

JACOB D. NEGREY

Assistant Professor
School of Anthropology
University of Arizona
Tucson, AZ, USA

negrey@arizona.edu

RESEARCH INTERESTS

I am a biological anthropologist and primatologist specializing in disease ecology, ecophysiology, and animal behavior. I study factors that shape primate illness and aging, integrating behavioral, endocrinological, epidemiological, and omics data to illuminate ecological mechanisms. Topics of special interest include social determinants of ill health, trade-offs between reproduction and immunity, and proximate causes of aging and age-related diseases. As a member of the Ngogo Chimpanzee Project, my work focuses primarily on wild chimpanzees living at Ngogo, Kibale National Park, Uganda.

PROFESSIONAL EMPLOYMENT

University of Arizona , School of Anthropology <i>Assistant Professor</i>	2023-Present
Arizona State University , School of Human Evolution and Social Change <i>Postdoctoral Research Scholar</i>	2023
Wake Forest University School of Medicine , Department of Pathology <i>Research Fellow</i>	2021-2023
University of Wisconsin-Madison , Department of Pathobiological Sciences <i>Research Associate</i>	2019-2021
Max Planck Institute for Evolutionary Anthropology , Department of Primatology <i>Guest Researcher</i>	2017-2018
Boston University , Department of Anthropology <i>Graduate Teaching Fellow; Instructor of Record</i>	2014-2015; 2018

EDUCATION

Boston University , Ph.D. in Anthropology	2019
Miami University , B.A. in Anthropology and Zoology	2013
University of Cambridge , Junior Visiting Fellow in Biological Anthropology	2012

PEER-REVIEWED JOURNAL ARTICLES

*Equal contributions.

- 16) **Negrey JD***, Frye BM*, Craft S, Register TC, Baxter MG, Jorgensen MJ, and Shively CA (2024). Executive function mediates age-related variation in social integration in female vervet monkeys (*Chlorocebus sabaues*). *GeroScience* 46(1): 841-852.
- 15) Trumble B, **Negrey J**, Koebele S, Thompson R, Wann S, Allam A, Beheim B, Sutherland L, Sutherland J, Eid Rodriguez D, Michalik D, Rowan C; Lombardi G, Garcia A, Cummings D, Seabright E, Alami S, Kraft T, Hooper P, Buetow K, Irimia A, Gatz M, Stieglitz J, Gurven M, Kaplan H, and Thomas G (2023). Testosterone is positively associated with coronary artery calcium in a low cardiovascular disease risk population. *Evolution, Medicine, and Public Health* 11(1): 472-484.
- 14) Wood BM, **Negrey JD**, Brown JL, Deschner T, Emery Thompson M, Gunter S, Mitani JC, Watts DP, and Langergraber KE (2023). Demographic and hormonal evidence for menopause in wild chimpanzees. *Science* 382(6669): eadd5473.
- 13) **Negrey JD**, Deschner T, and Langergraber KE (2023). Lean muscle mass, not aggression, mediates a link between dominance rank and testosterone in wild male chimpanzees. *Animal Behaviour* 202: 99-109.
- 12) Shively CA, Frye BM, **Negrey JD**, Johnson CSC, Sutphen CL, Molina AJ, Yadav H, Snyder-Mackler N, and Register TC (2023). The interactive effects of psychosocial stress and diet composition on health in primates. *Neuroscience and Biobehavioral Reviews* 152: 105320.
- 11) Sandel AA, **Negrey JD**, Arponen M, Clark IR, Clift JB, Reddy RB, and Ivaska KK (2023). The evolution of the adolescent growth spurt: urinary biomarkers of bone turnover in wild chimpanzees. *Journal of Human Evolution* 177(1): 103341.
- 10) **Negrey JD**, Dobbins DL, Howard TD, Borgmann-Winter KE, Hahn C, Kalinin S, Feinstein DL, Craft S, Shively CA, and Register TC (2022). Transcriptional profiles in olfactory pathway-associated brain regions of African green monkeys: Associations with age and Alzheimer's disease neuropathology. *Alzheimer's and Dementia: Translational Research and Clinical Interventions* 8(1): e12358.
- 9) **Negrey JD**, Emery Thompson M, Dunn CD, Oтали E, Wrangham RW, Mitani JC, Machanda ZP, Muller MN, Langergraber KE, and Goldberg TL (2022). Female reproduction and viral infection in a long-lived mammal. *Journal of Animal Ecology* 91(10): 1999-2009. **Cover article.**
- 8) **Negrey JD**, Mitani JC, Wrangham RW, Oтали E, Reddy RB, Pappas TE, Grindle KA, Gern JE, Machanda ZP, Muller MN, Langergraber KE, Emery Thompson M, and Goldberg TL (2022). Viruses associated with ill health in wild chimpanzees. *American Journal of Primatology* 84(2): e23358.
- 7) **Negrey JD**, Behringer V, Langergraber KE, and Deschner T (2021). Urinary neopterin of wild chimpanzees indicates that cell-mediated immune activity varies by age, sex, and female reproductive status. *Scientific Reports* 11(1): 9298.

- 6) Sandel AA, Rushmore J, **Negrey JD**, Mitani JC, Lyons DM, and Caillaud D (2020). Social network predicts exposure to respiratory infection in a wild chimpanzee group. *EcoHealth* 17(4): 437-448.
- 5) **Negrey JD**, Emery Thompson M, Langergraber KE, Machanda ZP, Mitani JC, Muller MN, Otali E, Owens LA, Wrangham RW, and Goldberg TL (2020). Demography, life history trade-offs, and the gastrointestinal virome of wild chimpanzees. *Philosophical Transactions of the Royal Society B: Biological Sciences* 375(1811): 20190613.
- 4) **Negrey JD**, Sandel AA, and Langergraber KE (2020). Dominance rank and the presence of sexually receptive females predict feces-measured body temperature in male chimpanzees. *Behavioral Ecology and Sociobiology* 74(1): 5.
- 3) **Negrey JD** and Langergraber KE (2020). Corpse-directed play parenting by a sterile adult female chimpanzee. *Primates* 61(1): 29-34.
- 2) **Negrey JD**, Reddy RB, Scully EJ, Phillips-Garcia S, Owens L, Langergraber KE, Mitani J, Emery Thompson M, Wrangham RW, Muller MN, Otali E, Machanda Z, Hyeroba D, Grindle KA, Pappas TE, Palmenberg AC, Gern JE, and Goldberg TL (2019). Simultaneous outbreaks of respiratory disease in wild chimpanzees caused by distinct viruses of human origin. *Emerging Microbes and Infections* 8(1): 139-149.
- 1) Behringer V, Deimel C, Hohmann G, **Negrey J**, Schaebs FS, and Deschner T (2018). Applications for non-invasive thyroid hormone measurements in mammalian ecology, growth, and maintenance. *Hormones and Behavior* 105: 66-85.

MANUSCRIPTS IN REVIEW OR REVISION

Berson E, Frye BM, Clarke, GS, Perna A, Phongpreecha T, Shome S, **Negrey JD**, Aghaeepour N, Montine TJ, Craft S, Register TC, and Shively CA. Effects of Mediterranean vs. Western diets on the cerebral cortical pre-synaptic proteome in nonhuman primates: Relationships with transcriptome and multi-system phenotypes.

Frye BM*, **Negrey JD***, Johnson CSC, Kim J, Barcus RA, Lockhart SN, Whitlow CT, Chiou KL, Snyder-Mackler N, Montine TJ, Craft S, Shively CA, and Register TC. Mediterranean diet protects against a neuroinflammatory cortical transcriptome: Associations with brain volumetrics, peripheral inflammation, social isolation, and anxiety in nonhuman primates (*Macaca fascicularis*).

CONFERENCE PRESENTATIONS

- 17) Frye BM, **Negrey JD**, Craft S, Register TC, Baxter MG, Jorgensen MJ, Kim J, Barcus RA, Lockhart SN, Whitlow CT, and Shively CA (2023). Relationships between AD-related neuroanatomy and cognitive, physical, and social aging in vervet monkeys. Alzheimer's Association International Conference, Amsterdam, NL. (Poster.)
- 16) Frye BM, **Negrey JD**, Nagpal R, Kim J, Barcus RA, Lockhart SN, Whitlow CT, Tooze JA, Yadav H, Craft SM, Register TC, and Shively CA (2023). Mediterranean versus Western diet and the gut-brain axis: Diet-induced links between gut *Oscillospira* abundance, plasma branched-chain amino

- acid concentrations and insulin resistance, and change in white matter volumes in nonhuman primates. Alzheimer's Association International Conference, Amsterdam, NL. (Poster.)
- 15) Shively CA, **Negrey JD**, Frye BM, Johnson CSC, Kim J, Barcus RA, Lockhart SN, Whitlow CT, Chiou KL, Snyder-Mackler N, Montine TJ, Craft S, and Register TC (2023). Mediterranean diet protects against neuroinflammation and degeneration in female nonhuman primates. Alzheimer's Association International Conference, Amsterdam, NL. (Poster.)
- 14) **Negrey JD**, Deschner T, and Langergraber KE (2023). Revisiting the "challenge hypothesis": Muscle mass, not aggression, mediates an association between testosterone and dominance rank in wild male chimpanzees. 92nd Annual Meeting of the American Association of Biological Anthropologists, Reno, NV, USA. (Podium.)
- 13) Sandel AA, Reddy RB, and **Negrey JD** (2023). Adolescence is a distinct life history stage: Insights from chimpanzee growth and social behavior. 92nd Annual Meeting of the American Association of Biological Anthropologists, Reno, NV, USA. (Podium.)
- 12) **Negrey JD** and Langergraber KE (2022). Social status predicts mortality and physiological parameters during an outbreak of acute respiratory disease in wild male chimpanzees. 44th Meeting of the American Society of Primatologists, Denver, CO, USA. (Podium.)
- 11) **Negrey JD**, Frye BM, Craft S, Register TC, Jorgensen MJ, Bissinger DW, Scott CL, Copeland CN, Register HM, Valure P, Wise-Walden S, and Shively CA (2022). Social, physical, and cognitive aging in captive female vervets (*Chlorocebus aethiops sabaesus*). 44th Meeting of the American Society of Primatologists, Denver, CO, USA. (Podium.)
- 10) Register T, Howard T, Kitzman D, Shively C, Jorgenson M, **Negrey J**, Kritchevsky S, and Carr J (2022). Functional and genomic profiling of heart, skeletal muscle, and adipose tissues in a primate model of aging. 50th Annual Meeting of the American Aging Association, San Antonio, TX, USA. (Poster.)
- 9) Huber H, Cox L, Nathanielsz P, **Negrey J**, Ross C, Salmon A, and Shively C (2022). Primary data for longevity of nonhuman primate species common to biomedical research. 50th Annual Meeting of the American Aging Association, San Antonio, TX, USA. (Poster.)
- 8) **Negrey JD**, Dobbins DL, Howard TD, Borgmann-Winter KE, Hahn C, Kalinin C, Feinstein DL, Shively CA, and Register TC (2022). Transcriptional profiling of the aging primate brain: Age and neuropathology-associated transcripts in olfactory pathway brain regions of vervets. 50th Annual Meeting of the American Aging Association, San Antonio, TX, USA. (Poster.)
- 7) **Negrey JD**, Emery Thompson M, Langergraber KE, Machanda ZP, Mitani JC, Muller MN, Otali E, Reddy RB, Wrangham RW, and Goldberg TL (2022). Viral infection and life history trade-offs in wild chimpanzees. 91st Annual Meeting of the American Association of Biological Anthropologists, Denver, CO, USA. (Podium.)
- 6) **Negrey JD** (2019). Immunofunction and reproductive effort in wild chimpanzees: Noninvasive field evidence for immunomodulation by gonadal steroids. 16th Annual Meeting of the Midwest Primate Interest Group, DeKalb, IL, USA. (Podium.)
- 5) Goldberg TL, Basnet S, Emery Thompson M, Gern JE, Grindle KA, Langergraber KE, Machanda Z, Mitani JC, Muller MM, **Negrey JD**, Otali E, Owens L, Palmenberg AC, Pappas TE, Phillips-

- Garcia S, Reddy RB, Scully EJ, and Wrangham RW (2019). Chimpanzee reverse zoonoses: Unfortunate natural experiments in great ape comparative medicine and demography. 88th Annual Meeting of the American Association of Physical Anthropologists, Cleveland, OH, USA. (Podium.)
- 4) **Negrey JD**, Langergraber KE, and Knott CD (2018). Measuring wild chimpanzee body temperature from fecal deposits. 87th Annual Meeting of the American Association of Physical Anthropologists, Austin, TX, USA. (Podium.)
- 3) **Negrey JD**, Sandel AA, and Langergraber KE (2016). Transmission of respiratory disease in the Ngogo chimpanzees: A social network analysis. 26th Congress of the International Primatological Society, Chicago, IL, USA. (Podium.)
- 2) Friend AN, **Negrey JD**, and Marchant LF (2013). Ethological study of manual laterality in sanctuary chimpanzees (*Pan troglodytes*). 82nd Annual Meeting of the American Association of Physical Anthropologists, Knoxville, TN, USA. (Poster.)
- 1) **Negrey JD** (2011). Mantled howler monkey (*Alouatta palliata*) long calls: Effects of habitat-dependent acoustic influences. 8th Annual Meeting of the Midwest Primate Interest Group, Kent State University, Kent, OH, USA. (Poster.)

RESEARCH FUNDING AND AWARDS

External

Animal Models for the Social Dimensions of Health and Aging: A Research Network Workshop funding <i>Co-awardees:</i> Emily Rothwell (University of Pittsburgh) and Brett Frye (Emory and Henry College) \$15,000	2023
Animal Models for the Social Dimensions of Health and Aging: A Research Network Bruce McEwen Career Development Fellowship \$6,000	2022
Cora Du Bois Charitable Trust Dissertation Fellowship \$18,000	2018-2019
Wenner-Gren Foundation Dissertation Fieldwork Grant (Role: PI) \$17,830	2017-2019
National Science Foundation Doctoral Dissertation Research Improvement Grant (Role: Co-PI) \$25,145	2016-2018
National Geographic Society Young Explorers Grant (Role: PI) \$4,950	2016-2017

Nacey Maggioncalda Foundation

James F. Nacey Fellowship
\$5,000

2015-2017

Internal

Graduate Student Organization Travel Grant (Boston University)
\$500

2018

Dissertation Research Fellowship (Boston University)
\$43,000

2016 – 2018

Graduate Research Abroad Fellowship (Boston University)
\$6,000

2016 – 2017

Cambridge Junior Fellows Award (Miami University)
\$1,000

2012

Rebecca Jeanne Andrew Memorial Award (Miami University)
\$1,000

2012

Rebecca Jeanne Andrew Memorial Award (Miami University)
\$3,861

2011

COURSES INSTRUCTED

University of Arizona

ANTH 369: Darwinian Medicine (Fall 2023)

ANTH 470/570: Primate Behavior Seminar (Fall 2023)

Boston University

AN 263: The Behavioral Biology of Women (Summer 2018)

MENTORING

Master's Committee Member

Noah Place, University of Arizona (2023-2024)

Comprehensive Examination Committee Member

Katherine King, University of Arizona (2023-2024)

Arielle Liu, University of Arizona (2023-2024)

PEER REVIEWER

Scientific Journals

American Journal of Biological Anthropology

American Journal of Primatology

Behavioral Ecology and Sociobiology
General and Comparative Endocrinology
Nature Communications
Primates

Funding Agencies

Leakey Foundation
National Science Foundation (Biological Anthropology Program)
Primate Conservation, Inc.

PROFESSIONAL MEMBERSHIPS

Current

American Association of Biological Anthropologists
American Society of Primatologists

Past

American Aging Association
International Society to Advance Alzheimer's Research and Treatment

ADDITIONAL SERVICE

Education Committee (Member) 2022-Present
American Society of Primatologists

INVITED AND GUEST LECTURES

- 13) **Negrey JD** (2023). Revisiting the “challenge hypothesis”: Testosterone and dominance in wild male chimpanzees. AN 559 (Evolutionary Endocrinology), Boston University, Boston, MA, USA.
- 12) **Negrey JD** (2023). Anthropogenic impacts on chimpanzee health and aging. Department Seminar, School of Anthropology, University of Arizona, Tucson, AZ, USA.
- 11) **Negrey JD** (2022). Viruses as biomarkers: Applications in chimpanzee ecology and conservation. Biological Anthropology Seminar, Department of Anthropology, University of Texas at Austin, Austin, TX, USA.
- 10) **Negrey JD** (2022). Multisystem aging patterns in nonhuman primates. Research Strategy Meeting, Section on Comparative Medicine, Wake Forest School of Medicine, Winston-Salem, NC, USA.
- 9) **Negrey JD** (2022). The chimpanzee virome: Implications for ape health, ecology, and conservation. Department of Biology, Macalester College, Saint Paul, MN, USA.
- 8) **Negrey JD** (2022). Ecology of the wild chimpanzee virome: Implications for ape health, life history, and conservation. Department of Biology and Earth Science, Otterbein University, Westerville, OH, USA.

- 7) **Negrey JD** (2020). Immune function, infectious disease, and wild chimpanzee life histories. Department of Anthropology, Boston University, Boston, MA, USA.
- 6) **Negrey JD** (2018). Social behavior, hormone secretion, and immune function in wild chimpanzees. GMS FA 790 (History, Methods and Theory in Biological Anthropology), Boston University School of Medicine, Boston, MA, USA.
- 5) **Negrey JD** (2016). Chimping 101: A student's pictorial handbook. ATH 198 (Great Ape Ecology) and ATH 398 (Primate Behavior and Ecology), Miami University, Oxford, OH, USA.
- 4) **Negrey JD** (2016). Natural selection. AN 102 (Human Behavior, Biology, and Evolution), Boston University College of Arts and Sciences, Boston, MA, USA.
- 3) **Negrey JD** (2015). Reproductive strategies. AN 102 (Human Behavior, Biology, and Evolution), Boston University College of Arts and Sciences, Boston, MA, USA.
- 2) **Negrey JD** (2015). Chimpology: A student's guide to wild chimpanzees. Vermilion High School, Vermilion, OH, USA.
- 1) **Negrey JD** (2014). Chimpanzees: Past, present, future. Museum of Science, Boston, MA, USA.

SELECT MEDIA COVERAGE

The New York Times	October 2023
"Chimpanzees Go Through Menopause, Too"	
ASU News	July 2023
"ASU study: Chimpanzees with more muscle, not more aggression, have higher testosterone"	
New Scientist	April 2023
"Chimpanzees may have an adolescent growth spurt like humans"	
El País	July 2019
"'Lucy', la chimpancé estéril que juega a ser madre con cadáveres"	
ScienceDaily	January 2019
"Human respiratory viruses continue to spread in wild chimpanzees"	