Cognitive Ecology BZ 505

Course Description and Objective: Merging evolutionary ecology and cognitive science, cognitive ecology investigates how interactions with natural habitats shape the animal mind, and how constraints on nervous systems drive and limit animal behavior. In this course, students will learn the basic mechanisms underlying animal cognition and how animals use them to perceive and navigate their environment. Students will become acquainted with the literature, theory, and research methods in the field, developing their abilities to critically analyze novel scientific approaches and engaging in scientific discourse.

Instructor: Dhruba Naug
Meeting Time and Place: 0930-1045 TR, NATRS 115
Office Hours: By appointment

Background Reading: Cognition, Evolution, and Behavior by Sara Shettleworth, Oxford University Press.

Evaluation:
Method of evaluation: Students will be evaluated based on the following criteria:

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
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<tbody>
<tr>
<td>Midterm Exam</td>
<td>30 pts</td>
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<tr>
<td>Final Exam</td>
<td>30 pts</td>
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<tr>
<td>Term Paper &amp; Presentation</td>
<td>30 (20 + 10) pts</td>
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<tr>
<td>Participation</td>
<td>10 pts</td>
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<tr>
<td>TOTAL</td>
<td>100 pts</td>
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Letter grades will be assigned based on percentage of total points attained:

Grades:
- >= 90% A
- >= 80% B
- >= 70% C
- >= 60% D
- < 60% F

Exams will consist of questions requiring short (paragraph-length) answers in clear, correct English. The exams will evaluate your understanding of the course material and your ability to synthesize the concepts presented in the course, and therefore you might be required to apply concepts learned in the class to novel scenarios. Answer a question giving the relevant, important points and not by writing everything you know about the topic, writing long answers is not necessarily going to earn you higher points.

The term paper (due on November 15) will be 4 pages long, single-spaced in Arial 11 Font, with about ¾ page of bibliography. You can pick one of the topics we cover in the class and you should provide an overview of the topic and your own perspective of it. You must go through original peer-reviewed research articles (not popular articles or web-based resources) and cite
them to prepare your paper. Cite references in the text by name and year in parentheses, such as (1) This result was later contradicted by Becker and Seligman (1996) or (2) This effect has been widely studied (Abbott 1991; Barakat et al. 1995). The reference list entries should be alphabetized by the last names of the first author of each work, such as:

You will make a PowerPoint presentation (15 minutes = 10 min. talk + 5 min. for questions) on one of the research articles you have used to prepare your term paper. Your presentation will be graded primarily on how well you present the material and handle questions and not on how flashy your visual aids are. In the presentation, you will discuss the background, the hypotheses tested, the methods used, and the results with their interpretation. **These presentations will begin the week of November 17.**

**Tentative Course topics/Weekly schedule:**
- Week 1. Cognition and the Study of Behavior
- Week 2. Evolution, Behavior and Cognition
- Week 3. Perception and Attention
- Week 4. Learning
- Week 5. Learning
- Week 6. Memory
- Week 7. Discrimination, Classification, and Concepts

**Midterm exam (October 15)**
- Week 8. Spatial Cognition
- Week 9. Timing
- Week 10. Numerical Competence
- Week 11. Foraging, Planning, Instrumental Learning, Tool Use
- Week 12. Social Intelligence
- Week 13. Social Learning
- Week 14. Communication and Language
- Week 15. Summing up: The Animal Mind

**Final exam (December 17, 6:20-8:20p)**

Academic Integrity is integral to scholarship and true learning. I want to emphasize that by signing on for this class you are pledging that you will not receive or give any unauthorized assistance in exams and other assignments. You can learn about what constitutes academic integrity at [http://learning.colostate.edu/integrity/index.cfm](http://learning.colostate.edu/integrity/index.cfm), the class will adhere strictly to these university policies.