MELISSA LEWALLEN, Ph.D., M.Sc.

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EDUCATION

University of North Texas, Developmental Integrative Biology

- **PhD in Biology**, 2019
  - 4.0 GPA
- **Master of Science in Biology**, 2012
  - 4.0 GPA
    - ❖ Graduate Honor Societies: Alpha Chi; Phi Kappa; Golden Key

University of North Texas

- **Bachelor of Arts in Psychology**, 2002
  - *Cum laude*, 3.68 GPA
    - ❖ Honor Society: Alpha Epsilon Delta

TEACHING / ACADEMIA

VISITNG LECTURER

University of North Texas Dallas
Biology for Science Majors I, Spring 2025
Biology for Science Majors II, 2 sections, Spring 2025
Microbiology Laboratory, Spring 2025
Biology for Science Majors I Laboratory, Spring 2025
Developmental Biology, Fall 2024
Biology for Science Majors I, Fall 2024
Biology for Science Majors II, Fall 2024
Environmental Science Laboratory, Fall 2024
Biology for Science Majors II Laboratory, Fall 2024
Biology for Science Majors I, Spring 2024
Biology for Science Majors II, 2 sections, Spring 2024
Microbiology Laboratory, Spring 2024

ADJUNCT PROFESSOR

University of North Texas Dallas
Biology for Science Majors I, Fall 2023
Biology for Science Majors II, Fall 2023
Biology for Science Majors I, Spring 2023
Biology for Science Majors I Laboratory, Spring 2023
Biology for Science Majors II Laboratory, Spring 2023
Biology for Science Majors I, Fall 2022
Biology for Science Majors I Laboratory, Fall 2022
Biology for Science Majors II Laboratory, Fall 2022
Biology for Science Majors I Laboratory, Spring 2022
Biology for Science Majors II Laboratory, Spring 2022
Biology for Science Majors II Laboratory (Early College High School section), Spring 2022
Biology for Science Majors II Laboratory, Fall 2021

INSTRUCTOR (TEACHING ASSISTANTSHIP), BIOLOGY LABS

University of North Texas, Denton
Genetics Laboratory, 2013 – 2019
Biology for Educators Laboratory, 2012
Cell Biology Laboratory, 2010 - 2011
Accomplishments:

- Consistently received high student evaluation ratings
- Honored as "Outstanding Teaching Assistant for the UNT Department of Biology" in 2018

PROCTOR / GRADER

University of North Texas, Denton, August 2013 - December 2018
Comparative Animal Physiology
Neuroscience I
General Biology I
General Biology II
Honors Biology I
Honors Biology II

PUBLICATIONS (FIRST AUTHORED)

- **Lewallen, M.** and Burggren, W. METABOLIC COST OF DEVELOPMENT, REGENERATION, AND REPRODUCTION IN THE PLANARIAN *SCHMIDTEA MEDITERRANEA. Comparative Biochemistry and Physiology Part A: Molecular & Integrative Physiology*: Volume 265, March 2022

- **Lewallen, M.** and Burggren, W. METABOLIC PHYSIOLOGY OF THE FRESHWATER PLANARIA *GIRARDIA DOROTOCEPHELA* AND *SCHMIDTEA MEDITERRANEA:* REPRODUCTIVE MODE, SPECIFIC DYNAMIC ACTION, AND TEMPERATURE***.*** *American Journal of Physiology-Regulatory, Integrative and Comparative Physiology*: Volume 319, Issue 4, October 2020, Pages R428-R438

- **Lewallen, M.** and Burggren, W. CHRONIC HYPOXIA AND HYPEROXIA MODIFIES MORPHOLOGY AND VEGF CONCENTRATION OF THE LUNGS OF THE DEVELOPING CHICKEN (*GALLUS GALLUS VARIANT DOMESTICUS*). *Respiratory Physiology & Neurobiology*: Volume 219, December 2015, Pages 85-94

RESEARCH

GRADUATE RESEARCH ASSISTANTSHIP
University of North Texas Denton, Developmental Integrative Biology Research Laboratory, Major Professor: Dr. Warren Burggren
August 2013 - May 2019; August 2010 - December 2012
Accomplishments:

- Established the first planarian lab in the Developmental Integrative Biology Department at UNT
- Utilized novel methods for measuring oxygen consumption / metabolic physiology of planaria and small aquatic invertebrates
- Demonstrated differences in metabolic physiology between asexual (fission and regeneration) and sexual reproduction in planaria

- Developed method for morphological analysis of avian lungs
- First author publications
- Served as a research mentor to Texas Academy of Math and Science (TAMS) students

- **DOCTORAL DISSERTATION,** 2019
  The Metabolic Physiology of Planarian Flatworms: Oxygen consumption in planarians as a function of regeneration, temperature, taxon, age, specific dynamic action, and reproductive mode
  - First manuscript published Oct. 2020, *American Journal of Physiology-Regulatory, Integrative and Comparative Physiology*
  - Second manuscript published Mar. 2022, *Comparative Biochemistry and Physiology Part A: Molecular & Integrative Physiology*
  - Studied the physiological effects of stressors, temperature, development, aging, reproduction, fission, environmental factors, predator cues, and regeneration in planaria

- **MASTER THESIS,** 2012
  Chronic hypoxia and hyperoxia modifies morphology and VEGF concentration of the lungs of the developing chicken (Gallus gallus variant domesticus)
  - Published Dec. 2015, *Respiratory Physiology & Neurobiology*
  - Studied the effects of hypoxic and hyperoxic conditions on avian lung development and morphology, angiogenesis and blood vessel formation, and vascular endothelial growth factor (VEGF) expression

ASSISTANT CLINICAL RESEARCH COORDINATOR
Research Across America, Dallas, TX - *owner: Dr. Jeffrey Adelglass*
January 2013 – September 2013

Associate Clinical Research Coordinator for phase II and III pharmaceutical / vaccine trials (adult & pediatric cohorts): determined eligibility and enrolled study participants, ensured compliance with research protocols, dispensed investigational drugs and maintained inventory, collaborated with principal investigators and study team for proper execution of research procedures, performed data collection, maintained study source materials and documentation. Studies: Swine Flu vaccine, Anthrax vaccine, Liraglutide

RESEARCH INTERN TO GRADUATE STUDENT
University of North Texas Denton, Developmental Integrative Biology Research Laboratory
April – August 2010

Assisted graduate student with research to determine the effects of drug induced bradycardia on heart rate and angiogenesis in chicken embryos: performed shell-less culturing of chicken embryos, data collection, dosing, heart-rate counts, and dose-response curves

ACADEMIC SERVICE

PEER REVIEWER
***Physiological Reports,* 2024**

SCIENTIFIC WRITING / EDITING

MEDICAL, SCIENTIFIC, & ACADEMIC EDITOR / WRITER
Independent Contractor for Scribendi (March 2020 – August 2021)

Independent Contractor for Cactus Communications (January 2011- August 2012)

Responsibilities: Editor of academic, medical, and scientific manuscripts; developmental editing; rewriting; advising on journal submission (Life Sciences, Wildlife Science, Animal Conservation, Animal Behavior and Learning, Animal Physiology, Oncology, Genetics, Obstetrics, Maternal-Fetal Medicine, Pharmacology, Internal Medicine, Endocrinology, Neuroscience, Osteopathy, Psychology, Genetics, Cardiology, etc.)

CONFERENCE PRESENTATIONS

- **PHYSIOLOGY 2019 CONFERENCE, July 2019 - Aberdeen, Scotland**: *Planarian Flatworms: An emerging animal model in metabolic physiology*

- **SOCIETY OF EXPERIMENTAL BIOLOGY CONFERENCE, July 2018 - Florence, Italy**: *Oxygen consumption in planarians as a function of temperature, taxon, age, specific dynamic action, regeneration, and reproductive mode*

- **EXPERIMENTAL MODELS IN PHYSIOLOGY CONFERENCE (THE PHYSIOLOGICAL SOCIETY), June 2018 - Exeter, England**: *Planaria as a model for quantifying metabolic differences in reproductive modes*

- **FUTURE PHYSIOLOGY CONFERENCE (THE PHYSIOLOGICAL SOCIETY), December 2017 - Leeds, England**: *Oxygen consumption in planarians as a function of temperature, specific dynamic action, taxon, and reproductive mode*

- **INTERNATIONAL SYMPOSIUM FOR FLATWORM BIOLOGY, August 2015 - Oxford University, Oxford, England**: *Acute and chronic stressors and oxygen consumption in Girardia dorotocephala*

- **SOCIETY OF INTEGRATIVE AND COMPARATIVE BIOLOGY CONFERENCE, January 2013 - San Francisco, CA**: *Chronic hypoxia and hyperoxia modifies morphology and VEGF concentration of the lungs of the developing chicken (Gallus gallus variant domesticus)*

PROFESSIONAL ASSOCIATIONS

- **THE PHYSIOLOGICAL SOCIETY (UK)**, 2017 - 2019
- **SOCIETY OF EXPERIMENTAL BIOLOGY (US)**, 2018 - 2019

DISTINCTIONS AND AWARDS

- **THE PHYSIOLOGICAL SOCIETY CONFERENCE SCHOLARSHIP, 2019** - for presentation in Aberdeen, Scotland at the Physiology 2019 Conference

- **UNT BIOLOGY DEPARTMENTAL TRAVEL GRANT, 2019** - for presentation in Aberdeen, Scotland at the Physiology 2019 Conference

- **OUTSTANDING TEACHING ASSISTANT FOR THE UNT DEPARTMENT OF BIOLOGY, 2018** (distinguished from over 100 Biology TAs, based upon student and supervisor feedback)

- **GRADUATE ASSISTANTSHIP TUITION SCHOLARSHIP, Toulouse Graduate School, UNT, 2012 - 2019**

- **UNT BIOLOGY DEPARTMENTAL TRAVEL GRANT, 2018** - for poster presentation in Florence, Italy at the Society of Experimental Biology Conference

- **THE PHYSIOLOGICAL SOCIETY CONFERENCE SCHOLARSHIP, 2018** - for poster presentation in Exeter, England at the Experimental Models in Physiology Conference

- **THE PHYSIOLOGICAL SOCIETY TRAVEL GRANT, 2017** - for speaking presentation in Leeds, England at the Future Physiology Conference

- **BETH BAIRD SCHOLARSHIP, UNT Department of Biology, 2013, 2014, 2015**

- **UNT COLLEGE OF ARTS & SCIENCES TRAVEL GRANT, 2015** - for poster presentation at Oxford University, Oxford, England at the International Symposium on Flatworm Biology

- **UNT COLLEGE OF ARTS & SCIENCES TRAVEL GRANT, 2015** - for attendance at the North American Planarian Conference in Chicago, IL

- **UNT COLLEGE OF ARTS & SCIENCES TRAVEL GRANT, 2012** - for poster presentation in San Francisco, CA at the Society of Integrative and Comparative Biology Conference

RESEARCH INTERESTS

animal physiology; biological psychology; wildlife conservation; environmental stressors; bat conservation; wolf conservation; tardigrades; animal intelligence; extremophiles; developmental plasticity; regeneration; stem cell biology; metabolic physiology; planaria; biological basis of memory (acquisition, storage, retention); cellular aging; metabolic and aging differences in sexual versus asexual reproduction; nature-nurture dichotomy