

BIODIVERSITY AND ECOLOGY (BIOL 226/2)

Course Outline: Generic

This is an outline of what we typically cover.

There may be small changes for the 2012 academic year.

Instructor:	Dr. Jim Grant, Department of Biology Office: SP-455, Phone: 848-2424 ext 3421, Email: grant@alcor.concordia.ca Office hours: none; see me after class, by appointment, or take your chances between 1100 and 1500. Best way to contact me: email or phone first thing in the morning for an appointment later that day.
Teaching Assistant:	TBA; Office Hours: TBA or email TBA to make an appointment (include BIOL 226 in the subject line).
Lectures:	Tuesdays & Thursdays, 1145-1300, Loyola Campus, SP-S110
Course Description:	This course introduces the evolution, biodiversity, and ecology of organisms. The origin and diversity of life, from prokaryotes, through simple eukaryotes to multi-cellular organisms are introduced. Natural selection, speciation, and phylogeny, stressing evolutionary relationships in conjunction with changing conditions on earth, are presented. The course introduces major concepts in ecology: the physical and chemical environment, population structure, life histories, species interactions, communities, and ecosystems. Lectures only.
Prerequisite:	CEGEP Biology 1 or BIOL 201.
Objectives:	Students will learn the fundamental principles of evolutionary theory, and then use this knowledge to explore the evolution of biodiversity on earth. By the end of the course, students will be familiar with the major groups of organisms, including when they arrived on earth and how they are related to one another. Students will also learn basic ecological theory and begin to use these principles in understanding and proposing solutions to the major environmental problems facing the biosphere.
Required Materials:	Campbell, N.A, J.B. Reece, et al. 2011. Biology, 9th edition. Pearson Benjamin Cummings, San Francisco (~\$150.00). The 8 th edition is probably ok. iClicker: can be purchased new or used from the bookstore (~\$42.00)
On reserve:	One copy of Campbell, Reece, et al. 8 th edition, one-hour reserve.
Course Philosophy:	I expect students to read the assigned chapter, complete the Definitions, Explanations or Lists, answer the Assigned Questions, and at least think about the Review Exercises for that chapter before coming to class. This material will form the backbone of your notes for the course. I suggest you bring the answers to class so that any information covered in class can be added to your notes. Because students will have

already read the chapter, I do not feel obliged to cover the entire chapter in the lecture period. Instead, I will use class time to concentrate on difficult topics, tell you stuff that isn't in the book, do problems, answer questions, etc.

Clickers:	<p>I will be using clickers to increase student involvement in the course, aid in reviewing course material, and improve my understanding of how we are meeting the course objectives. I will ask three types of clicker questions during class:</p> <p>(1) review questions based on the assigned readings or the material covered during the last class; (2) discussion questions to provoke students to think about issues; and (3) understanding questions to test the effectiveness of my teaching. All three types of questions will count towards class participation.</p> <p>How to register your iClicker?</p> <ol style="list-style-type: none"> 1. Log in to the MyConcordia Portal at http://www.myconcordia.ca. 2. In the MyConcordia menu, select "Student Services". 3. Select "iClicker Registration". 4. Enter your iClicker ID (the # on the back of the iClicker remote) & click "Enter". 	
Assigned Questions:	<p>Students will hand in answers to the Assigned Questions electronically via Moodle by 10 am the day they are due. A sub-sample of answers (depending on the class size) will be graded by the T.A. and returned via Moodle. Students are expected to complete but not hand in the Definitions and Review Exercises. Each student must hand in his/her own work (see below). Late submissions (i.e. after 10 am on the due date) will not be accepted.</p>	
Academic Misconduct:	<p>Copying from other students or from last year's assignments defeats the purpose of the assigned questions and is plagiarism "the presentation of the work of another person as one's own or without proper acknowledgement" (see Article 17.10.3 III of the Undergraduate Calendar). It is also academic misconduct to use another student's clicker.</p>	
What are you responsible for?	<p>In decreasing order of importance: (1) what we cover in class, (2) your answers to Definitions, Assigned Questions and Review Exercises, and (3) any assigned readings.</p>	
What to do when ill?	<p>Assigned questions: only your best 8 count, so I do not accept late submissions. The marking scheme is generous because there will be no exceptions for illness etc.</p> <p>Tests: there will be no make-up tests. Email me before the test to let me know that you are ill or have some legitimate reason (e.g. religious holiday or funeral) for not writing. Bring in a medical note or other reasonable evidence (e.g. obituary) by the next class and I will increase the value of your final exam to compensate for the missing test.</p>	
Evaluation:	<p>Class participation (5/5 = clicking during 80% classes; 2.5/5 = clicking during 40% of classes); the marking scheme is generous because there will be absolutely no exceptions because you were sick, forgot your clicker etc...)</p> <p>Answers to Assigned Questions (the best 8 of 11)</p>	<p>5%</p> <p>10%</p>

Test I (in class; if you miss it for a valid reason and can provide a medical note etc., your final counts for 15% more)	15%
Test II (in class; if you miss it for a valid reason your final counts for 30% more)	30%
Final Exam (about 70% will be based on material covered after test II)	40-62.5%*
*If your grade on the final exam is higher than your grade on: (1) Test I, then Test I will count for only 7.5%; or (2) Test II, then Test II will count for only 15%.	

Grading scheme:	A+≥90, A=85-90, A-=80-85, B+=77-80, B=73-77, B-=70-73, C+=67-70, C=63-67, C-=60-63, D+=57-60, D=53-57, D-=50-53, F<50
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How to do well in BIOL 226?	Attend all classes, participate actively when you attend, hand in all assignments, keep up to date with the readings, and study interactively .
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Tentative Schedule of Lectures and Assignments

<u>DATE</u>	<u>ACTIVITY</u>	<u>READING</u>
Sept 6	Course Description	
Sept 8	Evolution by Natural Selection Answers to Chapter 22	Ch 22
Sept 13	Mechanisms of Evolution Answers to Chapters 23	Ch 23
Sept 15	Origin of Species Answers to Chapter 24, 25 & 26	Ch 24
Sept 20	Macroevolution and Phylogeny	Ch 25: Table 25.1; 521-524; 529-531 Ch 26: 536-541; Fig. 26.10
Sept 22	Introduction to Biodiversity	Ch 26: 551-553
Sept 27	Test I (up to the end of Evolution lectures and readings for Sept 21)	
Sept 29	Prokaryotes Answers to Chapter 27	Ch 25: 516 (O ₂ revolution); Ch 27
Oct 4	Prokaryotes (cont'd)	
Oct 6	Protists Answers to Chapter 28	Ch 25: 516-517; Ch 28
Oct 11	Plants Answers to Chapter 29 & 30	Ch 25: 518-519 (Colonization of land) Ch 29

Oct 13	Plants cont'd	Ch 30
Oct 18	Fungi Answers to Chapters 31 & 32	Ch 31
Oct 20	Introduction to Animals	Ch 25: 518 (Cambrian explosion) Ch 32
Oct 25	Vertebrates Overview of Biodiversity	Ch 34: 697-705
Oct 27	Test II (Chapters 26-32 and other assigned readings from the text)	
Nov 1	Introduction to Ecology Answers to Chapter 52	Ch 52 (reorganized)
Nov 3	Biomes	
Nov 8	Population Ecology Answers to Chapter 53	Ch 53 (reorganized)
Nov 10	Population Ecology cont'd	
Nov 15	Community Ecology Answers to Chapter 54	Ch 54
Nov 17	Community Ecology cont'd	
Nov 22	Ecosystem Ecology Answers to Chapter 55	Ch 55
Nov 24	Ecosystem Ecology cont'd	
Nov 29	Conservation Biology	Ch 56
Dec 1	Conservation Biology/Review	