Bio. 353-Invertebrate Zoology **Fall 2001**
Bio. 353L-Invertebrate Zoology Lab **August 27, 2001 to**
MWF 1-11:50 lecture, W 2:00-4:50 lab **December 13, 2001**
Lecture 3 semester credits, **Lab 1 semester credit**
Chaminade University of Honolulu **Instructor:R.Iwamoto**

COURSE OUTLINE AND SYLLABUS

Lecture and Laboratory Texts:

Ruppert, Edward E. and Robert D. Barnes 1994. (6th ed.) (lecture text) Invertebrate Zoology. Saunders, N.Y., N.Y.

2. Wallace, Robert L. and Walter K. Taylor 1997 (5th ed.) (lab text) Invertebrate Zoology: A Laboratory Manual. Prentice-Hall, Upper Saddle River, N.J.

Lecture and Laboratory Goals & Objectives:

The lecture is designed to fulfill the following goals and objectives.

1. To introduce the student to invertebrate zoology through a broad survey of systematics, phylogeny, ecology, anatomy, and physiology.

2. To examine Hawaiian invertebrates, especially marine intertidal and coral invertebrates in the laboratory and in situ.

3. To enable the student to identify invertebrates and provide the student with information of a practical or applied nature about invertebrates and their habitat, such as products from organisms, remedies for venomous organisms, and transmission of parasites.

4. To allow the student to present an organized, coherent analysis of characteristics of a given invertebrate at the conclusion of the course

The laboratory is designed to fulfill the following goals and objectives.

1. To learn how to collect, handle, and preserve invertebrates.

2. To learn how to identify species, their habitats, and where to collect the organisms.

3. To examine zoological characteristics of selected invertebrates through microscopic, preserved specimens, and dissection methods.

Lecture and Laboratory Schedule:

1. Lectures will be held on MWF. There may be occasions when lectures will not be held and the period devoted to audiovisual or laboratory exercises. Conversely, there also may be occasions when a portion of the lab will be used for lectur

2. Laboratory will be on Wednesday. On certain occasions laboratory may not be held because of an evening field trip, a lecture, and/or class assignment.

3. Topics for both lecture and laboratory are listed on separate, attached pages.

4. Attendance is mandatory for both lecture and laboratory. Unexcused absences may result in lowering of grades to be determined by the instructor.

Determination of Lecture and Laboratory Grades:

Separate grades will be given for lecture and laboratory.

2. Lecture grades will be determined in the following manner.

Three Examinations @ 100 points =	300 points	Scale	90%=A
Announced and Unannounced Quizes=	100 points		80%=B
Final Comprehensive Examination =	200 points		70%=C
total	600 points		50%=D
		below	50%=F

3. Laboratory grades will be determined in the following manner with the same scale as in lecture.

Two Lab Exams @ 100 points =	200 points
Announced and Unannounced Quizes =	200 points
total	400 points

4. Each student will be required to maintain a laboratory notebook with observations, notes, and drawings. The laboratory notebook will not be assigned a worth in points, but will be used to determine borderline grades. It will be due at the time of the 2 lab exams and must be submitted as a requirement for completion of the course. An F grade for laboratory will be assigned for those not submitting a lab notebook.

5. Please refer to the separate inclusion on laboratory notebooks for procedures and hints. The notebook requires a table of contents with dates of exercises, title of exercise, and page numbers. The notebook is to include observations, answers to questions, and drawings with structures labeled and organisms identified.

Policies, Class Standing, Extra Help, and Instructor's Office Hours:

1. **Incompletes, make-up exams, and make up work are normally not given and is at the discretion of the instructor. Seniors are not excused from final exams and early/late exams are not given.**

2. **Extra credit work is not an option.**

3. **Students may obtain their grades at any time by consulting with the instructor. Those obtaining deficiency notices are required to make an appointment with the instructor. Those students with D or F grades will be notified prior to the withdrawal deadline of Nov. 9, 2001 by the instructor.**

4. **The instructor's office is Henry Hall Rm 16. Office hours are posted on the door. If you can not see me during office hours, please do not hesitate in making an appointment. The phone number for my office is 735-4808 and e-mail=riwamoto@chaminade.edu.**

5. **If you need extra help, please see the instructor immediately. Peer tutoring may be available.**

6. **Those students with diagnosed learning problems or disabilities should notify the instructor immediately by the second week of classes.**

7. **Quizes missed can not be made up. Quizes given when the student has an excused absence will not be counted.**

8. **Academic dishonesty including cheating, plagiarism, and other serious offenses, such as allowing another student to copy a paper, will not be tolerated. Appropriate action will be taken.**

CHAMINADE UNIVERSITY OF HONOLULU *SESSION: FALL 2001*
Honolulu, Hawaii 96816 On Campus
COURSE OUTLINE-SUBJECT TO CHANGE

BIO 353 (3 Crs) Invertebrate Zoology Mr. R. Iwamoto
Dept. No. #Crs. Title Instructor

WEEK	DATE		ASSIGNMENTS	
	AUG	27 M	Introduction: Syllabus & Course outline	Chapt. 1 pp. 1-9
1		29 W	Habitats: Terestrial, Marine, Estuarine, & Freshwater	Chapt. 2 pp. 10-67
		31 F	Habitats Cont'd...	
	SEPT	3 M	**LABOR DAY** HOLIDAY, NO **CLASSES**	
		4 T	**LAST** DAY TO **ADD/DROP CLASSES**	
2		5 W	Protista: Sarcomastigophora	Chapt. 2
		7 F	Protista: Sarcomastigophora	Quiz on Habitats
	SEPT	10 M	Protista: Ciliophora	
3		12 W	Protista: Sporozoa	Chapt. 5 pp. 174-202
		14 F	Video-Nova:"Conquest of Parasites"	Chapt. 3 pp. 68-94
	SEPT	17 M	Metazoan Evolution & Bilateral Symmetry	Handouts
4		19 W	Porifera	Chapt. 4 pp. 95-173
		21 F	Porifera	
	SEPT	24 M	Cnidaria: Hydrozoa	Chapt. 4
5		26 W	Cnidaria: Scyphozoa	
		28 F	Cnidaria: Anthozoa	Quiz on Cnidaria

	OCT	1	M	FIRST LECTURE EXAM EXCLUDING CNIDARIA	
6		3	W	Coral Reefs	Chapt. 4 pp. 157-173
		5	F	Platyhelminthes: Turbellaria	Chapt. 6 pp. 203-261
	OCT	8	M	DISCOVERER'S DAY HOLIDAY, NO CLASSES	
7		10	W	Platyhelminthes: Trematoda & Cestoda	Chapt. 7 pp. 262-276
		12	F	Platyhelminthes: Cestoda cont d... Aschelminthes: Nemerteans	Chapt. 8 pp. 277-335
	OCT	15	M	Aschelminthes: Nematodes, Rotifers, and other phyla	Quiz on Platyhelminthes
H		17	W	Mollusca: Monoplacophora, Aplocophora & Polyplacophora	Chapt. 10 pp. 361-497
		19	F	Mollusca: Gastropoda	Chapt. 10
	OCT	22	M	Mollusca: Bivalvia	Chapt. 11 pp. 499-595
9		24	W	Mollusca: Cephalopoda	Chapt. 11
		26	F	Video-"Nautilus-500 Million Years Under the Sea"	
	OCT	29	M	SECOND LECTURE EXAM EXCLUDING MOLLUSCA	
10		31	W	Assigned Work Due to Instructor's Attendance with students at the Biomedical Research Conference for Minority Students (ABRCMS), Orlando, FL	
	NOV	2		Assigned Work due to ABRCMS	Chapt. 12 pp. 596-616

	NOV	5		Annelida: Polychaeta & Oligochaeta	***Quiz on*** Mollusca
11		7	W	Annelida: Hirudinea	Chapt. 13 pp. 617-677
		9	F	Arthropoda: Introduction LAST DAY TO WITHDRAW WITHOUT GRADE PENALTY	
	NOV	12	M	Arthropoda: Chelicerates	
12		14	W	Arthropoda: Crustacea	***Quiz on*** Annelids
		16	F	Arthropoda: Myriapods & Insecta	Chapt. 14 pp. 678-799
	NOV	19	M	THIRD **LECTURE** EXAM EXCLUDING ARTHROPODA	
13		21	W	Arthropoda: Insecta	Chapt. 15 pp. 880-824
		22-23	TH & F	THANKSGIVING RECESS, NO CLASSES	
	NOV	26	M	Echinodermata: Stelleroidea	Chapt. 16 pp. 825-862
14		28	W	Echinodermata: Ophiuroidea	Quiz on **Arthropoda**
		30	F	Echinodermata: Echinoidea & Holothuroidea	
	DEC	3	M	Lesser Worm Phyla	Chapt. 9 pp. 336-360
15		5	W	Protochordates	Chapt. 17 pp. 863-919
		7	F	Lophophorates & Evolution	Chapt. 19 pp. 996-1041 Chapt. 20 pp. 1042-1056

16 DECEMBER 11, 2001, **TUESDAY,10:30** AM-12:30 PM, TWO-HOUR CUMULATIVE FINAL EXAMINATION, HENRY **HALL** RM 17

IMPORTANT DATES: *SEPT 4 LAST DAY TO REGISTER, ADD/DROP CLASSES*

NOV 9 LAST DAY TO WITHDRAW FROM CLASSES

DEC 10 BEGIN FINAL EXAM WEEK

CHAMINADE UNIVERSITY OF HONOLULU
Honolulu, Hawaii 96816

SESSION: FALL 2001
On Campus

COURSE OUTLINE-SUBJECT TO CHANGE

BIO 353L (1 Cr) — Invertebrate Zoology — Mr. R. Iwamoto
Dept. No. #Crs. — Title — Instructor

WEEK	DATE		ASSIGNMENTS
	AUG	29 W	PROTOZOA: Hay Infusion Culture, Pond Water Specimens & Sarcomastigophora Exercise 1A pp. 1-20 ALL LABS WILL INCLUDE SLIDES AND SPECIMENS UNLESS OTHERWISE INDICATED. ASSIGNMENTS ARE FROM THE LABORATORY MANUAL BY WALLACE AND TAYLOR
	SEPT	3 M	LABOR DAY HOLIDAY, NO CLASSES
		4 T	LAST DAY TO ADD/DROP CLASSES
2		5 W	PROTOZOA: Apicomplexa, Myxozoa & Ciliophora Exercise 1B, C, & D, pp. 20-33
	SEPT	12 W	HABITAT AND COLLECTING FIELD TRIP: Coral Reef,
3			Tidepool, and Estuary Collect sponges for making spicule slides Handouts on Collecting
	SEPT	19 W	QUIZ ON PROTOZOA PORIFERA: Sponges, Complete Spicule Slides Exercise 2 pp. 34-45, Handouts from Devaney
4			(ed.) CNIDARIA: Hydrozoa & Scyphozoa Exercise 3A, pp. 46-65
	SEPT	26 W	CNIDARIA: Anthozoa & Coral Specimens Exercise 3B, C, pp. 65-75
5			CTENOPHORA: Tentaculata & Nuda Exercise 4 pp. 77-79
	OCT	3 W	QUIZ ON PORIFERA AND CNIDARIA
6			PLATYHELMINTHES: All Classes Exercise 5 pp. 80-99

	OCT	*8*	*M*	DISCOVERER'S DAY HOLIDAY, NO CLASSES
7		10	F	ASCHELMINTHES AND NEMATODA: Nemertea through Nematomorpha Exercises 6-11 pp. 101-132 WAIKIKI AQUARIUM INVERTEBRATE FIELD TRIP! Handouts
8	OCT	17	W	FIRST LAB EXAM EXCLUDING ASCHELMINTHES AND LAB BOOKS DUE
9	OCT	24	W	MOLLUSCA: Polyplacophora & Gastropoda Exercise 12A, B, pp. 134-145
10	OCT	31	W	ATTENDANCE AT ABRCMS CONFERENCE Assigned Work
11	NOV	7	W	MOLLUSCA: Bivalvia & Cephalopoda, Dissection of Unio (clam) and Loli o (squid) Exercise 12C, D, pp. 145-165
		9	F	LAST DAY TO WITHDRAW WITHOUT GRADE PENALTY
		10	M	VETERAN'S DAY HOLIDAY, NO CLASSES
12		14	W	ANNELIDA: All Classes, Dissection of Lumbricus (earthworm) Exercise 13 pp. 166-185
13	NOV	21	W	REVIEW ANNELIDA ARTHROPODA: Phylum Onychophora to Crustacea Exercise 14 pp. 186-190 and Exercise 15 pp. 191-222
	NOV	22-23	TH & F	THANKSGIVING RECESS, NO CLASSES
14	NOV	28		QUIZ ON ANNELIDA ARTHROPODA: Crustacea & Uniramia, Dissection of Callinectes (blue crab) and Romalea (grass-hopper) Exercise 15 pp. 219-222 and Exercise 15 pp. 222-228 ECHINODERMATA: All Classes, Dissection of Asterias (starfish), Exercise 22 pp. 270-299
15	DEC	10	F	SECOND LAB EXAM AND LAB BOOKS DUE

IMPORTANT DATES *SEPT 4 LAST DAY TO REGISTER, ADD/DROP CLASSES*

NOV 9 LAST DAY TO WITHDRAW FROM 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 have been specific 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 types on white 8.5" by 11.5" paper (except for in-class essays).
   b. It must be double-spaced and typed on only one side of the paper.
   c. It must have adequate margins on top, bottom, and sides.
   d. Reference and/or footnotes must be used in accordance with standard specified by the instructor. In the absence of such specification, the writer should use standards given in English 102.
3. A paper must adhere to conventional standards for written expression.
   a. It should be free of errors in spelling, punctuation, capitalization 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 there are also lists of student types available in the Learning Center.

BI 203- Cellular and organismic Biology Lab **Fall, 2001**
Chaminade University of Honolulu **Iwamoto &**
Lee-Robinson

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 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 textbook if unnumbered. Uneven pages are used for field data or original observations, rough calculations, and unorganized 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) interpretation 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 materials that is waterproof and streak proof.**

Hints **Cont'd...:**

4. Do not depend on "the other person" to take your note, 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 authors(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.

Biology 203/204
2000-2001

Student:

Points / Grade:

GOOD POINTS	NEEDS IMPROVEMENT
Theme/ focus is clearly stated	Needs clearer theme/focus
Theme is well-developed	Needs deeper analysis
Specific examples are given	Give more evidence
Attempted interpretation	Missing interpretation
Well-structured/ organized	Rethink organization
Has a conclusion	Lacks a conclusion
Clearly written	Needs more synthesis
Well-documented	Needs more sources
Good command of topic	Factual/concept errors
Good synthesis skills	Poor grammar
Good use of references	Multiple spelling errors
Good presentation of data -	Poor subject/verb agreement
	Report Format not followed
	Poor presentation of data
	Poor documentation
	No data analysis
	Recommend rewrite

Additional comments: