SD '00

RM

Bio. 204-Cellular & organismic Biology **Spring 2000**
MWF **9:00-9:50 or TR 9:30-10:50** **January 18, 2000** to
3 semester credits, Rm H 17 **May 11, 2000**
Chaminade University of Honolulu **Instructors:**
Ronald M. Iwamoto

COURSE OUTLINE AND SYLLABUS

TEXT:

Gould, James L. and William T. Keeton 1996. (6th ed.) Biological Science. **W.W. Norton & Company, N.Y., N.Y.**

COURSE DESCRIPTION:

Biology 204 is a 3-credit introductory biological science course for those students desiring advanced studies in the sciences, e.g. biology, forensic science, medicine, dentistry, environmental health, and other areas. It is **preceded by Biology 203 in the fall semester.**

The following is from the 1998-1999 *General Catalog:*

> **Concepts of cellular and molecular biology stressed in first semester; second semester devoted to organisms stressing phylogenetic, ecological, and genetic relationships in plants and animals. Recommended for science majors. Offered annually. Recommended: one year each of high school biology and chemistry.** *Concurrent registration in BI 203L-BI 204L required.*

AIMS/GOALS OF THE COURSE: **This course is designed to fulfill the following goals:**

1. **To present the basic concepts and principles of biology for use in the present and for future courses.**

2. **To prepare the student to continue into advanced biology or related fields, such as biochemistry.**

3. **To examine and analyze specific content areas,** such as **molecular or cellular biology, evolution, genetics, physiology, and related areas of biochemistry and biophysics. Cellular biology will be stressed** during the first semester (Bi 203) **while organismal biology, based on organ systems, will be emphasized in the second semester(Bi** 204).

4. **To study the organisms included in the botanical and zoological fields emphasizing Hawaiian flora and fauna.**

AIMS/GOALS OF THE COURSE CONT'D...

5. **To impart an understanding of the accomplishments, failures, ambiguities, and the future of the biological sciences drawing on examples and applications of principles in the area of marine sciences, biomedical sciences and other disciplines.**

OBJECTIVES FOR STUDENTS: At the completion of the course, the student will be able to do the following:

1. **Analyze a scientific problem using principles and methods used in the natural sciences.**

2. **Use biological science terminology to communicate principles and concepts of biological content areas.**

3. **Provide examples and applications of principles and concepts of cells, systems, and living organisms.**

4. **Give examples of Hawaiian flora and fauna.**

LECTURES:

Lectures are either 50 minutes duration, three times per week or one hour and twenty minutes duration, twice per week for approximately 15 weeks. Lectures are accompanied by a single laboratory period of 3 hours duration per week.

2. **Text assignments and lecture topics are listed in the course outline. Consult the outline for assignments, announced quizes and exam dates, and holidays.**

3. **Supplemental readings may be assigned during the course of the semester.**

4. **Supplemental reference texts are on reserve in the library at the front desk and will include study guides with sample exam questions. These may be used for additional readings, references for lab reports, or for an alternative approach to your text. Please complete required assignments before using supplemental references.**

5. **Adjustments may be made to the lecture outline, such as changes in exam dates, or assignments due to conference trips.**

GRADE DETERMINATION:

1. Separate grades will be given for lecture and laboratory. It is therefore, possible to receive different grades for lecture and laboratory.

2. Quizes, both announced and unannounced, will be given during the semester. At the end of the semester, the student may substitute the total quiz score average, based on 100%, for one of the lower scored lecture exams, not including the final exam.

3. Each student will submit 5 summaries of current events in biology. Each summary will be worth 10 points and instructions and requirements for the written summaries are given on a separate page. Summaries will be included as a portion of the lecture grade.

4. The lecture grade will be determined in the following manner.

1st lecture exam	100 pts.	Scale
2nd lecture exam	100 pts.	A = 90%
3rd lecture exam	100 pts.	B = 80%
5 summaries @ 10 pts.	50 pts.	C = 70%
Two Hour Comprehensive Final Exam	150 pts.	D = 50%
		below 50%
	500 pts.	=F

5. Lecture exams will include 10 extra credit points each, while the final exam will not **include extra** credit points. The final examination is a two hour comprehensive exam with 50% of the exam including questions repeated from the previous 3 lecture exams.

6. Any exam that the student fails to complete at the expected time can be made up only with a physician's excuse or valid reason to be determined by the instructor.

POLICIES, CLASS STANDING, OFFICE HOURS, AND EXTRA HELP:

1. Attendance is mandatory for each lecture and laboratory. Attendance will be monitored as required for federal guidelines. Attendance for laboratory is especially important and unexcused absences for both lecture and laboratory will result in grade penalties to be determined by the instructor.

2. Quizes missed can not be made up, but excused absences will result in excused quizes.

POLICIES CLASS STANDING OFFICE HOURS AND EXTRA HELP CONT'D..

3. **Incompletes and early exams are not given. Extra credit work is not normally permitted.**

4. **Students may obtain their grades any time by consulting the instructor. Those with deficient grades will be notified prior to the withdrawl deadline of April 10, 2000. Students receiving deficiencies must consult with the instructor.**

5. **Peer tutoring is available. Please consult the instructor for tutoring from the Learning Center or upperdivision biology students.**

6. **The instructors' office is in Henry Hall, Rm 16, with Iwamoto's phone 735-4808, fax (808) 739-4618, e-mail= Riwamoto@chaminade.edu and with Lee-Robinson's phone 735-4804, fax (808) 739-4618, e-mail=** leerobin@hawaii.edu**. Office hours are posted on the door of the office. If you can not see us at office hours, please make an appointment or see us after lecture.**

7. **Please note that it is biology department policy to reduce grades by one grade level for late assignments within 24 hours of the deadline and a F grade is recorded for assignments later than 24 hours. This is for summaries, lab reports, and other assignments.**

8. **Those students with special needs, e.g., learning disabilities, should consult with the instructor during the first or second week of classes.**

9. **Academic dishonesty including cheating, plaigarism, and other serious offenses, such as giving answers to another student will not be tolerated. Appropriate action will be taken.**

10. **Because electronic devices, such as cellular phones and pagers, can be disruptive to normal classroom activities, please turn off these devices during class.**

Bio. 203/204-Cellular & organismic Biology Mr. R. **Iwamoto**
Chaminade University of Honolulu

CELLULAR & ORGANISMIC BIOLOGY SUMMARIES

Cellular & Organismic Biology **Summaries:**

1. **The objectives of the summaries are threefold:**
   a. **To read and report on current topics in biology;**
   b. **To offer an alternative to quizes and examinations; and**
   c. **To participate in "writing across the curriculum," compositions in each area of the university curricula. This should help you develop the ability to research and write about selected topics.**

2. **There will be five, one to two paged summaries. Each summary will be worth 10 points and the total will be 50 points that are counted in the lecture grade.**

3. **The summaries must be from a 1999 or 2000 publication of a newspaper, magazine, journal, or internet/web pages which must be pertinent to the biology field, e.g., not geology or chemistry.**

4. **Summaries are to be word processed or typed following university writing standards. The summary must include: author, title of article; title of** journal, **magazine, or newspaper with titles of sources, e.g., newspapers italicized or underlined; date of publication; page number(s). Please use the following for web site publications from the APA format:**
   Author, I. (Date). Title of Article. Name of Periodical (**Online), XX.** Available: **Specify path (<URL>date accessed).**

   Example:Mestel, **R. (March 1999). Drugs from the Sea. Discover, Vol. 20 No. 3. Available:** http://www.discover.com_99/drugs.html, **Date accessed 3/8/99.**

5. **Please submit a xerox copy or internet/web page print out of the article with your summary. If you utilize National Geographic or Time articles, you need not xerox the article as the instructors have subscriptions to the above.**

6. **Due dates for summaries are listed on the course outline. Please submit summaries on time as there are penalties for lateness, reduction in one grade level for submission within 24 hours of the deadline and F for those after 24 hours of the deadline.**

7. **Examples of** summaries are available **for examination during the first weeks of classes.**

CHAMINADE UNIVERSITY WRITING STANDARDS

All work submitted by Chaminade University students must meet the following writing standards. written assignments which fail to meet these standards will not be accepted by Chaminade University faculty unless alternative criteria nave been *Specified by* an instructor for a particular assignment.

(1) A paper must have a title page on which the writer gives the title, his or her name, the course title, and the date of submission. For short papers, it is usually adequate to provide this information on the first page of the paper.

(2) A paper must adhere to accepted manuscript format.

a) It must be typed on white 8½" by 11' paper (except for in-class essays).

b) It must be double-spaced and typed on only ore side of the paper.

c) It must have adequate margins on top, bottom, and sides.

d) References and/or footnotes must *be used in accord-* anca with standards specified by the instructor. In the absence of such specification, the writer should use standards given to English 102.

A paper must adhere to conventional standards for written expression.

a) It should be free of errors in spelling, punctuation, capitalination and grammar.

b) The vocabulary and syntax should be appropriate to the assignment.

c) The writer should use proper sentence construction *and* coherent paragraphing.

*See the handbook of English recommended by the English Department *for a* complete list of manuscript requirements.

WRITING ASSISTANCE

The Chaminade Learning Center provides assistance for students in proofreading and correcting their written assignments. A writing clinic and *tutorials* are available to students at no cost to assist them in the mastery of basic writing skills. Typing instruction is available at several locations *near Chaminade* University and then are also lists of student typists available in *the* Learning Center.

CHAMINADE UNIVERSITY OF HONOLULU *SESSION: SPRING 2000*
Honolulu, Hawaii 96816 *On Campus*
COURSE OUTLINE-SUBJECT TO CHANGE

BIO 20401. (3 Crs) Cellular & organismic Biology Mr. R. Iwamoto
Dept. No. #Crs. Title Instructor

WEEK	DATE		ASSIGNMENTS	
	JAN 17	M	Father Chaminade/Martin Luther King Jr. Holiday, no classes	
1	19	W	Introduction: Syllabus & Course outline	
	21	F	Mitosis and Meiosis	Chapt. 12 pp. 309-335
	JAN 24	M	Gene Structure & Function LAST DAY TO ADD/DROP CLASSES	Chapt. 8 pp. 205-223
	26	W	Gene Transcription & Translation	Chapt. 9 pp. 225-245
2	28	F	Genetic Engineering	Chapt. 10 pp. 247-271 QUIZ
	JAN 31	M	Gene Control	Chapt. 11 pp. 273-307
	FED 2	W	Inheritance	SUMMARY ONE DUE Chapt. 16 pp. 407-443
3	4	F	Phylogeny & Classification	Chapt. 18 pp. 487-527 Chapt. 24 pp. 668-670, pp. 698-699 Appendix A-1 to Appendix A-5
	FEB 7	M	FIRST LECTURE EXAM, CHAPTS. 8-12, & 16	
4	9	W	Diversity of Plants and Animals	Skim Chapts. 19-25 & Hand-outs
	11	F	Plant Nutrition	Chapt. 26 pp. 743-759

	FEB	14 M	Animal Nutrition Video	
5		16 W	Animal Nutrition/Digestion	Chapt. 27 pp. 761-793
		18 F	Digestion	**SUMMARY** 2 DUE
	FEB	21 M	PRESIDENT'S DAY, NO CLASSES	
6		23 W	Digestion	
		25 F	Respiration	Chapt. 28 pp. 795-817 QUIZ
	FEB	28 M	Respiration	
7	MAR	1 W	Plant Transport	Chapt. 29 pp. 819-839
		3 F	SECOND LECTURE **EXAM,** CHAPTS. 18,24, DIVERSITY **HANDOUTS,** and 26-27	
	MAR	6 M	Circulation	Chapt. 30 pp. 841-877
8		8 W	Circulation	
		10 F	Circulation	SUMMARY 3 DUE
	MAR	13 M	Immune System	Chapt. 15 pp. 379-405
9		15 W	Excretion	Chapt. 31 pp. 879-901
		17 F	Excretion	QUIZ
	MAR	20 M	Excretion	Chapt. 32 pp. 903-935
10		22 W	Plant Hormones	SUMMARY 4 DUE
		24 F	Plant Reproduction	
11	MAR	27-31 M-F	SPRING RECESS, NO CLASSES	

	APR	3	M	Animal Hormones Chapt. 33 pp. 937-967
12		5	W	Animal Hormones
		7	F	THIRD LECTURE EXAM, CHAPTS. 28-31
	APR	10	M	Reproduction LAST DAY TO WITHDRAW WITHOUT GRADE PENALTY
		11	T	BEGIN PRE-REGISTRATION FOR FALL 2000
13		13	W	Reproduction Chapt. 34 pp. 969-989
		15	F	Development Chapt. 13 & 14 pp. 337-405
	APR	17	M	Nervous System Chapt. 35 pp. 991-1027 SUMMARY 5 DUE
14		19	W	Nervous System Chapt. 36 pp. 1029-1065
		21	F	GOOD FRIDAY, NO CLASSES
	APR	24	M	Nervous System Chapt. 37 pp. 1067-1085
15		26	W	Skeletal-Muscular System QUIZ
		28	F	Evolution Chapt. 17 pp. 445-485 Review Chapt. 18
	MAY	1	M	Evolution LAB EXAM WEEK
16		3	W	Ecology Chapts. 39 & 40 pp. 1119-1205
		5	F	Ecology
17	MAY 8, 2000, MONDAY, 10:30 AM-12:30 PM, TWO-HOUR COMPREHENSIVE FINAL EXAMINATION			

SD '00

Bio. 204L-Cellular & Organismic Biology Laboratory Spring 2000
T 2-4:50 or Th 2-4:50, Rm H8 & H13 Jan. 18, 2000 1
Semester Credit, to May 11, **2000**
Chaminade University of Honolulu Instructors:
R. Iwamoto &
P. Lee-Robinson

COURSE OUTLINE AND SYLLABUS

TEXT:

Keeton, William T., Michael W. Dabney, and Mary Philpott 1986 Biological Investigations in the Laboratory. W.W. Norton & Company, N.Y., N.Y.

COURSE DESCRIPTION: The course description is from the 1998-1999 General Catalog.

One three-hour laboratory period per week to accompany BI 203 and BI 204. Laboratory work such as thin layer chromatography and enzyme kinetics experiments. Offered annually.

LABORATORY AIMS/GOALS: The laboratory is designed to fulfill the following goals.

1. To present principal methods or techniques using appropriate instruments utilized in the study of cells and organisms.
2. To allow investigation and problem solving by manipulative and experimental methodology including preparation and completion of laboratory reports.
3. To examine applications of principles and concepts presented in lecture, such as the relationship between oxygen consumption and size in respiration.
4. To observe and identify plants and animals, living and preserved, of both Hawaiian and introduced species.
5. To learn structure and function of cells, tissues, organs, and systems by microscopy, preserved and live specimens, experimentation, and dissection.

OBJECTIVES FOR STUDENTS: **At the completion of the course, the student will be able to do the following.**

1. **Explain techniques of a particular experiment and use instruments, such as a microscope, balance, spectrophotometer, pH meter, and/or Winkler bottles.**

2. **Explain applications of biological principles discussed in situ field trips and in the laboratory, such as adaptations of coastal plants or amniocentesis.**

3. **Identify and discuss plants and animals, including Hawaiian plants and animals.**

4. **Discuss structure and functions in plants and animals.**

5. **Design, complete, interpret, and report experimental data from an experiment in a written scientific report in a format suitable for presentation and submission to a biological journal.**

LABORATORY PREPARATION, OUTLINE, AND ATTENDANCE:

1. **Preparation of laboratory assignments listed on the lab outline and presented in lab hand-outs are essential in successful completion of the laboratory.**

2. **Hand-outs in the laboratory outline refer to assignments not in the lab manual. Lab hand-outs will be given to students prior to the laboratory exercise and include procedures and instructions for the laboratory.**

3. **Attendance for the laboratory is mandatory. Laboratory absences must be documented by valid excuses, such as a physician's excuse. Grade penalties will be imposed for unexcused absences by the instructor.**

GRADE DETERMINATION:

1. **A separate grade is given for laboratory.**

2. **Laboratory grades will be determined in the following manner with the same scale used for lecture.**

Laboratory Exam 1	100 pts.
Laboratory Exam 2	100 pts.
Laboratory Notebook (graded twice)	50 pts.
Two Laboratory Reports C 25 pts.	50 pts.
Quizes and unknowns	**50** pts.
	350 pts.

GRADE DETERMINATION CONT'D...

3. Laboratory exams are station exams with students moving from station to station answering questions at each station in a specified time period. Each laboratory exam contains 10 extra credit points. The second lab exam is not comprehensive and includes material covered since the first lab exam.

4. Laboratory quizes will be announced and unannounced with the same policies for lecture except that quizes will not be used to replace low exam scores.

LABORATORY NOTEBOOK:

1. Each student will be required to maintain a bound laboratory notebook into which all laboratory information and data is to be directly entered. Lab notebooks may be periodically checked and graded. Lab notebooks must be submitted at the time of laboratory exams.

2. The notebook should be bound with non-tear out pages. spiral bound notebooks are unacceptable.

3. The format and grading of lab notebooks are given on a separate hand-out. Please follow the format including a table of contents with topic, date, and page numbers.

LABORATORY REPORTS:

1. The format and components of a laboratory report are included in a separate hand-out. Sample reports will be available for examination.

2. Both lab notebooks and lab reports that are late will be penalized by one grade level. Lab notebooks and lab reports later than 24 hours will receive F grades.

POLICIES, CLASS STANDING, OFFICE HOURS AND EXTRA HELP:

1. Please consult the lecture syllabus as the same policies, will be followed.

Bio. 203-204L-Cellular & Organismic Biology Mr. R. Iwamoto

LABORATORY NOTEBOOK

Previous experiences have demonstrated that compilation of observations, data collection, calculations, and reporting of results is a problem for many scientists and students. To avoid repetition of previous difficulties, i.e., lost, uninterpretable, unrecorded ("he took it I didn't"), or dissolved by water or chemicals data, purchase a bound (non-spiral, non-tear out page) type of laboratory notebook. The following procedures are to be followed in your notebook.

1. All observations, data, calculations, laboratory notes, and lab related materials must be entered directly into the notebook. Neatness is not a prerequisite, but it is a necessity that notes be legible to you.

2. An index or table of contents is required and includes the following: a) date of exercise, b) topic, and c) page numbers in the lab book.

3. Number the pages in your notebook If unnumbered. Uneven numbered pages are used for field data. or original observations, rough calculations, and unorganized materials. Even numbered pages are used for organized summaries, answers to questions, and conclusions.

4. Drawings are mandatory with. identification of structures and organism. Specific characteristics differentiating the specimen from others should be noted for later use, i.e., studying for identification questions on exams.

5. Since recopying of notes is discouraged, notebooks should be presentable' with information completed to the current lab period. Notebooks will be examined without previous notice to determine progress.

6. Grading of notebooks is based on 1) organization-inclusion of all assigned works, table of contents, labeling and identification of structures and specimens in drawings, and completeness of data collected and 2) interpretations-observations in exercises, completeness/correct answers to questions asked, conclusions drawn, and error analysis.

Hints

1. Record everything and anything in the beginning. With time and experience you will learn what, how, and why to record information with your own shorthand that will allow greater freedom in recording and interpreting.

2. Immediately after obtaining data and completing observations, review and organize them. Remember that time is the ally of forgetfulness.

3. Use writing material that is waterproof and streak proof.

4. Do not depend on "the other person" to take your notes, especially when working in group type experiments and exercises or field trips.

5. Lab hand-outs, review articles, supplemental information, and completed lab reports can be affixed to your notebook. References used should definitely be included with name(s) of author(s), title, year, and volume/page numbers.

6. When the instructor presents information, especially at the beginning of the lab period, write copious notes. Often lab exam questions and significant information for successful completion of lab exercises are contained in the beginning briefing.

FORMAT AV PROCEDURES FOR. LABORATORY REPORTS

FORMAT:

1. Titles A title explains to the reader what the report contains. A title should not be so general that it does not specify what the experiment is, i.e., "osmosis." Neither should the title be so long that it tells everything, i.e., "Osmosis using is bus containing 1.5% sucrose placed in isotonic, hypertonic, and hypotonic solutions with iodine added to determine porosity of the membrane." Be creative and imaginative to attract the interest of the reader. Do not use the title on the laboratory hand-out or from the laboratory text.

2. Abstract: An abstract is a brief, one-paragraph summary of the results o[the experiment. Same investigators include short sentences an the purposes or objectives of the experiment. It precedes the introduction with single spacing, and is indented. Identify your abstract by placing the word, abstract, before the paragraph.

3. Introductions This portion includes a full discussion of the objectives of the experiment. It also includes the biological concepts or principles on which the experiment is based and what is expected in the experiment. Some writers include a brief review of evidence from previous experiments or known information derived from previous testing.

4. Methods and Materials: Methods, techniques, equipment/supplies used are included in this portion. You may be brief by stating: "Please refer to the methods and materials as given in the lab hand-out or lab manual." You must include 1) a description of the control and why such a control was utilized and 2 explanations of deviations from the expected procedures

5. Experimental Data: Consolidate your data into tables and graphs. Use the following format : 1) Table 1. "Title of Table." and 2) Fig. 1. "Title of Figure (graph). Units must be included. Calculations may be included in this section which precedes the discussion section.

6. Discussion: This portion discusses and explains the results of the research. It includes a comparison of the results to the theoretical principles and what was expected. Error analysis or plausible reasons for deviations must be included. Concentrate on errors of experimental design and instrumentation and do not rely solely on technique errors, i.e., "the investigator titrated the wrong volume or did not obtain the correct weight." Answers to questions asked by the experiment ors included in this section, i.e., questions asked on hand-out sheets.

7. Conclusions: An optional portion in which the investigator asseses the experiment by listing in short sentences the results.

8. Literature Cited or Useds A part at the report comparable to a bibliography that cites works of others used in the report. You must cite works of others even if direct quotes were not used or you are guilty of plagarism: If direct quotes are used, follow standard English procedures. Be consister with references, e.g. author's last name first, initials, year, title in quotes if journal or underlined if text, volume, page numbers, and publisher if text.

Bio. 203-204L:Cellular & Organismic Biology Lab

FORMAT AND PROCEDURES FOR LABORATORY REPORTS CONT'D..

1. Laboratory reports are separate papers that are not written into the laboratory notebook.

2. Word processed or typed reports are mandatory.

3. Reports are due on dates listed in the laboratory outline and those laboratories requiring reports are so indicated in the laboratory outline.

4. Two references, other than the laboratory manual, hand-out, or text, are required and are usually used in the introduction section.

5. It is expected that correct English grammar, spelling, and syntax be used in reports Points will be deducted for incorrect usage of English.

6. Length of papers is not to exceed 6 pages double spaced with the exception of the abstract and does not include a reference and title page.

7. On occasions that require that data from the entire laboratory section be pooled or used, it is the student's responsibility to obtain the results. Obtain the results during the laboratory period and do not wait till the following day or next laboratory.

8. Written policies in the syllabus on lateness will be followed. Late papers within 24 hours will be reduced one grade level and papers later than 24 hours will receive F grades.

CHAMINADE *UNIVERSITY* WRITING STANDARDS

All work submitted by Chaminade University students must met the following Writing Standards. Written assignments which fail to meet these standards will not be accepted by Chaminade University faculty unless alternative criteria nave been specified *by an* instructor for a particular assignment.

A paper must have a title page on which the writer gives the title, his or her man, the course title, and the date of submission. For short papers, It is usually adequate to provide this information on the first page of the paper.

A paper must adhere to accepted manuscript format.*

a) It must be typed on white 8½" by 11' paper (except for in-class essays).

b) It must be double-spaced and typed on only ore side of the paper.

c) It must have adequate margins on top, bottom, and sides.

d) References and/or footnotes must be used in accordance with standards specified by the Instructor. In the absence of such specification, the writer should use standards given In English 102.

A paper must adhere to conventional standards for written expression.

a) It should be tree of errors in spelling, punctuation, capitalization and grammar.

b) The vocabulary and syntax should be appropriate to the assignment.

The writer should use proper sentence construction and coherent paragraphing.

*See the handbook of English recommended by the English Department for a complete list of manuscript requirements.

WRITING ASSISTANCE

The Chaminade Learning Center provides assistance for students in proofreading and correcting their written assignments. A writing clinic and tutorials are available to students at no cost to assist them in the mastery of basic writing skills. Typing instruction is available at several locations near Chaminade University and then are also lists of student typists available in the Learning Center.

CHAMINADE UNIVERSITY OF HONOLULU *SESSION: SPRING 2000*
Honolulu, Hawaii 96816 *On Campus*

LABORATORY OUTLINE-SUBJECT TO CHANGE

BIO 204L01 & (1 CR) CELLULAR & ORGANISMIC BIOLOGY MR. R. IWAMOTO
BIO 204L02 LABORATORY & MS. P. LEE-ROBINSON
Dept. No. (# CRS) Title Instructor

WEEK	DATE	ASSIGNMENTS
1	JAN 18 T 20 Th	Introduction:Syllabus, Lab Outline, Procedures for the Lab; and Microscopy, Topic 1 pp. 1-14, Glossary A-16 of text, Handouts on Use of Ocular/Stage Micrometer
2	JAN 25 T 27 Th	Classification & Dichotomous Keys, Appendix 2 pp. 309-317, Skim pp. 310-317, Handouts on Algae, Fish, and Invertebrate Classification; Diversity of Plants & Animals-Handouts, Skim Topics 23-29; and HOMEWORK ON FISH KEY, ENTER IN LAB NOTEBOOK
3	FEB 1 T 3 Th	Kaloko Cove Estuary Field Trip: Estuarine & Tidepool Ecology, Adapatations of Endemic & Coastal Plants-Handouts, Measurements of pH (pH meter), temperature, and salinity (refractometer); and One Page Position Paper Due on Feb 15 & 17 on Development of East Oahu Coastline (10 pts.)
4	FEB 8 T 10 Th	Soil Tests for pH and Plant Nutrients Handouts Demonstration of the Bomb Calorimeter-Handouts; and Nutrition Computer Program-An Analysis of Each Student's Dietary Intake:RDA, fats, proteins, carbohydrates, vitamins and minerals QUIZ ON KALOKO COVE

5	FEB 15 17	T Th	Digestive System: Dissection of Fetal Pig, Topic 5 pp. 39-50; and Handouts Digestive Structures: Dissection of Lumbricus (earthworm), demonstrations of molluscan radula, echinoderm Aristotle's Lantern, baleen from whales, and Squalus (dogfish shark) spiral valve
6	FEB 22 24	T Th	Oxygen Consumption Experiment: Winkler oxygen Titration Method of Fish and Crayfish-Handouts LAB REPORT DRAFT DUE 22/29 AND 3/2; Respiratory System: Dissection Fetal Pig, Topic 6 pp. 51-61; and Demonstrations of Respiratory Structures: gills, trachea, spiracles, and stoma
7	FEB 29 MAR 2	T Th	Waikiki Aquarium and/or Honolulu Zoo-Handouts OXYGEN CONSUMPTION DRAFT DUE FINAL OXYGEN CONSUMPTION REPORT DUE 3/21 & 3/23 QUIZ ON OXYGEN CONSUMPTION EXPERIMENT
8	MAR 7 9	T Th	FIRST LAB EXAM AND LAB BOOK DUE
9	MAR 14 16	T Th	Plant Respiration and Circulation Topic 7 pp 62-77; and Circulatory System: Dissection Fetal Pig, Blood Cells, Blood Pressure Measurement (Sphygmomanometer), Chemical Effects on Hearts, Topics 8 & 9 pp. 78-94
10	MAR 21 24	T Th	Volume Regulation Experiment with Sea Hares and Crabs-Handout, LAB REPORT DUE 4/11 & 4/13; Excretory and Reproductive Systems: Dissection of Fetal Pig, Topic 10 pp. 95-101; and Demonstrations of flame cells of Planaria and Dissection of Malpighian tubules of grasshopper OXYGEN CONSUMPTION REPORT DUE 3/21 & 3/23

11	MAR 27-31		SPRING RECESS, NO CLASSES
	APR 4	T	Plant Reproduction: Cone, Flowers, Fruits, & Seeds, Topic 24 pp. 254-261 and Handouts;
12			Contraceptive Devices: IUD, Sponge, Condom & Other Types; and
			Sea Urchin Fertilization & Embryology, Topic 21 pp. 206-222
			QUIZ ON EXCRETORY SYSTEM
	APR 11	T	Nervous System: Dissection of Sheep Brain,
13	13	Th	Topic 12 pp. 109-118, Model of Brain, Ear, & Eye; and
			Skeletal-Muscular System, Topic 13 pp. 119-136, Biochemical Tests on Rabbit Muscle
			VOLUME REGULATION REPORT DUE 4/11 & 4/13
	APR 18	T	Aiea or Waiahole Forest Hike: Tropical Forest
14	20	Th	and Freshwater Habitats-Handouts; and
			Use of photometer, sling psychrometer, and transect methods-Handouts
	APR 25	T	Behavior: Plant & Animal, Topic 14 pp. 137-145;
	27	Th	Hermit Crab Behavior-Handouts; and
15			Dissection of Crab, Clam, & Starfish-Handouts
	MAY 2	T	SECOND LAB EXAM AND LAB BOOK DUE
16	4	Th	

IMPORTANT DATES:

JAN 24 LAST DAY TO REGISTER, ADD/DROP CLASSES

MAR 7, 9 FIRST *LAB EXAM AND LAB BOOKS DUE*

APR 10 LAST DAY TO WITHDRAW FROM CLASSES

MAY *2,4 SECOND LAB EXAM AND LAB BOOK DUE*

MAY 8 *LECTURE FINAL EXAMINATION*