

Ecology (PCB 3043-U01: 11981) – Spring 2017
Tuesday & Thursday 12:30 – 1:45 pm in CP 145

Ecology is the scientific study of how organisms interact in and with the natural world, or in the words of German zoologist Ernst Haeckel, “ecology is the study of all the complex interrelationships referred to by Darwin as the conditions of the struggle for existence.” In this course, the book, readings, and lectures will guide us through a progressive hierarchy of concepts from individual organisms, to populations, to communities, to ecosystems, and, ultimately, to global ecology. The overall goal of this course is for you to understand the central ideas and concepts of ecology, and be able to integrate information to formulate solutions and solve ecological problems in modern life. We will emphasize connections with mathematical, physical, and chemical processes, as well as biological ones.

| Course Instructor | PLTL Leader |
|--|---------------------|
| Dr. John Geiger | Jose Alberte |
| Office: OE 236 | |
| Office hours: M/W 11:00am-12:00pm, Tu/Th 6:30-7:30pm, or by appt. | |
| email: geigerj@fiu.edu | |

Syllabus Document: This syllabus serves as a legally binding contract between the professor and students. Every aspect of the course is outlined within this document. If there are any questions or problems (e.g., schedule conflict with a holiday or personal issue), these need to be brought to my attention THE FIRST WEEK OF CLASS. Otherwise, all dates, class formats, etc. are set within this document. Any changes to the syllabus will be immediately shared with students in class and via electronic postings (i.e. emails, BlackBoard).

Course Materials: Ricklefs & Relyea 2014. The Economy of Nature, 7th edition, W.H Freeman and Company, NewYork. ISBN-13: 978-1-4292-4995-9

BlackBoard: The entire course will be administered through BlackBoard. The BlackBoard login can be found here:

[FIU BlackBoard login](#)

The syllabus, lecture PowerPoints, and other class updates will be posted here. Students are responsible for checking the site and keeping up with all posted materials and information. Please contact me if you have questions about using this site.

Email: Please get an FIU student email address and check it daily. Any bulk emails I send to the class will be sent to this address only, and you will be responsible for all bulk emails I send.

Associated Laboratory: PCB 3043L - The laboratory will be a separate one credit course taught by a teaching assistant. The courses are completely independent, although many of the concepts and themes will be mutually reinforcing. The lecture and lab grades will be completely independent. Any lab specific questions should be directed to the TA for your lab section. For any larger issues concerning the structure of the lab, please contact me and share your concerns.

Course Learning Objectives: At the course completion, successful students will:

- be conversant with the central ecological concepts and theories and be able to use these to explain observed patterns in nature
- understand and properly use ecological terminology in context to describe natural systems
- be cognizant of important ecologists and the history of the field in order to comprehend modern day ecological issues and be capable of applying ecological theory to construct solutions to contemporary ecological problems.

Lecture Structure:

—Lecture slides are produced to be an excellent learning tool for students. The core course material will be a part of the presentations, but additional material will be covered in lecture. Therefore, attendance and engagement during the presentations will be critical, but not totally sufficient, to ultimate success (i.e. an A).

—We will be taking breaks during the presentations so that all students have a chance to actively engage in learning the material rather than simply listening to the sound of my voice. These breaks will be used for active learning experiences, such as **iClicker** questions. Extra paper (i.e. loose leaf, torn from your notebook) will be required so that students may jot down short pieces of information from these active learning breaks over the course of the lecture period. Students will BOTH print and sign their name on this sheet of paper that will be turned in at the end of class. These daily lecture activities will constitute your ‘Class Participation’ grade component.

—I may often begin class with a quick synopsis of a current local or global events story that relates to the lecture of the day. Students will be responsible for the material in these opening discussions.

Grade Components and Proportions:

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|---|------------|
| Exams – 4 ‘midterm’ exams (15% each) and 1 Final exam (15%) | 75% |
| Class participation – lecture break activities (iClicker ?’s) & attendance | 15% |
| PLTL – participation and completion of PLTL | 10% |

Exams: There will be 4 ‘midterm’ exams and 1 Final exam. The Final exam is mandatory under ALL circumstances and will include **ALL** the material covered over the semester. All exam scores will count towards your final grade. There will be **NO** make-up exam alternatives, except with: 1) a document verified death in immediate family, or 2) a document verified hospitalization of student during scheduled exam day and time. There will be absolutely **NO** deviation from this policy under any circumstances.

Each of the tests is partially cumulative. Each primarily will include the material covered within that section of the course (80-90%). The remainder of the exam will be drawn from the information on previous tests. This will require you to reflect on and review the material covered on previous tests, but without having to review every piece of information covered in previous sections of the course. For example, midterm exam #4 will consist of 80-90% of information from the last fourth of the course (since midterm #3), with the remainder of the questions drawn from subject matter covered in the first 3 midterm exams. Your grade will be based, without exception, on the following scale:

- A 90 – 100%
- B 80 – 89
- C 70 – 79
- D 60 – 69
- F < 60

I will have a specific structure for all 5 exams. Most of the 50 multiple-choice questions per exam will be based on direct examination of core components of the course material. These tenets will be covered in lecture and likely be part of the slides I post on line. These questions are straightforward – a basic understanding of the course material should be sufficient to do well on this section.

A small fraction of the 50 multiple-choice questions will be in the form of what I will refer to as “analytical questions”. The purpose of these questions is to test for more detailed knowledge of the subject matter. Simple guessing strategies will not help here. In essence, these are problem-solving/essay questions in a multiple choice disguise. The questions will often require analysis of figures or graphs, short calculations, or synthesis of pieces of information from different parts of the course. At least 1 or 2 of these will be especially challenging (i.e., to separate an A grade from a B).

Put another way, a passing grade of C can be achieved with mastery of the core concepts we cover in lecture. But to reach an A or B, a more complete, synthetic, knowledge of all information will be necessary.

Everything covered in lecture, lecture break activities, current events discussions, etc. will be included on exams.

Class participation: This portion of your overall grade will incorporate ALL of the daily lecture break activities that we will perform each lecture. Therefore class attendance and engagement are necessary to fulfill this component. I will require the use of iClicker devices for this course. They can be purchased at the bookstore or online sources. I will post information on how to register your device for this course. ‘Official’ points will begin on **Wednesday, 18 January.**

PLTL: This course is assisted by PLTL: The Peer-Led Team Learning (PLTL; <http://pltl.fiu.edu/>) is a proven model that addresses the needs of traditional and non-traditional students. Peer-Led workshops are an effective way to engage large numbers of students with course material and each other. Improved performance and retention, development of communication and team skills, higher motivation and course satisfaction, and increased interest in pursuing further study in science are among the benefits of the PLTL approach. The PLTL model preserves the lecture and introduces a new structure, a weekly 75-minute workshop, where ten to twelve students work as a team to solve carefully structured problems under the guidance of a peer leader. The peer leader clarifies goals, ensures that team members engage with the materials and with each other, builds commitment and confidence, and encourages debate and discussion.

Grading Policy Addendums:

—My first priority is the success of my students. Please feel free to come and see me in my office at any time. I will work extraordinarily hard to help you do well. Do not hesitate to take advantage of that.

—Students will be graded on their performance in the above areas ONLY. Any extra-curriculum activities (work, sports, army, applying for jobs) or special needs (you have to get an A to graduate, scholarship requirements) will not have ANY influence concerning the final grade. Future career plans will have ZERO influence on the grade you receive in this class. Incomplete grades will be considered only under extraordinary circumstances.

—I will record attendance, and attending lectures will be essential to do well on the tests. We will frequently cover information in lecture that will not be covered in the lecture slides. The slides provide core information, but we will go beyond these basics with more advanced discussion/information in lectures. Specifically, success on the analytical questions will be dependent on class attendance.

—Plan to come earlier than usual for the day of the exam - it is your responsibility to be sure that the day of the exam you will not face any conflict with other activities. If you arrive to an exam more than 30 minutes late, or after the first person finishes the test (whichever comes first), you will not be allowed to take the exam and will receive a score of 0 (zero). I will not approve excuses that are within a student's control (e.g., not enough time to study, headache, car wouldn't start, I had to go for a job interview, I did not wake up early, traffic was terrible, etc.). You well know that Miami traffic is awful – that is NOT an excuse for being late.

—In order to qualify for a makeup exam alternative (either: absence or tardiness), there must be a valid university-approved excuse. Students who simply do not show up for the exam will not be allowed to take a makeup exam and will receive a score of 0. No makeup exam alternative will be given in the absence of a university-approved excuse. Examples of university-approved excuses include: documented medical emergencies, death of members of immediate family, and jury duty. A car accident will be accepted as an excuse only if the student provides a police report.

—Exam dates are set, and will not be changed. Make note of these immediately and plan accordingly. If you have a conflict, meet with me during the first week of class.

—Cheating will not be tolerated, and will be actively rooted out of this course. All personal items on test day must be left at the front of the room; only pencils will be allowed at the students' seats. I will give one warning for cases of expected cheating. The second warning will result on a zero for that exam – no questions asked. This will be strictly enforced, and I will not be lenient.

FIU Policies

Honor Code: More generally, I expect every student to maintain the highest standards of academic integrity. You are expected to follow the FIU Student Code of Conduct:

<http://www2.fiu.edu/~oabp/misconductweb/1acmisconductproc.htm>

Sexual Harassment Policy: FIU's sexual harassment policy is available at:

[http://bot.fiu.edu/files/Reg%20104.%20Sexual%20Harassment%209-12-08%20\(Final\).pdf](http://bot.fiu.edu/files/Reg%20104.%20Sexual%20Harassment%209-12-08%20(Final).pdf)

Other FIU Policies: <http://compliance.fiu.edu/ethics.htm>

Schedule of Classes and Readings:

| Date/day | Topic | Ricklef's chapter |
|-----------------|---|--------------------------|
| Tu: 10 Jan. | Review of Syllabus & Introduction | 1 |
| Th: 12 Jan. | Climates & Soils | 5 |
| Tu: 17 Jan. | Terrestrial & Aquatic Biomes | 6 |
| Th: 19 Jan. | Adaptations to Terrestrial EVRs | 3 |
| Tu: 24 Jan. | (finish) Adaptations to Terrestrial EVRs & (begin) Adaptations to Aquatic EVRs | 3 & 2 |
| Th: 26 Jan. | (finish) Adaptations to Aquatic EVRs | 2 |
| Tu: 31 Jan. | 'Midterm' - Exam 1: (Chs. 1, 2, 3, 5, & 6) | |
| Th: 2 Feb. | Evolution & Adaptation | 7 |
| Tu: 7 Feb. | Life Histories | 8 |
| Th: 9 Feb. | Reproductive Strategies | 9 |
| Tu: 14 Feb. | Social Behaviors | 10 |
| Th: 16 Feb. | Population Distributions, Part 1 | 11 |
| Tu: 21 Feb. | Population Distributions, Part 2 | 11 |
| Th: 23 Feb. | 'Midterm' - Exam 2: (Chs. 7, 8, 9, 10, & 11) | |
| Tu: 28 Feb. | Population Growth & Regulation | 12 |
| Th: 2 Mar. | Population Dynamics over Space & Time | 13 |
| Tu: 7 Mar. | Predation & Herbivory, Part 1 | 14 |
| Th: 9 Mar. | Predation & Herbivory, Part 2 | 14 |
| Tu: 14 Mar. | Spring Break – NO CLASS | |
| Th: 16 Mar. | Spring Break – NO CLASS | |
| Tu: 21 Mar. | Competition | 16 |

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| Th: 23 Mar. | Mutualism | 17 |
| Tu: 28 Mar. | 'Midterm' - Exam 3: (Chs. 12, 13, 14, 16, & 17) | |
| Th: 30 Mar. | Community Structure | 18 |
| Tu: 4 Apr. | Community Succession | 19 |
| Th: 6 Apr. | Movement of Energy in Ecosystems, Part 1 | 20 |
| Tu: 11 Apr. | Movement of Energy in Ecosystems, Part 2 | 20 |
| Th: 13 Apr. | Movement of Elements in Ecosystems | 21 |
| Tu: 18 Apr. | Landscape Ecology, Biogeography, & Global Biodiversity | 22 |
| Th: 20 Apr. | 'Midterm' - Exam 4: (Chs. 18, 19, 20, 21, & 22) | |
| Tu: 25 Apr. | Final Exam '5' : (ALL Chapters, i.e. cumulative), note: <u>12:00 – 2:00pm</u>) | |

Syllabus subject to change; all changes will be reported to students ASAP.