ECOLOGY - IB 203 - COURSE SYLLABUS AND POLICIES

INSTRUCTORS

Dr. Andrew D. B. Leakey (leakey@illinois.edu)
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Contact Dr. Suarez or Dr. Leakey about all logistics of the lecture portion of the course and for approval of excused absences from lecture and exams. For emails, please start subject with 'IB 203'. Student office hours arranged by appointment.

LECTURE TA

TBD
Contact Lecture TA about all lecture grades and issues within Moodle.

LAB COORDINATOR

Nicholas Morphew (morphew2@illinois.edu)
School of Integrative Biology, 3012 Natural History Building, 244-7350

Contact Mr. Morphew about all issues dealing with the lab portion of the course.

COURSE INFORMATION

Course website: https://learn.illinois.edu
Class: Tuesday & Thursday 12:30-1:50; 116 Roger Adams Lab
Lab: one 3-hr block during week; 3004 NHB (except 4004 NHB for computer labs)
Credit: 4 hours and **Advanced Composition credit**
Prerequisites: IB 150 and MCB 150

REQUIRED TEXT (at Illini Union Bookstore)

Cain, M.L., W.D. Bowman, and S.D. Hacker. 2018 Ecology 4th ed. Sinauer Associates, Inc.
No lab manual to purchase; available electronically in Moodle.

INTRODUCTION TO IB 203

Welcome! We look forward to getting to know you and to facilitate your learning about ecology. You may or may not be planning to have a career in ecology. However, we feel strongly that you should become "ecologically literate", both in terms of understanding concepts, and in learning how those concepts are generated, i.e. by doing science yourself. Furthermore, you should understand how to apply these concepts to the "real" world.

INSTRUCTOR PHILOSOPHY AND COURSE LEARNING OBJECTIVES

In this course you will learn the "products" of science (i.e. major ecological concepts), as well as how to apply them to solve today's environment problems. This course also stresses all aspects of the scientific process including its effective communication. By the end of this course, we expect that you will be able to:

1. Be capable of contributing to ecological knowledge by means of using the scientific process.

2. Be able to communicate effectively about science. Therefore, practice with written and oral communications is a key part of the class. As a result, you will satisfy your **Advanced Composition** requirement by completing assignments in this course.
3. Be able to read and interpret scientific tables and figures, and apply learned patterns to other ecological problems.
4. Understand ecological principles and apply them to scientific and societal needs.

We believe strongly that you must assume responsibility for your own learning, while we provide opportunities to enable you to learn. Some preparation is necessary prior to class so that class time can be spent on more difficulty concepts and in actively engaging you in developing critical thinking skills and in applying concepts to new situations. Your "Lecture" (Class) time should maximize your intellectual involvement by engaging your mind actively. Therefore, we use active learning activities in every class. The goal of these activities is to learn critical thinking skills and to understand concepts, rather than focus on details that you will quickly forget.

TEACHING STRATEGIES FOR CLASS

We expect that you prepare for each class by reading the textbook and taking a quiz prior to or during class. We provide for each class a list of learning objectives…i.e. What you "should be able to do" to demonstrate you have met the learning goals. We emphasize key concepts and use several case studies that demonstrate how the concept was developed, while emphasizing the scientific process that led to the development of the concept. Attention is placed on developing critical thinking as it applies to solving ecological questions.

At many intervals during class, we stop and have students complete an active learning activity. Some are done individually, others with a partner or small group. It is important that you participate fully in these activities. They include answering a series of questions throughout the class, summarizing the active learning activity, taking a practice exam question, or turning in a take-home assignment. The goal of all "hands-on" activities is to engage you in actively thinking about concepts and understanding them better because of your active participation. These in class activities also provide examples of exam questions.

Ultimately, our goal is to have you learn knowledge and skills that you can apply to new situations, i.e. you reach a point where you can use your ecological understanding, as well as logic and critical thinking skills, well after the course is over.

SUGGESTED LEARNING STRATEGIES FOR CLASS

1. Complete Lecture Homework prior to Tuesday's lecture so you are prepared to engage actively during class.
2. Read assigned textbook reading (see Lecture Homework for pages) prior to each lecture.
3. Review power point slides after each class and add comments / notes based on lecture material or to complete each slide.
4. Participate fully in all Lecture Activities answers will be posted immediately after class. Use these activities to prepare for exams.
5. Review figures in text and on PPT slides to practice generating and interpreting figures. Pay particular attention to understanding how to interpret figures and tables. Relevant figures are assigned in Lecture Homework.
6. Focus on those parts of the text that compliment class material.
7. Master all components of the scientific process and to apply those skills when confronting a new ecological question.

COURSE POLICIES

General:
This course will follow all policies in the *Student Code:* www.admin.uiuc.edu/policy/code/index.html

Accommodations:
If you have an approved, scheduled absence for a lecture, lab, or exam, please contact you TA or instructor at the beginning of the semester to make arrangement to make-up the material. If you miss an exam due to personal illness or tragedy, please notify your TA or instructor as soon as possible. If you have any questions regarding these policies, please see your instructors.

If you require special accommodations, please contact us as soon as possible to discuss what arrangements can be made. To obtain disability-related academic adjustments and/or auxiliary aids, students with disabilities must contact the Disability Resources and Educational Services (DRES) (1207 S. Oak St., Champaign, phone 333-4603, e-mail disability@illinois.edu) or go to the DRES website. If you are concerned you have a disability-related condition that affects your academic progress, there are academic screening appointments available on campus that can help diagnosis a previously undiagnosed disability by visiting the DRES website and selecting "Sign-Up for an Academic Screening" at the bottom of the page.

If you are interested in obtaining information to improve writing, study skills, time management or organization, the following campus resources are available to all students:
http://www.cws.illinois.edu/workshop
http://disability.illinois.edu/strategies
http://www.counselingcenter.illinois.edu/self-help-brochures/

Most college offices and academic deans provide academic skills support and assistance for academically related and personal problems. Links to the appropriate college contact can be found by going to this website and selecting your college or school: illinois.edu/colleges/colleges.html.
If you are experiencing symptoms of anxiety or depression or are feeling overwhelmed, stressed, or in crisis, you can seek help through the following campus resources:

Counseling Center
206 Fred H. Turner Student Services Building
7:50 a.m.-5:00 p.m., M-F, Ph: 333-3704

McKinley Mental Health
313 McKinley Health Center
8:00 a.m.-5:00 p.m., M-F, Ph: 333-2705

McKinley Health Education also offers individual consultations for students interested in learning relaxation and other stress/time management skills, call 333-2714.

Academic Integrity/Plagiarism:
This course will follow Article 1 Part 4 (1-401 through 1-406) of the *Student Code* (http://www.admin.uiuc.edu/policy/code/article_1/a1_1-402.html). This rule defines infractions of academic integrity, which include but are not limited to cheating, fabrication, and plagiarism. You are responsible for being knowledgeable about what the infractions are for not following these guidelines. Cheating during pre-class quizzes, In-Class Activities, and on exams will result in serious penalties**.**

ALL of your written work must have been written by you and you must:
provide credit for borrowed ideas that you use in your manuscripts;
paraphrase (put into your own words) sentences in articles that you use;
write every sentence that you put into your manuscript.

GRADING: POLICIES AND ASSIGNMENTS

Grading (or How to Keep Score):

Grades are assigned based on the % of points accumulated: 90-100% = A, 80-89% = B, 70-79% = C, 60-69% = D, < 60% = F. Minus and plus grades will be given within each grade range. Points can be earned as follows:

	Activity	Points	%
	Lecture (50%)		
	Exam 1	100	10
	Exam 2	100	10
	Exam 3	100	10
	Lecture Homework	100	10
	Lecture Activities	100	10
	Lecture Subtotal	**500**	**50**
	Lab (50%)		
	1) Lab Homework + activities	100	10
	2) Project 1	150	15
	3) Project 2	250	25
	Lab Subtotal	**500**	**50**
Penalties	Penalty for each unexcused absence from lab	30	3
	Penalty for being late or unprepared for lab	5	0.5

Lecture -

Exams: (30% of grade)

Each exam will be non-cumulative. All material covered in lectures, text readings that apply to lecture, homework, and In-Class Activities will be eligible for inclusion. Exams will test how well you understand information by problem solving and applying information to new situations. You may bring basic scientific calculators to exams. Any requests to re-grade questions must submitted electronically to Dr. Suarez or Dr. Leakey within a week after exams are returned.

Lecture Homework: (10% of grade)

You are expected to assume responsibility for learning of some material on our own. Preparation for each class will include reading portions of the textbook or a scientific article, examining some figures, and often taking a quiz before the beginning of class. This preparation is critical to be ready for Lecture Activities that challenge you to think critically and apply your knowledge to new situations.

Lecture Activities: (10% of grade)

Class attendance is highly recommended. Students with regular attendance, on average, receive one full grade higher than those who do not attend regularly. Graded activities occur in each class.

Laboratory -

The laboratory is an essential part of this course (50% of grade). Skipping labs and being tardy is unacceptable and is penalized. You will not be allowed to complete or turn in assignments for unexcused absences. Many labs are interconnected and some 'homework' is completed in lab. Your work on group projects and your presence is essential for your group to function well. Laboratories can be made up only if you can attend another section that week. Arrangements must be made well in advance with your TA and can be done only for a good reason. Excuses are given only for medical reasons, tragedy in your immediate family, or religious observances and practices, and will be given for a maximum of two laboratories.

Lab Homework/Activities: (10% of grade)
Homework is meant to help you with the quantitative aspects of the course and to prepare you for participating in lab, and doing the data analyses and writing for your Projects. Most homework is submitted electronically prior to your laboratory session and will be corrected and returned by your TA the following week. Points are deducted if homework is not turned in prior to the assigned lab.

Projects: (40% of grade)
In small groups, you will complete two major field projects, each lasting multiple weeks. These are designed to increase your experience with all the steps in completing scientific research from generating a research question to completing a scientific manuscript and giving an oral presentation. Each student will write and submit their own paper. That is, there is to be no copied sections or material between students in a group; each paper must be independently written. The due dates and details for Project assignments are in the Lab and Homework Schedule. These are the most time-consuming parts of the course. **Completion of the two projects is necessary for you to receive credit for Advanced Composition in LAS.**

For each project, you will complete each of these components of the scientific process:

1. Making observations and generating questions
2. Speculating and deriving a formal hypothesis/prediction
3. Planning an experimental design and methodologies
4. Collecting Data
5. Analyzing data
    - Making summary figures and tables
    - Calculating descriptive and analytical statistics
6. Conducting a library search
7. Writing a scientific manuscript

The labs and homework include practice in writing portions of a manuscript, e.g. Introduction, Results, Figures and Figure Legends, Discussion, and Literature Cited. You are not expected to know how to write a manuscript at the beginning and will receive feedback repeatedly on your writing. The first project will require both a first and final draft of the paper. You will get feedback on your first attempt, so that you can show improvement on the final draft. You will write ONLY ONE draft of the second project. For the second project, each group will also give a 15-min presentation to the class.

Science is not easy. It requires a lot of intellectual and physical work. We expect these projects to be challenging. Many of you start with little 'first-hand' experience in doing science. Our goals are: 1) to provide an understanding of how to do science, 2) to give you the skills and confidence to do scientific research on your own, 3) to improve your written and oral skills in communicating science, and 4) to encourage you to seek additional opportunities for independent research, as an undergraduate doing IB 390/IB490 research with individual faculty, and, perhaps, ultimately, as a career.

Lecture Schedule

Date	No.	Lecturer	Topic	Lecture
Aug 27	1	Suarez	*I. Organisms & their*	Introduction to the Biosphere
Aug 29	2	Leakey	*Environment*	Web of Life: Scientific Process
Sept 3	3	Suarez	*II. Evolutionary*	Evolution and Ecology
Sept 5	4	Suarez	*Ecology*	Life Histories
Sept 10	5	Suarez		Behavioral Ecology
Sept 12	6	Suarez	*III. Populations*	Population Distribution and Abundance
Sept 17	7	Suarez		Population Dynamics
Sept 19	8	Suarez		Population Growth and Regulation 1
Sept 24	9	Suarez		Population Growth and Regulation 2
Sept 26	10	Suarez		Human Populations / Ecological Footprint
Oct 1				**Exam 1**
Oct 3	11	Suarez		Conservation Ecology
Oct 8	12	Suarez	*IV. Interactions*	Competition
Oct 10	13	Suarez	*Among Organisms*	Predation and Herbivory
Oct 15	14	Suarez		Parasitism
Oct 17	15	Suarez		Mutualism and Commensalism
Oct 22	16	Leakey	V. *Communities*	Nature of Communities
Oct 24	17	Leakey		Change in Communities
Oct 29	18	Leakey		Biogeography
Oct 31	19	Leakey		Species Diversity
Nov 5				**Exam 2**
Nov 7	20	Leakey	VI. *Ecosystems and*	Climate
Nov 12	21	Leakey	*Large-Scale Ecology*	Humans and Climate Change
Nov 14	22	Leakey		Production
Nov 19	23	Leakey		Energy Flow and Food Webs
Nov 21	24	Leakey		Nutrient Supply
Nov 26	**Fall Break**			
Nov 28	**Fall Break**			
Dec 3	25	Leakey		Nutrient Cycles A
Dec 5	26	Leakey		Nutrient Cycles B
Dec 10	27	Leakey		Humans & Earth's Future
Dec 16				**Exam 3**