

SYLLABUS

ADVANCED TOPICS IN COGNITIVE SCIENCE II: EVOLUTION, COGNITION, AND CULTURE

01:185:412 (Section 02, Index 04460)

Spring 2023

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COURSE OVERVIEW

Logistics

Main page: <https://canvas.rutgers.edu>

Pre-requisites: Cognitive Science: A Multi-disciplinary Introduction (01:185:201).

Lectures:

- Mondays and Wednesdays, 3:50pm – 5:10pm (P5).
- In-person at Room 115, Scott Hall, College Avenue Campus.

Instructor: Paul Robinson

- Email: paul.d.robinson@rutgers.edu (response within 1 working day).
- Office hours / student support hours: Wednesdays 2pm–3pm (Rm A115, Psychology Building) and by appointment. I will likely also be available immediately after class.

Course description

Can research on the evolution of our species help explain how humans today think and behave? Why do the minds of our species, and *only* our species, appear to be much more powerful than the minds of all other animal species? What kind of minds were possessed by other human species, such as the Neanderthals?

We begin the course by examining the extent to which human minds are unique through engagement with research in comparative cognitive science, which investigates the origins and functions of cognitive mechanisms by comparing cognitive abilities across different animal species. Next, we reconstruct the history of human cognitive evolution, from the chimpanzee-human last common ancestor to *Homo habilis*, *Homo erectus*, *Homo heidelbergensis*, *Homo neanderthalensis*, and *Homo sapiens*. Here we primarily engage with research in cognitive archaeology, which uses analyses of human fossils and material remains such as stone tools to help trace the evolutionary development of human cognition. Our central concern throughout this half of the course is evaluating rival proposals about whether enhanced capacities for language and communication, working memory and reasoning, imagination and planning, or some other aspect of our minds, is the key to modern human uniqueness.

In the second half of the course our focus switches to understanding the cognitive capacities associated with distinctly human forms of culture such as art, music, stories, religion, science, and technology. Here we primarily engage with research in cognitive anthropology, which (among other things) investigates the cognitive mechanisms underlying the cultural transmission of information and how, in turn, culture shapes human cognition. We pay particular attention to the evolution of cognitive biases in social learning and reasoning. Our central concern throughout this half of the course is evaluating the proposal that the ability to sustain cumulative culture through enhanced capacities for social cognition is the key to modern human uniqueness.

Learning Goals

Upon successful completion of the course, students will be able to:

- i. Articulate ways in which cognitive archaeology and cognitive anthropology contribute to the interdisciplinary nature of cognitive science and explain how authors in these fields distinguish their work from research in the field known as “evolutionary psychology”.
- ii. Summarize and critically evaluate research papers from a wide range of fields, such as primatology, paleoanthropology, archaeology, and anthropology.
- iii. Outline the evolutionary history of *Homo sapiens* and its significance for understanding human cognition.
- iv. Explain some of the similarities and differences between the cognitive abilities of contemporary humans and other animals.
- v. Describe cognitive biases in social learning and reasoning, identify those biases in real-world cases, and explain theories concerning their evolutionary origins and functions.

HOW THIS COURSE WORKS

Mode of delivery

This course is fully in-person.

Attendance policy

Students are expected to attend all classes. If you expect to miss one or two classes, please use the University absence reporting website - <https://sims.rutgers.edu/ssra/> - to indicate the date and reason for your absence. An email will automatically be sent to me from this system. Please provide timely notification about necessary absences for religious observances.

Note that if you must miss classes for longer than one week, you should contact a dean of students to help verify your circumstances.

To further incentivize attendance, I will take roll call and students who attend can earn a bonus of up to 2% on their final score.

Electronic devices

You are permitted to have your phones out to check for important messages but please do not use phones to browse the internet or record classroom conversations. You may use a laptop for class-related activities only. Typically, at various points during class I will ask you to close your laptops.

Course requirements

- **Reading quizzes:** Each week, by Monday at 3:30pm, you will use Canvas to complete a brief multiple-choice quiz on the reading for that week. Each quiz will open after class on the previous Wednesday, thus giving you five days to do the reading.
- **Lecture quizzes:** Each week, by Wednesday at 11:59pm, you will use Canvas to complete a brief multiple-choice quiz on the lectures for that week. Each quiz will open after class on Wednesday.
- **Module reflection posts:** This course is divided into six two-week modules. By 11:59pm on Fridays that fall at the end of a module you will submit a reflection post to a discussion board on Canvas. These posts will be used for class discussion and may also help you choose a topic for your final paper. Your reflection should consist of four sentences: (1) state the most interesting thing that you learned; (2) explain why you find it interesting; (3) ask a question concerning something you didn't understand or are unsure about; (4) explain why you didn't understand or why you are unsure.
- **Writing assignments:** You will submit four short writing assignments. Further details will be provided in Canvas (Files > Assignments). The first three are reflection pieces and the final one is designed to help you with your final paper:

Assignment A: Before we delve into the course material, share your opinion about the extent to which human minds are unique.

Assignment B: Critically discuss a claimed "evolutionary mismatch" or "adaptive lag" of your choosing that has been discussed either inside or outside academia.

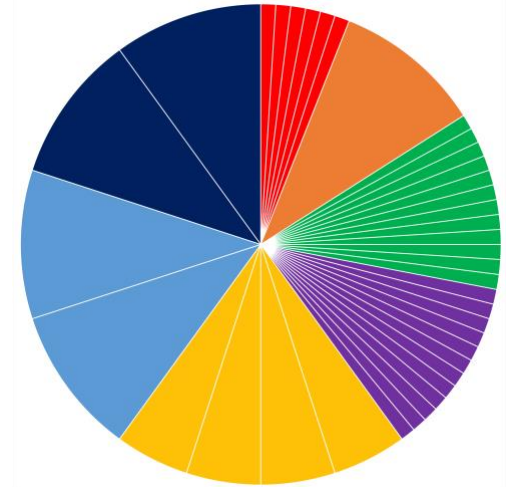
Assignment C: Describe an aspect of your culture that was passed to you through social learning and analyze the process in terms of research on the cognitive foundations of cultural transmission.

Assignment D: Develop a brief literature review – of the type that might be found in the introductory section of a journal article – on a course-related subject of your choice. (This assignment may serve as the foundation for your final paper).

- **Presentation:** The focus of my lectures will be on human and non-human primates. However, to get clear about human cognitive uniqueness it is also important to consider non-primate cognition. Thus, student groups will create and deliver a class presentation on a study relating to the cultural lives and cognitive abilities of a non-primate species, including the humpback whale and the bottlenose dolphin. I will form the groups and assign the relevant studies during the second half of the semester.
- **Midterm exam:** The exam has two components. First, you will take a multiple-choice and short-answer quiz, which will be in-person and held in our classroom. Second, you will use Canvas to submit a critical book review of *The Rise of Homo Sapiens*.
- **Final examination:** The exam has two components. First, you will take a multiple-choice and short-answer quiz, which will be in-person and held in our classroom. Second, you will use Canvas to submit an original research paper on a topic of your choosing that is covered in the course.

How your final grade is calculated

ASSIGNMENT CATEGORY	PERCENTAGE
Reflection posts	10%
Presentation	10%
Reading quizzes	10%
Lecture quizzes	10%
Writing assignments	20%
Midterm exam	20%
Final exam	20%
Total	100



I use the following grade scale, where $[x - y)$ denotes values from x up to but not including y :

$[90 - 100]$:	A
$[85 - 90)$:	B+
$[80 - 85)$:	B
$[75 - 80)$:	C+
$[70 - 75)$:	C
$[60 - 70)$:	D
Below 60:	F

Late assignments

If you experience a situation that prevents you from completing work on time, please inform me as soon as possible. Late work will be given a score of "0" on Canvas by default. However, I am happy to consider both granting extensions and giving you full or partial credit for late work (by manually overriding the default 0 grade on Canvas), depending on the circumstances. Please do not hesitate to contact me about any aspect of the course that you are having difficulty with. I am here to help you learn and succeed in the course, not to make your life more difficult.

There will be no personalized end-of-semester extra-credit assignments. If you have concerns about your final grade, please speak to me early in the semester.

Required reading

There is one required book for this course, which we will use in the first half of the semester:

- Coolidge, F. L., & Wynn, T. G. (2018). *The rise of Homo sapiens: The evolution of modern thinking*. Oxford University Press. ISBN: 9780190680916.

Please purchase the second edition from 2018, not the first edition. I will upload photocopies of the first two chapters. Thus, you will not need the book until the end of week two. In case the Rutgers bookstore does not yet stock the book, you can purchase paperback copies here:

- [Paperback edition via Amazon](#) (\$59)
- [Paperback edition via Oxford University Press](#) (\$59)

Or e-book copies here:

- [Kindle e-book edition](#) (\$43)
- [Google e-book edition](#) (\$46)

Readings in the second half of the course will be uploaded to Canvas in pdf form.

RIGHTS AND RESPONSIBILITIES

Health and safety

Masks must be worn during class meetings; any student not wearing a mask will be asked to leave. Masks should conform to CDC guidelines and should cover the nose and mouth:

<https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/about-face-coverings.html>

Academic integrity policy

Rutgers University takes academic dishonesty very seriously. By enrolling in this course, you assume responsibility for familiarizing yourself with the Academic Integrity Policy and the possible penalties (including suspension and expulsion) for violating the policy. As per the policy, all suspected violations will be reported to the Office of Student Conduct. Academic dishonesty includes (but is not limited to):

- Cheating
- Plagiarism
- Aiding others in committing a violation or allowing others to use your work
- Failure to cite sources correctly
- Fabrication
- Using another person's ideas or words without attribution—re-using a previous assignment
- Unauthorized collaboration
- Sabotaging another student's work

If in doubt, please consult the instructor. Please review the Academic Integrity Policy:

<http://nbacademicintegrity.rutgers.edu/home/academic-integrity-policy/>

Copyright disclaimer

Almost all original work is the intellectual property of its authors. This includes not just books and articles, but the syllabi, lectures, lecture slides, recorded lectures, course materials, presentations, homework problems, exams, and other materials used in this course, in either printed or electronic form.

Providing course materials to commercial suppliers such as CourseHero, Chegg, etc. and/or publicly distributing or displaying course materials, or helping others to do so, is a violation of academic integrity.

The authors hold copyrights in their works, which are protected by U.S. statutes. Copying this work or posting it online without the permission of the author may violate the author's rights. More importantly, these works are the product of the author's efforts; respect for these efforts and for the author's intellectual property rights is an important value that members of the university community take seriously. For more instructions on copyright protections at Rutgers University, please refer to:

<https://www.libraries.rutgers.edu/research-tools-and-services/copyright-guidance/copyright-students>

Requesting accommodations

Rutgers students are expected to attend all scheduled course meetings. University policy excuses absences due to religious observance or participation in Rutgers-approved activities, and permits students to make up work missed for these circumstances. If you will be absent from a class, lab, or exam for any reason, please report your absence here:

<https://sims.rutgers.edu/ssra/>

If you have been told to quarantine, or are experiencing symptoms of any transmittable disease, please remain at home and do not attend in-person class meetings. If you need help to catch up on material you missed, I am happy to schedule personal sessions with you.

Rutgers University welcomes students with disabilities into all the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation:

<https://ods.rutgers.edu/students/documentation-guidelines>.

If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with a Letter of Accommodations. Please share this letter with your instructors and discuss the accommodations with them as early in your courses as possible. To begin this process, please complete the Registration form on the ODS web site at: <https://ods.rutgers.edu/students/registration-form>.

Full disability policies and procedures are at: (848) 445-6800 / Lucy Stone Hall, Suite A145, Livingston Campus, 54 Joyce Kilmer Avenue, Piscataway, NJ 08854 / <https://ods.rutgers.edu/>

Accessibility of course technology

This course requires use of Canvas and other online communication and multimedia tools. If you need additional services to use these technologies, please request accommodations with your instructor.

Please visit the [Rutgers Student Tech Guide](#) page for resources available to all students. If you do not have the appropriate technology for financial reasons, please email Dean of Students deanofstudents@echo.rutgers.edu for assistance.

If you are facing other financial hardships, please visit the Office of Financial Aid at <https://financialaid.rutgers.edu/>.

Student wellness resources

Counseling, ADAP & Psychiatric Services (CAPS)
(848) 932-7884 / 17 Senior Street, New Brunswick, NJ 08901/
<http://health.rutgers.edu/medical-counseling-services/counseling/>

CAPS is a University mental health support service that includes counseling, alcohol and other drug assistance, and psychiatric services staffed by a team of professionals within Rutgers Health services to support students' efforts to succeed at Rutgers University.

CAPS offers a variety of services that include: individual therapy, group therapy and workshops, crisis intervention, referral to specialists in the community, and consultation and collaboration with campus partners.

Crisis Intervention: <http://health.rutgers.edu/medical-counseling-services/counseling/crisis-intervention/>

Report a Concern: <http://health.rutgers.edu/do-something-to-help/>

Violence Prevention & Victim Assistance (VPVA)
(848) 932-1181 / 3 Bartlett Street, New Brunswick, NJ 08901 / www.vpva.rutgers.edu/

The Office for Violence Prevention and Victim Assistance provides confidential crisis intervention, counseling and advocacy for victims of sexual and relationship violence and stalking to students, staff and faculty. To reach staff during office hours when the university is open or to reach an advocate after hours, call 848-932-1181.

COURSE SCHEDULE AND READINGS

Introduction

Week 1 material

Reading	None
Lectures	Introduction to the course.

Week 1 schedule

Tuesday, January 17	
Wednesday, January 18	Lecture; lecture quiz due.
Thursday, January 19	
Friday, January 20	
Saturday, January 21	
Sunday, January 22	Writing assignment A due

Module A: Human Cognitive Uniqueness

Week 2 material

Reading	Laland & Seed (2021): Understanding human cognitive uniqueness.
Lectures	Comparative cognition and evolutionary theory.

Week 2 schedule

Monday, January 23	Lecture; reading quiz due
Tuesday, January 24	
Wednesday, January 25	Lecture; lecture quiz due
Thursday, January 26	
Friday, January 27	
Saturday, January 28	
Sunday, January 29	

Week 3 material

Reading	Coolidge & Wynn (2018): The brain. Coolidge & Wynn (2018): Working memory.
Lectures	Cognitive architecture in evolutionary perspective.

Week 3 schedule

Monday, January 30	Lecture; reading quiz due
Tuesday, January 31	
Wednesday, February 1	Lecture; lecture quiz due
Thursday, February 2	
Friday, February 3	Module A reflection post due
Saturday, February 4	
Sunday, February 5	

Module B: Evolution of Primate Cognition

Week 4 material

Reading	Coolidge & Wynn (2018): Brain evolution. Coolidge & Wynn (2018): Primates.
Lectures	Primate cognitive evolution.

Week 4 schedule

Monday, February 6	Lecture; reading quiz due
Tuesday, February 7	
Wednesday, February 8	Lecture; lecture quiz due
Thursday, February 9	
Friday, February 10	
Saturday, February 11	
Sunday, February 12	

Week 5 material

Reading	Coolidge & Wynn (2018): Early Hominins. Coolidge & Wynn (2018): Homo erectus.
Lectures	Early human cognitive evolution.

Week 5 schedule

Monday, February 13	Lecture; reading quiz due
Tuesday, February 14	
Wednesday, February 15	Lecture; lecture quiz due
Thursday, February 16	
Friday, February 17	Module B reflection post due
Saturday, February 18	
Sunday, February 19	Writing assignment B due

Module C: Evolution of Human Cognition

Week 6 material

Reading	Coolidge & Wynn (2018): The first major leap in cognition: the tree-to-ground sleep transition. Coolidge & Wynn (2018): Homo heidelbergensis and the beginnings of modern cognition.
Lectures	Major transitions in human cognitive evolution.

Week 6 schedule

Monday, February 20	Lecture; reading quiz due
Tuesday, February 21	
Wednesday, February 22	Lecture; lecture quiz due
Thursday, February 23	
Friday, February 24	
Saturday, February 25	
Sunday, February 26	

Week 7 material

Reading	Coolidge & Wynn (2018): The rise and fall of Neandertals. Coolidge & Wynn (2018): Enhanced working memory and the evolution of modern thinking.
Lectures	The question of behavioral modernity.

Week 7 schedule

Monday, February 27	Lecture; reading quiz due
Tuesday, February 28	
Wednesday, March 1	Lecture; lecture quiz due
Thursday, March 2	
Friday, March 3	Module C reflection post due
Saturday, March 4	
Sunday, March 5	

Midterm Exam

Week 8 material

Reading	None
Optional reading	None
Lectures	None

Week 8 schedule

Monday, March 6	Study session for midterm exam
Tuesday, March 7	
Wednesday, March 8	Midterm exam (in-person)
Thursday, March 9	
Friday, March 10	
Saturday, March 11	
Sunday, March 12	

Recess

Week 9 material

Reading	
Optional reading	
Lectures	

Week 9 schedule

Monday, March 13	
Tuesday, March 14	
Wednesday, March 15	
Thursday, March 16	
Friday, March 17	
Saturday, March 18	
Sunday, March 19	

Module D: Cognitive Foundations of Culture

Week 10 material

Reading	Boyd (2017): Not by brains alone: the vital role of culture in human adaptations.
Lectures	Cultural evolution and social learning biases.

Week 10 Schedule

Monday, March 20	Lecture; reading quiz due
Tuesday, March 21	
Wednesday, March 22	Lecture; lecture quiz due
Thursday, March 23	
Friday, March 24	
Saturday, March 25	
Sunday, March 26	

Week 11 material

Reading	Stubbersfield (2022): Cognitive evolution and the transmission of popular narratives: a literature review and application to urban legends.
Lectures	Art, music, and stories.

Week 11 schedule

Monday, March 27	Lecture; reading quiz due
Tuesday, March 28	
Wednesday, March 29	Lecture; lecture quiz due
Thursday, March 30	
Friday, March 31	Module D reflection post due
Saturday, April 1	
Sunday, April 2	

Module E: Evolution of Reason, Conflict & Cooperation

Week 12 material

Reading	Mercier & Sperber (2020): Bounded rationality in a social world.
Lectures	Reasoning biases.

Week 12 schedule

Monday, April 3	Lecture; reading quiz due
Tuesday, April 4	
Wednesday, April 5	Lecture; lecture quiz due
Thursday, April 6	
Friday, April 7	Module B reflection post due
Saturday, April 8	
Sunday, April 9	Writing assignment C due

Week 13 material

Reading	Tomasello (2018): The origins of morality. Ferguson (2018): Why we fight.
Lectures	Tribalism, sacred values, and morality.

Week 13 schedule

Monday, April 10	Lecture; reading quiz due
Tuesday, April 11	
Wednesday, April 12	Lecture; lecture quiz due
Thursday, April 13	
Friday, April 14	Module E reflection post due
Saturday, April 15	
Sunday, April 16	

Module F: Evolution of Myth, Ritual & Religion

Week 14 material

Reading	Van Slyke & Slone (2022): Key ingredients for a world religion – insights from cognitive and evolutionary science.
Lectures	Monsters, heroes, and gods.

Week 14 schedule

Monday, April 17	Lecture; reading quiz due
Tuesday, April 18	
Wednesday, April 19	Lecture; lecture quiz due
Thursday, April 20	
Friday, April 21	
Saturday, April 22	
Sunday, April 23	Writing assignment D due

Week 15 material

Reading	Watson-Jones & Legare (2022) Explaining and solving practical problems supernaturally.
Lectures	Superstition, ritual, and religion.

Week 15 schedule

Monday, April 24	Lecture; reading quiz due
Tuesday, April 25	
Wednesday, April 26	Lecture; lecture quiz due
Thursday, April 27	
Friday, April 28	Module F reflection post due
Saturday, April 29	
Sunday, April 30	

Week 16 material

Reading	Read through your notes.
Lectures	Study session for final exam.

Week 16 schedule

Monday, May 1	Study session for final exam
Tuesday, May 2	
Wednesday, May 3	No class

Final Exam (tba)

Thursday, May 4	
Friday, May 5	
Saturday, May 6	
Sunday, May 7	
Monday, May 8	
Tuesday, May 9	
Wednesday, May 10	