Syllabus

ANTH 4650 Evolutionary Neuropsychology

Course Description: This course will teach you everything about brains that you ever wanted to know. And there is no prerequisite knowledge, as I will teach you everything you need to know, and I will define all terminology. Evolutionary neuropsychology is an exciting new and emerging multidisciplinary science that spans the fields of anthropology, archaeology, cognitive archaeology, paleoneurology, psychology, and the neurocognitive sciences. It is the study of the evolution of the structures and functions of the human brain. The course is designed as introduction to those who might be generally unfamiliar with specific structures and functions of the human brain but who also might appreciate its evolutionary background, including the evolutionary bases of its structures and their original functions. One unique feature of this course is that the evolution of the brain will be presented by the original adaptations through natural selection of the neural tissue responsible for those functions and then the exaptation (neural reuse, neural redeployment, etc.) of that neural substrate for newer or higher-level functions. The course will be replete with references to the anthropology, archaeology, and the Paleolithic record.
        Please ask questions by email about the subject matter or related ideas throughout the course! I will post your questions (anonymously) and my answers on Canvas.

Instructor:
Professor Frederick L. Coolidge, PhD, Columbine Hall Rm 4029, 255-4146. Virtual Office Hours: by appointment, fcoolidg@uccs.edu. I can typically meet any day of the week (yes, Saturday and Sunday) with proper notice. I am available for advice on this course, general academic advising, and other matters. Please do not hesitate to contact me.

Instructors' Biography:
Professor Frederick L. Coolidge has a BA, MA, and PhD in Psychology from the University of Florida (UF) and completed a 2-year Postdoctoral Fellowship in Clinical Neuropsychology at Shands Teaching Hospital, Gainesville, Florida. He worked as Forensic Psychologist at the South Florida State Mental Hospital before beginning his academic career. He has been at the University of Colorado, Colorado Springs since 1979. He has received three Fulbright Fellowships to India (1987, 1992, 2005) and in March 2015, he was appointed Senior Visiting Scholar at Oxford University (Keble College). He has received two UCCS research excellence awards, three UCCS outstanding teaching awards, and he was awarded the lifetime title *University of Colorado Presidential Teaching Scholar*. Professor Coolidge has published 13 books (with two more under contract), over 145 journal articles, over 50 book chapters, and presented over 240 conference presentations. These books include: *An Introduction to Cognitive Archaeology* (2022, Routledge/Taylor & Francis). *Squeezing Minds from Stones* (2019, Oxford University Press). *The Rise of Homo sapiens: The Evolution of Modern Thinking* (2nd ed., 2018, Oxford University Press); *Cognitive Models in Palaeolithic Archaeology* (2017, Oxford University Press; *How to think like a Neandertal*. (2012, Oxford University Press). *Working Memory*: *Beyond Symbolism and Language. The Wenner-Gren Symposium Series.* (2010, University of Chicago Press [monograph]); *Cognitive archaeology and Human Evolution* (2009, Cambridge University Press).

The Required Text:

Coolidge, F. L. (2020). *Evolutionary Neuropsychology*: *An Introduction to the structures and functions of the human brain*. Oxford University Press.
Depending on the interests of the class, I may assign additional readings.

Course Topics: The course will cover at 10 major topics of the evolution of structures and functions of the human brain. They are as follows:

Week of August 22:

(1) A brief history of life, the first appearance of brains, dual hemispheres, adaptations versus exaptations, and theories of neuronal recycling.

Week of Aug. 29 and Sept. 5:

(2) The evolution of learning and memory systems.

Week of Sept. 12-19:

(3) An introduction to the human brain's basic features and vocabulary.

Week of Sept. 26 and Oct. 3:

(4) The frontal lobes: from attention, brachiation (moving through trees), and grasping to speech sequencing, decision-making, mirror neurons, and goal intention reading (also called *Theory of Mind*).

Week of Oct. 10-17:

(5) The parietal lobes and occipital: from visual and spatial representation, to finger recognition, to self- and other-representations to the neural bases for primary vision.

Week of Oct. 24:

Review week, Q and As. Mid-term Oct 28.

Week of Oct 31:

(6) The temporal lobes, from sound production and sound recognition to fully syntactic modern language.

Week of Nov. 7:

(7) The cerebellum: from the execution and coordination of movements to higher cognitive functions such as decision-making, thought-tweaking, and creativity.

Week of Nov. 14:

(8) The hippocampus: from navigation, a sense of place in the environment, and 'place' neurons to the processing and formation of long-term verbal memories.

Week of Nov 21:

Thanksgiving. Give thanks there's no readings.

Week of Nov. 28:
(9) The evolution of sleep, sleep stages, and dreaming: from protection and recuperation to synaptic homeostasis and the 'unconscious' offline processing of verbal and procedural memories.

Week of Dec. 5:

(10) Paleopsychopathology: I will present the evolutionary origins for common psychopathologies like schizophrenia, autism, ADHD, anxiety, depression, and other states.

Finals Week Dec 12:

Term papers are due Dec 12 Monday by midnight. Second exam opens on and closes on Dec 16 Friday.

Grading:
There will be two timed 50-item multiple choice tests: a midterm exam opening October 28 and a final (covering only the last half of the course material) during the official fall finals weeks. Each will count for 35% of the final grade. A term paper will count 30% of the final grade. The term paper must be in APA format (7th edition). I will send you a sample APA paper. The paper must be on a topic that I must approve. The paper will be limited to 4 pages of text (not including a title page, abstract page, and a reference page). The 4 pages of text must be a minimum of 1,000 words with a maximum of 1,500 words. I will send some ideas for topics as the course proceeds. You should choose a topic you would be interested in learning more about and not something that you have already written about. You might peruse the entire book and look for a topic. Plagiarism is strictly forbidden. If your term paper is unique and interesting, it may be published as a blog on the *Psychology Today* website (3.75 million viewers) with your name and school affiliation. There is no extra credit in this course, however, if you are between grades, I will assess your engagement with me and the course through the intelligence and creativity of the questions you ask me by email throughout the course. I will also be able to offer you a good letter of recommendation in the future by such interactions (and your term paper).

Grading Scheme: The grade of **A** requires 90-100%, **B** 80 to 89%, **C** 75-79%, **D** 70% to 74%, **F** below 70%. Please carefully note **my criteria for C and D grades.**

Course Policies:

Student Conduct: Students should follow the UCCS Student Code of Conduct for behavior: https://english.uccs.edu/sites/g/files/kjihxj2371/files/inline-files/Final-Approved-Code-of-Conduct-Fall-2016.pdf.

Military Service: If you are a military student with the potential of being called to military service and /or training during the course of the semester, you are encouraged to contact the course instructor as soon as possible to discuss the impact of your service on meeting course requirements. Please see the Military Students website for more information on UCCS guidelines: military.uccs.edu.

Student Support Services: If you have a disability for which you are requesting an accommodation, you are encouraged to contact the Disability Services Office within the first week of classes. You will need to get a letter from them stating you are using their services and outlining any suggested accommodations. Their website is: disability.uccs.edu.

Email as official communication: Email is the university's official means of communicating policies and information. The university will use your UCCS account for all official email. When contacting Professor Coolidge, your communication must come through your UCCS email account.

University Cancellations (Snow days): Because this course is virtual, there should be no problems with weather, unless it affects your Internet service. Simply inform Professor Coolidge if there are Internet problems.

Campus Resources

Library: Google Scholar (scholar.google.com) and the UCCS library will be valuable resources throughout your college career, especially the library's on-line resources. You may access the library catalogs from the library, through the campus computer labs, or from home (you'll need to set up your home computer to do this). The Kramer Family Library is located in the El Pomar Center and can be accessed at: kfl.uccs.edu. The Internet is a dangerous resource. Google Scholar is the premier academic site for acceptable scientific research. A website on the Internet is not. Wikipedia (Wikipedia.org) is also acceptable.

Writing Center: To get help with writing skills you may contact to the Writing Center (writingcenter.uss.edu). They have trained tutors who will review your paper with you and provide an evaluation (without a grade). The Writing Center provides free tutorial and writing consulting to all students.

Counseling Center: The University Counseling Center at UCCS provides services which complement the university's academic mission to promote healthy growth, including assisting students with their academic success when personal matters may be interfering with or complicating students' efforts. Services include counseling, testing, and workshops. Visit their website at: recwellness.uccs.edu.

Student Success Center and Career Centers: The Student Success Center provides a variety of services around advising both for academic and career issues. The counselors will be a key resource for helping you plan your schedule and make sure that you are meeting all the requirements for graduation. The Career Center provides a variety of services around advising for career issues. They can help you find jobs and internships, and have a number of tests and inventories to help you identify your skills and interests that can be matched to certain careers. They can also help you develop a resume and practice your job interviews. Their website is: uccs.edu/experience/academic-services-support.