FW 430 – Waterfowl Ecology and Management

Lecture: Wednesday 1:00-2:50
Lab & Field Excursions: Friday 8:00-10:50
Occasional (up to 2) full-day field trips on Saturdays will be required
Credits: 3

Professor
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Office Hours: M 9:00 – 10:20
Or by appointment

Prerequisites: FW 370 (C or better)

Required texts: PDFs as assigned on the Canvas schedule.
Cornell Lab of Ornithology: All About Birds https://www.allaboutbirds.org/
Rodewald, P.G. (editor). The Birds of North America. Cornell Lab of Ornithology, Ithaca, New York, USA. https://doi.org/10.2173/bna.338

Optional but useful texts:
Baldassarre, G.A. & E.G. Bolen. 2006. Waterfowl Ecology and Management. Second Edition. Krieger, Malabar, Florida, USA.
Baldassarre, G.A. 2014. Ducks, Geese, and Swans of North America. A Wildlife Management Institute Book, Johns Hopkins University Press, Baltimore, MD, USA.
Batt, B.D.J., A.D. Afton, M.G. Anderson, C.D. Ankney, D.H. Johnson, J.A. Kadlec & G.L. Krapu (editors). 1992. Ecology and Management of Breeding Waterfowl. University of Minnesota Press, Minneapolis, Minnesota, USA.
Crossley, R., Baicich, P. & J. Barry. 2017. The Crossley ID Guide: Waterfowl. Crossley Publishing. Order at: www.ducks.ca/crossley Info at: https://youtu.be/-IxJ4vIrP54

Course Description:
This course will apply concepts from life history theory, evolutionary ecology, population ecology, community ecology, and wildlife management to familiarize students with the ecology and management of North American waterfowl across their migratory life cycles. Each lecture will provide basic background information on specific topics, which will be synthesized with new advances in waterfowl research provided by assigned readings and discussions of those readings. Labs and field trips will develop practical field skills in waterfowl biology, conservation, and management in addition to data analysis and computing skills. Relevant Lecture and Lab materials will be posted on the course Canvas page.

Course Objectives:
1) Apply major traits and morphological characteristics of North American waterfowl species to their identification in lab and field settings.
2) Identify wetland plants important to waterfowl populations in North America.

3) Articulate concepts of waterfowl ecology and policy, and apply them to conservation and management.
4) Synthesize and critique varying habitat management practices described by practicing professionals.
5) Collate, proof, and enter for analysis real-world wetland and waterfowl data collected in the field.
6) Analyze wetland and waterfowl data using computing, mathematical, and statistical skills.
7) Write a scientific paper that applies objectives 3-6, and graphically display scientific results within the paper.

Labs and Field Trips:
Labs and field trips will take place on a variety of learning stages. These will include, e.g., in-class, audio-visual, and field settings, tours of wetland and upland management projects, introductions to online data repositories, a soft introduction to the R programming language and other software (e.g. RMark) to analyze data, and most importantly, getting your boots wet and muddy in wetlands. It is highly recommended that you have access to a laptop computer for computer exercises. Field trips should be viewed as a privileged activity, so please show respect for the people and places we visit.

Grading:
There will be quizzes based on both lecture, lab, and reading materials (60% of your grade) and a course project (40% of your grade). Grades will be assigned as follows: 100 – 97% = A+, 96.99 – 90% = A, 89.99 – 87 % = B+, 86.99 – 83% = B, 82.99 – 80 % = B-, 79.99 – 77 % = C+, 76.99 – 70% = C, 69.99 – 60 % = D, Below 60% = F. The grading scale may be changed at the discretion of the instructor depending on class performance. All assignments must be turned in on time. Late assignments are docked 25% of the grade for each day late.

Attendance:
If you have an anticipated absence, please notify me at least 1 day prior to the absence. It is your responsibility to make up for the materials missed in the event of a lecture or lab absence. Excuses for absence due to illness, death in the family, university-sanctioned activities or other events will be handled on a case-by-case basis in accordance with CSU policy and must be documented (http://catalog.colostate.edu/general-catalog/academic-standards/academic-policies/).

Guest Lecturers:
From time to time, a graduate student, professional wildlife manager, or professional biologist may assist with course delivery. Please treat them with the same respect due the professor.

Accommodations for disabilities:

Students with physical, sensory, or medical impairments may be eligible for reasonable accommodations in accordance with university policy.
All accommodations are coordinated through RDS. For students wishing to bring animals on campus, please consult the university policy on emotional support animals, which are defined differently than service animals:
http://rds.colostate.edu/accommodation-process.

Academic integrity:
Each student has the right and duty to pursue his or her academic experience free of dishonesty. Infractions (cheating, falsification, and plagiarism) and their associated penalties are described in the CSU General Catalog Policies & Guidelines:
http://www.ssw.chhs.colostate.edu/field/files/Field%20Manuals/Policies/CSU%20Policy%20on%20Academic%20Dishonesty.pdf

This syllabus is issued for the convenience of the students; it does not constitute a contract and may be changed by the instructor at any time.

Tentative Schedule of Lectures

The course topics will be covered in order; however, the schedule of lectures, labs, and field trips will be kept flexible in order to ensure adequate coverage of each topic. See updates to this schedule on Canvas. Associated readings will also be posted on Canvas.

Week	Lecture Topic
1	Introducktion
2	No Class - Professor out of town
3	Systematics and biogeography
4	Life history evolution; (Colorado TWS meeting)
5	Foraging theory
6	History of waterfowl management
7	Hunter harvest and adaptive resource management
8	Winter ecology
	Spring Break
9	Migration ecology
10	Wetland ecology
11	Ecosystem services
12	Mating systems & reproductive development
13	Reproductive ecology
14	Analysis of habitat use vs. performance
15	Breeding habitat management
16	Complete Course Projects

Tentative Schedule of Labs

1	Waterfowl ID through dabblers
2	No Class - Professor out of town
3	Waterfowl ID through sea ducks
4	Local field trip: Waterfowl ID in the field; (Colorado TWS meeting)
5	Campus field survey of geese & foraging
6	Band recovery analysis
7	Adaptive Harvest Management
8	Species, age & sex designation in harvest from submitted wings
	Spring Break
9	Field Trip: San Luis Valley crane migration and refuge management
10	Local field trip: wetland plant identification in the field
11	Analysis of field trip survey data I
12	Local field trip: percent cover surveys of wetland SAV & EV
13	Nest survival analysis
14	Field trip: Management projects on the South Platte River and waterbird survey
15	Analysis of field trip survey data II
16	Complete Course Projects