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  
- **Office**: FA 220E  
- **Phone**: (775) 682-7449  
- **Email**: <kshoemaker@cabnr.unr.edu>  
- **Skype**: kevin.t.shoemaker  
- **Office hours**: Immediately before class meetings, and by appointment

**Course Website**: [naes.unr.edu/shoemaker/teaching/EECB-703](http://naes.unr.edu/shoemaker/teaching/EECB-703/index.html)

**Texts**: Readings from the primary literature (see [course calendar](Calendar.html) and this [Google Doc](https://docs.google.com/document/d/1VkpM0Mn4-rWlnWKV_EqKXxwHbXxZWWWWC4jCEDZXlSY/edit?usp=sharing))

### 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 out 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](https://docs.google.com/document/d/1VkpM0Mn4-rWlnWKV_EqKXxwHbXxZWWWWC4jCEDZXlSY/edit?usp=sharing) 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](https://calendar.google.com/calendar/embed?src=1pfst79qqq79vbsl5orfv96f6s%40group.calendar.google.com&ctz=America/Los_Angeles)

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](https://docs.google.com/document/d/1qn6WsiXiIBTktnpOW7EbHkpYNdjtE2FKPztTRpvMPYg/edit?usp=sharing))

## 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.