FD '00

Bio. 203-Cellular & Organismic Biology
MWF 9:00-9:50, MWF 11:00-11:50, &
TR 9:30-10:50
3 Semester Credits
Chaminade University of Honolulu
3140 Waialae Avenue
Honolulu, HI 96816

Fall 2000
August 28, 2000 to
December 14; 2000
Instructors:
Henry H. Gomes
Ronald M. Iwamoto
Patricia Lee-Robinson

COURSE OUTLINE AND SYLLABUS

TEXT:

Campbell, Neil A., Jane B. Reece, and Lawrence G. Mitchell 1999 (5th ed.). Biology. Benjamin Cummings, Menlo Park, CA.

COURSE DESCRIPTION:

Biology 203 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 followed by Biology 204 in the second semester.

The following is from the 2000-2001 *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, 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).

AIMS/GOALS OF THE .COURSE

4. 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 disciplnes.**

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

1. **Understand the scientific method;**
2. **Use cellular biology terminology;**
3. **Understand chemical components of the** cell;
4. **Identify** cellular structures and **understand their functions;**
5. **Understand cellular respiration;**
6. **Understand photosynthesis;**
7. **Understand cellular reproduction, mitosis and meiosis;**
8. **Understand major principles of evolution**

LECTURES:

1. **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, exam dates, and holidays.**
3. **Supplemental readings may be assigned during the** course **of the semester.**

LECTURE CONT'D...

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.**

		Scale
1st **lecture exam**	100 **pts.**	
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 <u>not include extra credit points</u>. The final examination is a two hour cumulative exam with** 50% **of the exam including questions repeated from the previous 3 lecture exams.**

GRADE DETERMINATION CONT'D. POLICIES,

6. Any exam that the student fails to complete 'at- the' expected time can be mad@ up only with a written 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. 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. In cases of excused absences, quizes will not be counted.

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 withdrawal deadline of November 12, 1999. 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, phone with Gomes's phone 735-4808, e-mail=hgomes@chaminade.edu; Iwamoto.s phone 735-4808, e-mail= riwamoto@chaminade.edu; and with Lee-Robinson. phone 735-4804, 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. An F grade is recorded for assignments later than 24 hours. This is for summaries, lab reports, and other assignments.

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

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

NEW TEXT SUPPLEMENTS:

1. **Several student study guides will be placed in the library on closed reserve exclusively for student** use.

2. **Each purchased text includes an interactive study partner CD-ROM with interactive exercises, animations, lab, and simulations keyed to the text. Included are a glossary and 20 test questions per chapter, feedback for answers, and page references for studying.**

3. **A text-related web resource,** *The Biology Place, is* **available to students with web links, interactive learning activities, current research news, and customized practice exams keyed to the 5** th **edition.**

4. **On-line labs have also been included with the customized lab manual. These may be used during the instructors conference trip or as extra credit.**

Bio. 203/204-Cellular & Organismic *Biology* Mr. R. Iwamoto 2001
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 disciplines", 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 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.**

CHECKLIST FOR GRADING ESSAYS AND RESEARCH PAPERS
Biology 203/204

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 we synthesis
Well-documented	Needs more sources
Good command of topic	Factuallconcept 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:

Instructor

Date

CHAMINADE UNIVERSITY OF HONOLULU *SESSION: FALL 2000*
Honolulu, Hawaii 96816

COURSE OUTLINE-SUBJECT TO CHANGE

BIO 20302 (3 Crs) Cellular & Organismic Biology Mr.' R. Iwamoto
Dept. No. #Crs. Title Instructor

WEEK	DATE			ASSIGNMENTS	
	AUG	28	M	Introduction: Syllabus & Course Outline	Chapt. 1 pp. 1-99
1	AUG	30	W	Scientific Method, Characteristics of Life & Evolution	Chapt. 22 pp. 412-427
	SEPT	1	F	*Continue* Scientific Method	
	SEPT	4	M	LABOR DAY HOLIDAY, NO CLASSES	
		5	T	LAST DAY TO ADD/DROP CLASSES	QUIZ
2		6	W	*Continue* Evolution	Chapt. 2 pp. 20-36
		8	F	Chemical Structure/Function: Atoms, Chemical Bonds, Water	Chapt. 3 pp. 37-47
	SEPT	11	M	Chemical Structure/Function: Organic Compounds & Carbohydrates	Chapt. 4 pp. 48-57
3		13	W	Chemical Structure/Function: Lipids and Proteins	**SUMMARY** 1 DUE
		15	F	Chemical Structure/Function: Nucleic Acids	Chapt. 5 pp. 58-82
	SEPT	18	M	Chemical Reactions & Enzymes-Structure & Kinetics	Chapt. 6 pp. 83-99
4		20	W	Microscopy	
		22	F	Cell Theory & Structure	Chapt. 7 pp. 100-129

	SEPT	25	M	FIRST **LECTURE EXAM** INCLUDING'	9/22/00 -
5		27	W	Cell Structure: Organelles, Cytoskeleton, & Junctions	Chapt. 8 pp.130-146
		29	F	Cell Structure: Celi Membranes	
	OCT	2	M	Cell Processes: Osmosis & Transport	**SUMMARY** 2 DUE
	OCT	4	W	Histology	Chapt. 35 pp. 678-692 Chapt. 40 pp, 778-783
6		6	F	Cell Respiration: Anaerobic Pathways	Chapt. 9 pp. 147-167
	OCT	9	M	DISCOVERER'S DAY HOLIDAY, NO *CLASSES*	
7		11	W	Cell Respiration: Aerobic Pathways	
		13	F	Cell Respiration: Fats & Proteins	
	OCT	16	M	Photosynthesis	Chapt. 10 pp. 168-187
8		18	W	Photosynthesis: C-3 Pathway	**SUMMARY** 3 *DUE*
		20	*F*	Photosynthesis: C-4 & CAM	
	OCT	23	M	***SECOND LECTURE EXAM including***	10/20/00
9		*25*	*W*	Cell Communication	Chapt. 11 ***pp. 188-205***
		27	F	Cell Division: Mitosis	Chapt. 12 pp. 206-223

	OCT	30	M	Cell Division: Meiosis	Chapt. 13 pp. 226-238 QUIZ
10	NOV	1	W	Genetics: Mender	Chapt. 14 pp. 239-260
		3	F	Genetics: Mendelian Crosses	**SUMMARY** 4 **DUE**
	NOV	6	M	Genetics: Mendelian Crosses	Chapt. 15 pp. 261-277
11		8	W	Assigned Work Due to Instructor.s Attendance With Students at the National Minority Research Symposium, Phoenix, Arizona	
		10	F	**VETERAN'S** DAY HOLIDAY, NO CLASSES	
	NOV	13	M	Genetics: Chromosomes LAST DAY TO WITHDRAW **FROM** CLASS	
12		15	W	THIRD **LECTURE EXAM** including 11/8/99	
		17	F	Molecular Genetics	Chapt. 16 pp. 278-293
	NOV	20	M	Molecular Genetics: Transcription	Summary 5 DUE
13		22	W	Molecular Genetics: Translation	Chapt. 17 pp. 294-318
		23-24		**THANKSGIVING** RECESS, NO CLASSES	
	NOV	27	M	Genetic Control	Chapt. 19 pp. 344-363
14		29	W	Genetic Control: Cancer	QUIZ
	DEC	1	F	Genetic Technology	Chapt. 20 pp. 364-387

	DEC	4	M	Genetic Technology	
15		6	W	Genetic Basis of Development	Chapt. 21 pp. 388-411
		8	F	Review	

16 DECEMBER 11, 2000, Monday, 10:30 AM-12:30 **PM, TWO-HOUR CUMULATIVE** FINAL EXAMINATION IN HENRY HALL **RM** 17

IMPORTANT DATES: *SEPT 5 LAST DAY TO REGISTER, ADD/DROP CLASSES*

NOV 13 LAST DAY TO WITHDRAW FROM CLASSES

DEC 11 BEGIN FINAL EXAM WEEK

FD '00

Phy

BI 203L - Cellular and Organismic Biology **Laboratory** Fall, 2000
Chaminade University **of Honolulu** **Gomes, Iwamoto,**
TWR: **2:00-4:50** Lee-Robinson

COURSE SYLLABUS AND OUTLINE

Text:

Morgan, Judith Giles and M. Eloise Brown Carter (1999). Investigating Biology. Third Edition. Addison Wesley Longman, Inc., Menlo Park, California.

Course Description:

BI 203L is a 1 semester credit introductory biological science laboratory for those students enrolled in BI 203 - Cellular and Organismic Biology. This laboratory course is for students desiring advanced studies in the sciences, e.g., biology, forensic science, medicine, dentistry, environmental health, and other areas. It is followed by BI 204L in the second semester.

The following is from the 2000-2001 General Catalog:

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

Goals of the Course: This course is designed to fulfill the following goals:

1. **To present principal methods and techniques coupled with appropriate instruments utilized in the study of cells and organisms;**
2. **To allow investigation and problem solving by manipulative and experimental methodology including preparation of written laboratory reports;**
3. **To examine applications of principles and concepts in lecture, such as the relationship between osmosis and kidney dialysis machines;**
4. **To work collaboratively in order to accomplish a common goal, i.e., lab experiment;**
5. **To learn structure and function of cells, tissues, and organs by microscopic viewing, preserved specimens, and dissections.**

Objectives for Students: At the completion of the course, the student will be able to do the following:

1. apply the Scientific Method to observable phenomenon,
2. identify specific biological equipment,
3. distinguish between quantitative and qualitative chemical tests,
4. identify biological specimens,
5. identify cellular and tissue types and structures,
6. identify different techniques,
7. identify parts of a scientific laboratory report,
8. understand and set-up a Chi-square genetics problem,
9. develop an appreciation of working collaboratively in groups.

Laboratory preparation, outline, and attendance:

1. Preparation of laboratory assignments listed on the lab outline and presented in lab handouts are essential in successful completion of the laboratory and safety of your fellow students.
2. Handouts in the laboratory outline refer to assignments not in the lab manual. Lab handouts 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.

Laboratory notebook:

1. All students will be required to maintain a bound laboratory notebook into which ALL laboratory information and data is to be entered. Lab notebooks will be checked from time to time and graded.
2. The notebooks must be bound with non tear out pages. Spiral notebooks are unacceptable, as are three-hole folder paper.
3. The format and grading of lab notebooks are given on a separate handout. Please follow the format including a table of contents with dates, topics, and page numbers.

4. Notebooks are due at the time of the lab exams. Notebooks that are one day late will be penalized by one grade level and no credit will be given for lateness beyond one day. This is the Biology Department policy on late notebooks and papers.

Laboratory Reports:

1. The format and grading of laboratory reports are included in a separate handout.
2. The procedures for the late lab reports is the same as in #4 above.

Grade Determination:

1. Separate grades will be given for lecture and laboratory. It is possible to receive different grades for lecture and laboratory.
2. The instructor does not curve grades or grade scores. Grades will be determined according to the scale used in lecture.
3. There will be two lab practical examinations with each consisting of station questions. Station questions are those questions in which the student has a specified period of time to identify the organism under a microscope, relate a function of a structure, explain a graph, relate an objective to a exam will include material completed prior to the exam; the second exam will include material covered since the midterm exam, it is not cumulative.
4. There will be both announced and unannounced quizzes. Makeup quizzes will not be given. Quizzes will not be used to replace low exam grades.
5. Incomplete grade, early exams, and late exams are not given.
6. The laboratory grade will be determined in the following manner:

1 st lab exam	100 points
2nd exam	100 points
Two lab reports @ 25 points each	50 points
Quizzes and Unknowns	50 points
Lab notebook @ 25 points each	50 points
Total	350 points

Class standing, office hours, and extra help:

1. Students may obtain their grades at any time by consulting with the instructor. Students with D or F grades will receive deficiency notices. It is recommended that students receiving deficiency notices make an appointment to see the instructor.

2. Office hours are listed on my office door. I am also available by appointment.
3. Tutoring services are available through the Chaminade University Learning Center. The Biology Department provides upper class students majoring in biology as tutors. Please contact the instructor regarding availability of tutoring services.

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

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

BI 203L - Cellular and Organismic Biology Laboratory
Chaminade University of Honolulu
TWF: 2:00-4:50

Fafl, 2000
Gomes, Iwamoto,
Lee-Robinson

COURSE OUTLINE

WEEK	DATE	TOPIC	ASSIGNMENT
1	Aug. 29-31	Pre-Course Assessment Introduction: Syllabus & Course Outline; Lab Notebook & Lab Reports; Microscopy	Topic 3, pp. 57-69 Handouts
2	Sept. 5-7	Continue Microscopy & Scientific Method Procaryotic and Eucaryotic Cells	Topic 3, pp. 69-77 Topic 1 pp. 1-27 Handouts
	4	HOLIDAY - LABOR DAY	
	5	LAST DAY TO ADD/DROP	
3	Sept. 12-14	Qualitative Chemical Tests: Carbohydrates, Fats, & Proteins Identification of Unknown	MICROSCOPE QUIZ Handouts
4.	Sept. 19-21	Quantitative Chemical Tests: Thin Layer Chromatography of Amino Acid; Standard Curve & Determination of Unknown Protein Concentration by Spectrophotometry & Serum Cholesterol Determination by Spectrophotometry	Handouts
5	Sept. 26-28	Factors Affecting Enzyme Kinetics: pH, temperature, [E] & [S] Enzyme Kinetics Lab Report First Draft Due 10/17-10/19	Topic 2. 39-51 Handouts LAB REPORT #1
6	Oct. 3-5	Histology: Plant and Animal Tissues; Microtome Demo, Histology laser disc, Gram Staining of Bacteria	Handouts

7	Oct. 10-12 9	FIRST LAB EXAM AND LAB NOTEBOOKS **DUE** HOLIDAY - DISCOVERER'S D Y	
8	Oct. 17-19	Osmosis and **Diffusion** DRAFT OF ENZYME **KINETICS** LAB REPORT DUE Osmosis Report Due 10/31-11/2	**Topic 4, pp**_ 51-9 _- Handouts LAB REPORT #2
9	Oct. 24-26	Photosynthesis: Leaf Structure; Paper and Thin-Layer Chromatography of Plant Pigments and Absorption Spectra	Topic 6, pp. 135- 154 OSMOSIS QUIZ
10	Oct. 31- Nov. 2	Mitosis and Meiosis ENZYME KINETICS REPORT DUE LAST DAY TO WITHDRAW FROM CLASSES	Topic 7, pp. 161- 178
11	Nov. 7-9 10	ON LINE LABORATORIES HOLIDAY - VETERAN'S DAY	Handouts
12	Nov. 14-16 13 14	Genetics: Chi-Square Tests of Monohybrid & Dihybrid Crosses LAST DAY TO WITHDRAW/ CREDIT-NO CREDIT BEGIN PRE-REGISTRATION FOR SPRING, 2001	Handouts
13	Nov. 21-23 23-24	NO **LABORATORIES** HOLIDAY - THANKSGIVING	
14	Nov. 28-30	Human Inheritance: Human Karyotypes and slides; DNA extraction & electrophoresis (Dr. Shimakawa) OSMOSIS LAB REPORT DUE	Topic 10, pp. 247- 264 Handouts
15	Dec. 5-7	SECOND LABORATORY EXAM AND NOTEBOOKS DUE	