

**General lab and assignment information for ZOOL 4478 Birds and Mammals
Spring semester 2023, Thursday 130-420 B206
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Additional text and software that will be helpful in lab (no text required). These will be very helpful in completing your field catalog, as well as your species accounts:

- Audubon Society smart phone app: free for android and iPhone on Google Play Store and iTunes. Further information and directions at: <http://www.audubon.org/apps>
- Peterson's Field Guide to Animal Tracks (any edition; 3rd edition is the most recent; about \$4 used online)
- Any camera (smartphone is fine)
- Visit the Centennial Museum on the UTEP campus, as well as their information on endemic species to the Chihuahuan Desert online at: <http://museum2.utep.edu/chih/theland/animals/animalindex.htm>
- Cornell Bird Lab www.allaboutbirds.org
- eBird app (free; allows participation in the great backyard bird count and other citizen science bird counts)

Attendance to every lab session is required. No make-up labs will be available. See class syllabus for policy on late/missing work. Attendance to labs will be taken every Thursday and with any activities of the lab, will be worth 10 points each.

	Date	Lab Topic	Due Today in Lab
WEEK 1	19-Jan	No Lab	
WEEK 2	26-Jan	Introduction to Biological Collections & Working with the Biological Collections (with Ms. Zhuang); lab safety; how to study for practical exams; assignments	Make sure you sign lab safety sheet Sign up for bird species account
WEEK 3	2-Feb	Identification of Representative Taxa (Anseriformes-Gruiformes); Bird Skeletal Morphology; Putting bird skeletons	Take a photograph of your completed bird skeleton, labeled, with all group names and email to Kristi at the end of class
WEEK 4	9-Feb	How to keep a field catalog; Identification of Representative Taxa (Charadriiformes-Psittaciformes), Go outside and identify birds around campus; Keep working character cards Bring weather-appropriate clothes for outdoors	After field trip outside, show sample field catalog entries at end of class. Show progress on character cards (need to have one for each family started)

WEEK 5	16-Feb	Identification of Representative Taxa (Apodiformes-Suliformes); Character Lab: making character flash cards; Building and interpreting a phylogeny;	Turn in completed phylogeny at end of class, or at beginning of class next week
WEEK 6	23-Feb	Identification of Representative Taxa (Passeriformes) Birds Module	Bird Account due 35 points
WEEK 7	2-March	Capture and monitoring techniques used for birds in the field, review of specimens for bird practical (Bring a phone/laptop/tablet for Kahoot quizzes to review)	Study for practical (no assignment)
WEEK 8	9-March	LAB PRACTICAL I: BIRDS	100 points Bird Module due 30 points
WEEK 9	16-March	SPRING BREAK - NO CLASSES	
WEEK 10	23-March	Mammalian Anatomy; Characters of all mammals; Bone identification; Put mammal skeleton together; Work on making character cards; Mammal specimen identification I (Orders Monotremata, Didelphimorphia, Diprotodontia, Dasyuromorphia, Pilosa, Cingulata, Macroscelidea, Afrosoricida, Tubulidentata, Sirenia)	Take a photograph of your completed mammal skeleton, labeled, with all group names and email to Kristi at the end of class
WEEK 11	30-March	Tracks and scat identification; Make character flash cards; Mammal specimen identification II (Orders Proboscidea, Eulipotyphlia, Chiroptera, Cetartiodactyla, Carnivora, Pholidota, Perissodactyla, Scandentia)	Worksheet on tracks and scat (work on it in class; show completed worksheet to Kristi at end of class or at beginning of class next week)
WEEK 12	6-April	Mammal's Module	Show Kristi progress on character cards (need to have one for each family started, include skull morphology from today)
WEEK 13	13-April	Presenting mammal's module, review, work on making character flash cards	Field Catalog due 30 points + 30 points extra credit for additional entries Mammal's module due 30 points
WEEK 14	20-April	Mammal specimen identification III (Orders Rodentia, Lagomorpha, Deroptera, Primates)	Mammal Account due 35 points

		Finding your pathway into a career of birds and mammals	
WEEK 15	27-April	Capture and monitoring techniques used for mammals in the field; review of specimens for mammal practical (Bring a phone/laptop/tablet for Kahoot quizzes to review)	Study for practical (no assignments)
WEEK 16	4-May	LAB PRACTICAL II: Mammals	100 points

The Practical Exams (100 points for Birds on March 9; 100 points for Mammals on May 4):

- Know the characteristics of each order and family of birds and mammals
- You will be making Character Flash Cards to help you study for this. They will help on in-class exams AND the practical exam
- Study the material from each lab, on the lab syllabus, handouts, powerpoints and in-class activities
- Familiarity with bones, calls, nests, eggs, as they go with photographs and/or actual museum specimens
- Morphological characteristics (see Vocabulary on BlackBoard)
- Identification of actual specimens

Character Flashcards:

- These will help you study for the in-class exams and practical exams
- You will have some in-lab time to work on these, but most information will be added as you study, review your notes, and view specimens
- Make one flashcard for EACH FAMILY OF BIRDS AND MAMMALS (handout on orders and families will be provided)
- Each flashcard should include:
 - The order, family, and your specimen species
 - Order distribution
 - At least three characteristics of the order
 - Other information that will help you remember the order (and species within it)
 - Character cards will be checked by the TA (so make sure you have started one for each order) for birds on February 9 and mammals on April 6.
- Example:

Order Cuculiformes (Cuckoos)

Family Cuculidae (Cuckoos)

Family Distribution: Worldwide

Example Species (and distribution): Yellow-billed Cuckoo; throughout Texas

Family Characteristics: Most are arboreal, some terrestrial. Tail often barred or white-tipped. Insectivores and frugivores (though roadrunners also eat vertebrates). Legs generally short. Some species are parasitic breeders, laying eggs that match the host species. Cuckoo eggs hatch faster than most birds.

Other Information: Roadrunners are part of this family. Calls to know:

{Feel free to include photos or sketches on opposite side of flash card}

Bird and Mammal Accounts:

- Two species accounts will be due: One for a bird of the Chihuahuan Desert on February 23, and one on a mammal of the Chihuahuan Desert on April 20.
- Sign up for birds starting today, and mammals later this semester. Each student must make a species account of a different species (first come, first serve)
- The species account should consist of two major parts:
 - A detailed description of your bird/mammal in the style of any field guide (such as the Peterson Field Guide to Birds) At minimum, this includes
 - Common name of your bird
 - Order, family, genus, specific epithet (scientific name)
 - Photograph or drawing, usually of a male, a female, and a juvenile
 - Information on the range
 - Detailed physical description
 - Voice/song
 - Flight pattern
 - Habitat
 - Food
 - A range map based upon your research of natural history museum specimens
 - Minimum 2 natural history museums (there are many. You can use ANY two, including but not limited to UTEP, AMNH, FMNH, MNH)
 - Range map can be hand-drawn, computer generated, made in powerpoint and printed, or any combination of these methods
 - A legend on the map should include the number of specimens located within each of the museum records, what museums were used (and the names of their databases as appropriate), and the date range spanning the accessioned specimen
 - You may have to search multiple museums until you find records of your species of choice
- Make sure you include a references section at the end of your species account
- Species account should be longer and more thorough than a traditional field guide. Approximately one page double-spaced of text, and one page of figures/photographs/sketches/range maps is appropriate (2 pages in total).
- See any field guide for detailed examples

Field Catalog (Grinnell Method Species Accounts):

- Due April 13
- Go outside and start identifying birds, nests, mammals, tracks, scat, and traces! Consider this your self-led field trip(s) for the semester
- Time to apply your knowledge: throughout the semester (or at least for one full day), go outside! You will have the most luck if you go to a remote area, such as Hueco Tanks, Tom Mays Unit of the Franklin Mountains State Park, or any hiking areas open to your use (don't trespass!) in the Chihuahuan Desert.
- Don't get frustrated if you can't identify everything right away. Photographing birds, recording bird calls, and jotting down important characteristics is a great way to maximize your field time and look up species later. Photographing and/or sketching mammal tracks, scat, and area found is a great way to identify the mammal later.

- The format should follow the Grinnell Method of species accounts/cataloging. This acts like a simple field catalog, but with a bit more information about where the species (or track/scat) was located, what the species may have been doing, etc.
- A total of 30 species should be recorded (usually a catalog records species collected; you, of course, should NOT be collecting animals or feces, just observing). Repeats are fine, but an entire flock of one kind of bird, or herd of mammals, should be given just one catalog number.
- Focus on what interests you. At least one bird, one scat, and one track should be recorded, but the rest are up to you.
- You can use a regular spiral notebook, 3-ring binder, “scrapbook” style, field journal, or whatever you would like to keep as a record of your identifications and observations
- You can bring your actual field catalog with you to the field, but I recommend bringing a smaller notebook/sketchpad to quickly record observations, and write them neatly later
- For each species:
 - Location (name of locality, city, county, state, GPS coordinates)
 - Date
 - Catalog number (1-30)
 - Time
 - Common name and scientific name of species
 - Observations about mammal/bird/track/scat that may help you identify it later
 - Most (at least 20) of the entries should be accompanied by drawings, sketches, or printed photographs.
- We will practice this skill together in lab on February 9
- 30 extra credit points possible! Include an additional 30 entries (for up to 60 total entries).
 - All extra credit entries must be accompanied by a photograph/sketch for evidence
- Format:

[Header]

2023/Your Name

Catalog

Location; City; County; State; GPS Coordinates; Elevation

Date

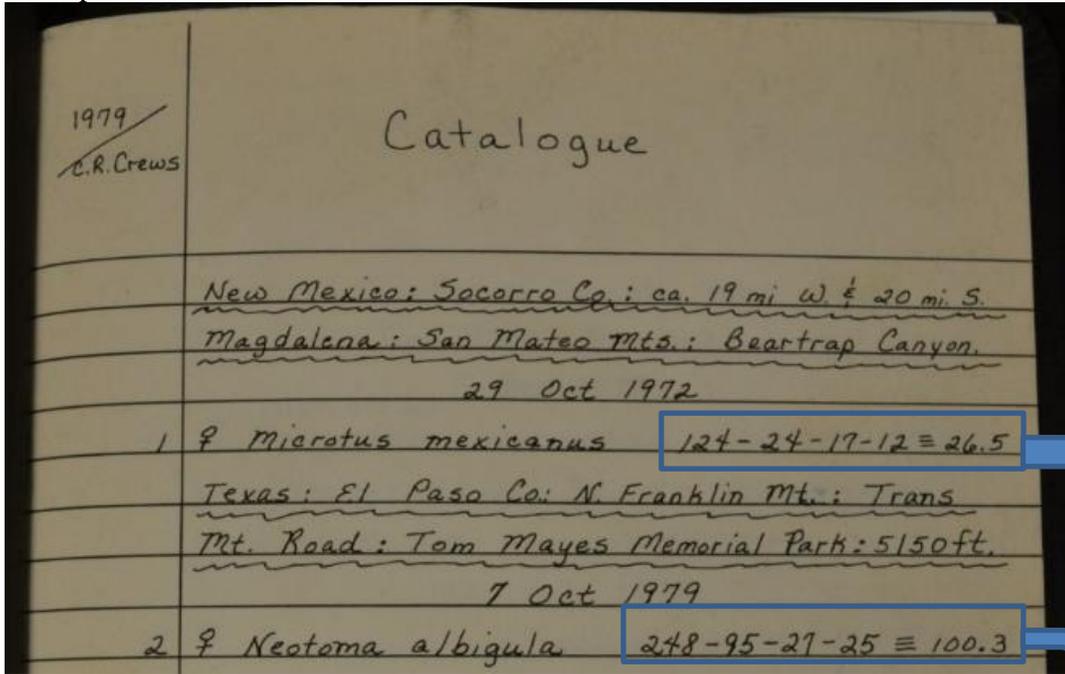
1. *Scientific name* (Common Name of Animal Observed Directly). Male/female/juvenile (if known). Time seen (military time/24 hour format). Any interesting or noteworthy behavior, distinguishing characteristics, colors, morphology, plant or environment interactions. Include sketches or photos in this section or on the opposite page.

2. *Scientific name* (Common Name of Animal that Left Tracks). Time seen. Substrate tracks were left in (mud, sand, etc.). Length/width of tracks, if claw marks were present, how far apart tracks were, if it appears to be one mammal/bird or more than one. Any interesting environmental characteristics (food availability, near water etc.). Include sketches or photos in this section or on the opposite page.

New Location: City: County: State: GPS Coordinates: Elevation
Date

3. *Scientific name* (Common Name of Animal that Left Scat, Bones, or a Nest). Time seen. General shape and detailed description of animal trace found. Any interesting environmental characteristics (food availability, near water etc.). Include sketches or photos in this section or on the opposite page.

- Example:



These numbers substituted for Ms. Crews' animal descriptions, as she had a systematic way of taking animal measurements. As you will not be handling the animals, feces, or traces, please include descriptions such as those outlined above instead of numbers here.

Remember:

The above lab activities, class assignments, and practical exams will make up half of your grade this semester. The grading break-down is as follows:

Grading:

Lecture Exam 1	100 pts (12.5%)
Lecture Exam 2	100 pts (12.5%)
Lecture Exam 3	100 pts (12.5%)
Lecture Exam 4	100 pts (12.5%)
Lab Practical (Birds) 1	100 pts (12.5%)
Lab Practical (Mammals) 2	100 pts (12.5%)
Lab Assignments	100 pts (12.5%)
In-class Participation	100 pts (12.5%)
Total for students:	800 pts