

## CURRICULUM VITAE

### RON A. MEYERS, PhD

Professor of Zoology

**Current Address:** Department of Zoology  
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Ogden, UT 84408-2505

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#### Education:

- 1992 Ph.D., Biology, Brown University, Providence, RI;  
Dissertation: The functional morphology of gliding and flapping flight in the American Kestrel, *Falco sparverius* (Aves: Falconiformes); Advisor: G.E. Goslow, Jr.
- 1987 M.S., Zoology, Louisiana State University, Baton Rouge;  
Thesis: The morphology of the fascial system of the lingual apparatus of the domestic chicken;  
Advisor: D.G. Homberger
- 1984 B.A., History, University of Rochester, Rochester, N.Y.

#### Teaching Experience:

- 1993-current Weber State University: Assistant/Associate/Professor  
-Advanced Human Anatomy  
-Animal Locomotion (Topics in Zoology)  
-Biomechanics (Topics in Zoology)  
-Comparative Vertebrate Anatomy  
-General Zoology  
-Embryology  
-Herpetology  
-Histology  
-History of the Life Sciences  
-History and Philosophy of Biology (Honors Biology)  
-Human Anatomy  
-Evolution  
-Principles of Zoology I [replaced vertebrate zoology & general zoology]  
-Principles of Zoology II [replaced vertebrate zoology & general zoology]  
-Vertebrate Zoology  
-Senior Seminar "Biomechanics"  
-Senior Seminar "Evo-Devo"  
-Senior Seminar "Muscle and Movement"  
-Senior Seminar "Evolutionary Medicine"  
-Teaching the Human Anatomy Laboratory
- 1992-1993 Cornell University School of Veterinary Medicine: Instructor  
-Small Animal Gross Anatomy
- 1990-1992 Brown University: Graduate Teaching Assistant  
-Comparative Anatomy  
-Human Morphology (Medical School)
- 1988-1989 Northern Arizona University: Graduate Teaching Asst.  
-Comparative Anatomy; -General Biology; -General Zoology  
-Human Anatomy & Physiology
- 1984-1987 Louisiana State University: Graduate Teaching Asst.

-Comparative Anatomy; -General Biology; -General Zoology  
-Vertebrate Embryology

### Professional Experience:

2019-present Chair, Dept. of Zoology, Weber State Univ., Ogden, UT  
2002-present Professor, Dept. of Zoology, Weber State Univ., Ogden, UT  
1996-2002 Associate Professor, Dept of Zoology, Weber State Univ., Ogden, UT  
1993-1996 Assistant Professor, Dept of Zoology, Weber State Univ., Ogden, UT  
1992-1993 Instructor, Department of Anatomy, New York State College of  
Veterinary Medicine, Cornell University, Ithaca, NY  
1990-1992 Teaching Assistant, Section of Population Biology, Morphology & Genetics, Brown University  
1988-1989 Teaching Assistant, Dept. Biological Sciences, Northern Arizona University, Flagstaff  
1988 summer Research Assistant with Dr. G.E. Goslow Jr., Museum of Comparative Zoology, Harvard University  
1984-1987 Teaching Assistant, Dept. of Zoology & Physiology, Louisiana State University, Baton Rouge  
1984 summer Intern, Dept. of Ornithology, New York Zoological Society, Bronx, N.Y.; Dr. C. Sheppard, supervisor  
1983 summer Intern, Macdonald Raptor Research Centre, McGill Univ., Montréal Canada; Dr. D. Bird, supervisor  
1982-1983 Laboratory Assistant, Dept. of Biology, University of Rochester; Dr. T. Caraco, supervisor

### Grants and Awards:

2018 Weber State University, RS&PG Faculty Travel Grant; \$750 for “Invited Keynote speaker at 2018 International Ornithological Congress  
2016 Weber State University, RS&PG Faculty Vitality Grant; \$1000 for “Analysis of leg muscle activity during flight in blackbirds – A sabbatical project”  
2013 Weber State University, RS&PG Research Grant; \$909 for  
“Travel to meeting of Society and Integrative Biology, Austin, TX”  
2011 Weber State University, RS&PG Research Grant; \$3560 for “Syrinx Muscle Morphology in Songbirds”  
2010 Weber State University, RS&PG Hemingway Faculty Vitality Grant; \$2460 for “Travel to 9<sup>th</sup> International Congress of Vertebrate Morphology, Punta del Este, Uruguay.”  
2007 Weber State University, RS&PG Hemingway Faculty Collaboration Award  
2006 Weber State University, Instructional Improvement Grant; \$3273 for “Enhancing the Histology Class Laboratory.”  
2005 NIH, Neuromuscular control and motor integration of bird song. \$247,000 for 5 years  
2004 NSF, Research Experience for Undergraduates in the Biology of the Greater Salt Lake Ecosystem. \$147,000 for 2 years  
2003 Weber State University, Gwen S. Williams Award of Excellence; \$5,000 for “Undergraduate Research Experience in Biology.” (with Co-PI. John Cavitt)  
2003 Weber State University, RS&PG Research Grant; \$969 for  
“Travel to meeting of Society and Integrative Biology, New Orleans”  
2002 Weber State University, Hemingway Faculty Vitality Award; \$22,000 for “Undergraduate Research Experience in Biology.” (with Co-PI. John Cavitt). Matching funds provided by the Provost’s office for summer 2003.  
2001 Weber State University, RS&PG Research Grant; \$1750 for “Sexual dimorphism of the sternotrachialis muscle in house finches, *Carpodacus mexicanus*.”  
1998 Weber State University, RS&PG Research Grant; \$1290 for “Functional morphology of gliding flight in the lizard, *Draco*.”  
1997 Weber State University, RS&PG Research Grant; \$2000 for “Morphology and biomechanics of shoulder musculature and soaring flight in albatrosses.”  
1997 Weber State University, RS&PG Travel Grant; \$655 for travel to SICB meeting in Boston, MA.  
1996 Weber State University, RS&PG Research Grant; \$1630 for “Soleus muscle histochemistry and function in horses.”  
1995 Weber State University, RS&PG Research Grant; \$2024 for “Functional morphology of gliding flight in gulls.”  
1994 Weber State University, Instructional Improvement Grant; \$2300 for “Enhancing the Comparative Anatomy Laboratory.”  
1994 Weber State University, Hemingway Faculty Vitality Award; \$3500 to  
“Establish a Muscle Function Laboratory.”  
1994 Weber State University, RS&PG Research Grant; \$1500 for “The mechanism of spread-wing posture in the cormorant.”  
1993 Chapman Grant, American Museum of Natural History, NY

1992	Brown University Presidential Award for Excellence in Teaching
1991	Wilson Ornithological Society Student Membership Award
1991	Sigma Xi Grant in-Aid-of-Research
1991	Brown University Graduate Council Summer Research Fellowship
1989	Sigma Xi Grant in-Aid-of-Research
1986	Organizational Relief Fund Travel Grant, Louisiana State Univ.
1986	American Society of Zoologists Travel Award

Publications (student co-author names in **bold**):

- Ross, C.D.** and Meyers, R.A. 2022. Immunohistochemistry of kangaroo rat hindlimb muscles. *Anatomical Record* 305(6): 1435-1447 (<https://doi.org/10.1002/ar.24791>)
- Meyers, R.A. 2019. Comparative anatomy of the postural mechanisms of the forelimbs of birds and mammals. *Journal of Ornithology* 160(3): 869-882.
- Walker, A.M.** and R.A. Meyers. 2019. The Anatomy and histochemistry of flight hindlimb posture in birds. II. The flexed hindlimb posture of perching birds. *Journal of Anatomy* 234: 668-678.
- Christensen, L.A., Allred, L. M.,** F. Goller, and R.A. Meyers. 2017. Is sexual dimorphism in singing behavior related to syringeal muscle composition? *The Auk* 134(3):710-720. [<https://doi.org/10.1642/AUK-17-3.1>]
- Meyers, R.A. and **J. McFarland**. 2016. Anatomy and histochemistry of spread-wing posture in birds. 4. Eagles soar with fast, not slow muscle fibers. *Acta Zoologica* 97:319-324.
- Cooper B.G., Mendez, J. M., Whetstone A.G., Meyers, R.A. and F. Goller. 2012. Age-related changes in the Bengalese Finch song motor program. *Neurobiology of Aging* 33(3):564-568.
- Uchida, A.M.,** Meyers, R.A., Cooper B.G. and F. Goller. 2010. Fibre architecture and song activation rates of syringeal muscles are not lateralized in the European starling. *Journal of Experimental Biology* 213:1069-1078.
- McFarland, J.** and Meyers, R.A. 2008. Anatomy and histochemistry of hindlimb flight posture in birds. 1. The extended hindlimb posture of shorebirds. *Journal of Morphology* 269(8):967-979.
- Shepard, L.S., McFarland, J.C.** and R.A. Meyers. 2008. Hold 'em or fold 'em: Hindlimb flight posture of Utah shorebirds. *Ergo* 2:68-76.
- Shepard, L.S., McFarland, J.C.** and R.A. Meyers. 2008. Hindlimb flight posture of Utah shorebirds. *Utah Birds* 21(1):13-25
- Meyers, R.A. and J.W. Hermanson. 2006. The horse soleus muscle: postural sensor or vestigial structure? *Anatomical Record* 288A(10):1068-1076.
- Meyers, R.A. and **R.P. Myers**. 2005. Mandibular bowing and mineralization in Brown Pelicans. *Condor* 107:447-451.
- Meyers, R.A. and **E.F. Stakebake**. 2005. Anatomy and histochemistry of spread-wing posture in birds. 3. Immunohistochemistry of flight muscles and the "shoulder lock" in albatrosses. *Journal of Morphology* 263: 12-29.
- Kovacs, C.E. and R.A. Meyers 2000. Anatomy and histochemistry of flight muscles in a wing-propelled diving bird, the Atlantic Puffin, *Fratercula arctica*. *Journal of Morphology* 244(2): 109-125
- Meyers, R.A. and **B. M. Clarke** 1998. How do flap-neck chameleons move their flaps? *Copeia* 1998(3): 759-761.
- Meyers, R.A. and **E. Mathias** 1997. Anatomy and histochemistry of spread-wing posture in birds. 2. Gliding flight in the California Gull, *Larus californicus*: A paradox of fast fibers and posture. *Journal of Morphology* 233(3):237-247.
- Meyers, R.A. 1997. Anatomy and histochemistry of spread-wing posture in birds. 1. Wing drying posture in the double-crested cormorant, *Phalacrocorax auritus*. *Journal of Morphology* 233(1):67-76.

- Meyers, R.A. 1996. Morphology of the antebrachial musculature in the American kestrel, *Falco sparverius* (Aves). *Ann. Anat.* 178(1):49-60.
- Meyers, R.A. and J.H. Hermanson. 1994. Pectoralis muscle morphology in the little brown bat, *Myotis lucifugus* (Chiroptera: Vespertilionidae): A non-convergence with birds. *Journal of Morphology* 219(3): 269-274.
- Meyers, R.A. 1993. Gliding flight in the American kestrel, *Falco sparverius*: An electromyographic study. *Journal of Morphology* 215(3): 213-224.
- Meyers, R.A. 1992. The avian Fascia pectoralis: Anatomy and functional implications. *Zool. Jahrb. Anat.* 122: 381-384.
- Meyers, R.A. 1992. Morphology of the shoulder musculature of the American kestrel, *Falco sparverius*, with implications for gliding flight. *Zoomorphology* 112:91-103.
- Meyers, R.A. 1992. The morphological basis of folded-wing posture in the American kestrel, *Falco sparverius*. *Anat. Record* 232(4):493-498.
- Welsford, I.G., R.A. Meyers, D.S. Wilson, R.A. Satterlie and G.E. Goslow, Jr. 1991. Neuromuscular organization for "wing" control in a mollusc (*Clione limacina*) and a bird (*Columba livia*): Parallels in design. *Amer. Zool.* 31:670-679.
- Homberger, D.G. and R.A. Meyers. 1989. The morphology of the lingual apparatus of the domestic chicken, *Gallus gallus*, with special attention to the structure of the fasciae. *Amer. J. Anat.* 186:217-257.
- Meyers, R. 1980. An alternative approach to fetal pig dissection. *Amer. Biol. Teacher* 42(9):559-561.

Published Abstracts (student co-author names in bold):

- Spainhower, K.B.**, and Meyers, R.A. 2016. Fiber type distribution and tail muscle function in birds. *Integrative and Comparative Biology* 56 (suppl 1): e374.
- Christensen, L.**, Meyers, R.A., and F. Goller. 2014. Lack of song in females does not drive sexual dimorphism in syringeal muscle composition. *Integrative and Comparative Biology* 54 (Suppl 1): e253.
- Spainhower, K.B., Milligan, C., L. Christensen, L.**, Meyers, R.A., and F. Goller. 2014. Species differences in the restructuring of syringeal muscles after denervation. *Integrative and Comparative Biology* 54(Suppl 1): e352.
- Allred, L. M., Christensen, L.A.**, Meyers, R.A., and F. Goller. 2011. Denervation and testosterone changes muscle fiber types in the zebra finch syrinx. *Integrative and Comparative Biology* 51 (suppl 1): e159.
- Yanega, G.M. and R.A. Meyers. 2010. Pouch morphology and function in brown pelicans, *Pelecanus occidentalis*. *Integrative and Comparative Biology* 50 (suppl 1): e316.
- Uchida, A.M., Green, J., Ahmad, S.**, Goller, F. and R.A. Meyers. 2009. Sexual dimorphism of syringeal muscles in songbirds. *Integrative and Comparative Biology* 49 (1): e318.
- Uchida, A.M., Lemmon, K., McFarland, J.C.**, Cooper, B.G., Goller, F., and Meyers, R.A. 2007. Structure and function of European Starling syringeal muscles. *J. Morphology* 268(12):1143.
- Meyers, R.A. and **McFarland, J.C.** 2006. Anatomy and histochemistry of Golden Eagle flight muscles. *Integrative and Comparative Biology* 46(suppl 1):e98.
- Shepard, L.S.** and Meyers, R.A. 2006. Hold 'em or fold 'em? Hindlimb flight posture in birds. *Integrative and Comparative Biology* 46(suppl 1):e249.
- Uchida, A.M., Lemmon, K., Mcfarland, J.C.**, Cooper, B.G., Goller, F., and Meyers, R.A. 2006. Structure and function of syringeal muscles in European Starlings. *Integrative and Comparative Biology* 46(suppl 1):e259.

- McFarland, J.**, and Meyers, R.A 2005. Anatomy and histochemistry of hindlimb flight posture in shorebirds. *Integrative and Comparative Biology* 45(6):1166.
- Meyers, R.A, **Schmutz, D.** and Goller, F. 2005. Histochemical analysis of songbird syringeal muscles. *Integrative and Comparative Biology* 45(6):1167.
- Gray, P.**, Meyers, R. and Bernal, D. 2005. The effect of temperature on the metabolic biochemical capacity in the hearts of warm bodied sharks. *Integrative and Comparative Biology* 45(6):1139.
- Myers, R.P.** and Meyers, R.A .2003. Taking the plunge: Pouch morphology and function in the Brown Pelican. *Integrative and Comparative Biology* 43(6):872.
- Stakebake, E. F.** and Meyers, R.A .2000 The albatross shoulder lock: A biomechanical and immunohistochemical study. *Amer. Zool.* 40(6):1220
- Meyers, R.A., **T.R. Button, B.M. Clarke,** and J.W. Hermanson. 1997. The horse soleus muscle: Postural sensor or vestigial structure? *Amer. Zool.* 37(5): 59A.
- Mathias, E.R., B.A. Chadwell,** and R.A Meyers. 1995. Gliding flight in gulls: The paradox of fast muscle fibers and posture. *Amer. Zool.* 35(5): 119A.
- Meyers, R.A., **S.P. Murray,** and **E.R. Mathias.** 1995. Spread-wing posture in the double-crested cormorant *Phalacrocorax auritus*: Anatomy and histochemistry. *Amer. Zool.* 35(5): 119A.
- Meyers, R.A., J.A. Gerwin, and J.W. Hermanson, 1994. Mechanism of spread-wing posture in the double-crested cormorant, *Phalacrocorax auritus*. *J. Morphol.* 220 (3): 372.
- Meyers, R.A. and J. W. Hermanson. 1993. Bat pectoralis fibers are non-convergent with those in birds. *Amer. Zool.* 33(5): 27A.
- Meyers, R.A., K. Fisher, L. Goslow, and G.E. Goslow, Jr. 1992. Underwater locomotion and musculoskeletal organization in some wing-propelled diving birds. *Amer. Zool.* 32(5):157A.
- Meyers, R.A. 1991. Gliding flight in the American kestrel: An analysis of muscle activity. *Amer. Zool.* 31(5):64A.
- Meyers, R.A. 1990. American kestrel changes wingbeat frequency with airspeed. *Amer. Zool.* 30(4):74A.
- Meyers, R.A. 1988. The functional morphology of the epipubic bones in the opossum, *Didelphis virginiana*. *Amer. Zool.* 28(4):79A.
- Meyers, R.A., N.A. Shawki and D.G. Homberger. 1986. The fascial system of the lingual apparatus of the domestic chicken. *Amer. Zool.* 26(4):66A.

Extramural (non-WSU) Presentations (student co-author names in bold):

- Meyers, R.A. and **K.B. Spainhower.** 2022. Muscle fiber type distribution and function in woodpecker tail muscles. Keynote Symposium Speaker, International Ornithological Congress 2022, Virtual Meeting.
- Ross, C.D.**, and R.A. Meyers. 2021. Anatomy and muscle fiber types of kangaroo rat hindlimb muscles. Society for Integrative and Comparative Biology, Virtual Meeting.
- Meyers, R.A. 2018. Comparative anatomy of the postural mechanisms of the forelimbs of birds and mammals. Keynote Symposium Speaker, International Ornithological Congress 2018, Vancouver, Canada.
- Spainhower, K.B.**, and Meyers, R.A. 2016. Fiber type distribution and tail muscle function in birds. Society for Integrative and Comparative Biology, Portland, OR.

- Christensen, L.**, Meyers, R.A., and F. Goller. 2014. Lack of song in females does not drive sexual dimorphism in syringeal muscle composition. Society for Integrative and Comparative Biology, Austin, TX.
- Spainhower, K.B., Milligan, C., L. Christensen, L.**, Meyers, R.A., and F. Goller. 2014. Species differences in the restructuring of syringeal muscles after denervation. Society for Integrative and Comparative Biology, Austin, TX.
- Allred, L. M., Christensen, L.A.**, Meyers, R.A., and F. Goller, 2011. Denervation and testosterone changes muscle fiber types in the Zebra Finch syrinx. Society for Integrative and Comparative Biology, Salt Lake City, UT.
- Meyers, R.A., **Allred, L., Ahmad, S.** and F. Goller. 2010. Effects of denervation and androgen supplementation on Zebra Finch syrinx morphology. 9<sup>th</sup> International Congress of Vertebrate Morphology, Punta del Este, Uruguay.
- Yanega, G.M. and R.A. Meyers. 2010. Pouch morphology and function in Brown Pelicans, *Pelecanus occidentalis*. Society for Integrative and Comparative Biology, Seattle, WA.
- Allred, L.M. Ahmad, S.R., Uchida, A.M., Green J.**, Goller, F. and R.A. Meyers. 2009. Sexual dimorphism of syringeal muscle fibers in male and female songbirds. Meeting of the Utah Ornithological Society, Salt Lake City, UT.
- Ahmad, S.R., Allred, L.M., Uchida, A.M., Green, J.**, Goller, F., and R.A. Meyers. 2009. Effects of androgens and denervation on Zebra Finch syrinx morphology. Meeting of the Utah Ornithological Society, Salt Lake City, UT.
- Uchida, A.M., J. Green\*, S. Ahmad,** F. Goller and R.A. Meyers. 2008. Sexual dimorphism of syringeal muscles in songbirds. Meeting of the Utah Ornithological Society, Ogden, UT.
- Uchida, A.M., Green, J., Ahmad, S. R.**, Goller, F. and R.A. Meyers. 2009. Sexual dimorphism of syringeal muscles in songbirds. Society for Integrative and Comparative Biology, Boston, MA.
- Meyers, R.A., **McFarland, J.C.** and **L.S. Shepard**. 2008. Hold 'Em or Fold 'Em? Structure and evolution of hindlimb flight posture in birds. 125<sup>th</sup> American Ornithologists Union, Portland, OR.
- Uchida, A.M., Leaptrot, M.B.**, Meyers, R.A. and Goller, F., and 2008. Structure and function of songbird syringeal muscles. 125<sup>th</sup> American Ornithologists Union, Portland, OR.
- Uchida, A.M., Lemmon, K., McFarland, J.C.**, Cooper, B.G., Goller, F., and Meyers, R.A. 2007. Structure and function of European Starling syringeal muscles. 8<sup>th</sup> International Congress of Vertebrate Morphology, Paris, France.
- Meyers, R.A. and **McFarland, J.C.** 2007. Anatomy and histochemistry of Golden Eagle flight muscles. Society for Integrative and Comparative Biology, Phoenix, AZ
- Shepard, L.S.** and Meyers, R.A. 2007. Hold 'em or fold 'em? Hindlimb flight posture in birds. Society for Integrative and Comparative Biology, Phoenix, AZ
- Uchida, A.M., Lemmon, K., McFarland, J.C.**, Cooper, B.G., Goller, F., and Meyers, R.A. 2007. Structure and function of syringeal muscles in European Starlings. Society for Integrative and Comparative Biology, Phoenix, AZ
- McFarland, J.** and Meyers, R.A 2006. Anatomy and histochemistry of hindlimb flight posture in shorebirds. Society for Integrative and Comparative Biology, Orlando, FL
- Meyers, R.A, **Schmutz, D.** and Goller, F. 2006. Histochemical analysis of songbird syringeal muscles. Society for Integrative and Comparative Biology, Orlando, FL
- Gray, P.**, Meyers, R. and Bernal, D. 2006. The effect of temperature on the metabolic biochemical capacity in the hearts of warm bodied sharks. Society for Integrative and Comparative Biology, Orlando, FL
- Arnold, M.L., **Donovan, T.J.**, Cavitt, J.F. and Meyers, R. 2005. Levels in bird species of the greater salt lake ecosystem. 6<sup>th</sup> International Topical Meeting on Industrial Radiation and Radioisotope Measurement. Hamilton ON, Canada June 20-24.

- Myers, R.P.** and Meyers, R.A. 2004. Taking the plunge: Pouch morphology and function in the Brown Pelican. Society for Integrative and Comparative Biology, New Orleans, LA
- Myers, R.P.** and Meyers, R.A. 2003. Taking the plunge: Pouch morphology and function in the Brown Pelican. Meeting of the National Conferences on Undergraduate Research, Salt Lake City, UT.
- Myers, R.P.** and Meyers, R.A. 2002. Pouch morphology and function in the Brown Pelican. Meeting of the Utah Ornithological Society, Ogden, UT.
- Stakebake, E. F.** and Meyers, R.A. 2002. Slow muscle fibers make albatrosses the elite of soaring birds. Meeting of the Utah Ornithological Society, Ogden, UT.
- Stakebake, E. F.** and Meyers, R.A. 2001. The albatross shoulder lock: A biomechanical and immunohistochemical study. Society for Integrative and Comparative Biology, Chicago, IL
- Meyers, R.A., **T.R. Button, B.M. Clarke,** and J.W. Hermanson. 1998. The horse soleus muscle: Postural sensor or vestigial structure? Society for Integrative and Comparative Biology, Boston, MA
- Meyers, R.A. and **B.M. Clarke.** 1997 The flap neck chameleon: How does it move its flaps? American Society of Ichthyologists and Herpetologists, Seattle, WA.
- Clarke, B. M.** and R.A. Meyers. 1997 Neck-flap movement in *Chamaeleo dilepis*: A model undergraduate research project. Annual meeting of the Utah Academy of Sciences, Arts, and Letters, Ogden, UT.
- Mathias, E.R., B.A. Chadwell,** and R.A. Meyers. 1995. Gliding flight in gulls: The paradox of fast muscle fibers and posture. American Society of Zoologists, Washington, D.C.
- Meyers, R.A., **S.P. Murray,** and **E.R. Mathias.** 1995. Spread-wing posture in the double-crested cormorant *Phalacrocorax auritus*: Anatomy and histochemistry. American Society of Zoologists, Washington, D.C.
- Kovacs, C., R. Meyers, and G.E. Goslow, Jr. 1995. Two gears in the flight muscles of wing-propelled diving birds? Satellite Symposium to precede the 25th Annual Meeting of the Society for Neuroscience, Tucson, AZ.
- Meyers, R.A., J.A. Gerwin, & J.W. Hermanson, 1994. Mechanism of spread-wing posture in the double-crested cormorant, *Phalacrocorax auritus*. 4th International Congress of Vertebrate Morphologists, Chicago, IL.
- Meyers, R.A. and J. W. Hermanson. 1993. Bat pectoralis fibers are non-convergent with those in birds. American Society of Zoologists, Los Angeles, CA.
- Meyers, R.A., K. Fisher, L. Goslow, and G.E. Goslow, Jr. 1992. Underwater locomotion and musculoskeletal organization in some wing-propelled diving birds. American Society of Zoologists, Vancouver, B.C.
- Fisher, K., R. Meyers, L.M. Goslow and G.E. Goslow. 1992. "Flight" underwater and in the air; issues for study. Gordon Conference "Gravitational effects on living systems". Andover, N.H.
- Meyers, R.A. 1991. Folded-wing posture in the American kestrel, *Falco sparverius*. New England Regional Meeting of Vertebrate Morphologists, Amherst, MA
- Meyers, R.A. 1991. Gliding flight in the American kestrel: An analysis of muscle activity. American Society of Zoologists, Atlanta, GA
- Meyers, R.A. 1990. American kestrel changes wingbeat frequency with airspeed. American Society of Zoologists, San Antonio, TX
- Meyers, R.A., D.S. Wilson, I.G. Welsford and G.E. Goslow Jr. 1990. Isolated motor units of the pectoralis muscle in the pigeon (*Columba livia*): Mechanical properties and implications for motor control. Int'l. Ornithology Congress, Christchurch, N.Z.

- Welsford, I.G., R.A. Meyers, D.S. Wilson and G.E. Goslow Jr. 1990. The mechanical properties of isolated motor units of the pectoralis muscle in the domestic pigeon: implications for motor control. Society for Experimental Biology, Warwick, U.K.
- Welsford, I.G., R.A. Meyers, D.S. Wilson, R.A. Satterlie and G.E. Goslow, Jr. 1989. Neuromuscular organization for "wing" control in a mollusc (*Clione limacina*) and a bird (*Columba livia*): Parallels in design. American Society of Zoologists, Boston, MA.
- Meyers, R.A. 1988. The functional morphology of the epipubic bones in the opossum, *Didelphis virginiana*. American Society of Zoologists, San Francisco, CA
- Meyers, R.A., N.A. Shawki and D.G. Homberger. 1986. The fascial system of the lingual apparatus of the domestic chicken. American Society of Zoologists, Nashville, TN

### WSU Presentations by Undergraduate under my Mentorship

- Pickett, S. 2022. Proximo-Distal Fiber Type Distribution in the Limb Muscles of Birds. WSU Symposium (ppt)
- Ross, C. 2020. Anatomy and muscle fiber types of the kangaroo rat hindlimb muscles. Thesis Seminar (ppt)
- Mathews, A. 2019. Anatomy and histochemistry of the Hairy Woodpecker tail apparatus. WSU Symposium (ppt)
- Ross, C. 2019. Anatomy and muscle fiber types of the kangaroo rat hindlimb muscles. WSU Symposium (poster)
- Mathews, A. 2019. Anatomy and histochemistry of the Hairy Woodpecker tail apparatus. UCUR Symposium (poster)
- Ross, C. 2019. Anatomy and muscle fiber types of the kangaroo rat hindlimb muscles. UCUR Symposium (poster)
- Thomas, K. 2018. Fiber type distribution in Golden-collared Manakins (*Manacus vitellinus*). WSU Symposium (poster)
- Mathews, A. 2018. Anatomy and histochemistry of the Hairy Woodpecker tail apparatus. WSU Symposium (poster)
- Spainhower, K. 2016. Fiber type distribution and tail muscle function in birds. WSU Symposium (ppt)
- Milligan, C. 2016. Anatomy of the patagium of sugar gliders and flying squirrels. WSU Symposium (poster)
- Walker, A. 2016. Anatomy and histochemistry of flight hindlimb posture in birds. WSU Symposium (poster)
- Spainhower, K. 2015. Anatomy and histochemistry of the avian tail apparatus. WSU Symposium (poster)
- Christensen, L. 2014. Lack of song in females does not drive sexual dimorphism in syringeal muscle composition. WSU Symposium (ppt)
- Christensen, L. 2014. Lack of song in females does not drive sexual dimorphism in syringeal muscle composition. Sigma Xi Student Research Competition (ppt - won the competition).
- Spainhower, K.B., \*Milligan, C., L. Christensen, L. 2014. Species differences in the restructuring of syringeal muscles after denervation. WSU Symposium (poster). \* denotes presenter
- Christensen, L. 2012. Effects of Denervation on Zebra Finch Syringeal Muscles. National Conference on Undergraduate Research, Ogden, UT (ppt)
- Jensen, B. 2012. Hind Limb Muscle Fiber Type Composition of North American Raptors. National Conference on Undergraduate Research, Ogden, UT (ppt)
- Weitzeil, M. 2012. Morphological Development of the Syrinx in Male Zebra Finches. National Conference on Undergraduate Research, Ogden, UT (poster)
- Allred, L. 2010. Sexual Dimorphism of Syringeal Muscle Fibers in Male and Female Songbirds. Sigma Xi Student Research Competition (ppt - won the competition).
- Uchida, A.M. 2008. Syringeal muscle fiber organization in female and male songbirds. WSU Symposium (ppt)
- Leaptrot, M. 2008. Myosin heavy chain diversity in birds. WSU Symposium (ppt)
- Uchida, A.M. 2007. Structure and function of European Starling syringeal muscles. [ppt] WSU Symposium
- Shepard, L.S. 2007. Hold 'Em or Fold 'Em? Hindlimb Flight Posture in Birds. [poster] WSU Symposium
- Schmutz, D. 2006. Histochemical analysis of songbird syringeal muscles. [poster] WSU Symposium
- McFarland, J., 2005. Anatomy and histochemistry of hindlimb flight posture in shorebirds. [poster] WSU Symposium

Overview of Student Research Projects: (\*denotes Zoology thesis; ¶ denotes author on publication)  
 ‡ denotes OUR funding



[Note that additional students were variously involved over short time periods but did not have their own project]

Name	Year(s)	Project (s)
Shelby Picket	2020-22	Proximo-Distal Fiber Type Distribution in the Limb Muscles of Birds ‡
Chanel Ross	2017-21	Anatomy and muscle fiber types of the kangaroo rat hindlimb muscles *¶ ‡
Alexis Mathews	2017-20	Anatomy and histochemistry of the Hairy Woodpecker tail apparatus * ‡
Karma Thomas	2017-18	Fiber type distribution in Golden-collared Manakins ( <i>Manacus vitellinus</i> ) ‡
Kyle Spainhower	2013-16	Species differences in the restructuring of syringeal muscles after denervation * ‡; Anatomy and histochemistry of the avian tail apparatus ‡
Amanda Walker	2013-16	Anatomy and histochemistry of hindlimb flight posture in perching birds. ¶ ‡
Carly Milligan	2013-16	Histochemical analysis of the gliding muscles of sugar gliders ‡
Linsey Christensen	2009-14	Species differences in the restructuring of syringeal muscles after denervation; Sexual dimorphism of syringeal muscles in songbirds * ‡ ¶
Brayden Jensen	2011	Effects of androgens and denervation on Zebra Finch syrinx morphology ‡
Mike Weitzel	2011-12	Hind limb muscle fiber type composition of North American raptors ‡
Mike Weitzel	2011-12	Morphological development of the syrinx in male Zebra Finches ‡
Lisa Allred	2009-12	Effects of androgens and denervation on Zebra Finch syrinx morphology; Sexual dimorphism of syringeal muscles in songbirds ¶
		Age-related changes in the Bengalese Finch song motor program
Sarah Ahmad	2008-9	Effects of androgens and denervation on Zebra Finch syrinx morphology ‡
Green, Jared	2008-10	Sexual dimorphism of syringeal muscles in songbirds
Matt Leaprot	2007-8	Myosin heavy chain diversity in birds ‡
Lani Shepard	2007	Evolution of avian hindlimb flight posture. ¶ ‡
Amiko Uchida	2006-9	Structure and function of European Starling syringeal muscles ¶
		Sexual dimorphism of syringeal muscles in songbirds
		Effects of androgens and denervation on Zebra Finch syrinx morphology
Karalee Lemmon	2006-7	Structure and function of European Starling syringeal muscles
Joshua McFarland	2004-6.	Anatomy and histochemistry of hindlimb flight posture in shorebirds ¶ ‡
		Anatomy and histochemistry of Golden Eagle flight Mmuscles ¶
Daniel Schmutz	2004-5	Histochemical analysis of songbird syringeal muscles ‡
René Myers	2002-4	Pouch morphology and function in the Brown Pelican. *¶
Eric Stakebake	1999-2001	The albatross shoulder lock: A biomechanical and immunohistochemical study *¶
Brett Clarke	1996-7	The flap neck chameleon: How does it move its flaps? ¶
Toni Button	1996-7	The horse soleus muscle: Postural sensor or vestigial structure?
Ed Mathias	1995-6	Gliding flight in gulls: The paradox of fast muscle fibers and posture. *¶
Brad Chadwell	1995-6	Gliding flight in gulls: The paradox of fast muscle fibers and posture.

#### Post-doctoral Research/Mentoring:

Gregor Yanega (2008) – Pouch and lingual morphology of Pelicans

#### Invited Presentations:

2018 (Aug)	International Ornithological Congress, Vancouver, CA. Symposium Keynote Speaker: COMPARATIVE ASPECTS OF AVIAN MORPHOLOGY. Title: Comparative anatomy of the postural mechanisms of the forelimbs of birds and mammals
2013 (Dec)	Weber State University: How to Disseminate Research
2013 (March)	Weber State University: How to Disseminate Research
2003 (May)	Ogden Nature Center. Topic: “How Birds Work”
2003 (March)	Ogden Nature Center. Topic: “Secrets of Snakes”
2002 (August)	Meeting of the Utah Ornithological Society, Ogden, UT. Pouch morphology and function in the Brown Pelican.
2002 (August)	Meeting of the Utah Ornithological Society, Ogden, UT. Slow muscle fibers make albatrosses the elite of soaring birds.
2000 (Fall)	Ogden Nature Center. Topic: “Amphibians: Not-so-scary slimy things”
2000 (Spring)	Ogden Nature Center. Topic: “Bird Flight”
1998 (May):	Pre-Veterinary Club, W.S.U. Topic: “Pre-Vet Medicine at Weber State”

- 1998 (Aug) Weber State University, New Faculty Retreat: “Starting an Undergraduate Research Program”  
 1995 (March): Science Emphasis Week, Weber State Univ. Topic: Bird Flight  
 1994 (April): Golden Spike Dog Obedience Club, Ogden, UT. Topic: Dog Evolution  
 1993 (Fall): Zoology Club, Weber State University. Topic: Bird Flight  
 1993 (Fall): Department of Biology, University of Utah, Salt Lake City. Dr. Dennis Bramble, host. Topic: Thesis  
 1993: Department of Biology, Hobart and William Smith Colleges, Geneva, NY. Dr. James Ryan, host. Topic: Thesis research

**Professional Society Memberships (with year of membership)**

- American Association of Anatomists (1993)  
 American Association of Veterinary Anatomists (1993)  
 American Society of Ichthyologists and Herpetologists (1998)  
 International Ornithologists Union (2017)  
 International Society of Vertebrate Morphology (1992)  
 Sigma Xi Society (1992)  
 Society for Integrative and Comparative Biology (1986)

**Professional, University, and Community Services:**

- Editor-in-Chief, *Nomina Anatomica Avium*, 3<sup>rd</sup> Ed (<http://nyroca2002.wixsite.com/wgam/contact>)
- Editorial Board Member, *ISRN Anatomy*

• Journal Reviewer:

- Acta Anatomica*
- Acta Zoologica*
- Anatomical Record*
- Anatomia, Histologia, Embryologia*
- Auk*
- Australian Journal of Zoology*
- Comparative Biochemistry & Physiology*
- Diversity*
- ISRN Anatomy*
- Italian Veterinary Journal*
- Journal of Anatomy*
- Journal of Experimental Biology*
- Journal of Morphology*
- Shorebirds*
- Zoology*
- Zoomorphology*

•NSF Grant Reviewer

• McGraw Hill Invited Text Reviewer

•University Committees and Responsibilities:

- Animal Care and Use Committee (1993-2005; Chair 1994-2001)
- Avian Ecologist -Search Committee, chair (1998)
- Cell Biologist-Search Committee, chair (2002)
- College of Science Rank and Tenure Committee, (2003-2004; 2012-14)
- College of Science Graduation Committee (2014)
- Dean, College of Science Search Committee (2002)
- Graduate School advisor (August 1997 - present)
- Human Anatomist -Search Committee, chair (2006-7)
- Human Physiologist -Search Committee (2003-4)
- Human Physiologist -Search Committee (2005-6)
- Invertebrate Physiologist -Search Committee, chair (1997)
- Physiologist -Search Committee (1995-6)
- Pre-Medical advisor (1995-1996)
- Pre-Optometry, Pre-Podiatry, Pre-Chiropractic advisor (Jan-May 1994)
- Pre-Veterinary advisor (1994 -present)
- Radiation Safety and Controlled Substances Committee (1997- 2003)

- Sigma Xi, WSU Chapter President (1996- 1997)
- WSU Honors/Awards/Scholarship Committee (1993 - 2005)

Community:

- Science Olympiad: Amphibians and Reptiles (2001)
- Science Olympiad: Amphibians and Reptiles (2000)
- Judge, Utah State Science and Engineering Fair (1996)
- Judge, Young Women Scientist Award, Utah State Science and Engineering Fair (1994)

**Research Interests:**

Musculoskeletal design; Muscle structure and function; Postural mechanisms of the vertebrate limb; Functional morphology of avian flight apparatus and feeding apparatus; Song production in birds; Evolutionary morphology of gliding flight.