

Welcome to EECB 703

PRINCIPLES OF ECOLOGY, EVOLUTION, AND CONSERVATION BIOLOGY

Course Meetings (3 credits)

TIME: Tues at noon (3 hours)

PLACE: WRB 4051

Instructor: Kevin Shoemaker

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- **Office hours:** Immediately before class meetings, and by appointment

Course Website: naes.unr.edu/shoemaker/teaching/EECB-703

Texts: Readings from the primary literature (see course calendar and this Google Doc)

Class description

This class will provide a broad overview of the diverse subdisciplines that fall under the "Ecology, Evolution and Conservation Biology" umbrella. You will be exposed to a broad range of ecological and evolutionary principles, including applications in management and conservation. Both historical and contemporary research is emphasized. Readings are drawn exclusively from the primary literature. This course serves as a foundation for other, more specialized courses offered through the Ecology, Evolution and Conservation Biology (EECB) graduate program. Topics will be introduced by guest experts, most of whom are part of the EECB faculty.

Specific topics to be covered include: physiological ecology, behavioral ecology, population ecology, natural selection and population structure, genomics research, epigenetics, speciation and macroevolution, phylogenetic reconstruction and the comparative method, community ecology, conservation, management and restoration, philosophy of science and biology, quantitative methods in ecological research.

Learning outcomes

Outcomes of this class will include the following:

1. Students will be exposed to a broad range of ecological and evolutionary principles, including applications in management and conservation.
2. Students will develop skills in critical thinking and communication through participation in and leadership of in-class discussions.
3. Students will gain skills in preparing for written and oral exams at the graduate level.

Grading

Your grade for this course will be based on the following:

- Participation (70%)

- Final Exam (30%)

Grading scale: A (100 to 93), A- (92 to 90), B+ (89 to 87), B (86 to 83), B- (82 to 80), C+ (79 to 77), C (76 to 73), C- (72 to 70), D+ (69 to 67), D (66 to 63), D- (62 to 60), F (below 60)

Final exam

The final exam will consist of short essay questions reflecting the diversity of material covered.

Participation

As discussed above, a major learning objective of this course is to develop skills in critical thinking and communication. The ability to intelligently discuss challenging issues is essential to success in graduate school, and our aim is to give you a jump start with this course. Come prepared every day to contribute.

Readings

The majority of the readings you will do in this class will be from the primary literature, as listed on the "[Readings and Questions](#)" document on a weekly basis. You can expect to read approx. 4 papers per week. You are expected to seek out any additional references for areas that you feel you need help with.

Academic dishonesty

Academic dishonesty (cheating, plagiarism or other dishonest behavior related to grades and performance) will not be tolerated under any circumstances.

Disability resources

I encourage any student needing accommodations for a specific disability to please meet with me at their earliest convenience to ensure timely and appropriate accommodations.

Statement on Audio and Video Recording

Surreptitious or covert video-taping of class or unauthorized audio recording of class is prohibited by law and by Board of Regents policy. This class may be videotaped or audio recorded only with the written permission of the instructor. In order to accommodate students with disabilities, some students may be given permission to record class lectures and discussions. Therefore, students should understand that their comments during class may be recorded.

CALENDAR OF TOPICS AND SPEAKERS

The course calendar is available as a Google Calendar: [link](#)

Discussion groups as follows. The person first in each list will be the discussion group leader. The second person in each list will be the designated note-taker (responsible for updating the [study guide](#))

Aug 29

Course overview, syllabus, etc.

Sep 5

Behavioral Ecology, Dr. Vladimir Pravosudov
Diversity and Neutral Models, Dr. Lee Dyer

Sep 12

Diseases of wild populations, Dr. Jamie Voyles
Specialization & niche dynamics, Dr. Matt Forister

Sep 19

Population ecology, Dr. Kevin Shoemaker
Population genetics, Dr. Marjorie Matocq

Sep 26

Mathematical models for EECB, Dr. Paul Hurtado
Landscape Ecology, Dr. Peter Weisberg

Oct 3

Soil Ecology, Dr. Ben Sullivan
Microbial Ecology, Dr. David Vuono

Oct 10

Ecoimmunology, Dr. Angela Smilanich
Physiological ecology, Dr. Jack Hayes

Oct 17

Community ecology, Dr. Beth Pringle
Applied evolution, Dr. Beth Leger

Oct 24

Phenotypic Plasticity, Dr. Jenny Ouyang
Chemical Ecology, Dr. Lora Robinson

Oct 31

Species & speciation, Dr. Matt Forister
Paleoecology, Dr. Scott Mensing

Nov 7

Philosophy of Biology, Dr. Carlos Mariscal
Genomic variation & architecture, Dr. Tom Parchman

Nov 14

Comparative genomics & gene evolution, Dr. David Alvarez-Ponce
Ecological & evolutionary epigenetics, Dr. David Zeh

Nov 21

Conservation Biology and Ecosystem Management, Dr. Sudeep Chandra
Phylogenetics, Dr. Guy Hoelzer

Nov 28

Global Change and Conservation, Dr. Ken Nussear

Dec 5

Final Study Session

Dec 12

Final exam

noon-3pm

location TBA

closed book; 10 short essays, ~300 words each, with questions chosen from a pool constructed as follows: from each of the 25 topics, I will pick 2 questions (so you'll see a list of 50 questions); I'll divide that list roughly into three parts (beginning, middle and end of the semester), and you'll have to pick 3 questions from the first, 4 questions from the middle and 3 questions from the end.

In other words, you have a ton of choice, but you also can't completely ignore some section of the course!

Although the exam is "closed book" and closed-internet, you can bring one sheet (8.5 x 11) of written notes, with writing on front and back.