

NICOLE DANOS, PHD
Department of Biology
5998 Alcalá Park | San Diego CA 92110
619.260.3143 | ndanos@sandiego.edu

ACADEMIC POSITIONS

Assistant Professor of Biology, <i>University of San Diego</i> .	2016 to present
Post-doctoral researcher in Neuromechanics , <i>Biology, Tufts University</i> .	2014- 2016
Post-doctoral researcher in Muscle Physiology , <i>Ecology and Evol. Biol., UC Irvine</i> .	2012- 2014
Laboratory instructor for Evolutionary Human Physiology and Anatomy , <i>Harvard U</i> .	Fall 2011

EDUCATION

Ph.D.	Biology (2011)	Harvard University
M.S.	Organismic and Evolutionary Biology (2005)	University of Massachusetts, Amherst
B.A.	Integrative Biology (2002)	University of California, Berkeley

USD TEACHING: Completed and Scheduled

Biology of Organisms – Lab (BIOL 221L). Spring 2017, 2018; Fall 2017.

Comparative Anatomy of Vertebrates with Lab (BIOL 320/L). Fall 2017, 2018, 2019, 2020.

Genomes and Evolution – Lab (BIOL 242L). Spring 2018, Fall 2018, 2019.

Vertebrate Natural History with Lab (BIOL 346/L). Spring 2019, 2020.

MENTORED STUDENTS

Current: Timothy Belanger, Richard (Jacob) Barretto, Beatriz Martinez-Martin

Alumni: Nicole Potts (currently in DVM program at U. Minnesota), Jalen Paulos (currently in MD program at U. Nevada Las Vegas), Megan Lee (Honors, currently a research technician at UCSD), Michael Gloriani (Honors), Francesca Bilotta, Marie Bagana, Ethan Iles, Tiffany Truong, Lauren Foehr, Maxwell Johnson.

SELECTED AWARDS AND HONORS

Award (\$30,000 over two years) from private donors, 2019/20.

Faculty Research Grants, 2018/19, 2019/20, 2020/21.

Principal Investigator, NSF “Conference: “Educating the Vertebrate Morphologists of the 21st Century: technology, pedagogy, and core concepts” (IOS-1928922), 2019.

Principal Investigator, “Conference: “Educating the Vertebrate Morphologists of the 21st Century: technology, pedagogy, and core concepts”, Carl Gans Foundation. 2019.

Senior Personnel, NSF “MRI: Acquisition of a Rheometer for Interdisciplinary Material Science Research and Training of Undergraduate Researchers” (CBET-1919429). 2019.

Senior Personnel, NSF “REU Site: Integrative Biology and Ecology of Marine Organisms” (DBI-185209), 2019-2022.

Co-Principal Investigator, NSF award “MEETING: International Congress of Vertebrate Morphology, July 8-12, Barcelona, Spain” (award no. 1306718). 2013.

Five Distinguished Teacher awards, Bok Center for Teaching and Learning, Harvard University. 2008-2011.

NOT-FUNDED GRANT PROPOSALS

- Subramanian, V., Iovine, P. and Danos, N. (2019) "Catalyzing a Sustainable Campus Ecosystem that Supports the Creation and Care of Intellectual Property", USD Strategic Initiatives.
- Danos, N. and Sitaraman, D. (2018). "Supporting faculty pursuits of extramural funding". USD Strategic Initiatives.
- Danos, N. and Kenaley, C. (2017). "Collaborative Research: RUI: A comparative analysis of skin mechanics across the ray-finned fish tree of life". BIO directorate, National Science Foundation. Role: co-PI.
- Danos, N. and German, R. (2017). "R21: Building a biomimetic breast: linking breast biomechanics and infant feeding". National Institutes of Health. Role: co-PI.

INVITED LECTURES

- Danos, N.** (2019). Pregnancy-induced changes to muscle-tendon morphology and function. Georgia Institute of Technology.
- Danos, N.** (2018). Sexual dimorphism in functional morphology. California State University San Bernardino.
- Danos, N.** (2014). Studies of the form-function relationship between collagenous structures and locomotion in vertebrates. Department of Biology, California State University Long Beach.
- Danos, N.** (2013). Passive muscle properties determine active force production. Department of Biology, Hurvey Mudd College.
- Danos, N.** (2009). The effect of increased viscosity on the development and evolution of intramuscular bones in fishes. Interdisciplinary Approaches in Fish Skeletal Biology. Tavira, Portugal.

PEER-REVIEWED PUBLICATIONS (*denotes undergraduate student)

1. Chandrasekaran, S., **Danos, N.**, George, U., Han, J., Quon, G., Müller, R. Tsang, Y., Wolgemuth, C. (2021) The Axes of Life: A roadmap for understanding dynamic multiscale systems. *Reintegrating Biology* vision papers, *Integrative and Comparative Biology*, 2021, icab114, <https://doi.org/10.1093/icb/icab114>
2. Tytell, E. D., Carr, J. A., **Danos, N.**, Wagenbach, C., Sullivan, C. M., Kiemel, T., Cowan, N. J. and Ankarali, M. M. (2018). Body stiffness and damping depend sensitively on the timing of muscle activation in lampreys. *Integrative and Comparative Biology* **205**, 379.
3. Ballester, A., Gould, F., Bond, L., Stricklen, B., Ohlemacher, J., Gross, A., DeLozier, K., Buddington, R., Buddington, K., **Danos, N.**, et al. (2018). Maturation of the Coordination Between Respiration and Deglutition with and Without Recurrent Laryngeal Nerve Lesion in an Animal Model. *Dysphagia* 1–9.
4. **Danos, N.**, Holt, N., Sawicki, G. and Azizi, E. (2016). Modeling age-related changes in muscle-tendon dynamics during cyclical contractions in the rat gastrocnemius. **121**, *Journal of Applied Physiology* 1004–1012.
5. Holt, N., **Danos, N.**, Roberts, T. and Azizi, E. (2016). Stuck in gear: age-related loss of variable gearing in skeletal muscle. *J. Exp. Biol.* **219**, 998–1003
6. **Danos, N.** and Azizi, E. (2015). Passive stiffness of hindlimb muscles in anurans with distinct locomotor specializations. *Zoology*, 118 (4), 239–247.
7. Azizi, E., Abbott, E., Larson, N*. and **Danos, N.** (2014). Reduce torques and stick the landing: Limb posture during landing in toad. *J. Exp. Biol.* **217**, 3742-3747.
8. **Danos, N.** and Aguilar-Roca, N. (2014). Case studies in the use of graphical illustrations in science teaching. In *Graphicacy and Culture: Refocusing on Visual learning*, by Danos, X. Loughborough Design Press, UK.
9. **Danos, N.** and Ward, A. (2012). The homology and origins of intermuscular bones in fishes: phylogenetic or biomechanical determinants? *Biol. J. Linnaean Soc.* **106** (13), 607-622.
10. **Danos, N.** and Lauder, G. (2012). Challenging zebrafish escape responses by increasing water viscosity. *J. Exp. Biol.* **215**, 1854-1862.
11. **Danos, N.** (2012). Locomotor development under novel hydrodynamic conditions in zebrafish (*Danio rerio*). *J. Exp. Zoology A.* **317** (2), 117-126.

12. **Danos, N.** and Staab, K. L. (2010). Can mechanical forces be responsible for novel bone development and evolution in fishes? *J. Applied Ichthyol.* 26, 156-161.
13. **Danos, N.**, Fisch, N. and Gemballa, S. (2008). The musculotendinous system of an anguilliform swimmer: Muscles, myosepta, dermis, and their interconnections in *Anguilla rostrata*. *J. Morph.* 269, 29-44
14. **Danos, N.** and Lauder, G. V. (2007). The ontogeny of fin function during routine turns in zebrafish *Danio rerio*. *J. Exp. Biol.* 210, 3374-3386. Inside JEB commentary by Blackburn, L. (2007). TURNING PERFORMANCE IN GROWING ZEBRAFISH, vol. 210, pp. iii.

PAST TEACHING & MENTORING

- Laboratory Teaching Fellow. **Evolutionary Human Anatomy and Physiology**. Harvard University. Earned distinguished teacher award (2011).
- Laboratory Teaching Fellow. **Evolution of Vertebrates**, Harvard University. Prepared and supervised weekly museum-based laboratory exercises in vertebrate comparative anatomy. Earned distinguished teacher awards (2009, 2010).
- Teaching Fellow. **Advanced Structure and Physiology of Vertebrates**, Harvard University. Supervised two undergraduate students conducting independent research projects (2008).
- Teaching Fellow. **Evolution**, Harvard University. Led 2-hour weekly sessions discussing “On the Origin of Species” and introductory evolutionary biology concepts. Earned two distinguished teacher awards (2008, 2010, 2011).
- Teaching Fellow. **Patterns and Processes of Fish Diversity**, Harvard University. Survey of fish diversity with focus on major anatomical innovations (2005).
- Organizer and leader. **Classic Readings in Evolutionary Biology**, University of Massachusetts Amherst. Departmental seminar series (2004).
- Teaching fellow. **Functional Morphology and Ecology of Marine Fishes**, Friday Harbor Marine Labs, University of Washington. Assisted students with independent field research projects (2004).
- Laboratory instructor. **Introductory Biology**, University of Massachusetts Amherst (2003).
- Mentor for the High School Apprenticeship Program** (Army Educational Outreach Program) (2015).
- Mentor to undergraduate women in science and engineering** through the Harvard Women In Science and Engineering program (2005 to 2008).

CONFERENCE PRESENTATIONS SINCE ARRIVAL AT USD (* denotes student mentee)

- Bilotta, F.*; Lee, M.*; **Danos, N.** (2020). Pregnancy-induced changes to muscle-tendon morphology and function. *Soc. Integr. & Comp. Biology*, Austin, TX.
- Whitenack, LB; Staab, KL; **Danos, N.** (2019). TAL-X Workshop: Identifying the core concepts of vertebrate morphology teaching: a means to enhance active learning and retention in the classroom. *Society sponsored education workshop. Soc. Integr. & Comp. Biology*, Tampa, FL.
- Whitenack, LB; Staab, KL; **Danos, N.** (2019). What are the core concepts of vertebrate morphology? *Soc. Integr. & Comp. Biology*, Tampa, FL.
- Megan, L.*; **Danos, N.** (2018). Effects of pregnancy on muscle function. *South West Organismal Biology conference*, CSU San Marcos.
- Danos, N.** (2018). Effect of pregnancy on muscle function. *Soc. Integr. & Comp. Biology*, San Francisco, CA.
- Danos, N.**, and German, R.Z. (2016). On the need for a biomimetic breast device. *APS Division of Fluid Dynamics*. Portland, OR.

ACADEMIC SERVICE

Advisor to the Council of Ministers, Republic of Cyprus, Working Group for the creation of a national Natural History Museum (Dec 2019 – present)

Program officer-elect, Division of Vertebrate Morphology, Society for Integrative and Comparative Biology (May 2019)

Provost's Intellectual Property Policy Task Force (Aug 2018 – present)

Science/Math IT committee (Mar 2019 – present)

External reviewer for J. Biomechanics, Integrative and Comparative Biology, J. Experimental Biology, Proceedings of the Royal Society, J. Morphology, J. Anatomy, Zoology, Nature

SCIENCE & COMMUNITY OUTREACH, selected activities

Urban Canyons Research Convention participant, San Diego Natural History museum (2020).

Faculty Mentor, Society for Integrative and Comparative Biology (2019).

STEAM Academy Lab tour (2018).

Tecolote Nature Center (2018). Initiated an ongoing collaboration with Tecolote Park Rangers and Nature center for long-term study and preparation of educational materials as part of USD class assignments.

INDUSTRY EXPERIENCE

Tufts Technology Transfer office internship (2015).

Consultant for Apex Medical Technologies (San Diego, CA) on a project funded by the Bill and Melinda Gates Foundation (2013).

PROFESSIONAL SOCIETIES

Society for Integrative and Comparative Biology

Sigma-Xi Associate Member

Society for Experimental Biology

PREVIOUS RELEVANT RESEARCH EXPERIENCE

Program manager for *HerpNet*, an NSF-funded initiative to connect 36 herpetological natural history collections in North and Central America via a distributed database. University of California Berkeley, 2003.