Thinking Through Human Cognition
HEB 1384
Department of Human Evolutionary Biology, Harvard University
Spring 2024

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Course Days and Times: Wednesdays, 3-5 pm
Location: Biolabs 1080
Course website: https://canvas.harvard.edu/courses/131664

Course Description

What does it mean to inhabit a human mind? This course will investigate the origins of - and selective advantages provided by - key human cognitive traits. We will examine evidence for the emergence of such traits on human evolutionary timescales, with a special focus on the origins of symbolic communication, language, exosomatic information storage, and the exponential nature of human technology. We will also examine how cultural norms are shaped by human cognition, with an eye to concepts such as fairness, collaboration, sharing, nurturance, reciprocity, spite, violence, social exclusion, and a concern for curating our reputation. This course will use a multidisciplinary approach, drawing on recent developments in fields such as evolutionary psychology, cognitive science, philosophy, linguistics, archaeology, anthropology, developmental biology, genetics, and primatology.

Keywords: Human evolution, human cognition, evolutionary psychology, human behavior, cultural evolution, human origins, Palaeoanthropology, Paleolithic archaeology, behavioral evolution, hominins, hominids, symbolic behavior, cultural complexity, deep history

Course Structure:

We will meet once a week to discuss topics in the evolution of human cognition. Our classes will be a combined lecture/discussion format. **Our weekly topics and a course overview are as follows:**

1/24: Week .5

- **Introduction**

1/31: Week 1

- **Enculturated critters: Social learning in the Animal Kingdom**

2/7: Week 2

- **The things we make, make us: First technologies**

2/14: Week 3

- **It is better to give than to receive: A game-theoretic approach to altruism**
- **Chosen "cognitive traits" to be submitted to me for approval**

2/21: Week 4

- **It takes a village: Alloparenting, cooperative breeding, and the grandmother hypothesis**

2/28: Week 5

- **A word to the wise: The emergence of language**

3/6: Week 6

- **Not on my watch: Reputational curation, retributive violence, and social exclusion**
- **Annotated Bibliography Due**

3/13: Spring Break

3/20: Week 7

- **Baby hunters, baby gatherers**

3/27: Week 8

- **We tell ourselves stories in order to live**
- **Final Project Draft Due**

4/3: Week 9

- **Ground truthing cognition in the Middle Pleistocene**

4/10: Week 10

- **The extended mind**

4/17: Week 11

- **When did we become like us?**

4/24: Week 12

- **Modern problems require archaic solutions: Roundtable discussion and peer feedback session**

5/1: Final Project Due

Your overall grade in the class will be determined by the following:

- 15% participation and attendance
- 15% Annotated Bibliography
- 25% Draft Midterm
- 45% Final Project

For the duration of the course, you will work towards the completion of your final project. This will consist of scaffolded assignments proportionally weighted, on which you will receive feedback critical to developing your writing.

You will choose a human cognitive trait, and examine this trait using an ethological "Tinbergen's Four Questions" framework. Over the duration of the class, you will analyse this trait with respect to four different, though related, themes: its causation (or mechanism), its ontogeny (developmental trajectory), its survival value (biological fitness), and its evolutionary (phylogenetic) history. Finally, you will make an argument as to why understanding this trait is essential. These terms may be unfamiliar to you; don't worry, we will go over everything together.

You need to begin thinking about your assignments early in the module; your topic (cognitive trait) should guide your research throughout, providing a rationale for the papers you choose in your annotated bibliography.

For Undergraduate students:

Assignment 1: Annotated Bibliography, 15% of grade

The assessment will demand that you become familiar with a range of academic literature. You will need to show critical judgment in your choice of sources as well as demonstrating the ability to evaluate literature and review key data and theory succinctly.

Your annotated bibliography (10 papers and introduction) is due for submission in **Week 6** via **Canvas.** This work will be returned to you, with formative comments, and you will be allowed to edit and amend these entries before final submission.

There are guides to writing annotated bibliographies available at:

https://guides.library.cornell.edu/annotatedbibliography

https://owl.purdue.edu/owl/general_writing/common_writing_assignments/annotated_bibliographies/index.html

And I suggest you look at these ASAP!

An annotated bibliography is a list of references (the bibliography bit) formatted to a specific style (AAA/APA) arranged in alphabetical order. After each source you should produce an annotation which fits on a single page (standard 11/12pt font with at least 1.5 line spacing), written in a formal academic style. This should critically summarise the source and evaluate its usefulness to you in your research (the annotated bit).

For this assignment you must include **10 peer-reviewed sources** (papers/books/chapters) which are relevant to your research.

The sources you use may include **up to 5** of the compulsory readings from our weekly sessions. The other sources must reflect your choice of cognitive trait, and be based on the research you do for your essay. **You MUST include an introductory page to introduce your annotated bibliography stating why you have chosen your sources (i.e. define and explain your area of research and its significance).**

Your annotated bibliography will be marked using the following criteria:
1) Range and relevance of sources
2) Comprehension and accuracy of summary of sources
3) Critical insight - ability to assess the significance of key issues/data/methods
4) Presentation/use of language

We will work through many of the sources in the reading list during our course meetings, and I will provide examples of what I expect from a good annotated bibliography. This will be a pretty straightforward assignment if you complete a couple of entries each week, but will be a nightmare if you leave it all until the end!

Please complete a cover sheet and attach to your digital work.

Assignment 2: Draft Midterm, 25% of Grade

This assessment will require you to draw together data and theory from a range of disciplines to present your research. Be sure to include lots of detail of evidence (e.g. archaeological, fossil, experimental, psychological, biological, etc.) situated with an appropriate theoretical framework. Here, you critically analyse your trait with respect to its causation (or mechanism), its ontogeny (developmental trajectory), its survival value (biological fitness) and its evolutionary (phylogenetic) history. Finally, you will make an argument as to why understanding this trait is essential.

As this assignment constitutes a preliminary draft, you will want to focus on structuring your response with recourse to the final essay structure (below). You will need to submit this in a particular format; for example, you won't turn in the first half of a completed paper; rather, you will submit **a rough outline of your overall essay structure**. You may include content or data as bullet points, which will be fleshed out in your final version.

The focus here is, how will you build your argumentation? What parts go where? Where are sources best used? How do you structure your response in a coherent narrative, and reader-friendly academic register? This work will be returned to you, with formative comments, and you will be allowed to edit and amend your work before you submit your final project.

As this is a draft, and not your final essay, word count is to be **no more than 1500 words.**

Assignment 3: Final Project, 45% of Grade

Instructions will be brief, as you have already written many essays at Harvard. Despite this it is always worth reflecting on (and trying to improve) your writing. Excellent guidance can be found at the following site:

http://emedia.rmit.edu.au/learninglab/content/essay-writing (or Google RMIT essay writing)

Here you will find online tutorials, and several short pdf documents outlining what an essay should look like and how you should go about writing one!

*I **strongly recommend that you visit this website and follow the appropriate links.***

In terms of writing, be careful with your use of language; try to craft your writing. Always read back what you have written - check that what you have written reflects what you are really trying to say.

Your essays should include lots of specific detail and archaeological/fossil examples. Always be specific and avoid comments such as 'some researchers' or 'some sites'- let me know which ones. I'd also encourage you to use figures and tables - maps, photos, diagrams,

climate curves etc. These all help save you words and add to the quality of presentation as well as the clarity of your arguments.

Remember, ***essay writing is a process not an event***. You need to choose your question, brainstorm ideas, produce a plan, carry out initial research, produce a draft, carry out further research, revise your draft, edit for clarity and meaning, self-assess against marking criteria, revise your draft, and proof read and print your final version. Clearly, this all takes time! Don't leave things too late.

Word count is 2500 words maximum, not including abstract and bibliography. Please include the word count on your essay cover sheet.

- Please allow a decent amount of white space (margins, top and bottom of page)
- All text should be double spaced, black 12/11 pt. font for body text please
- All references in AAA/APA format

What should a completed Final Project look like?

Cover sheet

Download from Canvas. Complete and attach to the front of your essay.

Abstract

A short (150 words max.) summary of your motivation, main themes, and results of your essay. Should not normally include references, and should be a standalone paragraph. Often good to produce a draft abstract at the start of the writing process, but the final abstract should be the last thing you write.

Introduction

Should catch the reader's attention, set out your approach to, and interpretation of, the question. What are the main themes/lines of evidence/theory which you will be covering? Include a 'thesis statement' which summarises your answer to the question. As with an abstract, it can be helpful to draft an introduction during the early stages of the writing process, but the final version of the introduction should be written once your body and conclusion have been completed.

Main body

The main part of your essay where you answer the question in a series of coherently linked paragraphs. Remember, a paragraph should contain one main point (outlined in a 'topic sentence') followed by further sentences which develop/elaborate this point and provide evidence and argument relevant to this point. *Tip: Your essay should make sense even if you just*

read the first sentence of each paragraph. The body section of your essay might be split into several sub sections, separated by subheadings.

Summary & Conclusion

Here you should draw together and summarise the main points of your essay, showing how you have answered the question. Refer back to your introduction and your thesis statement. Do not include new ideas/concepts/evidence in your conclusions!

Bibliography/Works Cited

Formatting guidelines can be found here:
https://americananthro.org/publications/publishing-style-guide/

For Graduate students:

Your assignments will be in much the same format as those for undergraduates (see above). However, your work will be assessed to a higher standard, commensurate with expectations for postgraduate work in the sciences. Please see below for Graduate-level assessment modifications:

- Annotated Bibliography: Must reflect a minimum of 15 sources
- Draft outline: No more than 2500 words
- Final project: 3500 word limit

Course Policies and Expectations

Attendance and participation: To encourage in-class participation, 15% of your grade will be assessed from in-class attendance as assessed by polls and participation in course discussions. Attendance at lectures and participation in discussions are crucial - please *do not* be late! Our time in the classroom provides the bulk of the information relating to the week's theme, and it is here that we unpack and critically evaluate the readings and material presented.

Absences: If you need to miss a lecture or discussion due to illness or other extenuating circumstance, please email me **before** the class you need to miss.

PLEASE NOTE: Students are prohibited from recording any class activity including lecture, lab, office hours or posting any class materials to any website. Following Harvard College rules, students that violate this policy will be referred to the Harvard College Administrative board.

Collaboration Policy: Collaboration between students plays an integral role in the learning and processing of information presented in this course. Students are therefore encouraged to discuss course material with classmates to better understand the material. However, any work that you submit for evaluation after such a discussion must be the result of your own effort and must be submitted in your own words. To ensure the proper use of sources while at the same time recognizing and preserving the importance of the discussion and collaboration, the Faculty of Arts and Sciences adopted the following policy:

"It is expected that all homework assignments, projects, lab reports, papers, theses, and examinations and any other work submitted for academic credit will be the student's own. Students should always take great care to distinguish their own ideas and knowledge from information derived from sources. The term 'sources" includes not only primary and secondary material published in print or online, but also information and opinions gained directly from other people. Quotations must be placed properly within quotation marks and must be cited fully. In addition, all paraphrased material must be acknowledged completely. Whenever ideas or facts are derived from a student's reading and research or from a student's own writings, the sources must be indicated." (from Student Handbook)

Academic Integrity: Discussion and the exchange of ideas are essential to developing a good understanding of the material. For weekly assignments you are encouraged to use lecture material and outside sources, and may consult with your classmates in formulating answers. However, after any discussions with peers, ensure that any answers you submit for evaluation are the result of your own research efforts and are written in your own words. In addition, you must cite any books, articles, websites, lectures, etc. that have helped you with your work using appropriate citation practices (Harvard Guide to Using Sources.).

Generative AI policy: We expect that all work students submit for this course will be their own. We specifically forbid the use of ChatGPT or any other generative artificial intelligence (AI) tools at all stages of the work process, including preliminary ones. Violations of this policy will be considered academic misconduct. We draw your attention to the fact that different classes at Harvard could implement different AI policies, and it is the student's responsibility to conform to expectations for each course.

The Harvard College Honor Code.: Members of the Harvard College community commit themselves to producing academic work of integrity – that is, work that adheres to the scholarly and intellectual standards of accurate attribution of sources, appropriate collection and use of data, and transparent acknowledgement of the contribution of others to their ideas, discoveries, interpretations, and conclusions. Cheating on exams or assignments, plagiarizing or misrepresenting the ideas or language of someone else as one's own, falsifying data, or any other instance of academic dishonesty violates the standards of our community, as well as the standards of the wider world of learning and affairs.

Disability Access Office Accommodations for students with disabilities: Harvard University values inclusive excellence and providing equal educational opportunities for all students. Our goal is to remove barriers for disabled students related to inaccessible elements of instruction or design in this course. If reasonable accommodations are necessary to provide access, please contact the Disability Access Office (DAO). Accommodations do not alter fundamental requirements of the course and are not retroactive. Students should request accommodations as early as possible, since they may take time to implement. Students should notify DAO at any time during the semester if adjustments to their communicated accommodation plan are needed.

Late assignments and missed tests: If you require an extension on an assignment because of an emergency or Harvard-related reason (e.g., for seniors with thesis deadlines) you must ask for the extension in advance of the deadline; otherwise, late assignments will be downgraded by 5%/day late. Missed tests cannot be made up unless you (a) arrange an alternative sufficiently in advance, or (b) are ill and obtain proper University Health Services documentation.

We will not curve this class. Following FAS guidelines, we will grade as follows: A range = excellent quality, full mastery of subject; B range = good comprehension of course material, and good commandment of skills; C range = adequate and satisfactory, basic requirements met; D range = unsatisfactory with minimal commandment of material. This course may be taken pass/fail. In order to receive a passing grade, a student must receive the equivalent of a C grade or higher. If you would like to take the course pass/fail, please contact me.

Equity, Diversity, Inclusion, and Belonging

In an academic context, promoting diversity, inclusion, and belonging hinges on facilitating a collegial and respectful classroom environment, acknowledging harm caused by prejudicial and discriminatory historical biases within the field, and taking steps to overcome these where they arise in modern scholarship. The study of human evolution raises numerous issues relevant to equity, diversity, inclusion, and belonging. Like many academic fields, these areas of inquiry were established when only certain groups of people were able or permitted to engage in and publish formal scientific research. In some cases, this research was informed by implicit or explicit bias and discrimination. Our course will attempt to overcome such biases through modeling sensitivity towards - and inclusiveness of - a variety of cultural norms and values. For example, lectures will not include photographs of human remains from cultures whose descendant communities have a cultural prohibition against this. In a more general way, fostering diversity, inclusion, and belonging means respecting the plurality of lived experience. We will place an emphasis on communicating questions and differences in opinion respectfully and collegially. Scrutinizing bias is a valuable learning opportunity. This course will emphasize training

students to think critically, to evaluate the reliability of information, and to use these skills to reject discriminatory, simplistic, or prejudicial ideas.

Thinking Through Human Cognition aims to teach what happened in human evolution and how that evolutionary history is relevant to people today, while maintaining an awareness of the harm that can be and has been inflicted by consciously or unconsciously misusing scientific findings. We hope that we can respectfully discuss issues of bias and representation should they arise, but please know that you can contact me (I will keep your identity confidential) if you have any suggestions to improve the quality of the course materials, or if you feel something was said in class (by anyone) that you felt was disrespectful or discriminatory. If there is any way we can help your performance in this class, please know that we and others in the University are here to help. Additional resources include your Allston Burr Resident Dean, the Harvard Office for Equity, Diversity, Inclusion, and Belonging, and if you are experiencing emotional distress Harvard CAMHS has a Cares Line (617-495-2042) with mental health counselors available 24/7 along with many other mental health resources.

Course Materials and Access

Course Website: The Canvas website contains the syllabus and links to required readings and assignments. Class related announcements will also be disseminated through this page.

Below you will find the reading list for each week's class meeting. Please complete the assigned readings **before our first class meeting** each week, and be prepared to talk about them.

Required text: Sapolsky, R. M. (2017). Behave: The biology of humans at our best and worst. Penguin. Paperback ISBN 9780143110910
*This book provides a useful guide for many aspects of your assignments, and contains a number of your weekly assigned readings. Further, while our course will focus on Tinbergen's "ultimate causes," chapters 2-9 will give you information and context for the "proximate causes" you must treat in your written work.

Background Reading: These are good references for orienting yourself in the who/what/when/where of hominin species

- Maslin, M. A., Shultz, S., & Trauth, M. H. (2015). A synthesis of the theories and concepts of early human evolution. *Philosophical Transactions of the Royal Society B: Biological Sciences*, *370*(1663), 20140064. https://doi.org/10.1098/rstb.2014.0064
- Van Holstein, L., & Foley, R. A. (2021). Hominin Evolution. In *Encyclopedia of Evolutionary Psychological Science*. Springer International Publishing. https://doi.org/10.1007/978-3-319-16999-6_3416-1 *access available through HOLLIS

- Wood, B., & K. Boyle, E. (2016). Hominin taxic diversity: Fact or fantasy? *American Journal of Physical Anthropology*, *159*(S61), 37-78. https://doi.org/10.1002/ajpa.22902

Week .5 Reading: Introduction

- Bergman, T. J., & Beehner, J. C. (2021). Leveling with Tinbergen: Four levels simplified to causes and consequences. *Evolutionary Anthropology: Issues, News, and Reviews*, *31*(1), 12-19. https://doi.org/10.1002/evan.21931
- Brüne, M. (2014). On aims and methods of psychiatry – a reminiscence of 50 years of Tinbergen's famous questions about the biology of behavior. *BMC Psychiatry*, *14*(1). https://doi.org/10.1186/s12888-014-0364-y
- Sapolsky, R. M. (2017). Introduction and Chapter 1: The Behavior. In *Behave: The biology of humans at our best and worst*. Penguin.

Week 1 Reading: Enculturated critters: Social learning in the Animal Kingdom

- McGrew, W.C. 2010. In search of the last common ancestor: new findings on wild chimpanzees. Philosophical Transactions of the Royal Society B, 365, 3267- 3276.
- Tomasello, M. and Moll, H., 2010. The Gap is Social: Human Shared Intentionality and Culture. In: Kappeler, P. M. and Silk, J. eds. Mind the Gap. Springer Berlin Heidelberg, 331-349.
- Whiten, A., 2021. The burgeoning reach of animal culture. *Science*, *372*(6537), p.eabe6514.

Week 2 Reading: The things we make, make us: First technologies

- Berecz, B., Cyrille, M., Casselbrant, U., Oleksak, S., & Norholt, H. (2020). Carrying human infants – An evolutionary heritage. *Infant Behavior and Development*, *60*, 101460. https://doi.org/10.1016/j.infbeh.2020.101460
- Haslam, M., Hernandez-Aguilar, R. A., Proffitt, T., Arroyo, A., Falótico, T., Fragaszy, D., Gumert, M., Harris, J. W., Huffman, M. A., Kalan, A. K., Malaivijitnond, S., Matsuzawa, T., McGrew, W., Ottoni, E. B., Pascual-Garrido, A., Piel, A., Pruetz, J., Schuppli, C., Stewart, F., Tan, A., Visalberghi, E., Luncz, L. V. (2017). Primate archaeology evolves. *Nature Ecology & Evolution*, *1*(10), 1431-1437. https://doi.org/10.1038/s41559-017-0286-4
- Stout, D., Hecht, E., Khreisheh, N., Bradley, B., & Chaminade, T. (2015). Cognitive demands of lower paleolithic toolmaking. *PloS One*, *10*(4), e0121804–e0121804. https://doi.org/10.1371/journal.pone.0121804

Week 3 Reading: It is better to give than to receive: A game-theoretic approach to altruism

- Sapolsky, R. M. (2017). Chapter 10: Evolution of Behaviour. In *Behave: The biology of humans at our best and worst*. Penguin.

- Tomasello, M., Melis, A.P., Tennie, C., Wyman, E. and Herrmann, E., 2012. Two key steps in the evolution of human cooperation: The interdependence hypothesis. *Current anthropology*, *53*(6), pp.673-692.

Week 4 Reading: It takes a village: Alloparenting, cooperative breeding, and the Grandmother Hypothesis

- Kramer, K.L. (2010). Cooperative breeding and its significance to the demographic success of humans. Annual Review of Anthropology, 39, 417-436.
- Muller, M.N. & Pilbeam, D. R. (2017). The evolution of the human mating system. In Chimpanzees and Human Evolution. Eds M. M. Muller, R.W Wrangham, D. R. Pilbeam. pp 383-426.
- O'Connell, J., Hawkes, K., & Blurton Jones, N. (1999). Grandmothering and the evolution of Homo erectus. *Journal of Human Evolution*, *36*(5), 461-485. https://doi.org/10.1006/jhev.1998.0285

Week 5: A word to the wise: The emergence of language

- Coolidge, F. L., Overmann, K. A., & Wynn, T. (2021). Recursion: What is it, who has it, and how did it evolve? https://doi.org/10.31235/osf.io/knpa6
- Corballis, M. C. (2009). The Evolution of Language. *Annals of the New York Academy of Sciences*, *1156*(1), 19–43. https://doi.org/10.1111/j.1749-6632.2009.04423.x
- DeLoache, J. S. (2004). Becoming symbol-minded. Trends in Cognitive Sciences, 8(2). 66-70
- Kalashnikova, M., Carignan, C., & Burnham, D. (2017). The origins of babytalk: smiling, teaching or social convergence? *Royal Society Open Science*, *4*(8), 170306–170306. https://doi.org/10.1098/rsos.170306

Week 6: Not on my watch: Reputational curation, retributive violence, and social exclusion

- Jacquet, J., Hauert, C., Traulsen, A., & Milinski, M. (2011). Shame and honour drive cooperation. *Biology Letters*, *7*(6), 899-901. https://doi.org/10.1098/rsbl.2011.0367
- McAuliffe, K., Blake, P.R., Steinbeis, N., & Warneken, F. (2017). The developmental foundations of human fairness. Nature Human Behavior 1, 0042: 1-9.
- Sapolsky, R. M. (2017). Chapter 11: Us Versus Them. In *Behave: The biology of humans at our best and worst*. Penguin.
- Sarkar A, Wrangham RW. Evolutionary and neuroendocrine foundations of human aggression. Trends Cogn Sci. 2023 May;27(5):468-493. doi: 10.1016/j.tics.2023.02.003. Epub 2023 Mar 31. PMID: 37003880.

Spring Break

Week 7: Baby hunters, baby gatherers

- Scalise Sugiyama, M. (2011). The forager oral tradition and the evolution of prolonged juvenility. *Frontiers in Psychology*, *2*. https://doi.org/10.3389/fpsyg.2011.00133
- Gurven, M., Kaplan, H., & Gutierrez, M. (2006). How long does it take to become a proficient hunter? Implications for the evolution of extended development and long life span. *Journal of Human Evolution*, *51*(5), 454-470. https://doi.org/10.1016/j.jhevol.2006.05.003
- Hawkes, K., O'Connell, J., & Blurton Jones, N. (2018). Hunter-gatherer studies and human evolution: A very selective review. *American Journal of Physical Anthropology*, *165*(4), 777-800. https://doi.org/10.1002/ajpa.23403
- MacDonald, K. (2007). Cross-cultural comparison of learning in human hunting. *Human Nature*, *18*(4), 386-402. https://doi.org/10.1007/s12110-007-9019-8

Week 8: We tell ourselves stories in order to live

- Smith, D., Schlaepfer, P., Major, K., Dyble, M., Page, A. E., Thompson, J., Chaudhary, N., Salali, G. D., Mace, R., Astete, L., Ngales, M., Vinicius, L., & Migliano, A. B. (2017). Cooperation and the evolution of hunter-gatherer storytelling. *Nature Communications*, *8*(1). https://doi.org/10.1038/s41467-017-02036-8
- Sugiyama, M. S. (2004). Predation, Narration, and Adaptation: "Little Red Riding Hood" Revisited. *Interdisciplinary Literary Studies*, *5*(2), 110–129.
- Wiessner, P. W. (2014) Embers of society: Firelight talk among the Ju/'hoansi Bushmen. Proceedings of the National Academy of Sciences 111(39) 14027-35.

Week 9: Ground Truthing Cognition in the Middle Pleistocene

- Alperson-Afil, N. (2023). Acheulian cognition and behavior at Gesher Benot Ya`aqov. *The Oxford Handbook of Cognitive Archaeology*, C27S1-C27S13. https://doi.org/10.1093/oxfordhb/9780192895950.013.27
- Conard, N. J., Serangeli, J., Böhner, U., Starkovich, B. M., Miller, C. E., Urban, B., & Van Kolfschoten, T. (2015). Excavations at Schöningen and paradigm shifts in human evolution. *Journal of Human Evolution*, *89*, 1-17. https://doi.org/10.1016/j.jhevol.2015.10.003
- Harvati, K., & Reyes-Centeno, H. (2022). Evolution of Homo in the Middle and Late Pleistocene. Journal of human evolution, 173, 103279.

Plus two short popular science articles:

- Coghlan, A. (2010). Hunter-gatherers cared for first known ancient invalid. New Scientist, 208(2782), 12. https://doi.org/10.1016/s0262-4079(10)62500-6
- Some See Roots of Compassion in a Toothless Fossil Skull. (2005, April 6). New York Times.

Week 10: The extended mind

- Clark, A., & Chalmers, D. (1998). The extended mind. Analysis, 58(1), 7-19.

- Mithen, S.J., 1988. Looking and learning: Upper Palaeolithic art and information gathering. *World Archaeology*, *19*(3), pp.297-327.
- Wynn, Thomas, Karenleigh A. Overmann, Frederick L. Coolidge, and Klint Janulis. 2017. "Bootstrapping Ordinal Thinking." In *Cognitive Models in Palaeolithic Archaeology*, edited by Thomas Wynn and Frederick L. Coolidge, 197–213. New York: Oxford University Press.

Week 11: When did we become like us?

- Boyd, R., Richerson, P. J. and Henrich, J. 2011. Colloquium Paper: The cultural niche: Why social learning is essential for human adaptation. Proceedings of the National Academy of Sciences, 108(Supplement_2), 10918-10925.
- Powell, A., Shennan, S., Thomas, M.G. 2009. Late Pleistocene Demography and the Appearance of Modern Human Behavior. *Science* 324 (5932). 298-1301 https://doi: 10.1126/science.1170165
- Stringer, C. (2012). Evolution: What makes a modern human. Nature.

Week 12: Modern problems require archaic solutions: Roundtable discussion and peer feedback session