td>
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<td>Vertebrate Digestive System Adaptations, and Nutritional Requirements</td>
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<tr>
<td>• CIRCULATION AND GAS EXCHANGE</td>
<td>38</td>
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<td>Circulation Mechanisms in Animals, Cardiovascular Systems in</td>
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<td>Vertebrates, Mammalian Blood, Gas Exchange Mechanisms in Animals,</td>
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<td>the Vertebrate Lungs, and Gas Transport by Respiratory Pigments and</td>
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<td>Plasma</td>
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<td>• DEFENSE MECHANISMS</td>
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<td>Nonspecific Defense Mechanisms and Immunity</td>
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<td>• HOMEOSTASIS</td>
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<td>Osmoregulation, Excretion, the Vertebrate Kidney, and Thermoregulation</td>
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<tr>
<td>• CHEMICAL INTEGRATION</td>
<td>41</td>
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<tr>
<td>Hormones, Pheromones, and the Vertebrate Endocrine System</td>
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• NERVOUS SYSTEMS
  Neurons, their Functions, and the Nervous System

• ANIMAL REPRODUCTION AND EMBRYOLOGY
  Modes of Reproduction, Anatomy and Physiology of the Reproductive System, Descriptive Embryology, and Control of Development

• ANIMAL BEHAVIOR
  Proximate Versus Ultimate Causation, Nature Versus Nurture, Patterns of Behavior (e.g., rhythms, movement, foraging, social interactions, mating, communication, altruism), and Behavioral Ecology

• POPULATION ECOLOGY
  Introduction to Ecology, Characteristics of Populations, Life Histories, Population Growth, and Factors Influencing Population Growth

• COMMUNITY ECOLOGY
  Predation, Competition, Symbiosis, Coevolution, Community Structure, Succession, and Biogeography

• ECOSYSTEMS
  Trophic Levels and Food Webs, Energy Flow through Ecosystems, and Biogeochemical Cycles

• THE BIOSPHERE
  Biomes and Human Impacts on the Environment

• BIOLOGY AND ECOLOGY OF THE HAWAIIAN ISLANDS
  Geological Setting, Hawaiian Vegetation Zones, The Uniqueness of Hawaiian Flora and Fauna, Adaptive Radiation of Specific Groups, and Impacts of Human Activities

* handouts will be distributed