

FIELD TRIPS

Attendance on field trips is mandatory and carpooling is encouraged. In order to keep group size even on each trip, you must attend the field trip to which your group has been assigned. If you know in advance that you will miss a trip, you should try to find someone in the other group to switch with you. For each missed field trip, I will deduct ten points from your field notebook grade. For an excused absence, you will still need to make up a missed field trip.

Dress appropriately for the field trips. Sunscreen and a hat are recommended. We will be going out regardless of the weather. If it's raining, be prepared to get wet and always wear shoes and clothes you don't mind getting dirty. Remember - it is better to dress in layers than to be cold. Also, be prepared for ticks, insects, and snakes.

BINOCULARS

To observe the details of bird behavior in the field, binoculars are necessary. Because we will be going in the field often and everyone will be working on an independent field project, binoculars are required for this course. I have some binoculars that I can loan to those who need them during the first two field trips. But after that, you will need to bring your own.

When choosing binoculars, there are two numbers to consider. The first number indicates magnifying power. The second number is diameter of the objective lens in millimeters. A wider diameter lets more light in and helps when looking for birds on cloudy days and in dark habitats like forests. The best birding binoculars for beginners are 7 or 8 power and the lens diameter should preferably be at least 5 times the power (7 x 35 and 8 x 40 are good numbers, also 10 x 40). Other factors to consider include weight, durability, water resistance, and price. The one requirement I will have for the binoculars you use for this course is that they must be at least 7 power.

The "external links" page of the blackboard website has links to binocular buying guides and reviews.

The blackboard site has external links to some binocular reviews, and a good internet source for purchasing binoculars is Eagle Optics: <http://www.eagleoptics.com/index.asp>

Good binoculars for beginners are 7 x 35 or 8 x 40. Bushnell generally produces some reliable and inexpensive binoculars. For example:

Bushnell Natureview Birder 8 x 40: <http://www.eagleoptics.com/index.asp?pid=4905>

Bushnell Natureview Birder 8 x 40: <http://www.adorama.com/BS118401.html?sid=120051662384904>

LABS

Labs will cover identification of San Diego Birds (about 150 species), classification of birds, external anatomy, and skeletal anatomy. For the lab, I suggest you bring your field guide every time and use index cards, with identification features on one side and name and natural history information on the other side. There will not be any "open" lab hours. This ensures that everyone will have equal and fair access to the lab material. You will have plenty of class time to look at all the specimens.

SUGGESTED READING FOR LECTURE

These reading assignments are meant to be background information for the material presented in lecture and lab. Most material for the exams will come directly from lecture and lab with the exception of specific assignments given to you for the Fridays you are not in the field.

Lecture Topic

Introduction/Bird Diversity
Field Techniques
Systematics/ What is a bird?
The Origin of Birds and Bird Flight
Species and Speciation
Feeding, Foraging, and Digestion
Molt and Reproduction
Flight and its adaptations
Migration and Navigation
Display and Communication
Breeding Biology
Extinction and Conservation

Readings in Gill (1995)

Chapter 1
none
(Chapters 2 & 3)
(Chapter 2)
Chapter 3, Chapter 22
Chapter 7
Chapter 16
Chapters 4, 5, & 6
Chapter 12, 13
Chapter 8 & 9
Part V
Chapter 24

Readings in Gill (2007)

Chapter 1
none
(Chapters 2 & 3)
(Chapters 2)
Chapter 3, Chapter 19
Chapter 6
Chapter 15
Chapters 4, 5, & 6
Chapter 10
Chapter 7 & 12
Part 5
Chapter 21

Research Project Guidelines

The purpose of the research project is to give you the opportunity to do some first-hand research on birds and to give you a better understanding of one particular area of ornithology. You are not expected to have any prior familiarity with birds, or with carrying out a research project. I will assume you are starting from scratch. So, don't be afraid to tackle something that you know nothing about in advance. The best projects typically have a good, original question which tests a hypothesis with quantifiable data.

The worst mistake you can make with this project is procrastinating. To avoid this problem, by **March 11th**, you must have turned in your project proposal (see attached document). Please talk to me during class and office hours well in advance of this date. Failure to have your project proposal signed by this date will result in a loss of 10 points on your final project.

Most of the projects will probably be field-oriented. Thus, be sure to choose a field site that is safe and easily accessible. An area on campus, one of the local parks, or even your neighborhood may suffice. Do not work in remote locations alone. You may wish to team up with someone working in the same area and travel together. Plan to visit your field site multiple times. Most successful projects contain about 15 hours of field data. Your observations should be original and based on your own watching and interpreting. You must take field notes and these field notes will become part of your project and will be turned in with the paper.

Scientific papers may be totally new to you. They are not written like lab reports, term papers, or book reports. They have standard requirements and organization. Browsing through some of the ornithology journals in the library (Auk, Condor, Wilson Bulletin, Western Birds) will give you an idea of the style and focus of a research paper. You are graded not only on the quantity of data that you collect, but also how well you interpret it. Remember, length of the final paper is less important than the quality of the content. Most papers will be between **8 and 10 pages** (excluding tables and figures). In any event, your paper should **not exceed 10 typed, double-spaced pages** (excluding figures and tables). Also, be sure to use a reasonably sized font. This handout is written in times 12 point; do not use anything smaller than this. Margins should be one-inch on all sides. Attach the pages of your paper with only a staple (no environmentally wasteful notebooks or covers). I will give you more guidelines on format for your paper at a later date.

The project itself is worth 150 points (= 25% of your final grade). Thus, it is equivalent to one academic credit hour. So, you should plan to spend time on it throughout the semester and not procrastinate until the last few weeks. You should budget a minimum of 3 hours per week throughout the semester.

The project will be due May 13th at the beginning of class (8 a.m.). **Ten points** will be subtracted for every hour or fraction of an hour the project is late, with no excuses accepted. For example, if you turn in your paper at 8:15, 10 points will be subtracted. Also, everyone will give a short presentation of their project to the rest of the class. These presentations will take place during lab and will be included in your project grade.

If you are studying the behavior of a particular species, the following sources should provide some good background information about the biology of your species:

1. Birds of North America - multi-volume series located in the reference section of the library under call number QL681.B625.
2. Handbook of Birds of the World - multi-volume series that covers most non-passerine birds and many passerines, can be found in the reference/oversize section of the library under QL673.H265 1992.

Some general ideas for projects:

For any species that is easy to observe and follow, construct a time activity budget (a daily distribution of time with respect to various behavior categories: feeding, singing, foraging, preening, etc.) and use this budget to test some hypotheses.

Comparing species numbers and abundance at a burned and an unburned locality (use point count method)

Seasonal changes in foraging behavior of any common species

Interspecific differences in foraging behavior among closely related species

Sexual differences in foraging behavior in any sexually dimorphic species

Seasonal or daily rhythms in singing behavior of any vocal, resident bird

Phylogeny of a group of birds based on published sequence data (or from GenBank)

Tree species selection by a particular species of bird

Differences in habitat selection between closely related species

Nesting biology of any species whose nests are easily found

Note that birds not appropriate for study include Zoo birds, Mallards, gulls, and pigeons that are being fed by people - the goal of the project is to observe natural behaviors of birds

More specific ideas of possible projects:

Density of Mourning Doves on SDSU campus,

Habitat use by Audubon's Warblers (or any species)

Courtship behavior in ducks

Comparison of Foraging Behavior in Black and Say's Phoebes

The use of eucalyptus trees by birds

Nesting behavior of Red-shouldered Hawk

Food Habits of the Great Horned Owl

Different Foraging Behavior of male and female Anna's Hummingbirds

Influence of weather on awakening times in birds

Foraging sites of California Towhees

Nesting sites of Mourning Doves in relation to pedestrian traffic on SDSU campus

Flocking behavior of Cedar Waxwings

Tidal influence on Heron Foraging

Comparative dive times in loons, grebes, and ducks

Age-related Differences in Displays of male Red-winged Blackbirds

Affect of tides on species composition at the flood control channel

Behavior of Acorn Woodpeckers at Cuyamaca State Park

Distribution of birds at different tide heights at the flood control channel

Differences in foraging behaviors of Snowy and Great Egrets

Capture success of adult versus immature Brown Pelicans

Also, see the binders in the lab with examples of previous years' projects.

Please retain a copy of this proposal for your records.

Name _____

Approved:
Signature _____

Date _____

Must be turned in by **March 11**

Ornithology Research Proposal

1. Title of Project. (List species to be studied if not included in the title.)
2. What hypotheses are you testing in your study? If you are not testing a hypothesis, please indicate what questions you are asking in the study. Testing a hypothesis or asking questions will help you focus your efforts, so that you have goals in mind when carrying out your research. Give lots of thought to this.
3. What kinds of data are you collecting? Describe your methods for collecting these data. The way to answer such questions is to gather data. Quantify whenever possible - numbers often make a more convincing argument. The mechanics of data gathering also need to be considered. What form will the data take on paper and how will it be summarized.
4. How will you analyze these data and how will they help you answer your questions? By thinking about methods of analysis now, you can anticipate potential problem with data collection that would be unfixable later.
5. Where are you carrying out your study? Be specific.

**ORNITHOLOGY
SPRING 2009**

Week	Wednesday	Friday	other dates
Jan 22	No Classes	<u>Lecture:</u> Introduction/Bird Diversity <u>Lab:</u> External Morphology of Birds, Predicting Ecology from Morphology	
Jan 26	<u>Lecture:</u> Field Techniques <u>Lab:</u> Common San Diego Birds, part 1	<u>Field Trip:</u> Group A San Diego River Flood Control Channel	
Feb 1	<u>Lecture:</u> Systematics & The Origin of Birds <u>Lab:</u> Common San Diego Birds, pt 2	<u>Field Trip:</u> Group B San Diego River Flood Control Channel	
Feb 8	<u>Lecture:</u> The Origin of Birds & Bird Flight <u>Lab:</u> Common San Diego Birds, pt. 3	<u>Field Trip:</u> Everyone: CRES (at the Wild Animal Park)	Notebook Check: Feb. 11
Feb 15	<u>Lecture:</u> The first 85 million years of bird evolution <u>Lab:</u> Skeletal System	<u>Field Trip:</u> Everyone: San Diego River – Comparative Behavioral Study	
Feb 22	<u>Lecture:</u> Species and Speciation <u>Lab:</u> Common San Diego Birds	<u>Field Trip:</u> Group A Mission Trails	
March 1	<u>Lecture:</u> Feeding, Foraging, and Digestion <u>Lab:</u> First Lab Exam	<u>Field Trip:</u> Group B Mission Trails	
March 8	<u>Lecture:</u> Molt and Reproduction <u>Lab:</u> Nests & Birds of the World I	<u>Field Trip:</u> Group A San Elijo Lagoon	Behavior Reports & Project Proposals due: March 11th, 8 a.m.
March 15	<u>Lecture:</u> First Lecture Exam <u>Lab:</u> Birds of the World II	<u>Field Trip:</u> Group B San Elijo Lagoon	
March 22	<u>Lecture:</u> Flight <u>Lab:</u> Birds of the World III	<u>Field Trip:</u> Everyone: San Diego Natural History Museum	
March 29	Spring Break	Spring Break	
April 5	<u>Lecture:</u> Adaptations of Flight <u>Lab:</u> Avian Flight	<u>Field Trip:</u> Everyone San Diego Zoo - Birds of the World	
April 12	<u>Lecture:</u> Migration <u>Lab:</u> Birds of the World IV	<u>Field Trip:</u> Group A Mission Trails	
April 19	<u>Lecture:</u> Navigation <u>Lab:</u> Birds of the World V	<u>Field Trip:</u> Group B Mission Trails	
April 26	<u>Lecture:</u> Breeding Biology <u>Lab:</u> Lab Final (comprehensive)	<u>Field Trip:</u> Group A Laguna Mts.	
May 3	<u>Lecture:</u> Display and Communication <u>Lab:</u> Project Presentations	<u>Field Trip:</u> Group B Laguna Mts.	
May 10	<u>Lecture:</u> Extinction and Conservation <u>Lab:</u> Project Presentations	No Classes	Projects Due: May 13th, 8:00 a.m.

Second Lecture Exam (not comprehensive): 8:00 a.m. – 10:00 p.m., Monday, May 18th