Instructor: Alexander Kitaysky  
Office: 413, Irving 1  
Phone: 474-5179  
Email: askitaysky@alaska.edu  
Office hours: by appointment

TA: Rebecca Young  
Office: T2- Atco  
Phone: 474-7603  
Email: rebecca.young@alumni.iu.edu  
Office hours: by appointment

Course goal, objectives and description: Animal Behavior is the study of what animals do. The overall goal of this course is to teach you how to use scientific method to study animal behavior. The course focuses on the evolutionary approach – specifically, we’ll learn **how** animals behave (i.e., the proximate, or mechanistic perspective) and **why** they behave in a certain way (i.e., the ultimate, or evolutionary perspective). Emphasis of the lecture section will be on general concepts, and during the lab section you will learn how to use these concepts in conducting research in the field of animal behavior. Most of written assignments will be assigned as part of the lab section. By the end of the course you will be able to (A) read and critically evaluate primary literature, (B) design and conduct observational and experimental studies, (C) write and present a scientific report.

Lectures: Lectures may use a variety of media, including computer projection, chalkboard, and video clips. Note that a substantial amount of what happens in class will not be amenable to being placed on the website (see below), so don’t expect to be able to use notes posted to the website as a replacement for missed lectures. Note also that the exams will emphasize (but not be limited to) material covered in lectures.

Readings: Assigned readings from primary literature provide background and context for lectures and will cover some of the same specific examples that will be used in lectures. Consequently it will help if you do the reading prior to the lectures. Material in the assigned text readings that isn’t covered in lecture will be fair game for exam questions, but as noted above you can expect the vast majority of exam material to be from what is covered in lecture.
TEXTS:


BEHAVIORAL JOURNALS (Primary literature sources)

Below are lists of scientific journals that publish research articles and reviews in animal behavior. The first list includes the behavior-specific journals and the second list includes those journals that are not specifically behavioral in scope but do publish behavioral articles from time to time.


**Secondary journals in Animal Behavior:** More general journals that frequently publish articles in animal behavior.


**Style guides** (a sampling):


Supplemental texts or other readings may be placed on the Blackboard.

**Blackboard information:** We will make use of Blackboard to get information to you regarding homework assignments, scheduling review sessions, modifications to regular office hours, etc. Lecture notes, lab notes, and old exams will be placed on Blackboard. Please make certain you have access to the Biol 441 Blackboard site. Please check it frequently to be sure you don’t miss something important. You can get access to the website through:

http://classes.uaf.edu

By now, you should be able to obtain this document (General Course Information) and the syllabus with projected lecture and reading schedules from it right away. Lecture outlines will also be posted to the Blackboard, but generally not until after a given lecture. As noted above, these will not be so detailed as to be useful as replacements for missed lectures.
Tentative COURSE GRADING

You will be evaluated on the basis of your performance on three exams (2 midterms and a final), in the lab section of the course, and participation in class.
Midterm 1: Covers PART 1 of the course
Midterm 2: Covers PART 2 of the course
Final exam: Focus primarily on PART 3, but will also include basic principles of the entire course (which you’ll have to know to understand Part 3)

Contribution of each part of the course to your final grade will be as follows:

<table>
<thead>
<tr>
<th>Section</th>
<th>Contribution</th>
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<tbody>
<tr>
<td>Lecture section</td>
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<tr>
<td>Exam 1:</td>
<td>10%</td>
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<td>Exam 2:</td>
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<tr>
<td>Final exam:</td>
<td>20%</td>
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<tr>
<td>Lab section:</td>
<td>45%</td>
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<tr>
<td>Class participation:</td>
<td>10%</td>
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Notes

The course is written and oral intensive, your attendance of lectures and lab sessions is mandatory.

Make-up exams will be allowed ONLY for an excused absence with my approval (I will need official verification of illness or family emergency) and they will be given in a different format.

Exams will test factual knowledge as well as an ability to synthesize and integrate information. The exams will consist of short answers (one to a few sentences). Examples of each exam (questions with answers) will be handed out before the midterms and final. Midterm II and Final will not be comprehensive, but could include questions from previous examination(s).

Class participation - your questions and comments are appreciated in lectures and labs. There will be short formal discussions in several lecture and lab periods. You should write down any questions you have while doing the assigned readings, and see that your questions are addressed in class.

If you would like to request academic accommodations due to a disability, please contact Disabled Student Services, (2nd fl. Whitaker) fydso@uaf.edu, 474-7043. If you have a letter from Disabled Student Services indicating you have a disability that requires academic accommodations, please present the letter to us so we can discuss the accommodations you might need for class.

UAF Honor Code – everybody should be in good standing

Grading: Final grades will be assigned based on percentages of total points earned:
90-100% = A; 80-89% = B; 70-79% = C; 60-69% = D; F<60%. At their discretion, the instructors may reduce one or more of these percentages when assigning final grades.

Final exam. Friday December 17, 10:15am – 12:15pm, 103 Irving I.
### Lecture Outline

**Biology 441, Animal Behavior**  
**VERY Tentative Lecture Outline, Fall 2010. Exam dates are firm.**

<table>
<thead>
<tr>
<th>Lecture</th>
<th>Date</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1</td>
<td></td>
<td>Introduction, Scientific Method</td>
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<tr>
<td></td>
<td></td>
<td>In-class writing assignments:</td>
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<td></td>
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<td>Altruism &amp; Study Questions</td>
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<td>2</td>
<td></td>
<td>Scientific Method – a review of stat analysis</td>
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<td>Natural Selection and Animal Behavior</td>
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<td><strong>DISCUSSION:</strong> results of writing assignments</td>
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<tr>
<td>3</td>
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<td>Proximate and ultimate causes of behavior</td>
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<td>5</td>
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<td>Development of Behavior: Experience and Learning</td>
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<td>6</td>
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<td>Neural Basis of Behavior</td>
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<td>7</td>
<td></td>
<td>Perception, Orientation and Navigation</td>
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<td>8</td>
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<td>Hormones and Behavior</td>
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<td>Organizational and Activational effects</td>
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<td>9</td>
<td></td>
<td>Hormones and Behavior</td>
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<td>Biological Clocks</td>
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<td>10</td>
<td></td>
<td>Annual Cycles, Endogenous rhythms</td>
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<td>11</td>
<td></td>
<td>Catch-up time and review for Midterm I</td>
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<tr>
<td><strong>M, 11 Oct</strong></td>
<td><strong>MIDTERM I</strong> (Lectures 1-10, Chapters 1-6)</td>
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<td>12</td>
<td></td>
<td>Feedback on MIDTERM I</td>
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<td>13</td>
<td></td>
<td>Predator avoidance</td>
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<td>14</td>
<td></td>
<td>Mimicry, aposematic coloration</td>
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<td>15</td>
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<td>Optimal foraging, foraging in groups</td>
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<td>16</td>
<td></td>
<td>Habitat selection, territoriality</td>
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<td>17</td>
<td>Communication: status signaling and deception</td>
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<td>18</td>
<td>Review for Midterm II</td>
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<td><strong>M, 15 Nov.</strong> MIDTERM II (Lectures 11-18)</td>
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<td>19</td>
<td>Discussion of Midterm II</td>
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<td>20</td>
<td>Evolution of sex, sex ratio theory, sexual selection, mate choice</td>
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<td><strong>DISCUSSION:</strong> Paper TBA</td>
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<td>21</td>
<td>Mating systems</td>
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<td>22</td>
<td>Parental investment</td>
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<td><strong>DISCUSSION:</strong> Paper TBA</td>
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<td>23</td>
<td>Altruism, reciprocation</td>
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<td><strong>DISCUSSION:</strong> Paper TBA</td>
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<tr>
<td>24</td>
<td>Cooperation: avian and mammalian social systems</td>
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<td>25</td>
<td>Cooperation: insect eusociality</td>
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<td></td>
<td><strong>DISCUSSION:</strong> Paper TBA</td>
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<tr>
<td>26</td>
<td><strong>DISCUSSION:</strong> Human behavior</td>
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<td></td>
<td>In-class writing assignment:</td>
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<tr>
<td></td>
<td>Altruism in Humans</td>
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<tr>
<td></td>
<td>Review for final exam</td>
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<tr>
<td>27</td>
<td><strong>F, 17 Dec.</strong> 10:15am–12:15pm <strong>FINAL EXAM</strong> (Lectures 21-28)</td>
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</tbody>
</table>
Biol 441: Animal Behavior LAB

Professor: Dr. Alexander Kitaysky
TA: Rebecca Young
Office: T2 (Atco behind Reichart)
Phone: 474-7603 (office), 474-5753 (lab)
Email: rebecca.young@alumni.iu.edu
Office hours: by appointment

General

• Goals: To learn (A) General: how research is conducted in the field of animal behavior. (B) Specific: How to design, conduct and present your own study on a topic in animal behavior. Rather than learn from ‘canned’ labs, you will conduct studies that YOU’VE designed, and learn how to analyze and present the data in both oral and written formats. This class is a writing/oral-intensive class, which means that most of your graded work will be written and presented. You will have the opportunity to revise drafts and improve most of your writing assignments. Scientific writing and presentation can be difficult and time-consuming, but the ability to write good scientific papers and effectively communicate results is essential for a biologist. By the end of this semester, you should be able to both conduct research of your own, and to intelligently critique any other studies or papers you come across. You will get as much feedback on drafts of papers as you care to ask for – we are much more interested in seeing writing improvement than in taking off points.

• All animals, vertebrate and invertebrate, must be treated with care and respect. Furthermore, you all will enroll in and complete the online University IACUC (Institutional Animal Care and Use Committee) module.

Assignments

• Must be either typed (12pt font, double-spaced) except journal assignments, which can be written (legibly). Spelling and grammar are important, and some points will usually be dedicated to organization and clarity.

• Always due at the beginning of the following lab, unless otherwise indicated. Emailing assignments to your TA (rebecca.young@alumni.iu.edu) is the preferable way to turn things in, as long as they are on time (Before lab!)

• Late assignments: 10% of the points will be docked for every day an assignment is late, and you will get no credit if it is not in by the Friday after it is due. Let me know if you have extenuating circumstances--please talk to me by the Friday before the due date.
Grading:

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- 15% Independent project proposal presentation
- 20% Independent project poster
- 15% Independent project poster presentation
- 25% Other assignments (paper reviews, drafts etc)
- Extra Credit: Behavior journal (see next page)

Note that papers and presentations are worth a lot, but you should have plenty of time to revise and get enough feedback to perfect the final product! USE YOUR TA (in a nice way, please). She will comment on drafts as long as she gets them by the Wednesday prior to the lab in which they are due.

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- You have an ongoing, weekly assignment this semester. The purpose is to get you used to watching animals with a more critical and quantitative eye, to get a feel for defining discrete behaviors, and to get used to writing down everything you see.
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choose an animal or a group of animals, and record at least 15 minutes of
observations. Write down everything you see. These observations should be
a combination of quantitative and narrative. Make a mini-ethogram for each
species to make recording easier. Make drawings or diagrams if they help.
Feel free to write down your thought process as you try to decide how to
categorize behaviors, or which units you will quantify.

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raven, a moose, your dog or cat... If you observe the same species more
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• Make sure each entry has the date, time, location, weather and any other
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Week 1 (Sept 13): Introduction to Animal Behavior
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   - Reading literature
   - Collecting animal behavior data
   • Field Observations: group size and vigilance
   • Analyze data
Assignment – Find 2 betta papers to discuss with group

Week 3 (Sept 27): “Choosing a topic for group project”
Paper discussion & Fish aggression??
   - Betta observations (ethogram) & potential questions
   • Paper (primary literature you found earlier) discussions in groups
   • Review of previous BIO441 projects
   • Define study question
Assignment: - 1-2 page proposal with DETAILED methods and timeline

Week 4 (Oct 4): Betta experiment *(no regular lab meeting)*
   • test feasibility, hardware
   • collect pilot data
   • reassess questions
   • collect more data
Assignment: - Draft of introduction and methods

Week 5 (Oct 11): Stats, figures and presentation
   • Work up data in computer lab
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Week 6 (Oct 18): Optimal foraging lab
   • Assess effectiveness of different foraging strategies in humans
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   • assess local resources
   • assess literature
   • review elements of experimental design
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Assignment: - Find 5 references for project
- Be prepared to bring data to next lab

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• Analyze your data and prepare results

Assignment - Study summary

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• How to make a scientific poster & why

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• In-class poster exchange and critical reading
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Week 14 (Dec 13): Poster session!

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