

Study abroad Maymester: African Savanna Ecology Offered as ECOL 3510: Ecology Laboratory (3 credits)

Dates: May 15-29, 2022 (including travel days)
Location: Wits Rural Facility and Kruger National Park, South Africa
Instructors: Dr. Ricardo Holdo, UGA
Dr. Jesse Nippert, Kansas State University
Dr. Jason Donaldson, UGA
Dr. Wayne Twine, University of the Witwatersrand

Overview

This will be a two-week field course on the ecology of savanna ecosystems, based in South Africa. The course will enroll 20 students (10 each from UGA and KSU). Applications for participating in the course will be handled by each institution. The field course will combine lectures, field work, field trips, and student-led research. The first week of the course will focus on the development, execution, analysis and presentation of group research projects in savanna ecology. This component will take place at Wits Rural Facility, a field station owned by Wits University. In the second week of the course, students will conduct field trips to nearby Blyde River Canyon and Kruger National Park. This component of the course will focus on themes such as biome shifts, landscape ecology, climate change and plant-water relations, plant-animal interactions and fire ecology. The in-country costs will be funded through an existing NSF grant to Holdo. Students will be responsible for airfare to Johannesburg, South Africa, as well as for covering the cost of dinner the day of arrival in South Africa and a handful of other meals, as well as COVID testing prior to returning to the US (if still mandated at the time of travel).

Academic goals

Students will learn about important principles and methods related to savanna ecology, including savanna biogeography, tree-grass interactions, grazer dynamics, fire ecology, and plant water relations. In addition, students will be exposed to a range of field techniques, including the setting up of vegetation plots and animal census techniques. They will also learn principles of experimental design, data analysis, and effective communication of research results. **Note: this is a hands-on, largely project-based course. You will work in groups of 4 students.**

Learning objectives

- Familiarity with fundamental concepts in savanna ecology
- Knowledge of core field techniques
- Competence with data analysis in R, figure preparation and presentation of results

For the group research projects, each group will have an assigned faculty mentor to assist with question development, data collection, analyses, and interpretation. Groups will deliver oral presentations on their independent project at the end of the first week. The course will be mainly based at WRF (<https://www.wits.ac.za/campus-life/arts-and-culture/wits-rural-facility/>), which is equipped with the necessary housing, dining and classroom facilities. The last 4 days of the course will take place at the Skukuza Science Leadership Initiative (SSLI) Campus run by the Organization for Tropical

Studies (OTS) in Skukuza, Kruger National Park
(<https://tropicalstudies.org/portfolio/skukuza-research-station/>).

Accommodation, meals, transport and logistics

Students will responsible for booking and paying for roundtrip airfare between the US and Johannesburg, South Africa. Delta airlines operates a daily non-stop flight between Atlanta and Johannesburg (typical cost: \$1,500 - \$2,000 return). Upon arrival in Johannesburg, we will spend one night in an airport-area hotel before being transported to Wits Rural Facility (~ 6 hrs.) by OTS, where we will remain for the first week of the course. Hotel and field station (WRF) accommodation will be in double (shared) rooms with private bathrooms. Accommodation on the SSLI campus in Kruger will be in student dorms with shared bathrooms. Meals (breakfast, lunch and dinner) will be provided at WRF and SSLI. Expect to do a lot of walking while at WRF, both to get your meals and attend class (it is a 10-minute walk from lodging to the dining/classroom area), and to complete your field project.

Assignments and grading

The main assignment of the course will be a group project resulting in an individual term paper, to be formatted like a scientific paper in an ecology journal. Students will be evaluated on the basis on class participation (20%), the group project (50%), and the final paper (30%).

Official University Policy

This course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary. All academic work must meet the standards contained in “A Culture of Honesty.” Students are responsible for informing themselves about those standards before performing any academic work. Additional information about the UGA standards for academic honesty can be found at:
<https://honesty.uga.edu/>

Course schedule/itinerary (May 2022)

Date	Location/accommodation	Topic(s) / activities
May 15	Atlanta	Depart US
May 16	Johannesburg (hotel)	Arrive in Johannesburg
May 17	Wits Rural Facility (lodge)	Transfer to WRF field station
May 18	WRF (lodge)	Identifying research questions, experimental design, data analysis, communication of results
May 19	WRF (lodge)	Introduction to field methods, group project design
May 20	WRF (lodge)	Data collection for group projects
May 21	WRF (lodge)	Data collection for group projects

May 22	WRF (lodge)	Data collection for group projects, data analysis in R
May 23	WRF (lodge)	Data analysis and plotting in R, group project presentations
May 24	WRF (lodge)	Field trip to Blyde River Canyon: biome transitions and savanna forest boundaries
May 25	SSLI, Kruger National Park (dorm)	Field trip to Kruger National Park: geology and soils, landscape ecology, ecohydrology of savannas, drought
May 26	SSLI, Kruger National Park (dorm)	Field trip to Kruger National Park long-term experimental burn plots: fire ecology, disturbance and alternative stable states, nutrient cycling
May 27	SSLI, Kruger National Park (dorm)	Field trip to Kruger National Park long-term exclosures: herbivory, predator-prey dynamics and trait-mediated effects, feeding guilds, megaherbivores
May 28	Johannesburg	Transfer to OR Tambo airport, Johannesburg
May 29	Atlanta	Arrival in Atlanta

Application to course

To apply, contact Dr. Holdo by email (rholdo@uga.edu). Use the subject heading "South Africa study abroad." In your application, include the following: 1) A cover letter explaining why you are interested in this course and what relevant coursework you have taken to date. 2) Your resume. The deadline is November 19, 2021.

Prerequisites

Students in the program will be required to take a 1-credit course in the spring: ECOL 3480: Special Topics in Ecology: Savanna Ecology (Thu 3:45-5:10 pm). ECOL 3500 is recommended (if you can, plan to take it in Spring 2022).