PSYC489R: Human and Animal Intelligence

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campus map

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pronouns: she/her

Contents

1 Course Description 2
2 Required Materials 2
3 Prerequisites 2
4 Course Objectives 3
5 Assessments & Activities 3
6 Grading Policy 5
7 Campus & Course Policies 6
8 Resilience and Academic Success 7
9 Basic Needs & Security 8
10 Inclusive Learning Environment 8
11 Names/Pronouns & Self Identifications 8
12 Course Outline 9

1 Course Description

> "The difference in mind between man and the higher animals, great as it is, certainly is one of degree and not kind".
>
> – CHARLES DARWIN
> (Charles Darwin 1972 [orig. 1871] p105)

To investigate the contents of the minds of animals, one must confront difficult issues in both the methodology of science and the philosophy of mind. How do we define and measure intelligence in humans and other animals? What are some of the methodological and ethical challenges we face when attempting to measure intelligence? The subject of the course touches upon a broad range of topics from cognition, animal behavior, philosophy, psychology, and linguistics. Through lectures, discussions, and critical evaluation of opposing arguments, we will investigate cognition from an evolutionary perspective.

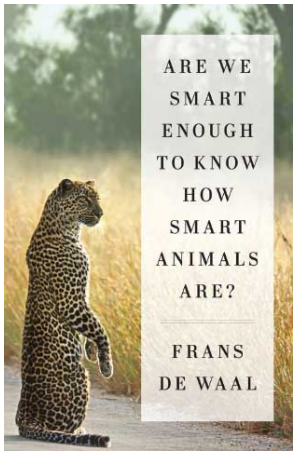
Some of the questions we will discuss in the course are:

- What is intelligence and how to we evaluate it?
- Are humans unique in their intelligence compared to other animals? If so, how?
- What about to artificial intelligence? Are human minds comparable to computers?

An understanding of animal cognition also has important applications for understanding cognition in general, the design of robotic controls, investigating human health, conserving endangered species, development of artificial intelligence, and assuring animal welfare.

2 Required Materials

The lectures in this course are based on a variety of materials and numerous texts. The following book is required. Other readings and excerpts will be posted or linked to on ELMS.



Are We Smart Enough to Know How Smart Animals Are?
Frans De Waal
ISBN-13: 978-0393353662
ISBN-10: 0393353664

3 Prerequisites

Prerequisites: PSYC300 or permission of the instructor.

4 Course Objectives

After taking this course, students should be able to do the following:

1. **Explain** the conceptual and methodological problems associated with investigating animal cognition
2. **Describe** key findings and theories in the field of comparative cognition
3. **Articulate** several important questions that remain to be answered in the field of animal cognition
4. **Critique** academic and popular scientific works related to animal cognition

Psychology Program Learning Objectives

In addition to the specific course content learning goals, this course includes assessments and activities designed to help meet the learning objective's of the psychology major.

1. **Describe** key concepts, principles and themes in human and animal cognition.
2. **Describe** applications of the study of animal cognition.
3. **Use** scientific reasoning to interpret psychological phenomena
4. **Engage** in innovative and integrative thinking and problem solving
5. **Demonstrate** effective writing for different purposes
6. **Exhibit** effective presentation skills for different purposes
7. **Apply** psychological content and skills to career goals

Course Assessments have been designed to meet the above learning objectives.

5 Assessments & Activities

Lecture structure

The course structure is based on research that in-class activities and low-stakes assessments used during classroom time promotes learning and that small amounts of studying and review over time is more beneficial to learning than cramming (Dempster, 1988; Novak, 1990; Sisti, Glass & Shors, 2007). Lectures will include periods of traditional presentation of content material based on the assigned text as well as gathered from a variety of other textbooks and internet sources. Periods of class time will also be devoted to quizzes, worksheets, case studies, and discussions. Students will be responsible for material covered in assigned readings and lectures. Lecture power points will be posted to ELMS.

Blended Learning Activities

This is a blended learning course that meets twice a week in-person. For the blended learning component, weekly written assignments are due every Friday at the end of class time (5 pm). Assignments may be submitted earlier. However, **late assignments will loose 10% of the total assignment grade for each day they are late starting immediately after the deadline.**. Blended learning assignments will follow a general read-think-apply format. Students will need to read (or watch) some assigned materials and then demonstrate conceptual knowledge by applying information learned in new ways. See the course outline and modules on ELMS for more details on each assignment. Blended learning assignments may be submitted through ELMS, or as a shared (with Dr. Chicoli) webpage that you build on throughout the semester.

Exams

The intention of the exams are to assess your understanding of the material (reading and in-class) as well as your critical thinking. The exams will be directly tied to the course objectives and the specific learning objectives of the course. Exams will include a mixture of objective questions, including multiple choice, true or false, fill in the blank, as well as free response.

Make-up examinations will be given only for University approved reasons. Please refer to the most recent UMCP catalog for details. **There will be no make up assignments for the blended learning assignments**.

Final Project

The project serves several learning objectives. This semester-long project will be performed in small groups of 3–4 students (see: Life Science Education Guide to Group Work).

After consultation with Dr. Chicoli, each group will select a topic related to course content. This could be something discussed in class that you will research in more depth, or something you are interested in that we do not have time to cover. For example, you might want to review and critique literature of cognition in cephalopods or insects, or you mind want to delve into the field of artificial intelligence.

While you will work in a group on a related topic, grades will be a function of the amount of effort and individual contribution made. As a group you will work on a similar theme, divide into specific aspects to research and consult and discuss with each other your results. For example, if you choose to investigate cognition in cephalopods, perhaps one group member investigates problem-solving, another the ecology and "Umwelt" of cephalopods and a third aspects of sociality and a fourth research on pain perception and use in research. Thus, you will work together but receive individual grades.

The final project must consist of a formal write-up with proper referencing and be visually appealing as well. The project should be turned in via an Adobe Spark page or Google website. (I am open to other suggestions as long as all group members agree and can edit the webpage and as long as I can view easily throughout the semester to provide feedback). Additionally, students will be required to make a short (less than 5 minute) video summarizing the main points of their paper to be included in the webpage. Final presentations of the project will take place during the scheduled final exam.

There will be in-class time devoted to working on the final project, although additional time will be required outside of class. On the syllabus there are scaffolded assignments that are expected to be submitted at the end of class time. This will allow me to provide timely feedback on your work and help ensure that the project is being completed on schedule. You will not receive grades for these scaffolded assignments, but **it is important that you submit the assignments on time and read the feedback given otherwise you risk loosing significant points on the final assessment**.

** With student permission (all group members must agree), the final projects may be used as a resource for other learners under a creative commons license. Be sure to only use photos, videos, words that are yours or available for use under a creative commons license in your work regardless. **

6 Grading Policy

Grades are not given, but earned. Your grade is determined by your performance on the learning assessments in the course and is assigned individually (not curved). If earning a particular grade is important to you, please speak with me at the beginning of the semester so that I can offer some helpful suggestions for achieving your goal.

All assessment scores will be posted on the course ELMS page. If you would like to review any of your grades (including the exams), or have questions about how something was scored, please email me to schedule a time for us to meet in my office.

I am happy to discuss any of your grades with you, and if I have made a mistake I will immediately correct it. Any formal grade disputes must be submitted in writing and **within one week** of receiving the grade.

Final letter grades are assigned based on the percentage of total assessment points earned. To be fair to everyone I have to establish clear standards and apply them consistently. It is unethical to make exceptions for some and not others. **Grades will not be rounded up**. If you earn a 97.9%, you have earned an A in the course. Incomplete grades, which are awarded at the end of the semester, will not be given based on unsatisfactory performance. Students who are performing poorly should be mindful of the deadline to drop a course. You are encouraged to consult with me well in advance.

The following grading scheme will apply:

Letter Grade	Percentage Range	Letter Grade	Percentage Range	Letter Grade	Percentage Range
A^+	$98.0 - 100\%$	C^+	$77.0 - 79.9\%$	F	$0 - 59.9\%$
A	$93.0 - 97.9\%$	C	$73.0 - 76.9\%$		
A^-	$90.0 - 92.9\%$	C^-	$70.0 - 72.9\%$		
B^+	$87.0 - 89.9\%$	D^+	$67.0 - 69.9\%$		
B	$83.0 - 86.9\%$	D	$63.0 - 66.9\%$		
B^-	$80.0 - 82.9\%$	D^-	$60.0 - 62.9\%$		

- **35%** of your grade will be determined by blended learning assignments (14 assignments – 2.5% each assignment)
- **45%** of your grade will be determined by 3 in-class midterm exams (15% each)
- **20%** of your grade will be determined by your score on the final project (10% final paper, 10% video/oral presentation)

Marking System

The University's marking system is as follows:

- A+, A, A- denotes excellent mastery of the subject and outstanding scholarship
- B+, B, B- denotes good mastery of the subject and good scholarship
- C+, C, C- denotes acceptable mastery of the subject
- D+, D, D- denotes borderline understanding of the subject, marginal performance, and it does not represent satisfactory progress toward a degree
- F denotes failure to understand the subject and unsatisfactory performance

7 Campus & Course Policies

Campus Policies

It is our shared responsibility to know and abide by the University of Maryland's policies that relate to all courses, which include topics like:

- Academic integrity
- Student and instructor conduct
- Accessibility and accommodations
- Attendance and excused absences
- Grades and appeals
- Copyright and intellectual property

Please visit www.ugst.umd.edu/courserelatedpolicies.html for the Office of Undergraduate Studies' full list of campus-wide policies and follow up with me if you have questions.

Students with Disabilities

The course staff is committed to providing appropriate accommodation for students with recognized disabilities. If you have been evaluated by Disability Support Services (DSS) and qualify for specific services, **please inform me at the beginning of the semester**. If you think that you may qualify for some accommodation but have not yet been evaluated, please contact DSS at 301-314-7682 to arrange a consultation.

Religious Observances

The University System of Maryland policy "Assignments and Attendance on Dates of Religious Observance" provides that students should not be penalized because of observances of their religious beliefs; students shall be given an opportunity, whenever feasible, to make up within a reasonable time any academic assignment that is missed due to individual participation in religious observances. **It is the student's responsibility to inform me in advance of any intended absences and late assignments for religious observances as soon as possible.** Please note that travel time is not an excused absence.

Course Policies

Research shows that hand-taking notes improves retention of material (Mueller & Oppenheimer, 2014). However, I understand that the electronic recording of notes may be routine for some students and computer usage will be permitted for course related activities only. **Phones may not be used during class. If computer usage is disrupting the class or students around you, you may be asked to put the technology away during class**. Also, please see youtu.be/WwPaw3Fx5Hk for how digital technology poses a significant distraction during class. **On group work days, you are encouraged to bring and use your electronic devices for the purpose of the class project.**

8 Resilience and Academic Success

You all belong in this class and can be successful! Taking personal responsibility for your own learning means acknowledging when your performance does not match your goals and doing something about it. I will do whatever I can to help remove barriers to your success and encourage you to visit the following campus resources for additional help:

- Tutoring, general: tutoring.umd.edu
- Writing Center, for help with written assignments ter.ps/writing
- Student Resources go.umd.edu/assistance.
- Counseling Center - Includes DSS, learning assistance, & traditional counseling services counseling.umd.edu. (Note: I am a Responsible University Employee and any and all disclosures of different types of sexual misconduct disclosed to me I am obligated to report to the Title IX Office.)
- Academic Achievement Program - http://www.aap.umd.edu AAP provides academic and counseling services to promote the access and success of low income, first generation immigrant college students at the University of Maryland.
- Office of Civil Rights & Sexual Misconduct (Title IX Office)- https://www.ocrsm.umd.edu/

Most services free because you have already paid for it, and everyone needs help. I encourage all students to ask for help both in and outside of the classroom! Also see the following article encouraging students to visit office hours or make a one-on-one appointment with your professors: Office hours

9 Basic Needs & Security

If you have difficulty affording groceries or accessing sufficient food to eat every day, or lack a safe and stable place to live and believe this may affect your performance in this course, please visit go.umd.edu/basic-needs for information about resources the campus offers you and please let me know if I can help in any way.

10 Inclusive Learning Environment

Positive class community and climate is important for everyone's personal and academic success in the course. Students will be invited to share their thoughts in class; a diversity of opinions is welcome. Respectful communication is expected, even when expressing differing perspectives. Supporting one's statements with research findings is encouraged. In accordance with free speech statutes, speech that contains threats of violence is prohibited.

11 Names/Pronouns & Self Identifications

The University of Maryland recognizes the importance of a diverse student body, and we are committed to fostering inclusive and equitable classroom environments. I invite you, if you wish, to tell us how you want to be referred to both in terms of your name and your pronouns (he/him, she/her, they/them, etc.). Please note that the pronouns someone indicates are not necessarily indicative of their gender identity. Visit trans.umd.edu to learn more.

Additionally, how you identify in terms of your gender, race, class, sexuality, religion, and dis/ability, among all aspects of your identity, is your choice whether to disclose (e.g., should it come up in classroom conversation about our experiences and perspectives) and should be self-identified, not presumed or imposed. I will do my best to address and refer to all students accordingly, and I ask you to do the same for all of your fellow Terps.

12 Course Outline

Note: This is a tentative schedule, and subject to change as necessary. **Monitor the course ELMS page for current informaton, assignments and deadlines**. In the unlikely event of a prolonged university closing, or an extended absence from the university, adjustments to the course schedule, deadlines, and assignments will be made based on the duration of the closing and the specific dates missed. All assignments and lectures will be posted on ELMS.

Module 1: Are humans special?

Date	Day	Topic	Reading/Watching	Due
Jan. 27	M	Course introductions. What is intelligence? Why study animal intelligence?	Syllabus	
Jan. 29	W	Evolution and ethology primer	Syllabus	
Jan. 31	F	Are humans special?	De Waal Ch.1: Magic Wells, Optional reading: BBC: Humans are not so unique and BBC: A list of reasons humans are unique	Blended Learning Assignment & Pre-course quiz due
Feb. 3	M	Umwelt: Perceptual worlds and anthropomorphism		
Feb. 5	W	Basic Cognitive Processes (Memory and Learning)		

Module 2: History of Comparative Cognition and Cognitive Ripples

Date	Day	Topic	Reading/Watching	Due
Feb. 7	F	Keeping it simple	De Waal Ch.2: A Tale of Two Schools	Blended Learning Assignment Due
Feb. 10	M	History of Comparative Cognition		
Feb. 12	W	Facts or Fables?	Read BEFORE CLASS: De Waal Ch.3: Cognitive Ripples (up to pg. 76)	

Module 3: Tests of Intelligence Designed for Humans

Date	Day	Topic	Reading/Watching	Due
Feb. 14	F	Measuring human intelligence	Read Defining and measuring intelligence and answer the prompts on ELMS	Blended Learning Assignment Due
Feb. 17	M	Measuring human intelligence: psychological tests, genetics and neuroimaging approaches	Read BEFORE CLASS Neuroethics blog	
Feb. 19	W	Is cognition modular?	READ BEFORE CLASS Barrett and Kurzban (2006)	

Module 4: Review and Exam 1

Date	Day	Topic	Reading/Watching	Due
Feb. 21	F	Application assignment I	READ Dos and Don'ts of informational interviews and this Guide for informational interviews, THEN follow prompts on ELMS	Blended Learning Assignment Due
Feb. 24 (Lent/Ash Wed)	M	Exam Review		Bring questions with you
Feb 26.	W	EXAM 1	Modules 1–4	

Module 5: Numbers and Navigation

Date	Day	Topic	Reading/Watching	Due
Feb. 28	F	Physical Cognition	DeWaal Ch. 5 The Measure of All Things	Blended Learning Assignment due & Fill out survey on ELMS for group project
Mar. 2	M	Numbers and Navigation		

Mar. 4	W	Group formation, contracts, and topic proposal	Read the following in preparation for group work: How to offer constructive feedback. May be helpful in choosing a topic: Your favorite 'smart' animal-transcript only and the syllabus topics	

Module 6: Tool Use

Date	Day	Topic	Reading/Watching	Due
Mar. 6	F	Tool Use	DeWaal Ch. 3 pgs. 76–94	Blended Learning Assignment
Mar. 9 (Holi)	M	Tool Use		
Mar. 11	W	Group Work: Research and Assemble sources	Research Guides: UMD Libraries	Submit sources (last in-person class before spring break)

Module 7: Telling time

Date	Day	Topic	Reading/Watching	Due
Mar. 13	F	Telling time	DeWaal Ch.7: Time will tell	Blended Learning Assignment Due
Mar. 16	M	SPRING BREAK	SPRING BREAK	SPRING BREAK
Mar. 18	W	SPRING BREAK	SPRING BREAK	SPRING BREAK
Mar. 20	F	SPRING BREAK	SPRING BREAK	SPRING BREAK
Mar. 23	M	Telling time		Mid-semester evaluation due
Mar. 25	W	Group Work	Writing an annotated bibliography Guide to writing an annotated Bibliography	Submit annotated bibliography samples for feedback

Module 8: Review and Exam 2

Date	Day	Topic	Reading/Watching	Due

Mar. 27	F	Application assignment II: Improving communication skills	Watch Amy Cuddy and power posing and Read Oliver Sacks: The President's Speech, THEN answer the prompts on ELMS	Blended Learning Assignment Due
Mar. 30	M	Review Exam 2		Bring questions with you
Apr. 1	W	EXAM 2	Modules 5–8	

Module 9: Social Cognition and Self-Awareness

Date	Day	Topic	Reading/Watching	Due
Apr. 3	F	Trading	Watch trade and Laurie Santos and trade in monkeys	Blended Learning Assignment Due
Apr. 6	M	Social Skills	DeWaal Ch 6. Social Skills pp 165–185 and Ch. 8 Of Mirrors and Jars pp.235–245	
Apr. 8	W	Group Work	Read: How to write a literature review Virginia Commonwealth library and UMD Health & human services library	Submit an outline of project for feedback

Module 10: Communication and Language

Date	Day	Topic	Reading/Watching	Due
Apr. 10 (Good Friday, Passover)	F	Non-verbal communication in Chimpanzees	Watch How to speak Chimpanzee and Hand gestures point towards the origins of language and Meanings of Chimpanzee Gestures	Blended Learning Assignment Due
Apr. 13 (Easter Monday/Passover)	M	Language	DeWaal Ch.4: Talk to Me	
Apr. 15	W	Group Work	READ BEFORE CLASS How to give constructive feedback	Draft of work due (beginning of class)

Module 11: Ethical Considerations

Date	Day	Topic	Reading/Watching	Due
Apr. 17	F	Ethics and animals	Read The Cambridge Declaration on Consciousness and Joordens, S. The Ethics of Animal Research: The Dilemma and Alternative Approaches (on ELMS)	Blended Learning Assignment Due
Apr. 20	M	Animal cognition and ethics		
Apr. 22	W	Group Work	TechSmith tutorial and Carleton College Storyboarding	Submit story board for feedback

Module 12: Of Minds and Machines

Date	Day	Topic	Reading/Watching	Due
Apr. 24 (Ramadan starts)	F	The Turing Test	Read A.M. Turing's Computing Machine and Intelligence and answer prompts on ELMS	Blended Learning Assignment Due
Apr. 27	M	Minds and machines (Potential guest lecture – Dr. Don Perlis)	Read Neuroethics blog	
Apr. 29	W	Group Work	Work final project	Further drafts for review

Module 13: Exam 3 & end of semester wrap-up

Date	Day	Topic	Reading/Watching	Due
May. 1	F	Application Assignment III: Critiquing pop science		Blended Learning Assignment Due
May. 4	M	Review		Bring questions with you
May. 6	W	EXAM 3	Modules 9–12	
May. 8	F	Work on final assignments		
May. 11	M	Course wrap-up	DeWaal Ch9: Evolutionary Cognition	
FINALS		**Final reports due & Presentations**		**GOOD LUCK :)**