

PRINCIPLES OF ECOLOGY (BIO 330) SYLLABUS

INSTRUCTOR

Erik Jules

REACHING THE INSTRUCTOR

- Office: Rm. 169, Science D
- Office Hours:
 - Mondays 1:00-3:00
 - Thursdays 8:00-10:00
- Phone: 826-3346
- Email: esj4@humboldt.edu



TEACHING ASSISTANT

- Emily Wilson (graduate student)
- Email: emwlsn@aol.com
- Office hours & location: TBA

LOCATION & TIME

- Lecture: M,W, F 10:00-11:00; Natural Resources Building, Room 101
- Labs: T,W,*or*Th 11:00-2:00; Science B, Room 334 *or* Science A, Room 364 (computer lab)

REQUIRED

- Required textbook: Cain, M.L., W.D. Bowman, and S.D. Hacker. 2008. Ecology. Sinauer Publishers.
- Additional reading from the primary literature will be assigned throughout the semester. The readings will be made available on Moodle (<https://learn.humboldt.edu/login/hsu/index.php>). You are required to have an active Moodle account.
- Required handouts for both lecture and lab will be available via Moodle.
- Please bring a thumb drive for data storage to each lab held in the computer lab.

COURSE DESCRIPTION

Major ideas shaping modern ecology: population regulation, competition, predation, ecosystem energetics, mathematical models, and nutrient cycling. Role of biological and physical factors in developing community structure. Prerequisites: BIOL 105, BIOM 109, and BOT 105 or ZOOL 110 or ZOOL 210. All with grade of C- or higher. Weekly: 3 hrs lect, 3 hrs lab.

STUDENT LEARNING OUTCOMES

There are five main goals of this course:

1. Learn the fundamental concepts that define the field of ecology.
2. Gain experience with conceptual and mathematical models used to describe ecological systems.
3. Gain experience in reading, discussing, and synthesizing primary literature in ecology.
4. Gain experience in creating and conducting field studies in ecology.
5. Increase skills in oral and written presentation of ideas and results from ecological studies.

ASSIGNMENTS & GRADING

Grades will be based on exams, quizzes, lab assignments, and a group project. All exams and quizzes are cumulative (except where noted), in that ideas and topics developed since the beginning of the course are always testable. I usually focus on the "new" material, but you should review everything up to that point. The focus of the exams will be on lecture material, although I will assign additional concepts from the textbook and other readings for which you are responsible for understanding. Material covered in lab is considered fair game on lecture exams and quizzes.

Final grades will be based on the traditional scheme of $\geq 90\%$ = A, $\geq 80\%$ = B, etc... A "-" and "+" grade will be applied using the scheme of, for example, B- for 80-82% and B+ for 89-90%. I will consider individual cases for students with scores near boundaries.

POINTS:

Quick quizzes*	25 pts
Exam I	100 pts
Exam II	125 pts
Final Exam	150 pts
Lab write-ups	100 pts
Group Project	150 pts
TOTAL:	650 pts

*Quizzes may be given at the beginning of class on any Friday of the semester, without prior announcement. These quizzes are intended to test you on the material from the previous two weeks only.

MISSED QUIZZES, EXAMS, & ASSIGNMENTS

MISSED EXAMS: If you need to take one of the exams on a different date, you must talk with me at least **two weeks** beforehand. Missed exams cannot be made up, other than in the case of special circumstances.

MISSED QUIZZES: Generally, you cannot make up missed quizzes.

LATE ASSIGNMENTS: Unless there are extremely extenuating and verifiable circumstances, work turned in late will lose 20% of the total available points for each day it is late.

LAB ASSIGNMENTS

Important: you may not turn in any assignments by email. Assignments emailed to the instructor will not count as "submitted" until a hardcopy is turned in.

You will be responsible for completing several assignments in the lab portion of this class. Several of them require a write-up using the scientific format: Abstract, Introduction, Methods, Results, and Discussion. The most important is the Group Project, which will require creative and independent work from you, and it will take you much of the semester. We will give you many more details on this project. But be prepared to do work that may require you deal with outdoor situations, such as inclement weather. Talk to the instructor at the beginning of the semester if you think you will have trouble completing any lab assignment.

STUDENTS WITH DISABILITIES

Persons who wish to request disability-related accommodations should contact the Student Disability Resource Center in House 71, 826-4678 (voice) or 826-5392 (TDD). Some accommodations may take up to several weeks to arrange.
<http://www.humboldt.edu/~sdrcl/>

ADD/DROP POLICY

Students are responsible for knowing the University policy, procedures, and schedule for dropping or adding classes.
<http://www.humboldt.edu/~reg/regulations/schedadjust.html>

EMERGENCY EVACUATION

Please review the evacuation plan for the classroom (posted on the orange signs) , and review http://studentaffairs.humboldt.edu/emergencyops/campus_emergency_preparedness.php for information on campus Emergency Procedures. During an emergency, information can be found campus conditions at: **826-INFO** or www.humboldt.edu/emergency

ACADEMIC HONESTY

Students are responsible for knowing policy regarding academic honesty: http://studentaffairs.humboldt.edu/judicial/academic_honesty.php or <http://www.humboldt.edu/~humboldt/catalogpdfs/catalog2007-08.pdf>

ATTENDANCE AND DISRUPTIVE BEHAVIOR

Students are responsible for knowing policy regarding attendance and disruptive behavior:
http://studentaffairs.humboldt.edu/judicial/attendance_behavior.php

COURSE SCHEDULE

WEEK OF...	LECTURE TOPICS (M, W, F)	LAB	READINGS
Jan. 19	No class – ML King Holiday What is ecology? Doing ecology	Brief meeting	Ch. 1
Jan. 26	The physical environment The biosphere Statistics in ecology	Generating hypotheses / study design	Ch. 2 & 3
Feb. 2	Coping with the environment Evolution & ecology Prepping for next week's lab	Data storage, presentation, & interpretation	Ch. 4, 5, & 6
Feb. 9	Life history Population distribution & abundance Populations, continued...	Spatial distribution study – field trip to Community Forest	Ch. 7 & 8 Kelly & Goulden 2008
Feb. 16	Population growth Population dynamics Introduction to the mutualism lab	Analysis of spatial distribution study / Introduction to Group Project	Ch. 9 & 10
Feb. 23	Competition Competition EXAM	Effect of a mutualism – greenhouse study on a legume	Ch. 11
Mar. 2	Predation & herbivory Predation & herbivory, continued Writing (and reading) a scientific paper	Group Project meetings	Ch. 12
Mar. 9	Mutualism & commensalism Mutualism & commensalism Group Project time	Open Group Project time**	Ch. 14 Risch & Boucher 1976
	SPRING BREAK		
Mar. 23	The nature of communities Succession Real ecology: Terry Henkel	Open Group Project time	Ch. 15 & 16
Mar. 30	Biogeography & conservation Species diversity Real ecology: Alison Young	Open Group Project time	Ch. 17 & 18
Apr. 6	Invasion ecology Invasion ecology EXAM	Harvest greenhouse study	Stachowicz et al. 1999
Apr. 13	Production Energy flow & food webs Nutrient dynamics	Open computer time for greenhouse study & Group Project	Ch. 19, 20, 21
Apr. 20	Conservation and landscape ecology Global ecology Real ecology: David Franklin	Open Group Project time	Ch. 22, 23 & 24 Clark & Tilman 2008
Apr. 27	People and historical ecology Pre-Columbian populations Guest speaker: Jen Kalt	Group Project final paper due	Cronon 1995
May 4	Impacts of Native Americans One ecological history – logging TBA	Group Project presentations	Mann 2002
May 11 th	FINAL EXAM: Monday, 10:20-12:10		

* Quizzes are not shown here, but can happen on any Friday. **Instructor will be available during Open Group Project times.

IMPORTANT DUE DATES

Assignment	Points	Due Date
Hypothesis generation lab assignment	15	Week of Feb. 2
Data presentation & interpretation lab	20	Week of Feb. 9
Spatial distribution lab	25	Feb. 24
Exam I	100	Feb. 27
Group Project Part I – Generating hypotheses	15	Week of Mar. 2
Group Project Part II – Abstract & Introduction	15	Week of Mar. 9
Spatial distribution lab re-write	10	Week of Mar. 30
Group Project status check	0	Week of Mar. 30
Exam II	125	Apr. 10
Group Project Part III – Methods & Results	15	Apr. 17
Greenhouse mutualism lab	30	Week of Apr 20
Group Project Part IV – Draft final paper	10	Apr. 24
Group Project Part V – Final paper	40	Week of Apr. 27
Group Project Part VI – Group presentation	20	Week of May 4
Group Project Part VII – Peer evaluations	15	May 8
Final Exam	150	May 11

A due date that lists the “week of” means that your assignment is due at the time of your lab meeting that particular week.

NOTE

Note there is one component of the Group Project that is not listed in the table above, because it does not have a due date:

Group Project Part VIII – Design & Execution grade: this grade will be assigned by your lab instructor and will be based on your group's overall effort and ability to design an appropriate study and to execute the project you planned. This part is worth 20 points toward your Group Project grade.