Objectives
Why do animals do what they do? This course will explore the ways in which scientists have found to answer this question. It will also explore the range of behavior of animals both in captivity and in the wild. Exercises on scientific writing and analysis will provide you with experience in communicating observations on the behavior of animals. Films will augment your understanding of the kinds of questions scientists ask about the behavior of animals, the techniques used to answer these questions, and the behavior of animals not normally observed on the Smith campus.

The course has no final exam.

Time and Place
Tuesdays: 1-3:50 pm; Sabin-Reed 205. Attendance is mandatory.

Personnel
Faculty: Virginia Hayssen, 236 Sabin-Reed, x3856
Email: vhayssen@science.smith.edu
Office Hours: My formal office hours are on Wednesday morning from 9 to 11 am and I teach Biodiversity, Ecology, and Conservation (Bio154) Tues/Thurs from 10:30-11:50, but I encourage you to drop by any other time Tuesday, Wednesday, or Thursday. If you prefer, you may phone or email for an appointment. Don't go away if the door is shut, just knock. I do my research on Mondays and Fridays, so please don't disturb me then. Thanks.

Course Assessment
10% Topical examinations, in class work
20% Topical directed study
15% Film analysis
20% Taxon paper
15% Observations (2 hours): squirrel, captive, inverts, birds
20% Participation: attendance, attention, focus; in class work

Text Books
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<td>12 Sept</td>
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<td>Taxon case studies – the popular view</td>
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<td>1 Film assignment</td>
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Assignments

Due date: assignment
12 Sept: (in class): what is behavior?

19 Sept: 1) Examine the table of contents of the textbooks. How are they similar? How do they differ? How does each categorize behavior? What is the organization of each book? Using all the texts create your own list of 10 topics and assign the appropriate chapters or parts of chapters to each topic. Write a 500-word description of your approach that would be an appropriate preface for a textbook using your organization. Be prepared to justify your approach to your colleagues in class.
2) Choose 3 possible taxa for your taxon case study. Come to class with the names of 3 popular press or academic books about that taxon and the names or URLs of 3 documentary or popular films about the animal.

10 weeks: Each Topical Assignment must be done at least 3 times, but you get to choose which one you do for which topic/day.

Topical assignment A: --- Lead the class --- This is a team assignment.
Choose the reading for the topic. Do the reading. Organize and run the class. 
Content scaffolding: As a team you need to choose the reading for the topic and organize who will present what material. As a team you need to choose 10 concepts of special importance to this topic, then prepare a short power point presentation explain the importance and context of each concept for this topic. Be sure to include classic examples that illustrate these concepts. This should take an hour.
Content application: Create an in-class exercise that requires students to apply the concepts you have explored in the first hour.
Examination: Create 10 short answer questions that cover the material you presented. Give that quiz to the class and grade (assess) it.
Reflection: In a 300-word essay reflect on both the content and the process of the exercise. How did you understanding of behavior change? What did you learn from the process? What additional questions do you have? What would you do differently next time?

Topical assignment B: --- Contribute to the discussion --- This is an individual assignment.
Do the reading for the topic.
Directed study: Identify 3 major questions, issues, and areas of investigation for this topic. What about an animal’s behavior are we trying to understand and why is that of importance? Choose 3 articles from the past 12 months of Animal Behaviour relevant to this topic. Write a 500-word essay exploring where the field has developed since the textbook was written as evidenced by the articles you picked. Hand in the 3 questions/issues/areas you choose, the essay, as well as citations to the articles you choose.
Examination: Create 2 11-part matching questions covering the material. Create 5 compare and contrast short essay questions appropriate to an examination of this
topic.
Topical assignment C: --- Contribute to the discussion --- This is an individual assignment.
Do the reading for the topic.
Directed study: Option 1: For this topic what sex differences to you expect and why? What age-related differences to you expect and why? What taxonomic differences to you expect and why? What ecological differences do you expect and why? Synthesize your thoughts in an illustrated 500-word essay, use pictures from any source to illustrate your points. Hand in your essay and notes on answers to the questions.
Option 2: Choose 2 papers cited by the textbooks in their discussion of the topic. Obtain and read the papers. Prepare a 300-500 word essay comparing and contrasting the material in the papers with the use of those papers in the texts. Hand in the essay.
Examination: Create 10 multiple choice questions and 10 definition questions appropriate to an examination on this topic.

5 Dec: Taxon Case study --- the science
Directed study: Prepare an oral presentation for class that examines the behavior of your taxon more or less covering the topics of the course. Indicate where a topic has not really been investigated in your taxon and suggest how study of your taxon might contribute to our overall understanding of animal behavior.
Write a 500-word essay explaining how your taxon has contributed to the study of animal behavior and how further study might contribute to the field. Be specific.

12 Dec: Taxon Case study --- the popular view
Reading: To understand an animal’s behavior you need to know how an animal understands its world. You need to know the animal from the animal’s perspective. How well can humans do that? To explore this issue, please use google find popular text about your taxon. You should also find and view a documentary or other video that focuses on that species.
Directed study: Prepare an oral presentation for class that examines what aspects of the natural history and biology of the animal the author explores ‘correctly,’ what aspects are distorted, and what aspects are not mentioned. How do the text and video compare on these issues?
Write a 500-word essay explaining your opinion on how well humans are able to understand the behavior or animals. What can we do well, what do we do poorly, how useful are our efforts for us, for our pets, for wildlife? Be prepared to discuss your
viewpoints in class augmented with quotes from the text and clips from the video to support your points.

**Current Research in Animal Behaviour**

Each of you will examine recent (from the current year) issues of the journal Animal Behaviour. Eventually each student will need copies of the table of contents (of one issue), as well as 5 complete articles of her choice, and the title page, abstract and figures from 3 additional articles. We will use the articles in class. They will provide the framework for an exploration of current research into the behavior of animals.

**Taxon Explorations**

Each of you will choose a taxon (e.g., elephant, turtle, dog, rabbit) to investigate over the semester.

For the penultimate class you will give an oral presentation to the class reviewing the behavior of your taxon. I expect you to apply the principles, theories, concepts, and categorizations from each topic we study this semester to the taxon you have chosen. You should also include a description of details of the natural history, physiology, anatomy, and life history that are important to understanding the behavior. Pick a clever title!!

Anthropomorphism (last class): Please find a documentary video/film about the taxon and a novel or similar book that focuses on the animal. You will need to summarize the behavior of species within that taxon for each of the topics we will cover in the course. Also, how is the animal’s behavior characterized in different media and for different audiences?

Novel examples:
PZ10.3.A197 Wat4 (Neilson)

PR9199.3.G658 W47 1998 (Science)

PS3611.L565 T55 2006 (Neilson)

PR6045.O72 F5 1999 (Neilson)

PS3551.U77 T56 1999 (Neilson)

PR6052.E564.K56 1999 (Neilson)

PS3555.M54 C3 2004 (Science)
******

**IF YOU HAVE ALREADY TAKEN THE ANIMAL BEHAVIOR METHODS COURSE**

**YOU ARE EXEMPT FROM THE FILMS, FIELD JOURNAL, AND OBSERVATIONS ASSIGNMENTS DESCRIBED BELOW******

**Films**

A significant component of the class will be films or videos. Some films we will view in class, most you will view on your own. My objectives for the films are varied. Some give an historical perspective on the field, some illuminate specific principles, some recreate classical experiments, some illustrate hard-to-observe behaviors or behaviors of hard-to-observe animals. Three of the titles below are series: Life of Birds, Nature of Sex, Trials of Life. The reset are single episodes.

Over the course of the semester, I want you to complete 7 film assignments chosen from the section below using the films in the table below. Note that I have provided 5 different assignments. Thus you can choose which assignments you want to do. You can do all 7 of one type of assignment or you can mix them up. I want you to spread the assignments across the semester. To facilitate this, I’m asking that at least 2 assignments be done before Fall break, at least 4 be done before Thanksgiving, and at least 1 be done after Thanksgiving. That still leaves you lots of flexibility, for instance you could do 6 assignments before Fall break.

Other expectations: I expect you to make notes and observations about each film and hand them in with the formal assignment. I expect you to use material from the films in test questions, in class discussions, and in written assignments.

If you have other suggestions for a film assignment let me know.

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<th>Call Number</th>
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<tr>
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<td>A Pageant of Grouse</td>
<td>single</td>
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<tr>
<td>QL430.215 1995</td>
<td>Incredible Suckers</td>
<td>single</td>
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<tr>
<td>QL698.3 145 1999 1-10</td>
<td>Life of Birds</td>
<td>10 episodes</td>
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<tr>
<td>QL696.S473 M373 2005</td>
<td>March of the Penguins</td>
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<td>QL737.P9 M68 1990</td>
<td>Mother Love</td>
<td>single</td>
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<td>QL761.N38 1993 1-6</td>
<td>The Nature of Sex</td>
<td>6 episodes</td>
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<td>QL751.T75 1992 1-12</td>
<td>Trials of Life</td>
<td>12 episodes</td>
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<tr>
<td>QL698.9.W553 2003</td>
<td>Winged Migration</td>
<td>single</td>
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**Film Assignments:**

- Choose a behavior in the film (not Mother Love) and draw a hypothesis about the use of that behavior in the life of the animal. Then design an experiment to test your hypothesis. Using concepts from Martin and Bateson, explain how you would measure the behavior (the dependent variable). Explain how you would define and measure your independent variable in the context of your hypothesis. Give your rationale.

- For ‘March of the Penguins’ or ‘Winged Migration’, write a 500-word position paper on whether or not the film is anthropomorphic.
- For ‘Mother Love’ write a 500-word essay on the value of the film to the study of animal behavior even though the film is clearly dated and often provokes an emotional reaction in students.

- ‘A Pageant of Grouse’ is an exploration of the evolution of behavior as Tinbergen would define it. Choose 1 behavior illustrated in the film and discuss the evolution of that behavior in the different species of grouse. [500 words]

- Pick 1 film (except ‘Winged Migration’ and ‘March of the Penguins’) and compile a list of the metaphors used to describe the behavior or biology of the animals. From that list pick 5 metaphors and explain how they are metaphors and what aspects of the metaphor are appropriate and what aspects are inappropriate in the context of understanding the behavior or biology of the animal.

**Field Observations**

Four times during the semester you will be doing observations of living animals. I want you to keep a record of your observations. Usually observations are recorded in a bound field book. Professional field books are often made of water-resistant paper and are quite expensive, but for this semester a composition book or a spiral notebook will do. Especially as you will hand in your observations as you go.

Number each page on one side. As you use each subsequent page you will need to keep track of various pieces of information in a standard manner. Start each observation on a new page. Write on only one side of the page. The back of the pages are for notes on observations when you review them at a later date.

Before you begin an observation make a map in your notebook of the environment. Note major landmarks. Be as exact as possible. Also record your location (GPS is nice!), the weather, the date, the time, and the purpose of the observation. Record your name (initials) and the names of anyone who is with you, as well. For captive observations record the set-up of the captive environment, the light regime, temperature, and other animals within the sensory purview of your study subject.

Depending on the type of observation that you are doing you may need to add vertical lines to your notebook pages. For ad lib observations, make sure you have a margin on the left side of the page to keep track of time in regular intervals. To the right of this margin you will write down (in full sentences) what you observe in precise detail as events. Your observations should be as quantitative as possible. Keep track of any changes in the environment (weather, disturbances, influences of other living things) as they happen. At the end of each observation, write a paragraph summarizing what you have observed and what you think about it in the context of why animals behave they way they do. Be sure to discuss any issues I have posed at the end of this syllabus associated with particular observations.

Hand in your observation sheets after each scheduled observation.

**Observations**

**AD LIB SQUIRREL OBSERVATION (30-MINUTES):**

Spend 1/2 hour observing squirrels (*Sciurus carolinensis*) and writing down what you see. Pay particular attention to the squirrels’ tails. Describe the positions of a
squirrel’s tail relative to its body. Describe the ways in which the tail is moved. Describe the shape and size of the tail. Describe how the tail is held when the squirrel is still vs when the squirrel moves. Describe how the tail is held when the squirrel is on the ground vs in a tree. Describe tail positions and movements when other squirrels are present. Describe tail positions and movements when people or dogs are present. Describe tail positions and movements when the squirrel is in various activities such as foraging or resting. You may find diagrams helpful.

In class, you will compare your observations with those of your classmates. Come to class prepared to hypothesize what the functions of a squirrel’s tail are. Think about how to test these hypotheses with further observations.

**AD LIB CAPTIVE OBSERVATION (30 MINUTES):**

Spend 1/2 hour (30 min, 2 x 15 min, or 3 x 10 min) observing caged animals and writing down what you see. A stall counts as a cage as does an aquarium; a room of a house does not. Describe the captive environment and what parts of the environment the animal uses. Calculate how much time the animal spends in various parts of its environment. Describe the location of each cage you observe relative to other cages. Describe the occupants of each cage you observe.

For observations of mammals: Describe the use of vibrissae/whiskers. Describe tail positions and movements. Describe ear positions and movements. Describe the locomotion of the animals. Describe how the animal uses its feet and toes and tail during locomotion. Describe how much time each animal spends oriented towards versus away from you. Note the age, sex, color morph, and group size for the occupants of each cage you observe.

For observations of other animals: Use above paragraph for mammals and make the appropriate changes in the descriptions to account for the special features of the non-mammal. For instance, substitute fins for limbs in looking at the locomotion of fish. Describe the differences between captive and field observations. Describe the similarities between the two.

**AD LIB FIELD OBSERVATIONS (1 HOUR TOTAL OVER THE SEMESTER):**

30-minute observation of invertebrates. Describe how the animal moves. Create a course-grained ethogram of the animal. Describe how much time it spends on various activities. Describe how it uses its environment. Describe the umvelt of the animal. Describe how the animal’s behavior reflects its perceptual universe. Describe the size of the animal relative to its environment. What are the major biotic and abiotic features of the environment which appear to be important to the animal? Why do you think so? Answer in your field book.

30-minute observation of birds. Describe how the animal moves. Create a course-grained ethogram of the animal. Describe how much time it spends on various activities. Describe how it uses its environment. Describe the umvelt of the animal. Describe how the animal’s behavior reflects its perceptual universe. Describe the size of the animal relative to its environment. What are the major biotic and abiotic features of the environment which appear to be important to the animal? Why do you think so? Answer in your field book.
Assessment of Observations

Assessment for each observation:
5 - complete observation
4 - minor flaws or omissions
3 - 1 major omission
2 - 2 major omissions
1 - 3 or more major omissions
0 - no observation

Components to observations:
full header info as appropriate (e.g. date, time, map, location, weather, purpose)
time record; full time used; correct format
full sentences
thorough, quantitative (body lengths, directions, distances); description of animal;
changes in conditions;
terminal wrap-up and reflection
observation meets purpose of assignment

Format for Formal Written Work

Part of your grade on any assignment will reflect how well you write and follow instructions. All your work should be presented professionally and organized logically.

In all written work you should state your thesis, define your terms, explain your perspective, provide examples in support of your ideas, and summarize your conclusions. Provide titles for all written work and include your name and the date. Please type or preferably word-process all work. Each page should be single-spaced with a jagged right border (that is do not use proportional spacing or right justification) and the following margins: one-inch top and bottom margins and 1/2 to 3/4 inch side-margins. Use pica type or a 12-point font in Times Roman (or equivalent).

Scientific names should be properly presented. Underline or italicize genera and species. All names of genera begin with a capital letter, but species names do not. Taxonomic names for higher levels are never italicized and are not capitalized when used as adjectives (e.g. canid). However, they are capitalized when used as proper names (e.g. Canidae). The names of geologic time frames (e.g. Mesozoic, Eocene) must also be capitalized.

Do not plagiarize. Cite all sources within the text and give the last name of the author and the year of the publication (e.g. Pough et al., 1999). A complete bibliography must appended to each piece of work you hand in. Personal communications may be referred to as follows (Hayssen, pers comm). The internet is not a reliable venue for information. All information you obtain from the net must be verified from a published source before you use it professionally.

Say what you mean to say and say it clearly. Use correct spelling, appropriate punctuation, clear grammatical constructions, and succinct diction. Do not use placekeepers as subjects (e.g. there are, it is, it can be shown that, etc). Instead make the true subject of the sentence the subject you use for the sentence. Proofread your paper. You will be graded on the fluidity of your composition as well as the subtlety of your comprehension. Strunk and White's "The Elements of Style" (in the bookstore or http://www.bartleby.com/141/) is a brief, excellent guide to clear writing. Pechenik’s
short guide to biological writing (on reserve) is also be helpful.

Allow time to proof your paper before you print the final version. I reserve the right to take a full point off for each incorrectly spelt word, for each non-italicized genus or species, for each capitalization error on scientific names, and for each sentence with an ambiguous subject. Check all of the following when proofing your paper: correct spelling and punctuation; genus and above taxa capitalized, genus and species italicized (or underlined), common names not capitalized; grammatically-correct sentence-structure; no ambiguous subjects (e.g., it, there); well-constructed paragraphs (topic sentence, detailed middle, transition or end); well-organized paragraph-sequence that develops the theme of the essay.

Criteria for Assessment of Letter Grades

Letter grades will be assigned as follows:

A --- Assignment completed with thought and care. Strong evidence that the student either learned something by doing the assignment or brought material learned in other lessons or courses to bear on the assignment. Assignment goes beyond simply 'doing what you are told' and instead indicates that the student thought about the reason for the assignment. Completion of the spirit as well as the letter of the law. Imagination and originality may be apparent.

B --- All required elements of the assignment completed exactly and competently. Attention to the letter but perhaps not the spirit of the assignment. No major errors present and few minor errors. Clear attention to details and format. Work has professional appearance.

C --- Up to 20% of assignment has errors or is missing components. Attention was not given to appearance and/or format. Spelling, typographic, or grammatical errors; organizational problems; or minor logical or scientific mistakes present.

D --- 20-50% of assignment missing or with numerous or significant errors.

E --- >50% of assignment missing or with abundant and significant errors.

In other words …

If you do the minimum and do it well you get a B of some sort. If your work shows that you are actively engaged with the material for its own sake and not just for 'the grade' then you are in line for a grade in the A range. C grades indicate that the work has a number of minor problems; a D indicates that the problems are significant; and an E is reserved for work which is substantially incomplete, missing entirely, or extensively flawed.

Penalties for Late Work

Unexcused late work will be penalized 10% per day late. Work which is granted an extension will be docked 5% per day past the original due date.