

Becca Young

Curriculum Vitae

Contact Information:

Becca Young
Research Associate
Assistant Professor of Instruction
The University of Texas at Austin
Integrative Biology
2415 Speedway #C0930
Patterson Labs 306
(520) 360-2866
E-mail: youngrl@utexas.edu
Twitter: @BecYBrim
Website: <http://devoevo.cccb.utexas.edu>

Professional Appointments:

- 2019-present University of Texas, Austin, TX – Assistant Professor of Instruction, Texas Institute for Discovery Education in Science (TIDES), Freshman Research Initiative (FRI): Big Data in Biology stream (2019) EvoDevOmics stream (PI) 2022
- 2016 University of Texas, Austin TX – Lecturer
- 2014-present University of Texas, Austin, TX – Research Associate, Integrative Biology, Center for Computational Biology and Bioinformatics
- 2008-2012 Yale University, New Haven, CT – Postdoctoral Fellow/Associate, Yale Systems Biology Institute

Education:

- 2002-2008 University of Arizona, Tucson, AZ – PhD. Ecology and Evolutionary Biology, mentor: Alex Badyaev
- 1997-2001 Miami University, Oxford, OH – B.S. Zoology, Cum Laude, mentor: Doug Meikle

Grants:

- (\$1,387,491) pending – co-PI, National Science Foundation (IOS 2154571): Repeatability of Social Evolution: How Natural History and Neurogenomic Mechanisms Sculpt Behavior. 2022-2026
- \$138,068 – PI, Stengl-Wyer Endowment Program: *EvoDevOmics: a Freshman Research Initiative Stream*. 2021-2023
- \$1,673 – PI, Proteomics Core Facility Start-Up Grant, Center for Biomedical Research Support, UT Austin: *Proteomic mechanisms of avian maternal effects*, 2020
- \$75,491 – PI, Stengl-Wyer Endowment Program: *Diversification of Vertebrate Embryogenesis through the Developmental Hourglass*. 2020
- \$84,329 – co-PI, Stengl-Wyer Endowment Program: *Leveraging Biodiversity to Understand Social Dominance across Vertebrates*. 2020
- \$85,311 – PI, NSF BEACON Center for Evolution in Action: *Genomic and Computational Dissection of the Function and Evolution of Life History Transitions*. 2019
- \$60,705 – co-PI, NSF BEACON Center for Evolution in Action: *Social Dominance: Understanding Depression and Bullying Through an Evolutionary Lens*. 2019
- \$10,000 – co-PI, UT Austin VPR Research and Creative Grant: *Repeatability of Social Evolution*. 2017
- \$50,000 – co-I, UT Austin College of Natural Sciences Catalyst Grant. *Uncovering the Dark Neuropeptidome*. 2017
- \$116,730 – PI, NSF BEACON Center for Evolution in Action: *Developmental Evolution in Action: Testing the Hourglass Model in vivo and in silico*. 2015
- \$12,000 – NSF Dissertation Improvement Grant, Population and Evolutionary Processes Panel, 2006-2008
- \$1500 – Grant-In-Aid, American Society of Mammalogists, 2005, 2006
- \$3500 – Ecology and Evolutionary Biology Small Research Grant, University of Arizona, 2003-2006

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Fellowships, Honors, & Awards:

- \$500 NSF BEACON travel grant, 2019
- Poster Award, Honorable Mention – Pan-American Society for Evolutionary Developmental Biology, 2019
- \$30,000 - American Postdoctoral Fellowship, American Association of University Women, 2009-2010
- Scholar Award, Ecology and Evolutionary Biology Department recipient, College of Science nominee, University of Arizona, 2008
- Galileo Circle Scholarship, University of Arizona, 2006
- Travel Grant, Graduate and Professional Student Council, University of Arizona, 2004, 2005, 2008
- Honorable mention, NSF Graduate Research Fellowship Program, 2002, 2004
- Travel Grant, Women in Science and Engineering, University of Arizona, 2003
- Graduate College Fellowship, University of Arizona, 2002
- Outstanding Undergraduate Research, Sigma Xi, Miami University, 2001
- Phi Beta Kappa, Miami University, 2001
- Howard Hughes Medical Institute Fellowship, Miami University, 2000

Research Interests:

- Comparative transcriptomics and bioinformatics
- Evolution and development of morphology and behavior
- Maternal effects and other mechanisms of developmental plasticity

Original Publications:

[Google Scholar Profile](#)

Price, S. M., M. Schumer, S.M.T. Wang, **R.L. Young**, M.E. Cummings. Individual variation in preference and affiliative behavior in sailfin fish refines the neurotranscriptomic pathway for mate preference. *In revision (Molecular Ecology)*

Lee, W., T.M. Milewski, M.F. Dworz, **R.L. Young**, A.D. Gaudet, L.K. Fonken, F.A. Champagne, J.P. Curley (2021). Distinct inflammatory and transcriptomic profiles in dominant versus subordinate males in mouse social hierarchies. *BioRxiv*, 2021.09.04.458987. doi: 10.1101/2021.09.04.458987. *In revision (Brain, Behavior, and Immunity)*

Young, R.L.*, B.J. Liebeskind*, D.B. Halling, R.W. Aldrich, E.M. Marcotte. 2020. Mapping Functional Protein Neighborhoods in the Mouse Brain. *BioRxiv* 920447. *In revision (Scientific Reports)*

* authors contributed equally

Chan, M.E.¹, P.S. Bhamidipati¹, H.J. Goldsby, A. Hintze, H.A. Hofmann, and **R.L. Young**. 2021. Comparative transcriptomics reveal distinct patterns of expression conservation through vertebrate embryogenesis. *Genome Biology and Evolution* 13(8):evab160.

¹undergraduate researchers

Hernandez Scudder, M.E*, **R.L. Young***, L.M. Thompson, P. Kore¹, D. Crews, H.A. Hofmann, and A.C. Gore. 2021. EDCs Reorganize Brain-Behavior Phenotypic Relationships in Rats. *Journal of the Endocrine Society* 5: bvab021.

* authors contributed equally

¹undergraduate researcher

Eastman, G., G. Valiño, S. Radío, **R.L. Young**, L. Quintana, H.H. Zakon, H.A. Hofmann, J. Sotelo-Silveira, A. Silva. 2020. Brain transcriptomics of agonistic behaviour in the weakly electric fish *Gymnotus omarorum*, a wild teleost model of non-breeding aggression. *Scientific Reports* 10 (1) 9496.

Young, R.L. and H.A. Hofmann. 2019. Reply to [Jiang and Zhang]: Parallel transcriptomic signature of monogamy: What is the null hypothesis anyway? *Proceeding of the National Academy of Sciences*. 116 (36) 17629-17630.

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Young, R.L., M.H. Ferkin, N.F. Ockendon, V.N. Orr, S.M. Phelps, Á. Pogány, C.L. Richards-Zawacki, K. Summers, T. Székely, B.C. Trainor, A.O. Urrutia, G. Zachar, L.A. O’Connell, and H.A. Hofmann. 2019. Conserved transcriptomic profiles underpin monogamy across vertebrates. *Proceeding of the National Academy of Sciences* 116: 1331-1336.

*Media coverage (selected):

- Gizmodo: [Monogamous Species Share Deep Genetic Similarities](#)
- Scientific American: [Monogamy May Be Written in Our Genes](#) and [Sixty Second Science podcast](#)
- El País: [Identificados los genes relacionados con la tendencia a la monogamia](#)
- Der Tagesspiegel: [Das Gen-Rezept für Treue](#)
- The Boston Globe: [Is there a monogamy gene?](#)
- The Guardian: [Base paired up: study suggests genetic formula to monogamy](#)
- KUT Austin– National Public Radio: *Evolution of monogamy*

Goldsby H.J., **R. L. Young**, J. Schossau, H.A. Hofmann, and A. Hintze. 2018. Serendipitous scaffolding to improve a genetic algorithm's speed and quality. In *Proceedings of the Genetic and Evolutionary Computation Conference Companion* (GECCO '18). ACM, New York, NY, USA, 959-966.

Goldsby, H.J., **R.L. Young**, H.A. Hofmann, and A. Hintze. 2017. Increasing the complexity of solutions produced by an evolutionary developmental system. In *Proceedings of the Genetic and Evolutionary Computation Conference Companion* (GECCO '17). ACM, New York, NY, USA, 57-58.

Snell-Rood, E., E. Swanson, and **R.L. Young**. 2015. Life history as a constraint on plasticity: developmental timing is correlated with phenotypic variation in birds. *Heredity* 115: 379-388.

Young, R.L. 2013. Linking conceptual mechanisms and transcriptomic evidence of plasticity-driven diversification. *Molecular Ecology* 22: 4363-4365.

Brandley, M.C., **R.L. Young**, D.L. Warren, M.B. Thompson, and G.P. Wagner. 2012. Uterine gene expression in the live-bearing lizard, *Chalcides ocellatus*, reveals convergence of squamate and mammalian pregnancy mechanisms. *Genome Biology and Evolution* 4: 394-411.

Wang Z, **R.L. Young**, H. Xue, G.P. Wagner. 2011. Transcriptomic analysis of avian digits reveals conserved and derived digit identities in birds. *Nature* 477:583-586.

Young, R.L., G. Bever, Z. Wang, and G. P. Wagner. 2011. Identity of the avian digits: Problems resolved and unsolved. *Developmental Dynamics* 240: 1042-1053.

Young, R.L. and G. P. Wagner. 2011. Why ontogenetic homology criteria can be misleading: Lessons from digit identity transformations. *Journal of Experimental Zoology B (Molecular and Developmental Evolution)* 316B: 165-170.

Wang, Z., D. Dong, Ru, B., **R.L. Young**, N. Han, and S. Zhang. 2010. Digital gene expression tag profiling of bat digits provides robust candidates contributing to wing formation. *BMC Genomics* 11: 619.

Young, R.L. and A.V. Badyaev. 2010. Developmental plasticity links local adaptation and diversification in foraging morphology of shrews. *Journal of Experimental Zoology B (Molecular and Developmental Evolution)* 314B: 434-444.

Young, R.L., M. J. Sweeney¹, and A.V. Badyaev. 2010. Morphological diversity and ecological similarity: Versatility of muscular and skeletal morphologies enables ecological convergence in shrews. *Functional Ecology* 24: 556-565.

¹undergraduate researcher

Young, R.L., T. Kohlsdorf, V. Caputo, M. Giovanotti, A.O. Vargas, G.E. May and G.P. Wagner. 2009. Evolution of digit identity in the three-toed Italian skink *Chalcides chalcides*: a new case of Digit Identity Frame Shift. *Evolution & Development* 11: 647-658.

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*Recommended Faculty 1000: Wray G: F1000Prime Recommendation of [Young RL et al., *Evol Dev* 2009 11(6):647-658]. In F1000Prime, 17 Feb 2010; 10.3410/f.2031956.1608054

Badyaev, A.V., **R.L. Young**, K.P. Oh, and C. Addison¹. 2008. Evolution on a local scale: Developmental, functional, and genetic bases of divergence in bill form and associated changes in song structure between adjacent habitats. *Evolution* 62: 1951-1964.

¹undergraduate researcher

Badyaev, A.V., **R.L. Young**, G.E. Hill, and R.A. Duckworth. 2008. Evolution of sex-biased maternal effects in birds: IV. Intra-ovarian growth dynamics and sex-specific acquisition of resources. *Journal of Evolutionary Biology* 21: 449-460.

Young, R.L., T.S. Haselkorn, and A.V. Badyaev. 2007. Functional equivalence of morphologies enables morphological and ecological diversity. *Evolution* 61: 2480-2492.

Young, R.L. and A.V. Badyaev. 2007. Evolution of ontogeny: linking epigenetic remodeling and genetic adaptation in skeletal structures. *Integrative and Comparative Biology* 47: 234-244.

Young, R.L. and A.V. Badyaev. 2006. Evolutionary persistence of phenotypic integration: Influence of developmental and functional relationships on complex trait evolution. *Evolution* 60: 1291-1299.

Badyaev, A.V., H. Schwabl, **R.L. Young**, R.A. Duckworth, K. Navara, and A.F. Parlow. 2005. Adaptive sex differences in growth of pre-ovulation oocytes in a passerine bird. *Proceedings of Royal Society of London, Biological Sciences*: 2156-2172.

Badyaev, A.V., K.R. Foresman, and **R.L. Young**. 2005. Evolution of morphological integration: II. Developmental accommodation of stress-induced variation. *American Naturalist* 166: 382-395.

Young, R.L. and A.V. Badyaev. 2004. Evolution of sex-biased maternal effects in birds. I. Sex-biased resolution of resource allocation among simultaneously maturing follicles. *Journal of Evolutionary Biology* 17: 1355-1366.

Badyaev, A.V. and **R.L. Young**. 2004. Complexity and integration in sexual ornamentation: an example with carotenoid and melanin plumage pigmentation. *Journal of Evolutionary Biology* 17: 1317-1327.

Published Datasets and Scripts:

Young, R.L. 2021. "Data and scripts associated with: Comparative transcriptomics reveals distinct patterns of gene expression conservation through vertebrate embryogenesis, V1. **Texas Data Repository:** <https://doi.org/10.18738/T8/MTN00P>

Young, R.L. 2018. Differential expression analyses and novel candidate gene identification, V3. **Texas Data Repository:** <https://doi.org/10.18738/T8/AMG5VD>

Young, R.L. 2018. Novel candidates of monogamy in vertebrates, V2. **Texas Data Repository:** <https://doi.org/10.18738/T8/8VMZB7>

Young, R.L. 2018. Mating and ecological characteristics and their association with neural gene expression, V2. **Texas Data Repository:** <https://doi.org/10.18738/T8/XYQVNU>

Young, R.L. 2018. Orthologous Gene Group processing and summary statistics, V2. **Texas Data Repository:** <https://doi.org/10.18738/T8/9QV1QV>

Young, R.L. 2018. Species ecology and mating characteristics, V1. **Texas Data Repository:** <https://doi.org/10.18738/T8/IWHEKH>

Young, R.L. 2018. Clade-level orthologous gene groups, V1. **Texas Data Repository:** <https://doi.org/10.18738/T8/7CPUFF>

Young, R.L., M.H. Ferkin, N.F. Ockendon, V.N. Orr, S.M. Phelps, Á. Pogány, C.L. Richards-Zawacki, K. Summers, T. Székely, B.C. Trainor, A.O. Urrutia, G. Zachar, L.A. O'Connell, and H.A. Hofmann. 2018. RNA-seq

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Datasets associated with: Conserved transcriptomic profiles underpin monogamy across vertebrates. *PNAS* 116. **Gene Expression Omnibus**, NCBI: [GSE123301](https://www.ncbi.nlm.nih.gov/geo/query/acc.cgi?acc=GSE123301)

Invited Presentations and Service to Other Institutions:

University seminars –10; Conferences – 8

- Young, R.L.** 2019. *Comparative approaches to understanding the evolution and neuromolecular basis of social behavior*. Sociogenomics Research Coordination Network. Cornell University, Ithaca, NY.
- Young, R.L.** 2018. *The development and evolution of phenotypic variation across species and individuals*. Biology Department, Southwestern University, Georgetown, TX.
- Young, R.L.** 2018. *Evolutionary systems biology of conservation and convergence in complex traits*. Biology Department, Texas State University, San Marcos, TX.
- Young, R.L.**, L.A. O'Connell, and H.A. Hofmann. 2016. *Comparative transcriptomics of the monogamous male: conserved themes despite independent behavioral evolution*. Junior Scientists Workshop on Genetic and Neurobiological Basis for Evolution of Behavior. Janelia Research Campus, Ashburn, VA.
- Young, R.L.** 2014. *Mechanisms and consequences of developmental plasticity in variable environments*. Department of Biology and Biochemistry, University of Houston, Houston, TX.
- Young, R.L.** 2014. *Towards the mechanistic basis of the avian digit identity frame shift: comparative analysis reveals unique expression of the 5'HoxD genes in avian limb development*. Paleo Brown Bag Seminar Series. Institute for Geophysics, University of Texas, Austin, TX.
- Young, R.L.** 2014. *Coping with variable environments: Mechanism and consequences of adaptive plasticity*. Biological Sciences, St. Edward's University, Austin, TX
- Young, R.L.** 2013. *Mechanisms and consequences of developmental plasticity in variable environments*. Integrative Biology, University of Texas, Austin, TX.
- Young, R.L.** 2012. *Discovery of unique HoxD expression in birds: Towards the mechanistic basis of digit homeosis*. Molecular Cell and Developmental Biology Department, University of Texas, Austin, TX.
- Young, R.L.** 2012. *Homology and Homeosis: Developmental genetics of the avian wing digit identity transformation*. Department of Biology, McGill University, Montreal, Quebec Canada.
- Young, R.L.** 2010. *Examining the mechanistic basis of the digit identity frame shift in birds*. 11th International Conference on Limb Development and Regeneration. Williamsburg, VA.
- Young, R.L.** 2009. *The evolution of character identities: changes in gene regulation underlie digit identity transformations in the bird wing*. Yale University, Ecology and Evolutionary Biology Departmental Seminar
- Wagner, G.P., V. Caputo, **R.L. Young**, A. Vargas. 2009. *Digit identity is independent of digit position: What gene expression tells us about the individuality of morphological characters?* Symposium: Genes and Morphology. American Association of Physical Anthropologists, Chicago, IL.
- Snell-Rood E.C. and **R.L. Young**. 2008. *Evolution of Plasticity: causes and consequences of developmental timing*. Symposium: Pathways to Novelty and Diversity: The causes and consequences of polyphenism. Animal Behaviour.
- Young, R.L.** and A.V. Badyaev. 2008. *The ontogeny of fluctuating asymmetry: developmental accommodation of muscle activity in the mammalian mandible*. Symposium: Canalization, robustness, and developmental stability. The European Society for Evolutionary Developmental Biology, Ghent, Belgium.
- Young, R.L.** and A.V. Badyaev. 2007. *Developmental mechanisms and evolutionary consequences of plasticity: an example with foraging morphology of shrews*. International Conference: Phenotypic and Developmental Plasticity, Kerala, India.

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Young, R.L. and A.V. Badyaev. 2007. *Developmental evolution of BMPs: From postnatal epigenetic remodeling to adaptive genetic divergence*. Symposium: Ecological dimorphisms in vertebrates: proximate and ultimate causes. Society for Integrative and Comparative Biology, Phoenix, AZ.

Badyaev, A.V. and **R.L. Young**. 2004. *Integration and inheritance of adaptive environmental effects: an example with the foraging apparatus of shrews*. International Congress of Vertebrate Morphology, Boca Raton, FL.

Conference Abstracts and Contributed Talks:

Co-author mentees: Women – 7; URM – 2; Undergraduates – 10

Oral presentations – 25; Poster presentations – 22

Young, R. L. 2021. *Parallel evolution of cooperative cleaning behavior: evidence from the neural transcriptome*. Brain, Behavior and Evolution Seminar Series, Integrative Biology, University of Texas at Austin

Gomez, A.^{*1}, Wang, S.^{*1}, Rodriguez Santiago, M, Boughman, J.W., Hofmann, H.A., Ålund, M., and **R.L. Young**. 2021. *Sensory Transcriptomes Across Variable Environments*. Society for Integrative and Comparative Biology. Virtual Meeting. (poster)

^{*}co-first authors

¹undergraduate researchers

Wang, J.Y.¹, L.X. Paggeot¹, C.N. Friesen, T.K. Solomon-Lane, H.A. Hofmann, and **R.L. Young**. 2021. *Neural Transcriptomic Basis of Attaining Social Dominance Status*. Society for Integrative and Comparative Biology. Virtual Meeting. (poster)

¹undergraduate researchers

^{*}Elizabeth Adkins-Regan award for the best student poster (SICB: Division of Animal Behavior)

Young, R. L., C.A. Weitekamp, Z. Triki, Y. Su¹, R. Bshary, H.A. Hofmann. *Comparative Transcriptomics of Cooperative Behavior in Cleaner Wrasses*. 2020. Animal Behavior Society. Virtual Meeting

¹undergraduate researcher

Friesen, C.N., J. Han, **R.L. Young**, H.A. Hofmann. 2020. *Physiological and molecular correlates of variation in space use and aggression in a highly social fish*. Animal Behavior Society. Virtual Meeting

Han, J., C.N. Friesen, **R.L. Young**, H.A. Hofmann. 2020. *Social Regulation of Neural Transcriptomes*. Animal Behavior Society. Virtual Meeting

Price, S., M. Schumer, **R.L. Young**, S. Wang, M. Cummings. 2020. *Immune genomic response associated with preference behavior: an examination in a freshwater fish*. Immunology. Honolulu, HI. Cancelled.

Young, R.L. 2020. *Diversification of vertebrate embryogenesis: Through an hourglass?* Biological Talks About Computers, Organisms, and Systems Seminar Series, Molecular Biosciences, University of Texas at Austin.

Young, R.L. and H.A. Hofmann. 2020. *Leveraging Network Analysis to Study the Evolution of Sociality in Vertebrates*. Society for Integrative and Comparative Biology. Austin, TX.

Young, R.L. C.A. Weitekamp, Z. Triki, R. Bshary, and H.A. Hofmann. 2020. *Comparative Transcriptomics of Cooperative Behavior in Cleaner Wrasses*. Society for Integrative and Comparative Biology. Austin, TX. (poster)

Price, S., M. Schumer, **R.L. Young**, S. Wang, M. Cummings. 2020. *Transcriptomic signatures of social- and mating-preferences in sailfin molly (*Poecilia latipinna*)*. Society for Integrative and Comparative Biology. Austin, TX. (poster)

Friesen, C.N., J. Han, **R.L. Young** and H.A. Hofmann. 2020. *Using Correlated Patterns of Behavioral and Molecular Variation to Understand Individual Variation*. Society for Integrative and Comparative Biology. Austin, TX.

Han, J., C.N. Friesen, **R.L. Young** and H.A. Hofmann. 2020. *Social Regulation of the Neural Transcriptome*. Society for Integrative and Comparative Biology. Austin, TX. (poster)

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- Wang, J.Y.¹, L.X. Pagueot¹, C.N. Friesen, T.K. Solomon-Lane, H.A. Hofmann, and **R.L. Young**. 2020. *Neural Transcriptomic Responses to Social Opportunity*. Society for Integrative and Comparative Biology. Austin, TX. (poster)
¹undergraduate researcher
- Young, R.L.** 2019. *Leveraging network analysis to study the evolution of sociality in vertebrates*. Brain, Behavior and Evolution Seminar Series, Integrative Biology, University of Texas at Austin.
- Han, J., C.N. Friesen, **R.L. Young** and H.A. Hofmann. 2019. *Social Regulation of the Neural Transcriptome*. TACCSTER. Texas Advanced Computing Center (TACC), University of Texas at Austin. (poster)
- Kore, P.¹, M.E. Hernandez, L.M. Thompson, D. Crews, **R.L. Young**, H.A. Hofmann, and A.C. Gore. 2019. *Endocrine-Disrupting Chemicals Affect Social Behavior and Brain Gene Expression Differently in Male and Female Rats*. TACCSTER. Texas Advanced Computing Center (TACC), The University of Texas at Austin. (poster)
¹undergraduate researcher
- Young, R.L.** and H.A. Hofmann. 2019. *How to quantify complex behavioral phenotypes across vertebrates*. Pan-American Society for Evolutionary Developmental Biology. Miami, FL. (poster)
*honorable mention poster award
- Friesen, C.N., J. Han, **R.L. Young** and H.A. Hofmann. 2019. *Variations of social status: Identifying the neuroendocrine characteristics of dominance styles in a highly social cichlid fish*. Society for Behavioral Neuroendocrinology. Bloomington, IN. (poster)
- Young, R.L.** 2019. *Comparative approaches illuminate the evolution of complex social behavior and its transcriptomic underpinnings*. Biology Talks About Computers, Organisms and Systems (BioTACOS), The University of Texas at Austin.
- Young, R.L.**, M.E. Chan¹, P.S. Bhamidipati¹, H.A. Hofmann. 2018. *Conservation and diversification in gene expression through vertebrate embryogenesis*. Texas Advanced Computing Center (TACC), The University of Texas at Austin. (poster)
¹undergraduate researchers
- Friesen, C.N., **R.L. Young** and H.A. Hofmann. 2018. *Causes and Consequences of Individual Variation in Social Groups*. Society for Behavioral Neuroendocrinology. Toronto, ON, Canada. (poster)
- Chan, M.E.¹, P.S. Bhamidipati¹, H.A. Hofmann, and **R.L. Young**. 2019. *Quantitative testing of the vertebrate developmental hourglass*. Undergraduate Research Forum, University of Texas, Austin, TX. (poster)
¹undergraduate researcher
- Chan, M.E.¹, H.A. Hofmann, and **R.L. Young**. 2018. *Multi-species comparative analysis of gene expression across embryogenesis*. Undergraduate Research Forum, University of Texas, Austin, TX. (poster)
*2018 CNS Award for Excellence in Computational Biology, Biochemistry, & Chemistry Research
¹undergraduate researcher
- Chan, M.E.¹, H.A. Hofmann, and **R.L. Young**. 2018. *Multi-species comparative analysis of gene expression across embryogenesis*. American Association for the Advancement of Science (AAAS). Austin, TX. (poster)
¹undergraduate researcher
- Young, R.L.**, H.J. Goldsby, A. Hintze, and H.A. Hofmann. 2017. *Developmental Evolution in Action: Testing the Hourglass Model*. BEACON NSF site visit. East Lansing, MI. (poster)
- Young, R.L.** 2017. *Transcriptomic Architecture Influences Phenotypic Diversification across Vertebrates*. Society for Molecular Biology and Evolution, Austin, TX.

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- Young, R.L.**, L.A. O'Connell, H.A. Hofmann. 2016. *Comparative transcriptomics of social behavior: a case in monogamous males*. Joint conference of the Society for the Study of Evolution, the Society of Systematic Biologists, and the American Society of Naturalists, Austin, TX.
- Young, R.L.**, H.J. Goldsby, P.S. Bhamidipati, A. Hintze, and H.A. Hofmann. 2016. *Testing the hourglass model of development in vivo and in silico*. Joint conference of the Society for the Study of Evolution, the Society of Systematic Biologists, and the American Society of Naturalists, Austin, TX. (poster)
- Bhamidipati, P.S.¹, **R.L. Young**, and H.A. Hofmann. 2016. *A bioinformatics pipeline to test the hourglass model of vertebrate development*. Undergraduate Research Forum, University of Texas, Austin, TX. (poster)
*2016 CNS Award for Excellence in Computational Biology, Biochemistry, & Chemistry Research
¹undergraduate researcher
- Young, R.L.**, R.D. Kar¹, L.A. O'Connell, & H.A. Hofmann. 2014. *Convergent evolution of the monogamous brain: Deep homology uncovered by comparative transcriptomics*. BEACON Congress. East Lansing, MI. (poster)
¹undergraduate researcher
- Young, R. L.** and G. P. Wagner. 2011. *A cis-regulatory mechanism of evolutionary homeosis: the developmental genetics of avian digit identity*. Joint conference of the Society for the Study of Evolution, the Society of Systematic Biologists, and the American Society of Naturalists, Norman, OK.
- Young, R.L.** 2011. *Towards the mechanistic basis of the digit identity frame shift in birds*. Yale Systems Biology Institute. West Campus Seminar.
- Young, R.L.** 2010. *Examining the mechanistic basis of the digit identity frame shift in birds*. 11th International Conference on Limb Development and Regeneration. Williamsburg, VA.
- Wagner, G.P. and **R.L. Young**. 2010. *Towards a mechanistic basis of digit identity frame shift in birds*. Society for Integrative and Comparative Biology, Seattle, WA.
- Young, R.L.**, and G.P. Wagner. 2009. *Developmental genetics of digit identity: a forelimb-specific reduction in gene expression underlies the homeotic frame shift of digit identity in birds*. Joint conference of the Society for the Study of Evolution, the Society of Systematic Biologists, and the American Society of Naturalists, Moscow, ID.
- Young, R.L.**, V. Caputo, M. Giovannotti, T. Kohlsdorf, and G.P. Wagner. 2009. *Molecular evidence of a digit identity frameshift in the Italian Three-toed Skink (*Chalcides chalcides*)*. Society for Integrative and Comparative Biology, Boston, MA.
- Badyaev, A.V., **R.L. Young**, K.P. Oh, C. Addison¹. 2008. *Evolution on a local scale: Developmental, functional, and genetic bases of divergence in bill form and associated changes in song structure between adjacent habitats*. North American Ornithological Congress, Portland, OR.
¹undergraduate researcher
- Young, R.L.** and A.V. Badyaev. 2008. *Developmental mechanisms of plasticity: cellular response to muscle function in a skeletal trait*. Society for Integrative and Comparative Biology, San Antonio, TX.
- Sweeney, M.J.¹, **R.L. Young**, and A.V. Badyaev. 2008. *Foraging strategy in sorcid shrews: a model for behavioral stress response*. Society for Integrative and Comparative Biology, San Antonio, TX. (poster)
¹undergraduate researcher
- Young, R.L.** and A.V. Badyaev. 2007. *Bite force, muscle loading, mandible shape, and the developmental origins of adaptation*. International Congress of Vertebrate Morphology, Paris, France.
- Young, R.L.** and A.V. Badyaev. 2006. *Functional redundancy enables morphological and ecological versatility*. Joint conference of the Society for the Study of Evolution, the Society of Systematic Biologists, and the American Society of Naturalists, Stony Brook, NY.

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- Young, R.L.** and A.V. Badyaev. 2005. *Evolution of an environmentally directed trait: comparative ecomorphology in the shrew mandible*. Joint conference of the Society for the Study of Evolution, the Society of Systematic Biologists, and the American Society of Naturalists, Fairbanks, AK.
- Young, R.L.** and A.V. Badyaev. 2005. *Variation in mandible musculature in relation to interspecific variation in patterns of morphological integration in shrews*. Society for Integrative and Comparative Biology, San Diego, CA.
- Young, R.L.** and A.V. Badyaev. 2004. *Evolutionary consequences of integration in the shrew mandible*. International Congress of Vertebrate Morphology, Boca Raton, FL.
- Young, R.L.** and A.V. Badyaev. 2004. *Evolution of morphological integration: weak interspecific concordance of developmental and functional integration in the shrew mandible*. Joint conference of the Society for the Study of Evolution, the Society of Systematic Biologists, and the American Society of Naturalists, Ft. Collins, CO.
- Young, R.L.** and A.V. Badyaev. 2004. *Sex-specific patterns of follicle formation in the house finch*. Society for Integrative and Comparative Biology Meeting, New Orleans, LA.
- Young, R.L.** and A.V. Badyaev. 2003. *What is a Trait?: Complexity and Integration in Sexual Ornamentation*. Joint conference of the Society for the Study of Evolution, the Society of Systematic Biologists, and the American Society of Naturalists, Chico, CA. (poster)
- Young, R.L.**, D.M. Meikle, and C. Schandorsky. 2001. *Habitat fragmentation and demographic characteristics of *Peromyscus leucopus**. Midwest Ecology and Evolution Conference, Oxford, OH.

Teaching and Mentoring:

PI and Research Educator, University of Texas (number of students)

BIO/CS 321: EvoDevOmics: Texas Institute for Discovery Education in Science, Freshman Research Initiative, Spring 2022

Research Educator, University of Texas (number of students)

BIO 377/CS378: Big Data in Biology: Texas Institute for Discovery Education in Science, Freshman Research Initiative, Fall 2019 (18)

Instructor, University of Texas (number of students)

Center for Biomedical Research Support (CBRS) summer school: Comparative Genomics and Computational Approaches to the Evolution of Complex Phenotypes, Summer 2020 (6 graduate students, 4 postdocs, 2 faculty)

BIO 361T: Comparative Animal Physiology, Spring 2016 (42)

NSC 115: Women in Natural Sciences First-Year Seminar, Fall 2014 (59)

Teaching Assistant, University of Arizona (number of students)

Ecol 330: Animal Form and Function, Fall 2005 (34), 2007 (37)

Ecol 320: Genetics, Spring 2003 (156), Fall 2004 (256), Spring 2005 (142)

Ecol 335: Evolutionary Biology, Spring 2007 (49)

Ecol 485/585: Mammalogy Lab, Fall 2003 (9), 2006 (18)

Zool 202: Developmental Biology Lab, Undergraduate Teaching Assistant, Miami University, Spring 1999

Invited Guest Lecturer

Restorative Justice in Education, Vermont Law School, Topic: “*Systems-level Approaches to Investigations in Higher Education: Application and Effectiveness of Restorative Practices.*” Summer 2020 & 2021

Bio377: Big Data in Biology, UT Austin, Topic: *Leveraging Big Data to test longstanding hypotheses in EvoDevo.* Spring 2017 and 2018

Bio 384K / Neu 385L: Biological Foundations in Decision Making, UT Austin, Topic: *The evolution of social decisions: discoveries and challenges from comparative ‘omics’*, Fall 2014

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Bio 384K / Neu 385L: Brains, Behavior, and Evolution, UT Austin, Topic: *Evolution of Developmental Mechanisms*, Fall 2013

Ecol 330: Animal Form and Function, University of Arizona, Topic: *Evolution and Behavior of Horses*, Fall 2003-05, 07

Ecol 330: Animal Form and Function, University of Arizona, Topic: *Feeding in Mammals*, Fall 2003, 2004, 2007

Ecol 485/585: Mammalogy, University of Arizona, Topic: *Feeding and Digestive Systems*, Fall 2006

Ecol 485/585: Mammalogy, University of Arizona, Topic: *Community Ecology*, Fall 2006

Trainees Supervised (*[number of students]; +role, *manuscripts, funding, and awards*)

Graduate Students (6/12 women)

+ Committee Member (EEB program; UT Austin) – 3

+ Project Mentor – 9

Undergraduate Students (19/39 women; 4/39 URM)

* Manuscripts: Peer-reviewed publications – 4;

* Funding: Texas Excellence in Jobs and Service (TEJAS) Awards – 2; University of Texas Undergraduate Research Fellowships – 6; University of Texas Freshman Research Initiative TIDES Summer Research Funding – 4

* Awards: Society for Integrative and Comparative Biology, Division of Animal Behavior: Elizabeth Adkins-Regan award for the best student poster – 1; College of Natural Sciences Award for Excellence in Computational Biology, Biochemistry, and Chemistry Research – 2; College of Natural Sciences Distinction in Research – 1

High School Students (1/2 member of underrepresented groups)

Professional Services:

University Services: Misconduct Working Group (appointed member), University of Texas at Austin, 2019 - 2020

Editorial Board Member for: *Journal of Experimental Zoology Part A: Ecological and Integrative Physiology; Scientifica*

Peer Reviewer for: *Acta Theriologica, American Naturalist, Biological Journal of the Linnean Society, Evolution, Evolution and Development, Evolutionary Ecology, Functional Ecology, Heredity, Journal of Anatomy, Journal of Evolutionary Biology, Journal of Experimental Biology, Journal of Experimental Zoology A, Journal of Experimental Zoology B, Journal of Mammalogy, Proceeding of the Royal Society B, Science*

Grant Reviewer for: *National Science Foundation, Austrian Science Fund – FWF*, University of Texas at Austin: Undergraduate Research Fellowship

Animal Husbandry Consultant:

Bonk, M., G. Cameron, E. Hill, P. Stewart, and **R.L. Young**. 2009. Opossum (*Monodelphis domestica*): Husbandry Standard Operating Procedure. Yale University Animal Resources Center.

Feature Writer for: *Journal of Experimental Zoology Part B – Molecular and Developmental Evolution*

Public Engagement:

- Director – Travis Country Nest Box program 2019 - present
- Invited lay summary contributor – The Science Breaker (non-profit outreach journal)
 - **Young, R.L.** 2019 [Ancient origins of monogamy: do you tolerate your partner because of your genes.](#)
- Featured expert for science news outlets including (selected):
 - [NerdNite](#) (Austin): **Young, R. L.** 2018. [How mother's control our biology](#)

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- National Geographic: Weird Animal Question of the Week (7/30/2016): [How the Venomous, Egg-Laying Platypus Evolved](#)
- NSF Science 360 News: [Biologist Rebecca Young traces the genes behind monogamous behavior, with help from the NSF-funded Wrangler supercomputer](#) (TACC podcast)
- UTNews: [2015 Summer Blockbusters: Meet the Science Truth Detector – Trainwreck](#)
- Invited Presenter:
 - What are complex traits and how do they evolve? Texas Institute for Discovery Education in Science (TIDES), College of Natural Sciences, UT Austin, 2021
 - Big Data in Evolution, Science Undergraduate Research Group (SURGe), 2016
 - *How and why female birds exert favoritism a offspring sex ratio and birth order*. Forum UT, 2014
 - Spring Meeting, American Association of University Women (AAUW): Lower Connecticut Valley Branch, 2010
 - Fall Meeting, AAUW: Greater Meriden Connecticut Branch, 2009
- Career Panelist:
 - Power Chats 2017, [Girls Empowerment Network](#). Austin, TX.
 - Expanding Your Horizons Conference, Women in Science and Engineering, University of Arizona, 2007
- Chair – Young Women in Bio Committee, Women in Bio (Austin, TX chapter), 2015-2016
- Designer & Coordinator – Hill Country Science Mill, Forensic Science Special Event (ages 9-13): *CSI Science Mill: Find the tater hater*. July 2015 (event recap: <http://goo.gl/VGxpnk>)
- NSF BEACON Blog Contributor: [Same behavior, same genes?](#)
- Life Sciences Professional Interviewee – Scottsdale Preparatory Academy middle school project, 2011

Professional Organizations:

- Pan American Society for Integrative and Comparative Biology
- Society for Integrative and Comparative Biology
- Society for Molecular Biology and Evolution
- Society for the Study of Evolution

References (Available upon request):

Professor Alex Badyaev, Ph.D.

Department of Ecology and Evolutionary Biology
University of Arizona
1041 E. Lowell St.
Tucson, Arizona 85721 U.S.A.
abadyaev@arizona.edu
(520) 626-8830

Professor Hans Hofmann, Ph.D.

Department of Integrative Biology
University of Texas at Austin
2415 Speedway C0990
Austin, Texas 78712 U.S.A.
hans@utexas.edu
(512) 475-6754

Professor Edward Marcotte, Ph.D.

Department of Molecular Biosciences
University of Texas at Austin
2500 Speedway A4800
Austin, Texas 78712 U.S.A.
marcotte@austin.utexas.edu

Becca Young
Curriculum Vitae

(512) 232-3919

Restorative Justice and Restorative Dialogue Reference

Professor Marilyn Armour, Ph.D. LICSW

Institute for Restorative Justice and Restorative Dialogue at UT Austin

Steve Hicks School of Social Work

University of Texas at Austin

1925 San Jacinto BLVD 3.212D

Austin, TX 78712 USA

marmour@mail.utexas.edu

(512) 471-3197