

Dr. Tom Langen: tlangen@clarkson.edu, phone 268-7933,

OPEN OFFICE HOURS: Mon 2:00-4:00, Wed 2:00 – 3:00, Fri 3:00-4:00 in Science Center 163, 170G

TEXT: MD Hauser: *Wild Minds*; CDL Wynne *Animal Cognition – Mental Lives of Animals*; JJ Bolhuis, LA Giraldeau *The Behavior of Animals*.

MEETINGS: Mon-Wed-Fri @ 10:00-10:50PM PM in Science Center 354

COURSE OBJECTIVES: *Animal Learning & Cognition* is focused on how animals acquire, modify, store, and recall information about the environment or social partners to make adaptive decisions. This topic is an inherently difficult one: to investigate the contents of the minds of animals, one must confront difficult issues in the methodology of science *and* the philosophy of mind. An understanding of animal cognition, although interesting in its own right, also has important applications for understanding human cognition and cognitive neuroscience, designing intelligent robots, investigating human health, conserving endangered species, and assuring animal welfare.

By the end of this course, you will (1) be able to explain the conceptual and methodological problems associated with investigating animal (and human) cognition, (2) evaluate the evidence for a unified theory of animal cognition based on universal, general processes versus taxon-specific adaptive cognitive specializations, (3) articulate the most important questions that remain to be answered in the field of animal learning and cognition (4) have learned how to intellectually discuss and critique an academic and popular scientific work and (4) write an academic book review.

LECTURES: Lectures will be illustrated by PowerPoint presentations. Lecture notes will be placed on the web at Blackboard. These pages will be made available by the morning of the lecture for printing before class. However, THE NOTES ARE NO SUBSTITUTE FOR ATTENDING LECTURE. Attendance is expected- if you must miss class, please submit a note with the date and excuse for my records.

TEXTBOOK READINGS: It is essential to read the assigned material to do well in this course. The textbook readings complement the lectures, often providing essential background. I will use assigned readings in class discussions.

VIDEO: Every two weeks, I will assign one video that provides supplementary material on a course topic. The video can be seen on **Clarkson Closed-circuit Television Channel 98**, and will run Mon & Wed 8:00 PM. Each video runs one hour. Get together with some friends, pop some popcorn, open a can of your favorite beverage, and enjoy! Viewing the video is mandatory, since it will be used as a basis of discussion. If you do not have access to the video because you live off campus or other reasons you have two options: (1) Bring a blank video to class and have a classmate record it on his/her VCR or (2) Watch the video in the Clarkson Library. All videos will be placed on reserve in the library after they have been shown.

Course Extra Credit: You will receive 4 points extra credit (equally to the highest weekly discussion participation grade) if you write a review of the video. This review must include (1) a summary of what the video was about (1-2 paragraphs) and (2) your evaluation of the video (1-2 paragraphs), e.g., *Is it informative? interesting? thought-provoking? If so, why?* This will be added the Class Participation category of your grade.

DISCUSSIONS: I will reserve time every week for an in depth discussion of the text readings and video. You should jot down notes and questions when watching the video and reading the text, and be prepared to actively participate in the discussions. I will evaluate students every week on participation; you will receive a grade of 0 – 4, where 0 = not present, 1 = unprepared & uninvolved, 2 = unprepared but adequately involved, 3 = adequately prepared and involved, 4 = excellent preparation and involvement.

BOOK REPORT: You will read one additional book on animal cognition, besides the three assigned for this course. The book will either focus on cognition in a well-studied taxon (e.g. raven, primate, dolphin, domestic animal), or on a particular ‘philosophical’ issue (awareness, suffering, intentionality). You will then write a review of the book, using a format similar to a standard academic journal. By the third week of class, I will present a list of potential books and guidelines for the assignment.

EXAMS: All exams are take-home written exams. They are ‘open book’ and include material from the lectures, readings, discussions and videos. Generally, you will have one week to complete them. While you may use any materials, you may not consult with any members of this class or students who have taken this class in the past. Forbidden acts include asking someone where to find material in the readings or course notes, asking someone to explain some notes that are unclear to you, ask someone to clarify the meaning of a question, looking over someone’s answers on an exam from a previous semester etc. If you are going to share notes, do so BEFORE I distribute the exam. If you have any questions about the exam, promptly contact me.

Requests for regrades must be submitted *in writing* within one week of receiving the graded exam. A grading key will be posted, please refer to it before making a regrade request that is not due to clerical error (i.e. I added the points incorrectly). Exams cannot be made up except under extraordinary circumstances. Discuss any conflict with me ASAP.

COURSE COMMUNICATION: I will post announcements on Blackboard. I will also update the syllabus from time-to-time. Grades will be posted on Blackboard. I will contact by email, using your Clarkson email account. Be sure to use your Clarkson account, if you want to receive your messages.

GRADES: The grades will be based on two midterm exams (15% grade per exam), the book review (20% of grade), class participation (20% of grade), and one cumulative final (30% of grade). There are no ‘A’ exemptions for the final exam. Course grades are calculated by converting the points earned within each category to the proportion of possible points, then multiplying that proportion by its weighting. For example, if the first midterm is worth 150 points, and you receive 125 points on it, when figuring your final course grade I will calculate: $(125/150) * 0.15$. It is possible, if you do extra-credit, to get credit for more than 100% of the possible points of a category. Grades will be based on a percentage of the total points, scaled to meet the above breakdowns: 90% or greater = A, 86-89% = B+, 80-85% = B, 76-79%=C+, 70%-75% = C, 66-69% = D+, 60-65% = D, 59% or less = F. However, I reserve the right to curve down (lower the grade cutoffs) if I judge it warranted. In the past, I have gone as low as 85% for an A.

MISC. POLICY: I teach on all days that classes are in session – in other words, I do not cancel classes before or after midterm breaks, nor do I schedule makeup exams to accommodate students’ travel plans. You are responsible for the consequences of missing class.

I take a serious view of cheating, forbidden collaboration, and plagiarism on exams and assignments. You will be asked to sign a class Honor Code statement. If I do detect cheating by you, you will receive a zero on the exam, paper or homework assignment, and your name will be submitted to the Clarkson University Academic Integrity Committee.

Tentative Semester Schedule

| <i>WEEK</i> | <i>DATE</i> | <i>TOPIC</i> | <i>CHAPTER</i> | <i>VIDEO</i> |
|-------------|-------------|---|----------------------|---------------------------|
| 1 | 1/13 | Introduction to ALC | Wynne: 1 | |
| 2 | 1/16 | History of the Field | Bolhuis: 1 | |
| | 1/18 | Methodological Issues | Bolhuis 15 | |
| | 1/20 | Discussion | | Brain Power |
| 3 | 1/23 | Methodological Issues | Bolhuis: 3 | |
| | 1/25 | Discussion | Hauser: Prologue & 1 | |
| | 1/27 | Biological Foundations of Behavior | Bolhuis: 4 | |
| 4 | 1/30 | Biological Foundations of Behavior | Bolhuis: 5 | |
| | 2/1 | Discussion | Hauser: 2 | |
| | 2/3 | Perception & Attention | Bolhuis: 2 | (Finding Food) |
| 5 | 2/6 | Habituation, Sensitization | | |
| | 2/8 | Imprinting | Bolhuis: 6 | |
| | 2/10 | Discussion | | Do Animals have Emotions? |
| 6 | 2/13 | Break | | |
| | 2/15 | Discrimination & Categorization | | |
| | | First Midterm Distributed | | |
| | 2/17 | Discussion | Hauser: 3 | |
| 7 | 2/20 | Instrumental Learning | Bolhuis: 7 | |
| | | First Midterm Due in class | | |
| | 2/22 | Instrumental Learning | | |
| | 2/24 | Associative Learning | Wynne: 3 | |
| 8 | 2/27 | Learning cont'd | | |
| | 3/1 | Memory | Wynne: 6 | |
| | 3/3 | Discussion | | Are Animals Intelligent? |
| 9 | 3/6 | Memory | | |
| | 3/8 | Time, Number & Order | Wynne: 5 | |
| | 3/10 | Discussion | Wynne 7 | Animal Consciousness |
| 10 | | Spring Break | | |
| 11 | 3/20 | Orientation & Navigation | Wynne: 4 | |
| | | Second Midterm Distributed | | |
| | 3/22 | Orientation & Navigation | | |
| | 3/24 | Discussion | Hauser: 4 | (Finding the Way) |
| | | Second Midterm Due in class | | |
| 12 | 3/27 | Social Learning | Wynne: 2 | |
| | 3/29 | Discussion | Hauser: 5 | |
| | 3/31 | Social Learning | Bolhuis: 8 | (Living Together) |
| 13 | 4/3 | Social Learning & Animal Culture | | |
| | 4/5 | Discussion | Hauser: 6 | |
| | 4/7 | Theory of Mind | | |
| 14 | 4/10 | Communication – the Fundamentals | Bolhuis: 10 | |
| | 4/12 | Discussion | Hauser: 7 | |
| | 4/14 | Design of Signals | | (Talking to Strangers) |
| 15 | 4/17 | What do Animals Communicate? | Wynne: 8 | |
| | 4/19 | Discussion | Hauser: 8 | |
| | 4/21 | Talking Apes & Dolphins? | | |
| 16 | 4/24 | Synthetic Theory of Animal Intelligence(s)? | Wynne: 9 | |
| | 4/26 | Discussion | Hauser: 9 & Epilogue | |
| | 4/28 | Course Wrap-up & Review | | |
| | | Book Review due in class | | |
| | | Final Distributed | | |
| 17 | | Final Due 4:00 PM Thu May 4 | | |