

BIOL 2010: Unifying Principles of Biology (Fall Semester 2008)

Biology Department, College of Arts and Sciences, Valdosta State University

Hours of credit: 4

Lecture (Bailey Science Center 1023): T & R 11:00 am - 12:15 pm
Laboratory (Bailey Science Center 1083): W 11:00 am - 1:50 pm (81112, J)
F 11:00 am - 1:50 pm (81113, K)
F 2:00 am - 4:50 pm (81114, L)

Instructor: Dr. Jonghoon Kang
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Office hours: R 1:00 pm - 3:00 pm

Course description: Introduction to biology for science and secondary education- science majors. Emphasis on basic concepts providing a foundation for advanced courses in biology. Concepts covered include the scientific method and experimental design; cellular structure and function, metabolism, reproduction; the nature of the gene and its action, and the mechanisms of evolution.

Pre-requisites: None.

Required textbook and laboratory manual:

Biology (8th ed.) by Campbell and Reece. 2008. Pearson Education, Inc.

Methods and Investigations in Basic Biology (3rd ed.) by Goddard. 2004. Cengage Learning.

Course objectives: The student should gain a basic understanding of life at the molecular and cellular levels, genetics, and mechanisms of evolution.

Course outcomes and their linkage to Biology Department Educational Outcomes (B) and Valdosta State University General Education Outcomes (V):

By the end of this course, students will know:

- 1) The chemical basis of life (B3; V5);
- 2) Structure and function of cells (B3; V5);
- 3) Basic genetics (B4; V5);
- 4) The mechanisms of evolution (B2; V5);
- 5) Experimental aspects of biology (B1; V5).

The Biology Department Educational Outcomes are listed on page 108 of the current undergraduate catalog (2008-2009). Valdosta State University General Education Outcomes can be found on the following web site:

<http://www.valdosta.edu/academic/VSUGeneralEducationOutcomes.shtml>

Assignments: Students are required to read the textbook and the laboratory manual to be covered before coming to the class.

Exam and Assessment Policy: There will be four unit exams and one cumulative final exam. THERE ARE NO MAKE-UP EXAMS. A missed exam will be equal to zero points. No books, electronic devices, or notebooks will be allowed during exams. Students using such items will be

asked to leave and will receive a zero for the exam. No talking will be allowed during the exam, but students are permitted to ask the instructor questions. Each student will be given an exam to be completed and handed back to the instructor. Students will take the exam during the stated lecture time only.

Type	Points = number of questions*points per question	Chapters
Exam I	80 = 40*2	1-5
Exam II	120 = 40*3	6-12
Exam III	140 = 35*4	13-21
Exam IV	60 = 30*2	22-25
Cumulative Final	250 = 50*5	1-25
Laboratory	150 = 15 sessions * 10	
Total	800	

The laboratory point will be assessed based on attendance, participation, lab notebooks, and other assignments as specified by your instructor.

Final grades will be assigned based on the total point you will get.

Point	Grade
720-800	A
640-719	B
560-639	C
480-559	D
0-479	F

Attendance: Attendance in this course is absolutely required. Students should be seated at the beginning of class. If you are late, your attendance may not be acknowledged. Attendance may be taken at any time during the lecture or lab. The student is responsible for all material missed regardless of the reason for absences. **ABSOLUTELY NO LECTURES OR LABORATORIES CAN BE "MADE UP."** This class has a punitive attendance policy. No credit is given for attendance, but students are only allowed 2 unexcused absences. For each additional unexcused absence, 2 % of the course total will be deducted for each instance. Excused absences are typically only for medical reasons and must be properly documented. Any student who misses more than 25 % of the lectures (6 unexcused days of the lectures) or 25 % of the labs (4 unexcused days of the labs) will receive an automatic final course grade of "F".

Mid-term, or in-progress grades: The instructor is required to submit in-progress grades prior to mid-term as posted online (10/3/2008). In theory, a mid-term grade is necessary for a student to assess how s/he is doing in class by midterm. In this course, students will have feedback on at least one major exam by midterm, several lab quizzes, lab assignments, and any homework or writing assignments. The instructor will, in general, assign an overall average grade at this point on the normal scale of A-F viewable on Banner. Students receiving a grade of "D" or lower should therefore carefully evaluate their option of dropping this course by midterm without academic penalty.

Student identification: Students should have in their possession at all times their VSU student identification card. In order to verify the identification of students officially enrolled in the

course, it is the instructor's prerogative to request official student photo identification cards at any time during lecture. During examinations, students will routinely be asked to display their VSU student identification cards visibly on the desk top and to make them available for inspection by their instructor and/or assistants.

Privacy Act (FERPA): The Family Educational Rights and Privacy Act (FERPA) prohibit the public posting of grades by social security number or in any manner personally identifiable to the individual student. No grades can be given by email or over the telephone, as positive identification cannot be made by this manner.

Disruptive behavior: No disruptive behavior of any kind will be tolerated in this course. Students should restrict talking and discussion to pertinent questions related to course material and these questions should be directed toward the instructor. Entering a classroom late or early is discouraged. Any student disrupting lectures will be required to leave the classroom. Use of cellular telephones, pagers, or any similar remote communication device is prohibited during scheduled lectures, laboratories, or examinations. If students bring cellular telephones or similar devices to lecture, it is their responsibility to switch them off prior to the beginning of the lecture period.

Biology Tutoring: The Student Success Center (SSC) at Valdosta State University is located in Langdale Residence Hall above the Tech Shop and is available to all students. The SSC provides free peer tutoring in core curriculum courses, including biology, chemistry, math, writing, and foreign languages. The SSC also provides free professional academic advising and on-campus job information in one location. Call 333-7570 to make an appointment, or visit the website: www.valdosta.edu/ssc.

Special needs: Students requesting classroom accommodations or modifications due to a documented disability must contact the Access Office for Students with Disabilities located in room 1115 Nevis Hall. The phone number is 245-2498.

Cheating: Students caught cheating will receive a final course grade of "F" and be reported to the Dean of Students.

Tentative Lecture and Exam Schedule

Date	Chapter or Exam
8/19	1
8/21	2
8/26	3
8/28	4
9/2	5
9/4	Exam I (11:00 am - 12:15 pm)
9/9	6
9/11	7
9/16	8
9/18	9
9/23	10
9/25	11
9/30	12
10/2	Exam II (11:00 am - 12:15 pm)
10/7	13
10/9	14
10/14	Fall break no class
10/16	15
10/21	16
10/23	17
10/28	18
10/30	19
11/4	20
11/6	21
11/11	Exam III (11:00 am - 12:15 pm)
11/13	22
11/18	23
11/20	24
11/25	25
11/27	Thanksgiving no class
12/2	Exam IV (11:00 am - 12:15 pm)
12/4	Final Exam (11:00 am - 12:15 pm)

Tentative Laboratory Schedule

Lab	Date (Section J)	Date (Section K and L)	Topic
1	8/20	8/22	Laboratory Introduction Exercise 1: Introduction to the Library- Independent Project Exercise 2: "The Black Box"- Scientific Method.
2	8/27	8/29	Exercise 3: Basics of the Light Microscope. Exercise 1 Due: Introduction to the Library.
3	9/3	9/5	Exercise 4: Light Microscopy Observations of cells and organisms; Basic "5 Kingdom" levels of organization
4	9/10	9/12	Exercise 5: Group Microscopy Project: Proposal Discussion
5	9/17	9/19	Exercise 5 Cont'd: Independent Microscopy Project: Data collection lab; Distribution of microscopic flora and fauna
6	9/24	9/26	Exercise 6: Cellular Water Relations
7	10/1	10/3	Exercise 7: Protein extraction from biological tissues and determination of total protein, Spectrophotometry and Standard Curves
8	10/8	10/10	Exercise 8: Enzymology Lab: basics of α -amylase activity
9	10/15	10/17	Exercise 9: Enzyme Regulation: Investigation of the effects of temperature and pH on enzyme activity
10	10/22	10/24	Exercise 10: Photosynthesis
11	10/29	10/31	Exercise 11: Mitosis / cell division
12	11/5	11/7	Exercise 12 & Handouts: Molecular Biotechnology I
13	11/12	11/14	Exercise 12 Cont'd: Molecular Biotechnology II
14	11/19	11/21	Exercise 12 Cont'd: Molecular Biotechnology III
15	12/3	12/5	Exercise 12 Cont'd: Molecular Biotechnology IV or Lab Test