

Waterfowl Ecology and Evolution, BIOL 4395 (Lecture) / 4195 (Lab)

Spring Semester, 2022

Lecture: Tues & Thurs from 9:00 -10:20 am, Biology Building B206

Lab: Thurs from 3:00 pm - 5:50 pm, Biology Building B206

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COURSE DESCRIPTION AND GOALS

The goal of this course is to familiarize you with the ecology and management of North American waterfowl throughout their annual cycle by applying broad concepts from life history theory, behavioral and community ecology, and conservation biology. Each lecture, I will strive to provide basic background information on specific topics, and integrate this with new advances on the forefront of waterfowl research. Labs will focus on developing practical skills in applied waterfowl science, and field trips will familiarize you with waterfowl, their habitats, and methods in habitat management.

In addition to teaching you things about waterfowl and their habitats, this class seeks to develop:

- Broadly transferrable skills in data organization and analysis
- Critical thinking skills in applying basic ecological research to practical conservation problems
- Teamwork skills in completing group lab assignments
- Written and oral communications skills, especially developing a scientific voice and communicating with elegance and concision

READINGS

- As assigned on the schedule, provided on Blackboard.
- Optional but recommended: Baldassarre, G. 2014. Ducks, Geese, and Swans of North America. A Wildlife Management Institute Book, Johns Hopkins University Press, Baltimore, MD, USA.

CLASSROOM RESPECT

- Class will begin on time. Please show up on time.
- Do not use your cell phones in class, and stay focused.
- Field trips should be viewed as a privileged activity; show the utmost respect for the people and places we visit.

Grading:

Lecture Midterm	100 pts (20%)
Lecture FINAL	100 pts (20%)
Lab Practical	100 pts (20%)
Lab Assignments	150 pts (20%)
<u>In-class Presentation & Participation</u>	<u>150 pts (20%)</u>
Total for students:	500 pts

Grades will be assigned as: 90+% = A, 80-89% = B, 70-79% = C, 60-69% = D, <60% = F.

Lecture Exam & Final (40%):

There will be a 100-pt midterm exam and 100-pt Final. **Exams will each consist of true/false, multiple choice, and short answer. You need to know the lecture material to complete this exam in the allotted time.**

Lab Practical Exam (20%):

There is 1 lab practical covering information surrounding any and all. Labs will cover taxonomy and morphological aspects of major clades. **The practical will consist of true/false, multiple choice, and short answer. You need to know the lab material to complete this exam in the allotted time.**

Lab Assignments (20%):

Each lab will have assignments with questions regarding that days information, which will be due the following lab day. There are also two project assignments. One, students will need to pick one waterfowl species to write a species account page (details to follow). An individual field catalog will also be assigned, in which students are expected to go outside anywhere in the Chihuahuan Desert and keep an account of number and type of waterfowl observed. You may go in a group to help identify animals, but the catalog must be turned in individually, with your own photographs and/or drawings.

In-class Presentation & Participation (20%):

There will be an in-class presentation done in groups of two on topics covering any and all aspects of waterfowl ecology, evolution, etc. In addition, you are expected to participate, especially during group discussions following student presentations. Additionally, students are expected to follow and complete computational lab protocols as we work through different programs.

Missed Due Date(s) Policy:

If you miss quizzes or assignments due to illness or death of a family member or close friend, you must (1) notify me prior to the exam (in exceptional cases, I will wave this requirement) and (2) provide an official record of a visit to the doctor or an obituary. Otherwise, you will earn zero points for the missed quizzes/assignments.

Academic Integrity:

Cheating or plagiarism will not be tolerated. The university gives students and faculty guidelines on how to deal with violations of academic integrity, which we expect you to follow and I will follow myself (you can read them at <http://sa.utep.edu/osccr/academic-integrity/>). This policy exists to level the playing field for all students and not give the few cheaters an unfair advantage over the vast majority of students, who are hard-working and honest. Copying from a peer is easy to detect and will be considered as plagiarism.

Special needs and circumstances:

If you need any special accommodations please let me know at the beginning of the class and/or register with the [Center for Accommodations and Support Services](#). Also, if you run into personal problems beyond your control, please let me know before missing a deadline etc. I will try to be accommodating and understanding. Letting me know about problems after you missed a deadline or failed an assignment usually suggests that you are making an excuse. For the official policies on academic integrity and scholastic dishonesty, please refer to [Handbook of Operating Procedures](#).

COVID-19 PRECAUTION: Please stay home if you have been diagnosed with COVID-19 or are experiencing COVID-19 symptoms. If you are feeling unwell, please let me know as soon as possible, so that we can work on appropriate accommodations. If you have tested positive for COVID-19, you are encouraged to report your results to covidaction@utep.edu, so that the Dean of Students Office can provide you with support and help with communication with your professors. The Student Health Center is equipped to provide COVID-19 testing.

The Center for Disease Control and Prevention recommends that people in areas of substantial or high COVID-19 transmission wear face masks when indoors in groups of people. The best way that Miners can take care of Miners is to get the vaccine. If you still need the vaccine, it is widely available in the El Paso area, and will be available at no charge on campus during the first week of classes. For more information about the current rates, testing, and vaccinations, please visit epstrong.org.

Campus Carry: Persons holding a Concealed Handgun License can lawfully carry their handgun into a UTEP classroom as long as the gun remains concealed. Open carry remains prohibited on campus. In other words, none of us should see (or be able to tell that there is) a gun at UTEP. Call the University Police at 747-5611 or dial 911 if you see any individual on campus with a handgun or other type of weapon. For more information on campus carry, see [<http://sa.utep.edu/campuscarry/>]; for more information on overall campus safety, see [<http://admin.utep.edu/emergency>].

Important School Dates:

March 14-18 Spring Break

March 25th (Ceser Chavez – NO SCHOOL)

April 1st (last day to withdraw)

May 6th – DEAD DAY

SCHEDULE

	Date	Day	Lecture/Lab Topic
WEEK 1	18-Jan	<i>Tues</i>	Introduction & Background Information
	20-Jan	Thurs	History of Waterfowl Management
	20-Jan	Thurs (LAB)	NO LAB
WEEK 2	25-Jan	<i>Tues</i>	Systematics & Biogeography
	27-Jan	Thurs	Evolution & Hybridization
	27-Jan	Thurs (LAB)	Introduction to the Lab & to Biological Collections
WEEK 3	1- Feb	<i>Tues</i>	Annual Cycle & Molt
	3-Feb	Thurs	Migration Ecology
	3-Feb	Thurs (LAB)	Waterfowl ID – swans through dabblers
WEEK 4	8-Feb	<i>Tues</i>	Cross-Over Effects, Habitat Selection & Territoriality
	10-Feb	Thurs	Reproduction, Nesting Ecology, & Post-Breeding Ecology
	10-Feb	Thurs (LAB)	Waterfowl ID – divers through sea ducks
WEEK 5	15-Feb	<i>Tues</i>	Mating Systems, Display, & Alternative Breeding Strategies
	17-Feb	Thurs	Feeding Ecology
	17-Feb	Thurs (LAB)	Waterfowl ID Wrap-Up, Aging Ducklings & Wing Prep/Dissections
WEEK 6	22-Feb	<i>Tues</i>	Climate Change & Waterfowl – Breeding Habitat
	24-Feb	Thurs	Climate Change & Waterfowl – Wintering Habitat
	24-Feb	Thurs (LAB)	Capture Methods Lecture & Netting on the Quad (+Build Traps I)
WEEK 7	1-March	<i>Tues</i>	Student Presentation – Ecology & Evo.I
	3-March	Thurs	Student Presentation – Ecology & Evo.II
	3-March	Thurs (LAB)	Capture Methods – Build Traps II
WEEK 8	8-March	<i>Tues</i>	Student Presentation – Ecology & Evo.III & Review
	10-March	Thurs	LECTURE – MIDTERM
	10-March	Thurs (LAB)	Agent-Based Modeling & Nesting Data Analysis (**SPECIES ACCOUNT DUE)
WEEK 9	15-March	<i>Tues</i>	SPRING BREAK - NO CLASSES
	17-March	Thurs	SPRING BREAK - NO CLASSES
	17-March	Thurs (LAB)	SPRING BREAK - NO CLASSES
WEEK 10	22-March	<i>Tues</i>	CLASS CANCELLED
	24-March	Thurs	CLASS CANCELLED
	24-March	Thurs (LAB)	Analysis Of Winter Survey Data
WEEK 11	29-March	<i>Tues</i>	Breeding Management – Habitat & Active
	31- March	Thurs	Mortality & Disease
	31- March	Thurs (LAB)	Hen Houses
WEEK 12	5-April	<i>Tues</i>	Bio-Energetic Models
	7-April	Thurs	Harvest Theory
	7-April	Thurs (LAB)	Carrying Capacity Exercise
WEEK 13	12-April	<i>Tues</i>	NAWMP
	14-April	Thurs	Human Dimensions & Waterfowl Conservation

	14-April	Thurs (LAB)	Telemetry Analysis Lab & Band Recovery Analysis
WEEK 14	19-April	<i>Tues</i>	USFWS & Waterfowl Management – Dr. Dan Collins
	21-April	Thurs	Wetland Management at Rio Bosque – Dr. John Sproul
	21-April	Thurs (LAB)	TBD
WEEK 15	26-April	<i>Tues</i>	Wrap-Up & Student Presentation – Management I
	28-April	Thurs	Student Presentation – Management II & Review
	28-April	Thurs (LAB)	Lab Review (**FIELD CATALOG DUE)
WEEK 16	3-May	<i>Tues</i>	LECTURE – FINAL
	5-May	Thurs	Student Presentation – Management III
	5-May	Thurs (LAB)	LAB PRACTICAL

SUGGESTED TOPICS FOR PAPER 1 (ECOLOGY & EVOLUTION):

Evolutionary history/systematics

Hybridization

Waterfowl biology/ecology of taxa found on other continents

Variation among life-history traits in breeding waterfowl

Population dynamics of waterfowl

Consequences of feral birds on wild populations

Proximate drivers of populations

Decline and recovery of (taxa)

Density dependence at various spatial and temporal scales

Inter- and/or intra-specific competition for breeding/wintering resources

Disease ecology (botulism, cholera, flu, etc.)

Courtship, pair-bonding

Cues, signaling and behavior (vocalizations, plumage, etc.)

Territoriality and home range of (taxa) during the breeding or wintering season

Nest site selection

Brood parasitism

Incubation rhythms

Estimates of nest success and causes of mortality (lots here...)

Estimates of brood survival and causes of mortality

Migration ecology (proximate and ultimate drivers, shortstopping, etc.)

Full annual-cycle modeling

Analytical and agent-based models of waterfowl ecology

Arctic geese and ecosystem ecology

Movements and foraging of wintering waterfowl

Nutrient dynamics of breeding or wintering waterfowl

Bioenergetics, metabolism

Time budgets of breeding/wintering waterfowl

Influence of agriculture on waterfowl

Cross-seasonal effects

Impact of lead poisoning/pollutants on waterfowl mortality and populations

Potential influences of climate change on breeding waterfowl (many topics here...)

SUGGESTED TOPICS FOR PAPER 2 (MANAGEMENT, ETC.)

Species of conservation concern
The effectiveness of various intensive management practices for breeding waterfowl
An evaluation of the effectiveness of artificial nesting structures
Predator impacts and management for breeding waterfowl
Moist-soil management for food production for wintering waterfowl
Agricultural management for food production for migrating and wintering waterfowl
Management of wetland complexes for wintering waterfowl
Carrying capacity modeling (many aspects to consider here...)
Pen-raised/released mallard programs
The impact of hunting on (specific taxa) populations
Waterfowl banding for harvest analysis and management
Adaptive Harvest Management
The Harvest Information Program
The influence of decoys on waterfowl harvest, potential research biases
The influence of hunting pressure on daily movement and foraging of wintering waterfowl
The Migratory Bird Conservation Act of 1929
The Federal Aid in Wildlife Restoration Act of 1937
The North American Waterfowl Management Plan
The Conservation Reserve Program
The Wetland Reserve Program
Alternative Land Use Services (ALUS) in Canada
The use of conservation easements for preservation of waterfowl habitat
Ducks Unlimited, Inc.
Delta Waterfowl Foundation
Participation and the economic impact of waterfowl hunting in the United States
Hunter recruitment and retention – a review of options for increasing hunter participation
Waterfowl hunter satisfaction

I'm happy to approve other relevant topics (for either paper) as well!