

UF in Kenya – Ecology of East African Savannas (ZOO 4926)

Instructor: Todd Palmer

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Class hours: Summer B, full time, July 15 – August 5, 2022

Office hours: by appointment

Pre-requisites: Introductory Biology (BSC 2010, 2011) strongly encouraged

Course Textbook: This course has no formal textbook; students will receive a reader at the beginning of the course, consisting of readings from the primary literature.

Website: http://thepalmerlab.com/TMP/field_school.html

Course goals: To provide students with a rigorous and in-depth understanding of the ecology of savanna ecosystems, which cover roughly 20% of the terrestrial earth's surface. Savannas are extraordinarily important ecosystems, harboring rich biodiversity, and supporting much of the world's livestock. As human populations grow and their ecological "footprint" expands accordingly, understanding these threatened ecosystems has become an increasingly urgent priority. In this class, we will explore the savanna ecosystems of Kenya firsthand, learning about their geological history, their biogeochemical cycles, their biodiversity, and their ecology. Hands-on field exercises will be coupled with readings, class discussions, group activities and lectures to gain a grasp of the biological underpinnings of savannas. Armed with this knowledge, students will then design and carry out original small-group research projects at the Mpala Research Centre in Kenya, enter and analyze data, write up results as scientific papers, and create and deliver presentations of their results to scientists at the center. In addition to providing a solid foundation in the theory and practice of savanna ecology, there will be a strong focus on developing skills in the arenas of both critical thinking and scientific writing.

Required readings and assignments: Readings for this course will be drawn from both the course textbook and from the primary literature. Students will be responsible for leading discussions of papers from the primary literature, including written synopses of the work, and an oral presentation at the beginning of the discussion period.

Grading: Grade points will be assigned per UF policy (please see <http://www.registrar.ufl.edu/catalog/policies/regulationgrades.html> for full details).

You final grade will be determined on the basis of the following points breakdown.

- a. participation (10%)
- b. independent research project (30%)
- c. literature presentation & discussion (20%)
- d. mid-term and final exams (40%).

Class attendance policy: You will be expected to come to class and participate for each and every class period, field exercise, and group activity. If you must miss a class or activity, you'll need a valid excuse. Unexcused absences will result in points deducted from your attendance grade (1 pt per class; total of 30 points for 30 class periods). You will be responsible for any material missed in class, and for any assignments given or due on the day of the missed class. GRADES FOR LATE ASSIGNMENTS WILL BE DEDUCTED 10% PER LATE DAY.

Academic Honesty: All students registered at the University of Florida have agreed to comply with the following statement: "I understand that the University of Florida expects its students to be honest in all their academic work. I agree to adhere to this commitment to academic honesty and understand that my failure to comply with this commitment may result in disciplinary action up to and including expulsion from the University."

In addition, on all work submitted for credit the following pledge is either required or implied: "On my honor I have neither given nor received unauthorized aid in doing this assignment."

If you witness any instances of academic dishonesty in this class, please notify the instructor or contact the Student Honor Court (392-1631) or Cheating Hotline (392-6999). For additional information on Academic Honesty, please refer to the University of Florida Academic Honesty Guidelines at:

<http://www.dso.ufl.edu/judicial/procedures/academicguide.html>

Accommodations for Students with Disabilities: Students who will require a classroom accommodation for a disability must contact the Dean of Students Office of Disability Resources, in Peabody 202 (phone: 352-392-1261). Please see the University of Florida Disability Resources website for more information at: <http://www.dso.ufl.edu/drp/>. Note that the student should provide documentation of a requirement for accommodation by the second week of classes. No accommodations are available to students who lack this documentation. It is the policy of the University of Florida that the student, not the instructor, is responsible for arranging accommodations when needed. Once notification is complete, the Dean of Students Office of Disability Resources will work with the instructor to accommodate the student.

UF Counseling Services: Resources are available on-campus for students having personal problems or lacking clear career and academic goals. The resources include:

1. UF Counseling & Wellness Center, 3190 Radio Rd, 392-1575, psychological and psychiatric services.
2. Career Resource Center, Reitz Union, 392-1601, career and job search services.

Many students experience test anxiety and other stress related problems. "A Self Help Guide for students" is available through the Counseling Center (301 Peabody Hall, 392-1575) and at their web site: <http://www.counsel.ufl.edu/>.

Course schedule: Lecture topics for this course are listed below. This is a tentative schedule; the dates and coverage of specific topics are subject to change.

Lecture #	Chapter	Topic
1	1	Savanna overview & climate
2	1	Soils: the basis of the system
3	1	Field exercise: a tale of two soil types
4	1	Nutrient cycling in savanna ecosystems: 1
5	2	Nutrient cycling in savanna ecosystems: 2
6	2	Factors regulating savanna ecosystems
7	2	The plants: morphology and life history
8	2	Field exercise: tree ID and the use of keys
9	2	Trees
10	2	Grasses
11	2	Field exercise: grass ID
12	2	Plant defense in theory
13	2	Field exercise: plant defensive adaptations
14	2	The tree grass mixture
15	3	The problem of cellulose
16	3	Ruminant physiology and digestion
17	3	The herbivores of savannas
18	4	Population biology and dynamics 1
19	4	Population biology and dynamics 2
20	4	Field exercise: mammal ID
21	4	Field exercise: dung transects
22	4	Field exercise: the "Distance" method
23	5	Species interactions 1: Competition
24	5	Field exercise: competition
25	5	Species interactions 2: Predation
26	5	Species interactions 3: Mutualism
27	5	Field exercise: ant-Acacia mutualism 1
28	5	Field exercise: ant-Acacia mutualism 2
29	5	Species interactions 4: Interaction networks
30	6	Community ecology of savannas 1
31	6	Community ecology of savannas 2
32	6	Community ecology of savannas 3

***Note:** additional readings accompanying the above lecture schedule will be drawn from the primary literature.

COVID-19 SAFETY

[This section prepared and approved by UF administration] In response to COVID-19, the following practices are in place to maintain your learning environment, to enhance the safety of our in-classroom interactions, and to further the health and safety of ourselves, our neighbors, and our loved ones.

1. If you are not vaccinated, get vaccinated. Vaccines are readily available at no cost and have been demonstrated to be safe and effective against the COVID-19 virus. Visit this link for details on where to get your shot, including options that do not require an appointment:
<https://coronavirus.ufhealth.org/vaccinations/vaccine-availability/>. Students who receive the first dose of the vaccine somewhere off-campus and/or outside of Gainesville can still receive their second dose on campus.
2. You are expected to wear approved face coverings at all times during class and within buildings even if you are vaccinated. Please continue to follow healthy habits, including best practices like frequent hand washing. Following these practices is our responsibility as Gators.
3. Sanitizing supplies are available in the classroom if you wish to wipe down your desks prior to sitting down and at the end of the class.
4. Hand sanitizing stations will be located in every classroom.
5. If you are sick, stay home and self-quarantine. Please visit the UF Health Screen, Test & Protect website about next steps, retake the questionnaire and schedule your test for no sooner than 24 hours after your symptoms began. Please call your primary care provider if you are ill and need immediate care or the UF Student Health Care Center at 352-392-1161 (or email covid@shcc.ufl.edu) to be evaluated for testing and to receive further instructions about returning to campus. UF Health Screen, Test & Protect offers guidance when you are sick, have been exposed to someone who has tested positive or have tested positive yourself. Visit the UF Health Screen, Test & Protect website for more information.
6. If you are withheld from campus by the Department of Health through Screen, Test & Protect you are not permitted to use any on campus facilities. Students attempting to attend campus activities when withheld from campus will be referred to the Dean of Students Office. Course materials will be provided to you with an excused absence, and you will be given a reasonable amount of time to make up work.

Continue to regularly visit www.coronavirus.UFHealth.org and www.coronavirus.ufl.edu for up-to-date information.