COURSE SYLLABUS: ONLINE WATERFOWL ECOLOGY AND MANAGEMENT  
(P3/BIOL4385/BIOL5301/BIOL6321)  
Department of Biological Sciences, University of Texas at El Paso, Fall Semester 2023

Instructor of record: Dr. Philip Lavretsky,  
Office: Biological Sciences B318, (915) 747-6462; e-mail: plavretsky@utep.edu  
Office hours: By Appointment

Co-Instructors: Dr. Richard M. Kaminski, James C. Kennedy Waterfowl & Wetlands Conservation Center, Belle W. Baruch Institute of Coastal Ecology and Forest Science of Clemson University, P.O. Box 596, Georgetown, SC 29442; rmkamin@clemson.edu

Teaching Assistant: Sara Gonzalez  
Office: Biological Sciences B310; e-mail: sgonzalez28@miners.utep.edu  
Office hours: By Appointment

Course Description: Waterfowl Ecology and Management: 3 semester hours. One week equals 3 contact hours. Prerequisite: junior/senior standing or graduate student. We recommend all students should have prior course work in ecology (Forest Ecology at Clemson or equivalent courses). Topics include but are not limited to: history of waterfowl science and conservation in North America, annual ecology of North American waterfowl, evolutionary ecology of waterfowl, genetics of mallard and allied congeners, habitat selection theory, population ecology and management, waterfowl identification, waterfowl foods (plants and invertebrates) and habitat management, waterfowl harvest management, waterfowl diseases, discussion of current waterfowl and wetland issues, and review of contemporary and classic literature.

Lecture / Lessons: Each Module is comprised of lessons equivalent to 3 credit hours for online delivery.

Attendance Policy: Success in this course is dependent on your active participation and engagement throughout the course. As such, students are required to complete all assignments and class discussions by the due date. Of course, we are flexible and understanding of real excuses. Integrity is crucial.

Bilingual Materials: All lectures, quizzes, and tests will be in both English and Spanish. Although participants are permitted to answer short answers in either Language in tests, we will be requiring all participants to use English ONLY for discussions to ensure communication across students. There are plenty of resources (e.g., Google Translate) to help with this. Please reach out as soon as possible so we can work to resolve any issues that this may pose to students.

READINGS
- As assigned on the schedule, provided on Blackboard.

Grading:

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waterfowl I.D. Exam 1</td>
<td>100 pts</td>
<td>(20%/17%)</td>
</tr>
<tr>
<td>Exam 2</td>
<td>100 pts</td>
<td>(20%/17%)</td>
</tr>
<tr>
<td>Exam 3</td>
<td>100 pts</td>
<td>(20%/17%)</td>
</tr>
<tr>
<td>Discussions</td>
<td>100 pts</td>
<td>(20%/17%)</td>
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<tr>
<td>Quizzes</td>
<td>100 pts</td>
<td>(20%/17%)</td>
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<tr>
<td><strong>In my opinion essay</strong></td>
<td>100 pts</td>
<td>(0%/17%)</td>
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<tr>
<td>Total for students:</td>
<td>500/600 pts</td>
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</table>

**Undergraduate (Left) / Graduate/Professional (right)**

Grades will be assigned as: 90+% = A, 80-89% = B, 70-79% = C, 60-69% = D, <60% = F.
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Department of Biological Sciences, University of Texas at El Paso, Fall Semester 2023

Undergraduate & Professional Learning Objectives:

1. Demonstrate knowledge of the history of waterfowl and wetlands science and conservation in North America in discussion and on exams.
2. Demonstrate knowledge of annual and evolutionary ecology and habitat selection of North American waterfowl in discussions and on exams.
3. Describe and prescribe habitat management and conservation techniques that help fulfill the annual life-cycle needs of North American waterfowl in discussions and on exams.
4. Demonstrate competence in taxonomic identification (by common and scientific name), sexing and aging, plumage, and morphology of North American waterfowl, as evidenced by test performance.
5. Demonstrate competence in identification of and management for crops and native plant and animal (invertebrate) foods of waterfowl.
6. Discuss, critique, and integrate with your knowledge contemporary and classic literature and issues important to waterfowl and wetland ecology and conservation.
7. Demonstrate knowledge of major waterfowl diseases and management strategies to alleviate them in discussions and on exams.
8. Describe and explain population and habitat monitoring and management methods (e.g., North American Waterfowl Management Plan, Adaptive Harvest Management) in discussions and on exams.
9. Discuss emerging and current issues influencing waterfowl science and management.

Graduate Students Learning Objectives:

1. Graduate students will meet all undergraduate learning objectives.
2. Graduate students will synthesize concepts from the class and literature, as evidenced by greater depth in discussions of classic and contemporary and emerging issues in class.
3. Graduate students will demonstrate competence in professional writing to earn graduate credit for this course. This will be evaluated by writing an in my opinion essay. The due date for this essay is on or before 1 December 2021 (midnight; see additional details below).

Course Structure: This course is divided into 9 modules, each including the following components:

- Module introduction
- Lessons
- Discussion
- Assignments
- Quiz

Lessons: Each lecture is provided in video and audio format, along with a pdf of the slides. Note: the pdf is not a replacement for watching the video. These lectures are property of the University of Texas at El Paso, and are not to be distributed outside of this course.

Discussions: There are a total of 5 discussions (see below for schedule specifics). Each discussion is worth 20 points. To earn all 20 points, students must post at least 3-times to all discussions. Specifically, each student is expected to respond to the discussion prompt and again to respond at least 2-times to another student’s post. Discussions will be graded on the quality of response (i.e., if the contribution furthered the discussion, and if the post was well written and grammatically correct). Writing things only such as “good point” or “I agree” will not reward you full points!
Graduate Assignment: For your professional writing assignment to earn graduate credit for the waterfowl ecology and management course, each student will write an *in my opinion* essay. The review will be written in the scientific style and format of journals of The Wildlife Society (TWS): [http://wildlife.org/wp-content/uploads/2018/01/TWS-Journal-Guidelines-2018.pdf](http://wildlife.org/wp-content/uploads/2018/01/TWS-Journal-Guidelines-2018.pdf) See page 19 at the previous link to read a brief about *in my opinion* articles. You are not required to include personally collected scientific data in your article, but you are encouraged to cite relevant data/quantitative information that you find in the literature. The manuscript will be double-spaced and not exceed 10 pages in length. If you can tell your story in less than 10 pages, that is acceptable. However, minimum length of your review shall not be <5 pages. Ensure your essay conforms to correct style and format of manuscripts for TWS journals, as detailed in the above PDF link. As a journal demands, the format and style of your manuscript MUST adhere to requirements of TWS journals. Manuscripts submitted in a different style/format will not be reviewed and returned to the author for revision and debited one grade less.

**TOPIC OF IN MY OPINION ESSAY:** The topic for the *in my opinion* essay is: *The North American Waterfowl Management Plan and the North American Model of Wildlife Conservation: Divergence, Convergence, or Unification.* As graduate students, we expect you to explore the scientific published literature and not only online literature on the topic for the essay to form and substantiate your arguments for your essay. Google Scholar can be an aid to help you find citable literature for your study.

**Quizzes:** Each module will end with a quiz (Total quizzes = 10 * 10 pts = 100 pts total). Each quiz will comprise 10 multiple choice questions about material covered in that module. **Respondus Lockdown browser is required to take each quiz** (see more information below). Quizzes will be open all week, but note that once started, quizzes must be as you have 1 chance to do so. You are not allowed to use your notes, class materials, the internet, phone, or any other resources during quizzes or exams. Your lowest quiz grade will be dropped.

**Exams:** There are three exams in this course: Exam 1 (covering Module 2, Waterfowl ID), Exam 2 (covering Modules 1, 3-5), and Exam 3 covering the remaining material (Modules 6-10). Each exam will be 100 points comprised of multiple choice, true/false, fill-in the blank, and short answer. You will need to know the material to complete the exams in the allotted time. You will be required to use **Respondus Lockdown Browser** to take the exams. Exams will be open for multiple days (see below for schedule specifics), but once you start the exam you must finish it and you only have 1 chance to do so. **WE HAVE IMPLEMENTED TACTICS TO DETECT CHEATING ON QUIZZES AND EXAMS BY STUDENTS. A GRADE OF F WILL BE LEVIED TO ANYONE FOUND CHEATING. PLEASE READ ACADEMIC AND PROFESSIONAL HONESTY STATEMENT BELOW.**

**Required List Serve Enrollment:** Please request enrollment in Dr. Alan Afton’s waterfowl and wetlands list serve by emailing Dr. Afton (aafton@lsu.edu), informing him you are enrolled in the waterfowl ecology and management course at Clemson, and are respectfully requesting enrollment in his list serve. The list serve is a valuable source of information on current issues and employment opportunities in waterfowl and wetlands science and conservation. As pertinent current issues emerge in blog on the list serve, we may discuss these in class. Dr. Afton is expecting your email requests for membership in the list serve. If by chance, you already are a member of Dr. Afton’s list serve, there is no need to request enrollment again. **PLEASE REQUEST ENROLLMENT IN LISTSERVE WITHIN THE FIRST OF CLASS.**

**Respondus Lockdown Browser:** You are required to use the Respondus Lockdown Browser when taking quizzes and exams in this course. You will need to download and install the application on your computer before the first quiz.
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 waive 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 most students, who are hard-working and honest. Copying from a peer is easy to detect and will be considered plagiarism.

ChatGPT: All work must be original that you yourself have completed. Any work submitted that was not directly written by you is considered cheating and will result in a 0 for the assignment. This includes the use of AI based programs (e.g., ChatGPT). Persistent submission of work performed by someone/something else will be reported to the Office of Student Conduct for evaluation.

Online Netiquette: “Netiquette” is the term used to describe rules of courtesy in using electronic communication. These rules are intended to help use the medium effectively and considerately. The ideas below are intended to help with electronic class discussion. When communicating in an online course you are addressing a group of people. The following guidelines will help you to communicate effectively.

- Don’t say things that you wouldn't say in a face-to-face environment, or in any public place.
- Don’t share confidential information.
- Use the subject line to identify the content of the message.
- Stay up-to-date on forum postings by reading them regularly.
- Always comply with copyright by citing your references when posting online content.
- Use individual e-mail for messages to individuals rather than tying up the group list.
- Do not forward emails or discussion forum postings without asking permission from the original author.
- Electronic communication does not provide visual cues, such as smiles or frowns that face-to-face communication allows. Therefore, humor and/or sarcasm in written text might be misunderstood and interpreted as rude or inflammatory in the online environment. Choose your words carefully to avoid hurting or angering anyone. Should emotions become inflamed, do not promote anger. Take a cooling down period, perhaps overnight, before you engage in the online activity again.
- Avoid using all capital letters in your text. This is considered ‘shouting’ in the online classroom.
- Aim for clarity and readability in your text.
- Use proper English and remember to spell check.
- If you do not understand the assignment’s directions or the posts of your classmates don’t be afraid to ask for clarification.
• The online classroom is a community of learners. Participate actively in the community and reach out to your classmates with a helping hand.

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.

UTEP Title IX statement: The University of Texas at El Paso is committed to a policy of equal opportunity for all persons and does not discriminate on the basis of race, color, religion, sex, sexual orientation, gender, pregnancy, national origin, age, disability, veteran’s status, genetic information or protected activity in employment, educational programs and activities, admissions and financial aid. This includes a prohibition against sexual harassment and sexual violence as mandated by Title IX of the Education Amendments of 1972. This policy is located at https://www.utep.edu/titleix/. Gabriel Ramirez, J.D. is UTEP’s Title IX Coordinator. His office is located at Kelly Hall 312, 915-747-8358(cell) and gramirez2@utep.edu (email).
<table>
<thead>
<tr>
<th>MODULE</th>
<th>OBJECTIVES</th>
<th>ACTIVITIES</th>
<th>READINGS / MULTIMEDIA</th>
<th>ASSESSMENTS</th>
<th>INTERACTIONS</th>
<th>OUTCOMES</th>
</tr>
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</table>
| Week 1 | (1) Course Introduction & Overview  
          (a) Instructor  
          (b) Course objectives  
          (2) Introduction to North American waterfowl and wetlands ecology and conservation (Module 1) | (1) Become familiar with syllabus  
          (2) Listen to Instructor introductions  
          (3) Take pre-course survey  
          (4) Provide an introduction of yourself  
          (5) Review content of the 5 lessons of Module 1 | Watch & Read the 5 lessons of Module 1 | (1) Self Introduction  
          (2) Pre-course survey  
          (2) Quiz 1 on topics covered in Module 1 | (1) Self introduction on discussion board | (1) Get to know the course, instructors, and peers  
          (2) Familiarize with Module 1 topics |
| Weeks 2 & 3 | (1) Principles of phylogenetic analyses and taxonomy, and waterfowl taxonomy (Module 2) | (1) Review content of the 5 lessons of Module 2 > Become familiar with waterfowl taxonomy and identification | Watch & Read the 7 lessons of Module 2 | None | None | (1) Familiarize with waterfowl taxonomy and species identifications |
| Weeks 4 & 5 | (1) Drivers of species divergence and evolution (Module 3)  
          (2) Hybridization and gene flow  
          (a) Explore examples within the Mallard Complex  
          (3) Genetics as a tool for wildlife conservation | (1) Review content of the 5 lessons of Module 3  
          (a) Understand evolution  
          (b) Explore conservation consequences of hybridization  
          (c) 21st century waterfowl conservation & genetics | Watch & Read the 5 lessons of Module 3 | (1) Quizzes 2 & 3 on topics covered in Module 3: waterfowl evolution, hybridization, and uses of genetics in waterfowl conservation  
          (1) Discussion topics:  
          Discuss and answer at least 2 of your fellow students on:  
          (a) Anthropogenic hybridization as it relates to world-wide wild mallards  
          (b) Genetics as a tool for wildlife conservation | (1) Familiarize with principles of evolution  
          (2) Understand differences between hybridization and gene flow, and their conservation implications  
          (3) Familiarize yourself on applications of genetics in waterfowl conservation |
| Week 6 | (1) Habitat use & Selection (Module 4) | (1) Review content of the 3 lessons of Module 4  
          (a) Habitat use versus suitability  
          (b) r vs. k-selected species | Watch & Read the 3 lessons of Module 4 | (1) Quiz 4 on topics covered in Module 4: habitat suitability, use/selection, as well as r vs. k-selected species traits | None | (1) Familiarize with principles and differences between habitat availability, suitability, and use  
          (2) r vs. k-selected species traits |
### Weeks 7 & 8

1. Breeding and wintering habitats of waterfowl (Module 5)
   - (a) Explore habitat needs as they relate to the annual life-cycle of waterfowl
   - (b) Why and when to migrate
   - (c) Understand cross-seasonal effects
2. North American joint ventures and key wintering habitat(s) of North America
3. Wetlands management
   - (a) Moist-soil management
   - (b) Bottom hardwood wetlands management
   - (c) Wetland management in Southwestern North America

<table>
<thead>
<tr>
<th>Week 7 &amp; 8</th>
<th>Review content of the 6 lessons of Module 5</th>
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<tbody>
<tr>
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<td>(a) Understand habitat connectivity as it relates to the annual life-cycle of waterfowl in North America</td>
</tr>
<tr>
<td></td>
<td>(b) Wetlands management</td>
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**Suggested Readings:**
- See lessons & check Module folder

**Watch & Read the 6 lessons of Module 5**

**Quiz 5** on topics covered in Module 5: habitat use and management as they relate to important habitats for North American waterfowl populations

**EXAM 2** on Materials covered in Modules 1, 3-5

### Week 9

1. Nutritional needs of waterfowl across major annual life-cycles (Module 6)

<table>
<thead>
<tr>
<th>Week 9</th>
<th>Review content of the 2 lessons of Module 6</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(a) Energy requirements of capital vs income breeders</td>
</tr>
<tr>
<td></td>
<td>(b) Duck-use-days</td>
</tr>
</tbody>
</table>

**Watch & Read the 2 lessons of Module 6**

**Suggested Readings:**
- See lessons & check Module folder

**Quiz 5** on topics covered in Module 5: habitat use and management as they relate to important habitats for North American waterfowl populations

**EXAM 2** on Materials covered in Modules 1, 3-5

### Discussion topic:
- (a) Discuss and answer at least 2 of your fellow students on why it is important to understand habitat use across the annual life-cycle of waterfowl. Relate discussion to specific regions in North America, and cross-seasonal effects.

### Familiarize with:
- (1) Differences in nutritional needs of waterfowl species
- (2) Different limitations to populations as they relate to carrying capacities of habitats, and how to calculate this.

(1) Familiarize with the annual life-cycle of waterfowl and the importance of different habitats for North American waterfowl.

(2) Familiarize with different habitat management practices across different North American wetlands.
| Weeks 9 & 10 | (1) Waterfowl breeding ecology (Module 7)  
(a) Avian mating systems & mating strategies of waterfowl  
(b) Waterfowl Reproductive Physiology & Egg Production  
(c) Parental Investment & Brood Survival  
(d) Predator communities, nesting, and nest  
(e) Importance of breeding habitat conservation | (1) Review content of the 7 lessons of Module 7  
(a) Waterfowl Mating Systems  
(b) Alternative breeding strategies  
(c) Waterfowl Reproductive Physiology & Egg Production  
(d) Parental Investment & Brood Survival  
(e) Predators & Nest Success  
(f) Nesting Types  
(g) Breeding Habitat Management | Watch & Read the 7 lessons of Module 7  
Suggested Readings: See lessons & check Module folder | (1) **Quiz 6** (lessons 1-3) & **7** (lessons 4-7) on topics covered in Module 7: cost of reproduction, breeding habitat management, and brood survival | (1) Discussion topic: (a) Discuss and answer at least 2 of your fellow students on why an individual may (or not) engage in alternative breeding strategies even if they are seasonally monogamous. | (1) Familiarize with the cost of reproduction to females and post-brood survival  
(2) Familiarize with potential mechanisms to increase female survival and fecundity. |
| --- | --- | --- | --- | --- | --- | --- |
| Week 11 | (1) Annual Cycle - Post-breeding/Molting (Module 8)  
(a) Feather Function  
(b) Molt cycles of waterfowl  
(c) Aging broods | (1) Review content of the 3 lessons of Module 8  
(a) Feather Function  
(b) Molt cycles of waterfowl  
(c) Aging broods | Watch & Read the 3 lessons of Module 8  
Suggested Readings: See lessons & check Module folder | (1) **Quiz 8** on topics covered in Module 8: Molt cycles and brood aging | None | (1) Familiarize with basic feather functionality and color ecology  
(2) Familiarize with waterfowl molt cycles  
(3) Familiarize aging waterfowl broods |
| Week 12 | (1) Waterfowl diseases ecology (Module 9)  
(a) Waterfowl diseases  
(b) Lead poisoning  
(c) Oil Spills | (1) Review content of the 4 lessons of Module 9  
(a) Waterfowl diseases  
(b) Lead poisoning  
(c) Oil Spills & other non-disease mortality | Watch & Read the 4 lessons of Module 9  
Suggested Readings: See lessons & check Module folder | (1) **Quiz 9** on topics covered in Module 9: waterfowl diseases ecology and other abiotic impacts on waterfowl populations | None | (1) Familiarize with zoonotic diseases and other abiotic stressors impacting waterfowl populations. |
| Week 13 | 1) Population Ecology, AHM, NAWMP, and Conservation Organizations (Module 10)  
|         | (a) Overview of population ecology and AHM  
|         | (b) NAWMP  
|         | (c) Funding waterfowl conservation | 1) Review content of the 4 lessons of Module 10  
|         | (a) NAWMP  
|         | (b) AHM  
|         | (c) Funding waterfowl conservation | Watch & Read the 4 lessons of Module 10  
|         | Suggested Readings: See lessons & check Module folder | 1) Quiz 10 on topics covered in Module 10: NAWMP, AHM, and funding waterfowl conservation | 1) Discussion topic: (a) Discuss and answer at least 2 of your fellow students on how you view the future of waterfowl conservation? How would increase participation, funding, etc. Agree/disagree with current recruitment and funding. | 1) Familiarize with how waterfowl are managed, and how waterfowl conservation is funded in North America. |

| Week 14 | Happy Thanksgiving! |

| Week 15 | 1) Take the exit survey  
|         | (2) Take Exam 3 | 1) Take the exit survey  
|         | (2) Take Exam 3 | 1) Review materials from Modules 6-10 for Exam 3 | 1) Exit-course survey  
|         | (2) EXAM 3 on Materials covered in Modules 6-10 | None | Thank you for taking the course! |
Literature Cited:


