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The study of animal cognition is an important and exciting subfield in Cognitive Science. To what extent, if any, do nonhuman animals possess complex cognitive capacities? To what extent, if any, do nonhuman animals have a theory of mind (an ability to represent and reason about the mental states of others)? Can dolphins, chimpanzees, or bonobos comprehend or communicate human language? Might some animal communication systems contain key elements of language and perhaps provide insight into the evolution of human language? What are the best experimental methods for addressing such questions? How do answers to these types of questions inform issues related to the ethical treatment of nonhuman animals? Although this class will be highly interdisciplinary – drawing from fields such as linguistics, philosophy, psychology, evolutionary biology, and cognitive ethnology – it will not assume background knowledge in any of these areas. The course will be discussion oriented. Many of the readings will be scholarly articles from scientific journals.

Programmatic Learning Goals for the B.S. In Cognitive Science
By the end of the Cognitive Science Major, students will...
1. Communicate scientific ideas and methods (i.e., discuss and solve scientific problems and/or provide data or arguments in support of a scientific hypothesis) clearly and effectively, both orally and in writing. (Gen Ed Goal 1)
2. Critically assess scientific research (primary source articles and/or lab reports), methods, and/or problem solving related to cognitive science, linguistics, and speech pathology. (Gen Ed Goal 2)
3. Synthesize multiple methodological or disciplinary research perspectives to analyze a scientific problem and make improvements that advance the issue, debate, or research. (Gen Ed Goal 3)

Learning Goals for CGSC 404
By the end of this course, students will be able to...
1. Communicate scientific ideas and methods clearly and effectively, both orally and in writing. (Gen Ed Goal 1)
2. Critically assess scientific research (primary source articles), methods, and/or problem solving related to animal cognition. (Gen Ed Goal 2)
3. Synthesize multiple methodological or disciplinary research perspectives to analyze a scientific problem and make improvements that advance the issue, debate, or research. (Gen Ed Goal 3)

Required Texts & Other Resources
1. The Great Ape Project, Cavalieri, P. & P. Singer (eds): Available at the University Bookstore.
3. Articles on SAKAI: All of the readings for this course are available on Sakai. They can be found by following the Resources link and looking in the 'Readings' folder. You can login to Sakai at: https://sakai.udel.edu/portal. You can print these from the library for 4 cents a page. This is true, whether you print single or double sided. I have provided a handout with tips on saving printing costs.
4. Other Resources on Sakai: Follow the resources 'Resources' link and you will find folders titled 'Syllabus,' 'Class Schedule,' 'Handouts & Assignments,' 'Readings,' 'Audio Podcasts and Videos,' and 'Resources for Honors Students.' Within each folder there will be important materials for the class. Please check this site on a regular basis.

Exams, Expectations, and Other Logistics
1. Office Hours: Tuesdays, After Class. We will meet either in the classroom or my office. Let me know via email, if you would like to meet and we will choose a convenient location.
2. Exams: Required for successful completion of this course will be two in-class exams and one paper. Each will be worth 1/3 of your final grade. The last exam will not be cumulative.
3. Homework, Attendance, and Participation: These elements are required and failure to meet them will count against your final grade. I will take attendance daily. You are allowed two absences (excused or unexcused) without penalty. Homework assignments will be announced in class and will be posted on Sakai (under the Resources link).
4. Class Schedule: A schedule of readings, handouts, assignments, and exam dates will be posted on Sakai. Please follow the resources link and look for the folder titled 'Class Schedule'.
5. Missed Exams or Paper Deadlines: I do not allow make-up exams or late papers, unless you have cleared it with me in advance. If you miss a deadline because of illness or family emergency, I will expect a note excusing your absence.
6. Extra Credit: There will be no extra credit exams or assignments.
7. Class Notes & Overheads: I do not distribute my notes or overheads. If you miss a class, please get the notes from another student. If you have specific questions once you have reviewed them, I will be happy to meet with you in office hours.
8. Cheating and Plagiarism: These are very serious offenses and will not be tolerated. If a student is found guilty of either, he or she will fail the course. If you have any doubts about what constitutes cheating or plagiarism, please see the section on ‘academic honesty’ in the Academic Code of Conduct: http://www.udel.edu/stuguide/08-09/code.html#honesty.

9. Final Grades: I will assign final grades according to the following scale:

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<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>A</td>
<td>94% and above</td>
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<td>A-</td>
<td>90-93%</td>
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<td>B-</td>
<td>80-83%</td>
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<td>B</td>
<td>70-73%</td>
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<td>C</td>
<td>60-63%</td>
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<tr>
<td>C-</td>
<td>59% &amp; below</td>
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Topics & Readings:

Background on Evolution

PBS, “Evolution of the Human Eye”
Campbell, “On the Origin of Darwinism”
Buller, “Evolution,” pp. 17 – 37

- Note: You do not need to copy the whole Buller article; only the selected pages listed above.

Sober, “What is Evolutionary Theory,” pp. 7 -14 & 18 - 22

- Note: You do not need to copy the whole Ridley article; only the selected pages listed above.

Byron, “Perspectives: A Description of Fossil Hominids and their Origins”


- Note: You do not need to copy the whole Ridley article; only the selected pages listed above.

Evolutionary Continuity and Convergent Evolution

Emery and Clayton, “The Mentality of Crows”
-- Betty Videos
Tomassello & Call, “Tools & Causality”
Osvath, “Spontaneous Planning for Future Stone Throwing by a Male Chimpanzee”
Ballentyn, “Planning of Apes”

Animal Communication & Human Language

Fromkin, “What is Language”
UPENN, “First Language Acquisition”
Herman, “Intelligence and Rational Behavior in the Bottlenosed Dolphin”
-- Video, Herman’s Research on Language Comprehension in Dolphins
Pepperberg, “Intelligence and Rationality in Parrots”

- Two Videos of Alex the Grey Parrot

Savage-Rumbaugh, et al., “Language as a Window on Rationality”
-- Panbanish Video
Cheney & Seyfarth, “Communication”
-- Seyfarth Video

Marcus, “Startling Starlings”
Osterhout, “Birdsong and Human Language”
Gentner, “Recursive Syntactic Pattern Learning...”
Balter, “Animal Communication Helps Reveal Roots of Language”
Arbib, “From Monkey-Like Action Recognition to Human Language”

Theory of Mind

Cheney & Seyfarth, “Theory of Mind”
-- Cheney Video
Tschudin, “Belief Attribution Tasks With Dolphins”
Tomassello & Call, “Do Chimpanzees Know What Others See?”
Hare, et al., “Chimps Know What Conspecifics Do and Do Not See”
Povinelli & Vonk, “We Don’t Need a Microscope...”

Ethical Treatment of Nonhuman Animals

Singer, “All Animals are Equal”
Rachels, “Why Darwinians Should Support Equal Treatment for Other Apes”
McGinn, “Apes, Humans, Aliens, Vampires and Robots”
Diamond, “The Third Chimpanzee”
-- Various Articles on Haist
DeGrazia, “On the Question of Personhood Beyond Homo Sapiens”
Miles, “Language and the Orang-utan: The Old ‘Person’ in the Forest”

Note: You do not need to copy the whole Buller article; only the selected pages listed above.