

Biology 471, *Ecology*

Term: Spring 2012

Room: Henry 203

Credit: 3 credits

Instructor: Michael Dohm

Office: Henry 6

Days: MWF

Time: 1:30 – 2:20PM

Phone: 739-8543 (x8543)

E-mail: mdohm@chaminade.edu

Office Hours: M 10 – 11:30 AM; or by appointment

Required textbook: *Ecology*, 2nd edition by M.L. Cain, W.D. Bowman, & S.D. Hacker (Sinauer, ISBN: 978-0-87893-445-4), plus materials provided by the instructor to supplement the textbook.

Course website: BI471 will have a Moodle website accessible via <http://letgen.org/chaminade>.

The required textbook has a web companion site that we will also use via

<http://sites.sinauer.com/ecology2e>

Course description: BI471 is a one semester introduction to the study of ecology. **Ecology** is the study of interactions among organisms and their environment. As such, the course is organized into five sub-disciplines of ecological study:

1. Organisms and their environment
2. Populations and individuals
3. Interactions among organisms
4. Communities
5. Ecosystems

These five units of inquiry describe study at different scales: from the individual to the entire biosphere. Because ecology is inseparably linked to evolution, we will also include discussions of evolutionary principles throughout the course. While we will discuss issues related to management of natural resources, this course is not primarily about environmental science. Environmental science is a sister discipline that incorporates concepts from ecology (and other natural science disciplines) and the social sciences. Instead, this course is about how ecologists investigate ecological processes by use of experiments and modeling.

Course objectives: This course will introduce students to the principles of energy flow across multiple levels of biological organization, how functional differences among individuals influence life history, how abiotic and biotic factors influence community structure and species distributions, and how different ecosystems contribute to regional and global processes. This course will also survey tools and experimental approaches ecologists use to answer ecological questions. On completion of this course, students will be expected to demonstrate an understanding of

1. Why some species are common while others are rare.
2. Limits on the distribution of species.
3. Why there are several million different types of species on earth.
4. How organisms adapt to their environment.
5. How ecosystems are structured and regulated.
6. Influences and connections between natural ecosystems and human populations.
7. How ecologists approach answering a particular ecological question with field work, experiments, or models.
8. How ecologists incorporate the scientific method to the study of natural ecosystems.

Course requirements: Grading will be based on student's points earned from a total of 450 points, divided into nine homework assignments (10 points each), three exams (100 points each), and a group project (60 points).

- ✧ Homework will be based on students' readings from the literature, questions posed by the textbook, use of online resources, and worksheets provided by the instructor.
- ✧ Exams focus on lecture and textbook material and include multiple choice, True/False, and short answer formats. There is no comprehensive final; instead, the third exam will be taken on the scheduled final exam date.
- ✧ There will be a group project as well in the form of a 45 minute seminar and PowerPoint presentation held at various times during the semester. Students will be assigned to groups of 2 students by the second week of the semester, and, in consultation with the instructor, explore active topics of research in ecology. The projects will be structured around historical significance of a particular problem, presented from the perspective of two different points of view. For each group, one student will take a "pro" position and the other will take a "con" position: during the 45 minute seminar, each student within a group will be permitted 15 minutes to present their case, with 15 minutes for questions. Individual grades will be assigned upon completion of the required project.

Additional details about all graded components will be provided in class at the appropriate time.

Grading summary

What	When	What's it worth
Nine Homeworks 10 pts each	Every 1-2 weeks 3 homeworks per each Exam	90
Three Exams 100 pts each	Exam 1, end of 5th week Exam 2, end of 10th week Exam 3, given on assigned final exam date	300
Group Project	Group grade assigned	60
Total points =		450

Final grade: Your letter grade will be based on the following point distribution.

Points earned	Percent of total	Letter grade
405 - 450	90 – 100%	A
360 - 404	80 – 89%	B
315 - 359	70 – 79%	C
270 - 314	60 – 69%	D
≤ 269	≤ 60%	F

Reminders and notices:

- Class begins each time exactly at 1:30PM – please be on time. Chronic tardiness will be viewed as absence from class. Regular attendance is expected and essential for your progress in this class. Although our textbook is excellent, the text covers an enormous amount of information. The goal of lecture and discussion will be to provide the needed context to remove barriers to your understanding of the material.
- Use of music devices and cell phones is prohibited during all Natural Science and Mathematics classes at Chaminade, unless specifically permitted by your instructor. Use of cellphones and music devices in laboratories is a safety issue. In addition, use of cellphones and music devices in any class is discourteous and may lead to suspicion of academic misconduct. Students who cannot comply with this rule will be asked to leave class and may be subject to laboratory safety violation fines. Please refer any questions to the Dean of Natural Sciences and Mathematics.
- No make up exams will be granted in the event of an absence. If a student cannot attend a class in which an exam has been scheduled, the student must notify the instructor no later than the class prior to the scheduled exam. In the event of illness, a Doctor's note will be expected.

4. You are encouraged to work together; however, all graded material must be your own. You are also expected to have read and to abide by the "Student Rules of Conduct" which are available in your copy of Chaminade University's Student Handbook.
5. Regarding accommodations for extra time or other requests about how exams are administered; Please be aware that I can only accommodate your requests if you have a documented ADA/AA agreement with Chaminade University on file at the Counseling Center. If you need to seek such accommodations, please contact Dr. June Yasuhara at 725-4845 or by e-mail at jyasuhar@chaminade.edu as soon as possible.

Tentative* Lecture Schedule

Dates	Week	Lecture Topic	Text Readings
16 – 20 Jan	1	1/16, Monday: ML King Day – No class Class Starts Wednesday: Introduction Organisms and their environment	Ch 1 & 2
23 – 27 Jan	2	Organisms and their environment	Ch 3 & 4
30 Jan – 3 Feb	3	Organisms and their environment Hwk1 assigned Friday	Ch 5 & 6
6 – 10 Feb	4	Populations Hwk1 due Monday Hwk2 assigned Friday	Ch 7
13 – 17 Feb	5	Populations Hwk2 due Monday Hwk3 assigned Friday	Ch 8 & 9
20 – 24 Feb	6	2/20, Monday: President's Day – No class Populations Hwk3 due Wednesday	Ch 10
27 – 29 Feb & 2 Mar	7	Monday: Exam 1 Interactions among organisms Hwk4 assigned Friday	Ch 11 & 12
5 – 9 Mar	8	Interactions among organisms; Communities Hwk4 due Monday Hwk5 assigned Friday	Ch 14 & 15
12 – 16 Mar	9	Communities Hwk5 assigned Friday	Ch 16 & 17
19 – 23 Mar	10	Communities Hwk6 due Monday Friday: Exam 2	Ch 18
26 – 30 Mar	11	Spring Break	
2 – 6 Apr	12	4/6, Friday: Good Friday – No class Ecosystems Hwk7 Assigned Wednesday	Ch 19
9 – 13 Apr	13	Ecosystems Hwk7 due Monday Hwk8 assigned Friday	Ch 20
16 – 20 Apr	14	Ecosystems Hwk8 due Monday Hwk9 assigned Friday	Ch 21
23 – 27 Apr	15	Applied Ecology Hwk9 due Monday	Ch 22
30 Apr, 2 – 4 May	16	Applied Ecology Wrap-up semester	Ch 22
	17	Exam 3	

*Schedule subject to change at discretion of instructor.