

ANS 6040 Concepts in Applied Ethology – Syllabus Spring 2019

Course Title

ANS 6040 Concepts in Applied Ethology (3 credits)

Course Instructor

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Office hours

I have an open-door policy. To make sure I am available, you are welcome to schedule an appointment via email.

Course Description and Objectives

This course introduces concepts and methods used to conduct research in the field of applied ethology. Course content includes an overview of mechanisms of animal behavior and approaches to measuring and modeling animal behavior. The focus is on developing skills necessary to conduct, analyze, and interpret research in applied ethology.

Upon completion of this course, students will be able to:

- Understand basic concepts in the field of applied ethology through discussion of both classic literature and current topics
- Explain and utilize principles of behavior science methodology, such as approaches to experimental design and methods of collecting behavioral data
- Critically analyze journal articles, provide clearly articulated peer review, and effectively communicate ideas in class discussions
- Apply concepts in applied ethology to interdisciplinary problems such as an animal welfare assessment
- Integrate principles covered in class in the development of a conceptual model for a behavior of interest

Time and Location

W 8:30 – 11:30 (periods 2 – 4)

L.E. "Red" Larson Dairy Science Building (Bldg 499), Room 201

CLASS STRUCTURE

Course Website on Canvas: Our course website can be found through login to CANVAS (<http://elearning.ufl.edu>). I will use CANVAS as the primary means to contact with you any important announcements. Grades and assignment feedback will also be made available to you. Resources, including the course syllabus, assigned and recommended readings, supplementary references, and lesson material, will be posted in CANVAS. The lesson material (slides presented in class, as well as other related material) will be organized by topic within modules.

If you are not yet familiar with using CANVAS, please look at the Canvas 'Getting Started' Guide: guides.instructure.com/m/8470. To make sure you are not missing any announcement, please make sure your CANVAS settings are adjusted as follows:

- Go to your general **Canvas Settings** (upper right corner within CANVAS) > **Notifications** (left menu bar) > **Notification Preferences**: here set to **"ASAP"** for (at least) Announcements.

Lectures: Topics covered in the lecture will be presented with the aid of PowerPoint slides, images, and short video clips. Questions and discussion in the classroom will also be a central part of teaching.

In-class discussion and activities: Many topics in the class will be explored through in-class discussion and activities related to assigned readings. We will both discuss together as a group and have subgroups focus and present on various topics within the context of class discussions.

Textbooks and required reading:

No formal textbook is required, but the following is recommended as a useful reference:

Martin, P. and P. Bateson. (2007) *Measuring Behaviour: An Introductory Guide*. 3rd Edition. Cambridge University Press.

Key articles, including classic papers and review articles, will supplement the textbook and be used as a basis for class discussion on important topics. Assigned readings will be made available electronically. We will discuss the following readings on dates as follows:

January 16 Duncan, I. J. H. 1995. An applied ethologist looks at the question "Why?" *Applied Animal Behaviour Science*. 44:205-217.

Manning, A., and M. S. Dawkins. 1992. *An Introduction to Animal Behaviour*, 4th Ed., Cambridge University Press, UK (Questions about animal behaviour, pp. 11-16)

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- March 13** Lehner, P. N. 1996. Handbook of ethological methods, 2nd Ed., Cambridge University Press. (A conceptual model of animal behavior, pp. 19-27, 37-45)
- Hughes, B. O., and I. J. H. Duncan. 1988. The notion of ethological 'need', models of motivation and animal welfare. 1988. *Animal Behavior*. 36:1696-1707.
- March 27** Fraser, D. 2009. Assessing animal welfare: Different philosophies, different scientific approaches. *Zoo Biology*. 28:507-518.

In addition to the core readings I will assign reading of peer-reviewed journal articles illustrating different examples of behavioral methods that we will explore in class activities and discussion. The following list is a subset of articles that will be read prior to discussion of different concepts, to provide an idea of what to expect:

- Rioja-Lang, F. C., D. J. Roberts, S. D. Healy, A. B. Lawrence, and M. J. Haskell. 2012. Dairy cow feeding space requirements assessed in a Y-maze choice test. *J. Dairy Sci.* 95:3954-3960.
- Gaskill, B. N., S. A. Rohr, E. A. Pajor, J. R. Lucas, J. P. Garner. 2009. Some like it hot: Mouse temperature preferences in laboratory housing. *Applied Animal Behavior Science*. 116:279-285.
- Gaillard, C., R. K. Meagher, M. A. G. von Keyserlingk, D. M. Weary. 2014. Social housing improves dairy calves' performance in two cognitive tests. *Plos One*. 9:1-6.
- Bolhuis, J. E., W. G. P. Schouten, J. A. de Leeuw, J. W. Schrama, and V. M. Wiegant. 2004. Individual coping characteristics, rearing conditions and behavioural flexibility in pigs. *Behavioural Brain Research*. 152:351-360.
- Neave, H. W., R. R. Daros, J. H. C. Costa, M. A. G. von Keyserlingk, D. M. Weary. 2013. Pain and Pessimism: Dairy calves exhibit negative judgement bias following hot-iron disbudding. *Plos One*. 8:1-6.

In addition to the core readings, this course will require you to read extensively on a behavior topic of your choosing and select journal articles for the assignments and journal discussion described on following pages of this syllabus.

ASSIGNMENTS AND GRADING

All activities will be graded according to rubrics posted on CANVAS. The final grade in the course will be assigned based on numeric average, as described below.

Marking scheme:

A	89.5-100%	B+	84.5-89.4%	C+	74.5-79.4%	D+	64.5-69.4%	E	< 59.4
		B	79.5-84.4%	C	69.5-74.4%	D	59.5-64.4%		

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For information on current UF policies for assigning grade points, see <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Activity	Percentage of final grade
Assignment 1: Asking questions about behavior (Written report + oral presentation)	20%
Assignment 2: Answering questions about behavior (Written report + oral presentation)	25%
Assignment 3: Journal discussion (Class discussion)	10%
Assignment 4: Modeling a behavioral system (Written paper + oral presentation)	40%
Class participation (Involvement in class discussions and activities, quality of questions)	10%

Assignments: There will be four assignments throughout the term. Three assignments will involve both a written paper and an oral presentation, and one assignment will be a student-led journal discussion. These assignments are described in detail in the following pages of this syllabus. Specific instructions for each assignment and the journal discussion will be discussed in detail in class well in advance of the due date, and numeric rubrics will be shared.

Participation: This class is heavily discussion-based, and involvement from all students is a critical component to achieving a well-balanced and interesting discussion. The grade for participation will be determined based on attendance and involvement in class discussions and activities. To achieve a good grade for participation you should plan to come to class familiar with any assigned reading and prepared to discuss your thoughts. On presentations days, be attentive to the other speakers and ask questions of the presenting student.

Absences, Make-up Work, and Late Assignments

Please speak with me as soon as possible if you know you will be absent on a presentation day, as we will attempt to reschedule you. Classroom participation is expected and encouraged and regular attendance of lectures is required to obtain a good participation grade.

It is expected that all written assignments will be received on or before the stated deadline. Please note that if you miss an assignment deadline without an approved reason, I will accept the assignment but will deduct 10 % from your grade for every day that the assignment is late.

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.

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CLASS SCHEDULE

Please note that this schedule is subject to change as we move through the term. Any significant changes will be discussed in class in advance of the lecture.

Week	Date	Lecture material
1	Jan 9	Introduction to animal behavior Why do we study animal behavior?
2	Jan 16	Asking questions about behavior - <i>Activity: student behavior topics</i> - <i>Discussion of assigned reading: Tinbergen's questions</i>
3	Jan 23	<i>Assignment 1 – Student presentations and discussion</i>
4	Jan 30	<i>Assignment 1 – Student presentations and discussion</i>
5	Feb 6	Answering questions about behavior - Approaches to measuring behavior, experimental design - <i>Activity: Designing an ethogram</i> <i>Due: Assignment 1 written summary</i>
6	Feb 13	Answering questions about behavior cont. - Measuring social behavior, designing choice tests - <i>Activity based on reading: Choice test methods</i>
7	Feb 20	<i>Assignment 2 – Student presentations and discussion</i>
8	Feb 27	<i>Assignment 2 – Student presentations and discussion</i>
	Mar 6	<i>Spring break - no class</i>
9	Mar 13	Conceptual models of behavior - <i>Discussion of assigned reading</i> <i>Due: Assignment 2 written summary</i>
10	Mar 20	Learning and cognition - <i>Activity based on reading: Measuring cognition</i>
11	Mar 27	Behavior and animal welfare - <i>Activity based on reading: Measuring affective state</i>
12	Apr 3	Animal welfare science - Approaches to assessing welfare - <i>Assignment 3 journal discussion: Current topics and methods in animal welfare science</i>
13	Apr 10	Ethics in research - Topics: peer review process, animal use in research - <i>In-class activity: Peer review</i>
14	Apr 17	<i>Assignment 4 – Student presentations and discussion</i>
15	Apr 24	<i>Assignment 4 – Student presentations and discussion</i>

OTHER IMPORTANT INFORMATION

Academic Honesty

As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.” You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment."

It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: <http://www.dso.ufl.edu/SCCR/honorcodes/honorcode.php>.

Software Use

All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

Campus Helping Resources

Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

Health and Wellness

U Matter, We Care:

If you or a friend is in distress, please contact umatter@ufl.edu or 352 392- 1575 so that a team member can reach out to the student.

Counseling and Wellness Center:

<http://www.counseling.ufl.edu/cwc/Default.aspx>, 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

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Sexual Assault Recovery Services (SARS)
Student Health Care Center, 392-1161.

University Police Department, 392-1111 (or 9-1-1 for emergencies).
<http://www.police.ufl.edu/>

Academic Resources

Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling.
<http://www.crc.ufl.edu/>

Library Support, <http://cms.uflib.ufl.edu/ask>. Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring.
<http://teachingcenter.ufl.edu/>

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers. <http://writing.ufl.edu/writing-studio/>

Student Complaints Campus:
https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf

Services for Students with Disabilities

The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation

0001 Reid Hall, 352-392-8565, www.dso.ufl.edu/drc/

Online Course Evaluation Process

Student assessment of instruction is an important part of efforts to improve teaching and learning. At the end of the semester, students are expected to provide feedback on the quality of instruction in this course using a standard set of university and college criteria. These evaluations are conducted online at <https://evaluations.ufl.edu>. Evaluations are typically open for students to complete during the last two or three weeks of the semester; students will be notified of the specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results>.

ASSIGNMENT 1 - Asking questions about animal behavior

This assignment will focus on developing questions about animal behavior. As background for this assignment, review in-class discussion and assigned reading on Tinbergen's questions about animal behavior.

- Choose a behavior topic that is relevant to your research or of interest to you
- Select four peer-reviewed journal articles related to your behavior of interest, which each utilize a different approach (addressing each of Tinbergen's questions)

Written assignment (80% of assignment grade)

For each paper, provide the full reference and write a short paragraph describing the study. Answer the following questions:

- What is the research problem?
- What is the research question?
- What is the background and justification for the research question, or how was it developed?
- What approach is used in the study, and how is it used?
- Why do you think this approach was used? How does it contribute to our understanding of the behavior?

Oral presentation (20% of assignment grade)

Prepare a 15 minute class presentation (PowerPoint optional).

Describe the behavior topic that you have chosen: who, what, when, where? What is the applied context of the behavior, or why is it of interest in industry or captive environments?

For one of the papers you selected for the written assignment, share your answers to the questions with the class.

Oral presentations will be during class on January 23 and 30.

Written assignment is due on February 6 by the start of class.

ASSIGNMENT 2 – Answering questions about animal behavior

This assignment will focus on experimental design and approaches to studying and measuring behavior.

Written assignment (80% of assignment grade)

You will be assigned two papers. For each paper, answer the following questions:

- What are the objectives and hypotheses?
- Is this study observational or experimental?
- What are the independent variables?
 - Was natural variation used or were the variables artificially manipulated?
 - How were the variables manipulated?
- What are the dependent variables?
 - What were the measurable units?
 - Were the measurable units well defined?
 - How were those units expressed in the results?
- Was there any confounding of variables or were there nuisance variables?
 - Where those variables considered? How were they dealt with?
 - Do you think they affected the internal or external validity of the study?
- What was the experimental design (e.g. one factor, two factor, repeated measure)?
 - What was the experimental unit?
 - What were the sample sizes?
- What sampling methods were used for behavioral data?
 - Were there any limitations to the sampling method chosen?
- Did the experimental design and data collection methods allow testing of the hypotheses, and were the objectives met?
- What do you think were the weaknesses of the experiment?
- How would you improve the experimental design or data collection?

Oral presentation (20% of assignment grade)

For one of the papers you are writing about, prepare a 15 minute class presentation (PowerPoint optional).

Provide a brief overview of the topic covered in the paper, and describe the materials and methods. Share your answers to the assignment questions with the class.

Oral presentations will be during class on February 20 and 27.

Written assignment is due on March 13 by the start of class.

ASSIGNMENT 3 – Animal welfare journal discussion

For this assignment, you will work in pairs and lead a class discussion surrounding a peer reviewed journal article. Select a current article (published in the last 5 years) which focuses on what you consider to be a current topic of importance related to animal welfare and employs a behavioral approach to address it. For example, the experiment may evaluate behavioral indicators of welfare in certain circumstances, or approaches to improve welfare by drawing on what is known about behavior. Please have me approve your paper 1 week before the discussion date. You will provide your paper to the class for reading in advance of the discussion.

For your class discussion, please work together in your groups to prepare to discuss the following points to guide the class session.

- Introduce your paper topic: why is this topic currently relevant? (Consider reading beyond your manuscript to obtain a grasp of the current relevance of this topic. For example – if your topic concerns disbudding in the dairy industry, you should know what is common practice on-farm.) What is the welfare issue, and how does it relate to our definition of animal welfare?
- What methods were used to measure animal behavior, and how did they relate to assessing animal welfare?
- How can conclusions drawn from this study be applied to improve animal welfare?
- Discuss briefly limitations of the study and critique the experimental design. Discuss ethics of animal use in this study: were any of the study procedures likely to impair welfare? Was animal use approval stated?
- Anything else you think of! Different journal articles may generate different interesting avenues of discussion.

Your grade will depend on the quality of the discussion points you have prepared for class, and preparedness in guiding the class through the discussion.

As a *participant* (i.e. when your classmates are leading the discussion) your involvement will contribute to your participation grade.

Journal discussions will be during class on April 3.

ASSIGNMENT 4 – Modeling a behavioral system

This assignment will combine what you have learned about asking and answering questions about behavior in the development of a conceptual model and experiment for a behavior topic of interest. Your assignment will consist of: a review of the literature concerning your behavior topic, a conceptual model of your behavior, and a proposal for an experiment.

Written assignment (80% of assignment grade)

- Prepare a review of the scientific literature concerning your behavior topic.
 - What do we know about why, when, and how it occurs?
 - Discuss internal mechanisms and external stimuli that elicit the behavior, as well as other factors which influence it (e.g. genetic effects, development). What are the consequences of the behavior?
 - The content and focus of your literature review will depend on your particular behavior topic.
 - Your literature review draft may be submitted for feedback by April 10
- After completing your literature review, incorporate information you have collected into a visual representation of what we know about the causation of the behavior.
 - Refer to conceptual models discussed in class as well as assigned reading. You may either adapt an existing model or develop an original model to suit your behavior topic.
- Identify gaps in our knowledge about the behavior and develop and discuss 3-4 questions that remain to be answered.
- Choose one of the questions you have identified and design an experiment to answer that question.
 - Describe the objectives and hypotheses
 - Explain how you would collect and analyze the data

Oral presentation (20% of assignment grade)

Prepare a 25 minute mini-lecture (using PowerPoint if you wish), providing an overview of what your written presentation will cover to educate your classmates about your behavior topic.

As a member of the audience, while your classmates present, you are encouraged to prepare questions. After each presentation, we will have 10 minutes for questions and general discussion. In part, this will serve to help each other refine our conceptual models and proposed experiments as the written paper is finalized.

Literature review drafts should be submitted for feedback by April 10 (optional).

Oral presentations will be during class on April 17 & 24.

Final written papers are due on Tuesday, April 30 by the end of the day.