

CURRICULUM VITAE (Required Form) (August 2022)

Name Anne M. Burrows, Ph.D.
Name of Institution Duquesne University

Education: post high school, from most recent to earliest
Degree Ph.D.
Institution University of Pittsburgh
Major Biological Anthropology
Date awarded (month/year) or anticipated to be awarded 8/1995

Licensure Information:
State and Registration Number: NA

Certifications (eg, ABPTS): NA

Employment and Positions Held: from most recent to earliest
Title/position Professor and Endowed Chair
Faculty rank, if applicable
Tenure status or other institutional status, if applicable
Institution Duquesne University
City and State Pittsburgh, PA
Duration (from – to -) 1/2002-current

Peer Reviewed Publications (not including abstracts): from the most recent to the earliest (include those accepted for publication but not yet published, but indicate as such). Include papers in journals, A-V materials published, monographs, chapters in books, and books; **provide full bibliographic citation.**

Omstead KM, Williams J, Weinberg SM, Marazita ML, **Burrows AM**. Muscle spindles found in mimetic muscles across a wide variety of mammalian taxa. *Anatomical Record* (in press).

Panageas AS, Leeper BJ, Seaman-Jensen MI, Ludvico L, Marshall PL, **Burrows AM**. Best practices in chemical maceration of select small and irregular bones from contemporary, geriatric human cadavers. *Journal of Forensic Science* (in review).

Selig KR, López-Torres S, **Burrows AM**, Silcox MT, Meng J. (in review). Dental caries in living and extinct strepsirrhines with insight into diet and health. *American Journal of Primatology*.

Maatta RM, **Burrows AM**. Interdisciplinary collaboration to increase metacognition and learning outcomes in undergraduate allied health students in the gross anatomy cadaver lab. *Anatomical Science Education* (in review).

Correia-Caeiro C, **Burrows A**, Wilson DA, Abdelrahman A, Miyabe-Nishiwaki T. 2022. CalliFACS: The common marmoset Facial Action Coding System. PLoS ONE 17(5): e0266442. <https://doi.org/10.1371/journal.pone.0266442>

Parker MF, Pitirri MK, Smith TD, **Burrows AM**, Cray JJ, Jr. 2022. Variation in ontogenetic facial suture fusion patterns in catarrhines. *Folia Primatologica* <https://doi.org/10.1159/000517079>.

Leonard KC, Worden N, Boettcher ML, Dickinson E, Omstead KM, **Burrows AM**, Hartstone-Rose A. 2021. Anatomical and ontogenetic influences on muscle density. *Scientific Reports* 11: 2114.

- Smith TD, Reynolds RL, Mano N, Wood BJ, Oladipupo L, Hughes GK, Corbin HM, Taylor J, Ufelle J, **Burrows AM**, Durham E, Vinyard CJ, Cray JJ, DeLeon VB. 2021. Cranial synchondroses of primates at birth. *Anatomical Record* 304; 1020-1053.
- Burrows AM**, Kaminski J, Waller BM, Omstead KM, Rogers-Vizena C, Mendelson B. 2021. Dog faces exhibit anatomical differences in comparison to other domestic animals. *Anatomical Record* 304: 231-241.
- Clark PR, Waller BM, **Burrows AM**, Julie-Danière E, Agil M, Engelhardt A, Micheletta J. 2021. Morphological variants of bared-teeth displays have different social interaction outcomes in crested macaques (*Macaca nigra*). *American Journal of Physical Anthropology* (in press).
- Nekaris KAI, **Burrows AM** (co-editors). 2020. Evolution, Ecology and Conservation of Lorises and Pottos. Cambridge: Cambridge University Press.
- Dickinson E, Atkinson E, Meza A, Kolli S, Deutsch AR, **Burrows AM**, Hartstone-Rose A. 2020. Visualization and quantification of mimetic musculature via DiceCT. *PeerJ*; 8:e9343.
- Selig KR, López-Torres S, Hartstone-Rose A, Nash LT, **Burrows AM**, Silcox MT. 2020. A novel method for assessing enamel thickness distribution in the anterior dentition as a signal for gouging and other extractive foraging behaviors in gummivorous mammals. *Folia primatologica* 91: 365-384.
- Burrows AM**, Nash LT, Hartstone-Rose A, Silcox MT, López-Torres S, Selig KR. 2020. Dental signatures for exudativory in living Primates, with comparisons to other gouging mammals. *Anatomical Record* 303: 265-281.
- Hemingway HW, **Burrows AM**, Omstead KM, Zohdy S, Pastor J, Muchlinski MN. 2020. Vertical clinging and leaping ahead: how bamboo has shaped the anatomy and physiology of *Haplemur*. *Anatomical Record* 303: 295-307.
- Burrows AM**, Nash LT, Hartstone-Rose A, Selig KR, Silcox MT, López-Torres S. What role did gum-feeding play in the evolution of the lorises? 2020. In: Nekaris KAI, Burrows AM (eds), Evolution, Ecology and Conservation of Lorises and Pottos. Cambridge: Cambridge University Press, 2020, pgs. 153-164.
- Nekaris KAI, **Burrows AM**. Introduction – Overview of lorises and pottos. 2020. In: Nekaris KAI, Burrows AM (eds), Evolution, Ecology and Conservation of Lorises and Pottos. Cambridge: Cambridge University Pressm 2020, pgs. 1-11.
- López-Torres S, Selig KR, **Burrows AM**, Silcox MT. 2020. The toothcomb of *Karanisia clarki* – How does exudate-feeding fit into this loris-like basal strepsirrhine? In: Nekaris KAI, Burrows AM (eds), Evolution, Ecology and Conservation of Lorises and Pottos. Cambridge: Cambridge University Press, 2020, pgs. 67-75.
- Muchlinski MN, Hemingway HW, Grant RA, **Burrows AM**. 2020. Outliers: have lorises moved beyond touch? In: Nekaris KAI, Burrows AM (eds), Evolution, Ecology and Conservation of Lorises and Pottos. Cambridge: Cambridge University Press, 2020, pgs. 47-56.
- Kaminski J, Waller BM, Diogo R, Hartstone-Rose A, **Burrows AM**. 2019. Evolution of facial muscle anatomy in dogs. *Proceedings of the National Academy of Sciences*; doi: 10.1073/pnas.1820653116.
- Smith TD, McMahon MJ, Millen ME, Llera C, Engel SM, Li L, Bhatnagar KP, **Burrows AM**, Zumpano MP, DeLeon VB. 2019. The sphenoethmoidal junction of primates and its significance to longitudinal and vertical growth of the midface. *Anatomical Record* 2017; 300: 2115-2137.

- Burrows AM**, Omstead KM, Deutsch A, Hartstone-Rose A. 2019. Reverse dissection and DiceCT reveal otherwise hidden data in evolution of the human face. *Journal of Visualized Experiments* (143), e58394, doi:10.3791/58394. **Includes a video component.**
- Burrows AM**, Organ JM. Prosimian locomotion. 2018. In: Vonk J, Schackelford T (eds), *Encyclopedia of Animal Cognition and Behavior*. New York: Springer. 2018. DOI 10.1007/978-3-319-47829-6_451-1.
- Muchlinski MN, Hemingway HW, Pastor J, Omstead KM, **Burrows AM**. 2018. How the brain may have shaped muscle anatomy and physiology: a preliminary study. *Anatomical Record* 301: 528-537.
- Burrows AM**. 2018. Functional morphology of mimetic musculature in primates: how social variables and body size stack up to phylogeny. *Anatomical Record* 301: 202-215.
- Caeiro CC, **Burrows AM**, Walker BM. 2016. Development and application of CatFACS: Are human cat adopters influenced by cat facial expressions? *Applied Animal Behaviour Science*; 189: 66-78.
- Mooney MP, Shand JM, **Burrows AM**, Smith TD, Caccamese J, Cooper GM, Cray J, Gilbert J, Costello B, Losee JE, Moursi AM, Siegel MI. 2016. Rescue of premature coronal suture fusion with TGF- β 2 neutralizing antibody in rabbits with delayed-onset synostosis. *Cleft Palate-Craniofacial Journal* Early View.
- Gilbert J, Karski M, Smith TD, **Burrows AM**, Norbutt C, Siegel MI, Costello BJ, Cray JJ, Jr., Losee JE, Moursi AM, Cooper GM, Mooney MP. 2016. Transforming growth factor- β 3 therapy delays postoperative reossification and improves craniofacial growth in craniosynostotic rabbits. *Cleft Palate-Craniofacial Journal* 53: 210-221.
- Scheider L, Liebal K, **Burrows AM**, Waller BM. 2016. Social use of facial expressions in different hylobatid species. *PLoS One* 2016; 11(3):e0151733. doi: 10.1371/journal.pone.0151733.
- Burrows AM, Waller BM, Micheletta J. 2016. Mimetic muscles in a despotic macaque (*Macaca mulatta*) differ from those in a tolerant macaque (*M. nigra*). *Anatomical Record* 299: 1317-1324.
- Rosenberger AL, Smith TD, DeLeon VB, **Burrows AM**, Schenck R, Halenar LB. 2016. Eye size and set in small-bodied fossil primates: a three-dimensional model. *The Anatomical Record* 299: 1671-1689.
- Harvey BM, Bhatnagar KP, Schenck RJ, Rosenberger AL, Rehorek SJ, **Burrows AM**, DeLeon VB, Smith TD. 2016. Membranous support for eyes of strepsirrhine primates and fruit bats. *The Anatomical Record* 299: 1690-1703.
- Burrows AM**, Rogers-Vizena CR, Li L, Mendelson B. 2016. The mobility of the human face: more than just the musculature. *The Anatomical Record* 299: 1779-1788.
- Wible JR, **Burrows AM**. 2016. Was the Middle Jurassic *Agilodocodon* (Docodonta, Mammaliaformes) an exudativore? *Paleontologica Polonica* 67: 289-299.
- Burrows AM**, Li L, Waller BM, Micheletta J. 2016. Social variables exert selective pressures in the evolution and form of primate mimetic musculature. *Journal of Anatomy* 228: 595-607.
- Burrows AM**, Cohn JF. Comparative Anatomy of the Face. 2014. In: Li SZ, Jain AK (eds), *Encyclopedia of Biometrics*, 2nd edition. New York: Springer. 2015, DOI: 10.1007/978-3-642-27733_190-3.
- Smith TD, Muchlinski MN, Bhatnagar KP, Durham EL, Bonar CJ, **Burrows AM**. 2015. The vomeronasal organ of *Lemur catta*. *American Journal of Primatology* 77: 229-238.

Julle-Danière E, Micheletta J, Whitehouse J, Joly M, Gaß C, **Burrows AM**, Waller BM. 2015. MaqFACS (Macaque Facial Action Coding System) can be used to document facial movements in Barbary macaques (*Macaca sylvanus*). *PeerJ* 2015; 3: e1248 <https://dx.doi.org/10.7717/peerj.1248>.

Burrows AM, Nash LT, Hartstone-Rose A. 2015. Exudatory in the Asian loris, *Nycticebus*: evolutionary divergence in the toothcomb and M₃. *American Journal of Physical Anthropology* 158: 663-672.

Wathan J, **Burrows AM**, Waller BM, McComb K. 2015. EquiFACS: the equine facial action coding system. *PLoS One* 2015; 10(8): e0131738. doi:10.1371/journal.pone.0131738.

Burrows AM, Parr LA, Durham EL, Matthews LC, Smith TD. 2014. Human faces are slower than chimpanzee faces. *PLoS One* 2014; 9(10): e110523. doi:10.1371/journal.pone.0110523.

Smith TD, Muchlinski MN, Bhatnagar KP, Durham EL, Bonar CJ, **Burrows AM**. 2014. The vomeronasal organ of *Lemur catta*. *American Journal of Primatology* 2014.

Burrows AM, Durham EL, Matthews LC, Smith TD, Parr LA. 2014. Of mice, monkeys and men: Physiological and morphological evidence for evolutionary divergence of function in mimetic musculature. *Anatomical Record* 29: 1250-1261.

Scheider L, K Liebal, Oña L, **Burrows AM**, Waller B. 2014. A comparison of facial expression properties in five species of gibbon. *American Journal of Primatology* 76: 618-628.

Waller BM, Scheider L, Caeiro C, Peirce K, McCune S, **Burrows AM**, Kaminski J. 2013. Neotenous facial expressions give dogs a selective advantage. *PLoS ONE* 2013; 8(12): e82686. doi: 10.1371/journal.pone.0082686.

Garrett EC, Dennis JC, Bhatnagar KP, Durham EL, **Burrows AM**, Bonar CJ, Steckler NK, Morrison EE, Smith TD. 2013. The vomeronasal complex of nocturnal strepsirhines and implications for the ancestral condition in primates. *Anatomical Record* 296: 1881-1894.

Caiero C, Waller BM, Zimmermann E, **Burrows AM**, Davila-Ross M. 2013. OrangFACS: A muscle-based coding system for orangutan facial movements. *International Journal of Primatology* 34: 115-129.

Muchlinski MN, Durham EL, Smith TD, **Burrows AM**. 2013. Comparative histomorphology of intrinsic vibrissa musculature among primates: implications for sensory ecology. *American Journal of Physical Anthropology* 150: 301-312.

Waller BM, Liebal K, **Burrows AM**, Slocombe KE. 2013. How can studying non-human animals help us understand the evolution of human communication? *Evolutionary Psychology* 11: 538-549.

Liebal K, Waller BM, **Burrows AM**, Slocombe KE. 2013. *Primate Communication*. Cambridge: Cambridge University Press.

Peer Reviewed Scientific and Professional Presentations: From the most recent to the earliest
Panageas AS, Leeper B, Marshall P, Ludvico L, Jensen-Seaman M, Burrows AM.
Cleaning is the hardest part: best practices for chemically defleshing fixed, irregular human bones.
American Journal of Biological Anthropology
92nd Annual Meeting of the American Association of Biological Anthropologists
March 2022, Denver, CO

Burrows AM, López-Torres S, Seelig KR, Silcox MT.
Lemuroid teeth vs. loroid teeth: different ways to go for gums.
92nd Annual Meeting of the American Association of Biological Anthropologists
March 2022, Denver, CO

Burrows AM, Omstead KM, Williams JS.
Dog faces are faster than wolf faces.
2022 Annual Meeting of the American Association for Anatomy
April 2022, Philadelphia, PA.

Omstead KM, Williams JS, Marazita ML, Weinberg SM, Burrows AM.
Stretching the face: mimetic muscles have muscle spindles.
2022 Annual Meeting of the American Association for Anatomy
April 2022, Philadelphia, PA

Correia-Caeiro C, Burrows A, Muta K, Hata J, Nishimura R, Okano HJ, Miyabe-Nishiwaki T.
CalliFACS: A new muscle-based coding system to measure common marmosets' facial movements.
10th Japan Society for Marmoset Research Meeting
January, 2021, Virtual Meeting

Selig KR, López-Torres S, Burrows AM, Silcox MT.
Dental topographic analysis of living and fossil loroids.
Society for Vertebrate Paleontology 2021 Annual Meeting
November 2021, Virtual Meeting

Burrows AM.
Primate facial expression in the rhesus macaque – putting together the picture.
7th Annual 3R's Symposium (co-hosted by USDA and NIH)
June 2020, Virtual

Burrows AM, Hartstone-Rose A, Nash LT, Silcox MT, Selig KR, López-Torres S.
The uncertainty of the potto and exudate-feeding in Loroidae
89th Annual Meeting of the American Association of Physical Anthropologists
March 2019, Cleveland, OH

Burrows AM, Hartstone-Rose A, Nash LT, Silcox MT, Selig KR, López-Torres S.
Disappearing enamel and molars – the evolution of a dietary niche focused on gums.
2019 Annual Meeting of the American Association of Anatomists
April 2019, Orlando, FL

Omstead KM, Muchlinski MN, Heminway HW, Burrows AM.
A muscle-fiber comparison in apes based on brain size and locomotor style.
2019 Annual Meeting of the American Association of Anatomists
April 2019, Orlando, FL

Omstead KM, Muchlinski MN, Hemingway HW, Burrows AM.
Muscle fiber-type composition of primates in relation to brain size.
2018 Annual Meeting of the American Association of Anatomists
April 2018, San Diego, CA

Selig KR, López-Torres S, Hartstone-Rose A, Burrows AM, Silcox MT.
Differential enamel thickness in the anterior dentition as a signal for gouging behavior.
87th Annual Meeting of the American Association of Physical Anthropologists
April, 2018, Austin, TX

Deutsch AR, Burrows AM, Hartstone-Rose A.

DiceCT visualization of lemuroid mimetic musculature with a focus on *Daubentonia*

87th Annual Meeting of the American Association of Physical Anthropologists

April, 2018, Austin, TX.

Burrows AM, Diogo R, Waller BM, Kaminski J.

Variation of facial musculature between wolves and domestic dogs: evolutionary divergence in facial movement.

2017 Annual Meetings of the American Association of Anatomists

April 2017, Chicago, IL

Smith TD, McMahon MJ, Millen ME, Li L, Llera C, Burrows AM, Zumpano MP, DeLeon VB.

Growth characteristics of the anterior cranial base and posterior ethmoidal reduction in newborn primates.

2017 Annual Meeting of the Society for Integrative & Comparative Biology

January, 2017, New Orleans, LA.

Burrows AM, Hartstone-Rose A, Nash LT.

Exudate-feeding in Lorisidae: Evolutionary divergence in the toothcomb and lower molar.

86th Annual Meeting of the American Association of Physical Anthropologists

April, 2017, New Orleans, LA.

Harvey BM, Bhatnagar KP, DeLeon VB, Burrows AM, Rehorek SJ, Smith TD.

Supporting big eyes: bone or no bone?

85th Annual Meeting of the American Association of Physical Anthropologists

April, 2016, Atlanta, GA

Burrows AM, Scheider L, Waller BM, Leonardo O, **Liebal K**.

Social use of facial expressions in several species of small apes (Hylobatids).

26th Congress of the International Primatological Society

August 2016, Chicago, IL

Muchlinski M, Smith T, Ly L, Durham EL, **Burrows AM**.

Are tarsiers fast or slow? A comparison of the triceps surae muscle and muscle fibers

84th Annual Meeting of the American Association of Physical Anthropologists

March, 2015, St. Louis, MO.

Burrows AM, **Smith TD**, Durham EL, Bonar CJ, Vinyard CJ.

Timing of facial suture closure is delayed in gouging vs. non-gouging marmosets.

2015 Annual Meetings of the American Association of Anatomists

March 2015, Boston, MA

Burrows AM, Ly L. What's inside tarsier faces?

84th Annual Meeting of the American Association of Physical Anthropologists

March, 2015, St. Louis, MO.

Burrows AM, Durham EL, Matthews LC, Smith TD, Parr LA.

Did speech slow down the human face? Human facial muscles have a high proportion of slow myosin fibers compared to other primates.

2014 Annual Meetings of the American Association of Anatomists

April 2014, San Diego, CA

Muchlinski MN, Durham EL, Smith TD, Parr LA, **Burrows AM**.

To whisk or not to whisk: Implication of proportions of myosin fiber type on the functional anatomy of vibrissa musculature in primates.

82nd Annual Meeting of the American Association of Physical Anthropologists

April 2013, Knoxville, TN.

Burrows AM, **Durham EL**, Matthews LC, Smith TD, Parr LA.
How good are mice and monkeys as models for human face transplants? comparative physiological perspectives on myosin fiber types.
2013 Annual Meetings of the American Association of Anatomists
April 2013, Boston, MA

Cray JJ, Jr., Smith TD, Burrows AM.
Craniofacial suture fusion in primates.
2013 Annual Meetings of the American Association of Anatomists
April 2013, Boston, MA

Funded/In Review Grant Activity:

Burrows AM (PI), Law CJ (Co-PI), López-Torres S (I), Selig KR (I), Silcox MT (I).
999,152 (pending)
Integrative aspects of craniodental morphology, diet, and behavior: the evolutionary ecology of primate gumivory
1/2023 NSF

Muchlinski MN (PI), Hartstone-Rose A (I), Diogo R (I), **Burrows AM** (consultant).
30,000 (to Duquesne)
Collaborative Research: Skeletal muscle constraint on relative brain size.
7/2025 NSF
National Science Foundation

Current/Active Research Activity:

Burrows AM
Evolution of the domestic dog
research

Membership in Scientific/Professional Organizations:

American Association of Biological Anthropologists
1995-current

American Association for Anatomy
2000-current
Board of Directors

American Society of Mammalogists
1995-current

International Society of Primatologists
2004-current

Consultative and Advisory Positions Held:

Title or nature
Agency
Duration (from – to -)

Community Service:

American Association for Anatomy
Board of Directors
2020-present

Animal Friends
Volunteer Dog Handler
2019-present

Services to the University/College/School on Committees/Councils/Commissions:

University Promotion & Tenure Committee
2021-present

Faculty Senate President
2016-2020

~~Others available upon request~~

Department
Curriculum Committee
2020-current