Principles of Ecology Syllabus (BIOL-363-01), Fall 2017 University of Louisville

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Office Hours: M 2 to 4 pm and by appointment. Be aware that some Mondays will be cancelled without notice. However, you may come by anytime Dr. Alexander is in. **Immediately after class is the best time period for questions.** (E-mail: jealex01@louisville.edu)

Required Textbook: Smith, Thomas M. and Robert L. Smith. 2015. *Elements of Ecology*. 9th ed. Pearson Education Inc., Benjamin Cummings, Boston. ISBN 978-032193-418-5. In addition, my lecture notes ***(Biology 363, Principles of Ecology Lecture Notes)*** will be online in Blackboard. You are to buy the lecture textbook (at any bookstore).

Course description and organization: this course, designed primarily for biology majors, will acquaint you with the basic concepts and techniques in ecology and environmental biology. All students are expected to have at least an algebra background, as well as some biology background. The prerequisites for this course are: Biology 240, 242, 244, or their equivalents. The course meets Tuesdays and Thursdays from 430 pm to 545 pm in Davidson 109.

Course objectives: the content of the lecture course is divided into the major divisions of ecology. The first portion of the course examines individual organisms and populations. We will cover the major topics in physiological ecology and populations in the first half of the course. The second half of the course will cover species interactions, ecological communities and ecosystems. We will discuss how populations interact, the structure and function of communities, and how energy flows and nutrients cycle within ecosystems. Throughout the course, we will cover the human impact upon the environment (pollution, extinction, conservation, climate change). Coursework does involve some basic mathematics (logarithms, equations, basic algebra level) and basic descriptive statistics (including means, ranges and variances).

Upon successful completion of this course, the student should have a basic understanding of:

1) how organisms interact with their environment (physiological ecology, a description of the physical environment, the processes of adaptation to local environmental conditions).
2) the emergent properties of populations (population size and dispersion, demography, population growth, and factors affecting the distribution and abundance of organisms).
3) how organisms and populations interact with each other, directly and indirectly (predation, competition, parasitism, mutualism, life history patterns).
4) the impact humans have upon other populations, including extinction, endangered species, species conservation.
5) the emergent properties of communities (community change, stability and diversity, community structure, equilibrium and nonequilibrium theories).
6) how communities interact with their environment (ecosystem function, primary and secondary production, energy flow and nutrient cycling, air and water pollution, climate change and ozone depletion).

Course evaluation: your understanding of these objectives will be evaluated through the use of lecture examinations. In the lecture course, there is a total of **400 points**. **There are four exams**. **All students must take all four tests.** You are to bring a calculator to each examination (not one that can store huge amounts of information; if you bring such a calculator, you will not be allowed to use it). **The calculator will need natural and common log buttons (ln and log) and their antilogs (e^x and 10^x) as well as a y^x (power) button.** The exams are in a multiple choice format, but other testing methods (calculations and true/false) will be used on any given exam (your answers will be printed in multiple choice). You cannot use a cell phone or a tablet or any form of computer. **You must take all four examinations; no exams are dropped.** The material to be covered on each exam will come from the lecture notes primarily. Each exam primarily covers material since the previous exam, *but any material covered prior to that time can be asked in a question.* You are to bring identification (driver's license or student identification card with your picture and your signature on the card) and number 2 pencils. Your test will not be graded unless you present your identification card to the examination proctors when you turn in the test.

The tentative grading scale is as follows: 360.0 points (90.0%) for an A, 320.0 points (80.0%) for a B, 280.0 points (70.0%) for a C, and 240 points (60.0%) for a D. Due to the large size of the current class, there will be students near grade cutoffs. To be fair to the huge number of students who have taken this course now and in the past, Dr. Alexander will not bump students if they are even a few points away from the next highest grade. For example, if you have 359

points at the end of the course, that is a B. Dr. Alexander curves each exam separately (to an average C), but **only** if the overall average performance of the entire class is poor. **Do not expect a test curve for any test.** This scale is subject to change (at Dr. Alexander's discretion only), but only if the average score for the entire class at the end of the semester is a D or lower. **There is no +/- scale, and no extra credit is awarded in this course.**

If any legitimate major personal or family emergencies or responsibilities arise either one the day of the exam, or just a day or two prior to the exam, the student can take a makeup test within three lecture days after the exam. **The valid reasons are limited to the following**: illness, death or medical emergency of an immediate family member or personal pet that requires your direct participation; court appearances, university-sanctioned activities, military service obligations, or serious personal illness/accident on the day of or immediately prior to the exam. Other very good reasons will be considered, but in any case **the student must provide written, totally verifiable documentation, and must provide it immediately upon returning to class, not at the end of the semester.** If a student cannot take a makeup exam before the third lecture period following the exam, I will decide upon the appropriate course of action (typically Dr. Alexander will prorate the missing exam), but you must have written verifiable documentation that you had to miss an exam. If Dr. Alexander prorated one of your exams, you must take the other three exams. Family vacations, sleeping late, fights with significant others, flat tires, lost books or notes, highway congestion, or simply being inadequately prepared are **not** valid excuses for missing exams. **You cannot take any exam, including the last exam, early.**. **The final exam is not prorated; you must take the final exam at the time stated**. DO NOT schedule an early vacation to start during finals week. Please make a very strong effort to make it to the exams on time. **If you must miss an exam, you must personally contact Dr. Alexander directly before or within 24 hours after the missed exam**. Failure to notify Dr. Alexander, or not having a good reason for missing the exam, will result in a score of 0 for the test. Failure to take any examination can result in an F if your point total is low. Following university guidelines, an incomplete grade will not be given if you are failing at the time of the request, or have not taken most of the exams.

If you wish to argue how a test was graded (other than an error in adding up points), you must wait one lecture day after the tests are handed back before you may ask for a review (this must be done in writing). If it is not done within one week after the exams have been returned (either to you directly in class or in a box outside Dr. Alexander's office door), **you may not come in and argue about your exam later**. **You cannot 'fish' or 'beg' for points, or ask for makeups or test retakes, or try to provide extra credit materials at the end of the semester.**

Learning objectives will be provided sometime prior to each examination. These learning objectives will help you prepare for the exams. Lecture notes and Powerpoints will be posted on Blackboard before each exam.

Additional course policies: anyone that has special needs should contact Dr. Alexander immediately. Please arrive quietly and on time to lecture and to exams, because not doing so is disruptive to all; disruptive individuals will be told to leave. There will be no attendance taken. It has been Dr. Alexander's experience, however, that students who do not attend class often do not perform well on exams. However, attendance alone will not guarantee a passing grade. You will find that attendance is mandatory, because some of the material covered in the lecture may not be found in the textbook.

The textbook reading assignment will help elucidate the material and provide additional information for answers to the learning objectives. If any discrepancies arise between the lecture and textbook material (or internet sources of any kind), the lecture notes are the correct sources of information. Be sure to study the lecture notes and learning objectives.

All students are expected to follow the policies concerning academic honesty and personal conduct as described in the student catalog and in the 'study tips guide' written by Dr. Alexander and placed on Blackboard. Students caught cheating in any way will receive a 0 for that test as the minimum penalty, and they can face additional penalties. No electronic devices of any kind can be used during exams, except for a calculator that must be shown to Dr. Alexander. Because this class is large, and because of new wristwatches that can access the Internet and allow communications between students to occur, no one may wear any watches or devices on their wrists during the exams (this includes bracelets and other objects, if they are of any size). You will take the exam on top of the pile of exams as they are handed to you, you cannot swap exams. Any failure (whether intentional or unintentional) to follow these instructions will result in a 0 for the exam, at minimum, and you will be reported for academic dishonesty. You may not wear earphones or wireless earbuds during exams.

If you are auditing the course, you must attend lectures and take the exams. If you are taking the course pass/fail, you must pass the course to receive a passing grade. The last day to withdraw is October 20. Dr. Alexander will not support any petitions to change to audit or pass/fail after the last date to change, nor will he support any petitions to withdraw after the drop date, if your reason for the request is due to poor grades.

Out of respect to all others in the room, turn off cell phones/pagers (or set them to vibrate mode) and all music players when you come to class. You may not answer phones while in class, unless it is major emergency that requires your immediate attention – and then you are to sit up front, warn Dr. Alexander ahead of time, and exit the room to answer. No text messaging, music listening, checking emails, social networking, or internet surfing is allowed during class. No tobacco products can be used while you are in the building. If you use your computer to take notes, please sit at the end of a row or one the side of the classroom, so that you do not disturb the students who are sitting behind you. If you wish to tape or record lectures, you must ask for permission in writing beforehand, and have a strong reason for the request (remember that the detailed lecture notes and the Powerpoint lectures will be available to you on Blackboard).

If the university cancels class on a test day due to bad weather, the exam will be on the next lecture period. Dr. Alexander reserves the right to change anything about the syllabus, if circumstances force him to do so.

Title IX/Clery Act Notification
Sexual misconduct (including sexual harassment, sexual assault, and any other nonconsensual behavior of a sexual nature) and sex discrimination violate University policies. Students experiencing such behavior may obtain confidential support from the PEACC Program (852-2663), Counseling Center (852-6585), and Campus Health Services (852-6479). To report sexual misconduct or sex discrimination, contact the Dean of Students (852-5787) or University of Louisville Police (852-6111). Disclosure to University faculty or instructors of sexual misconduct, domestic violence, dating violence, or sex discrimination occurring on campus, in a University-sponsored program, or involving a campus visitor or University student or employee (whether current or former) is not confidential under Title IX. Faculty and instructors must forward such reports, including names and circumstances, to the University's Title IX officer.

For more information, see the Sexual Misconduct Resource Guide (http://louisville.edu/hr/employeerelations/sexual-misconduct-brochure).

Disability Resource Center
The University of Louisville is committed to providing access to programs and services for qualified students with disabilities. If you are a student with a disability and require accommodation to participate in and complete requirements for this class, contact the Disability Resource Center (Stevenson Hall, 852-6938) for verification of eligibility and determination of specific accommodations.

Biology 363, Principles of Ecology schedule, Fall 2017
(Note: the exact times topics are covered and exam times can change. Please attend class so you will know when changes occur!)

Date	Topic	Lecture Note readings
Aug 22 to Sep 7	**Section 1:** Physiological ecology: weather, seasons, physiochemical factors, responses to physiochemical factors, biomes	Alexander notes part 1. (Pages 1 - 42). Text chapters 1 - 3, 6, 7, 23 - 25
Sep 12	**Examination 1**	
Sep 14 to Oct 3	**Section 2:** Populations, population growth, demography, biotic interactions, agriculture, soils, IPM, deforestation	Alexander notes part 2. (Pages 43 - 79). Text chapters 4, 8, 9, 11, 19
Oct 5	**Examination 2**	
Oct 10	Fall Break no classes	
Oct 12 to Oct 31	**Section 3:** Diversity, conservation, direct and indirect species interactions, landscape ecology, life history patterns	Alexander notes part 3. (Pages 80 - 115). Text chapters 10, 12 - 18
Nov 2	**Examination 3**	
Nov 7 to Nov 30	**Section 4:** Diversity indices, community structure, succession, equilibrium and nonequilibrium, stability and diversity, ecosystem energetics, production, nutrient cycles, climate change and pollution	Alexander notes part 4 (pages 116 - 161). Text chapters 19 - 23, 26, 27
Nov 23	Thanksgiving no classes	
Dec 12	**Examination 4**, Tuesday December 12, 530 pm to 8 pm in DA 109	