

EDUCATION

B.A.	(1990)	Department of Environmental, Population and Organismic Bio	University of Colorado, Boulder
M.A.	(1995)	Department of Environmental, Population and Organismic Bio	University of Colorado, Boulder
Ph.D.	(2000)	Department of Environmental, Population and Organismic Bio Certificate in Neuroscience, Dept. of Psychology & Neuroscience	University of Colorado, Boulder
Postdoctoral Fellow ,		Reproductive Endocrinology, Department of EPOB	University of Colorado, Boulder

RECENT PROFESSIONAL/TEACHING EXPERIENCES**University of Colorado Boulder**

- **Instructor/Lecturer (August 2002 - Present)**
 - **Instructor: Department of Integrative Physiology** - (August 2019 – Present)
 - **IPHY 2400 - Medical Terminology** - (Summer 2021, 2022) Continuing Education, Online Credit Program.
 - **IPHY 3010 - Teaching Integrative Physiology** - (Fall 2021 – Present)
 - **IPHY 3700 - Scientific Writing** - (Spring 2019 - Present).
 - **IPHY 4010 - Honor Thesis Seminar** (Spring 2023 – Present)
 - **IPHY 4060 - Cell Physiology** - (Summer 2023 – Present)
 - **IPHY 4470 - Biology of Human Reproduction** - (Spring 2019 - Present) Continuing Education, Online Credit Program.
 - **IPHY 4860** – Independent Study – (Fall 2021, Spring 2022, Summer 2023, Fall 2023)
 - **IPHY 4930 – Internship** - (Fall 2020; Fall 2022, Fall 2023) - Dissected one cadaver for use in all labs, supervised undergraduate dissecting interns and assisted with weekly Graduate TA training.
 - **ARSC 1450/MCDB 1450 - Intro to STEM Methods** - (Spring 2015 - Fall 2017) Developed, designed and taught this innovative STEM program course/lab for first-generation freshman. Course content was based on CU faculty research projects and provided students a view of science in action and opportunities to network with research community.
 - **Instructor: MCDB 2115 Biology - Live Science of the Earth System** – (Fall 2003 - Fall 2005) Developed and taught a life science education course modeling inquiry-based, active-learning pedagogy to Pre-Service K-12 science teachers.
- **Additional Professional Experience (2002 - 2018)**
 - **Professional Development**
 - **K-12 Teachers** - Designed and developed science curriculum for K-12 teachers. Co-taught workshops with STEM faculty.
 - **Science Squad** (*Team of graduate students*) - Trained post-docs and graduate students to develop and present research-based, student-centered science curriculum for K-12 students in the Denver Metro area.
 - **Undergraduate Education and Research Programs**
 - **Biosciences Undergraduate Research Skills and Training Program** - (2002 - 2018) Designed, coordinated and taught biosciences training program for entry-level undergraduate researchers. Topics: scientific methods, EH&S training, science writing, oral and poster presentation.
 - **Graduate Student Projects and Programs**
 - **STEM Education Team** - Developed the concept of a STEM Exploration course to serve first-generation and minority high school seniors participating in the PCDP Summer Program. Coordinated all aspects of this project.
 - **Faculty Projects and Collaborations**
 - **Broader Impacts Program** – Advised and assisted faculty in developing and delivering programs to meet their Broader Impact obligations for NSF grants.
 - **Undergraduate Course Unit Development** – Collaborated with and trained STEM faculty to develop research-based lessons to incorporate into undergraduate STEM courses.
 - **Outreach and Other Collaborations**
 - **PCDP Summer STEM Track** – Developed a STEM Exploration course for first-generation and

- minority high school seniors participating in the PCDP Summer STEM program.
 - **CU Museum and Bees' Need Citizen Science Projects** – Developed, workshop to train teacher to utilize the Bees' Needs Citizen Science Project in K-12 classrooms.
 - **Forensic Science Educational Conferences (FSEC)** – Managed collaboration between CU and the FSEC to provide a multi-day professional workshop experience for K-12 science teacher.
 - **ScienceLIVE K-12 Curriculum Website:** Developed research-based curriculum with accompanying education videos for dissemination via the ScienceLIVE website.
- **Science Education Research**
 - **Action Research** – Evaluation of **ARSC 1450 - Intro to STEM Research Methods**, validated instruments (BioCLASS and SALG), and self-report to determine the effectiveness of course design.

ADDITIONAL TEACHING AND PROFESSIONAL EXPERIENCE

2019-2021	Instructor Biology of Human Reproduction IPHY 4770 – University of Colorado Continuing Education
2001-2002	Instructor and Lab Coordinator (Anatomy and Physiology) - Red Rocks Community College
2001-2002	Prosector (Department of Integrative Physiology) - University of Colorado, Boulder
2000-2001	Research Associate (Department of Integrative Physiology) - University of Colorado, Boulder
1995-2000	Research Assistant (Colorado Division of Wildlife) - University of Colorado, Boulder
1993-1998	Instructor (Pre-collegiate Development Program) - University of Colorado, Boulder
1993-1995	Research Assistant (Department of Environmental, Population and Organismic Biology, Developmental Biology) - University of Colorado, Boulder
1990-1998	Teaching Assistant (Department of Environmental, Population, and Organismic Biology, Anatomy, Physiology, Biology, Stream Ecology, Vertebrate Anatomy) - University of Colorado, Boulder
1983-1985	Instructor (Writing and Computer Learning Lab) - Front Range Community College, Westminster, CO

HONORS AND AWARDS

2021	Marinus Smith Award - recognizes faculty who have had a particularly positive impact on students
2014	Chancellor's Committee on Race and Ethnicity (CCORE) Award – Diversity Service Award
2014	Sigma Xi Chapter Leader Program Excellence Award
2007	Sigma Xi Chapter Leader Program Excellence Award
2000	Journal of Brain Research – Young Investigator's Award
2000	Journal of Brain Research – Journal Cover Award
1999	Teaching Award - University of Colorado, Boulder
1999	Equity and Excellence Award - University of Colorado, Boulder

SCIENCE EDUCATION AND OURTEACH

2014-Present	Discipline-Based Education Research (DBER)
2014-2017	Poster Presentation - Annual Symposium on STEM Education
2016	Outreach and Engagement Workshop
2011-2016	Colorado Learning and Teaching with Technology Conference (COLTT) - University of Colorado, Boulder
2014-Present	Diversity and Inclusion Summit - University of Colorado, Boulder
2014-Present	Outreach Steering Committee - University of Colorado, Boulder
2013	Howard Hughes - Summer Institute Learning Course for Educators - University of Colorado, Boulder
2013	CU Women Succeeding - University of Colorado, Boulder
2009	Service Learning Workshop - University of Colorado, Boulder

SCIENCE RESEARCH INTERESTS

Ph.D. Dissertation

The distribution of the amyloid precursor protein, β -amyloid peptide and neurodegeneration in the brain of kokanee salmon (*Oncorhynchus nerka kennerlyi*): a model for brain aging.

M.A. Thesis

The salmon as a model for aging: β -amyloid plaques in the brain of senescent salmon (*Oncorhynchus nerka kennerlyi*).

POSTDOCTORAL FELLOWSHIP

Evolution of the neuroendocrine control of reproduction in an invertebrate mollusc, *Aplysia californica*. (P.I. Dr. Pei-San Tsai)
Research appointments involved the use of laboratory techniques which included: traditional histology, immunohistochemistry, whole-mount immunohistochemistry, radioimmunoassays, radioactive iodination, image analysis, flow cytometry, polymerase chain reaction (PCR), running gels, dot blots, high performance liquid chromatography (HPLC), axonal labeling (antero- and retro-grade labeling), tissue and cell cultures, protein extractions, surgeries, dissections and tissue processing, laboratory management (supplies and hazardous waste) and organizing/scheduling collecting trips.

RESEARCH COLLABORATIONS

University of Colorado

- *Western blot analysis of salmon amyloid precursor protein and β -amyloid peptide* – Dr. David Norris
- *β -amyloid in brain-lesioned rats* – Dr. Theresa Hernandez
- *Metal contamination and stress response in brown trout* – Dr. John Woodling
- *Lizard Project, Brain Asymmetry* – Dr. Richard Jones
- *Alligator Project, Mullerian Duct Regression* - Dr. Harriet Austin
- *GnRH distribution in salmon* – Dr. Laura Carruth

University of Colorado, Denver – Laboratory of Dr. Alan Vajda

- *Reproductive disruption and intersex in white suckers (*Catostomus commersoni*)*

University of Denver – Laboratory of Dr. Robert Dores

- *Radioimmunoassay of salmon cortisol cycle*

Colorado Division of Wildlife – Laboratory of Dr. John Woodling

- *Morphology of southern and northern redbelly dace and Parthenogenesis and Chromosome Analysis*
- *Brown Trout Immune Stress Response,*

University of Colorado Health Science Center

- *Visible Human Dissector Project*

PUBLICATIONS:

- Jones, R.E.; Lopez, K.H.; **Maldonado, T.A.**; Summers, T.R.; Summers, C.H.; Propper, C.R.; and Woodling, J.D. Unilateral ovariectomy influences hypothalamic monoamine asymmetries in lizard (*Anolis carolinensis*). *Gen. Comp. Endocrinol.*, 108 (1997), 306-315.
- Norris, D.O.; Donahue, S.; Dores, R.M.; Lee, J.K.; **Maldonado, T.A.**; Ruth, T.; and Woodling, J.D. Impaired adrenocortical response to stress by brown trout, *Salmo trutta*, living in metal-contaminated waters of the eagle river, Colorado. *Gen. Comp. Endocrinol.*, 113 (1998), 1-8.
- **Maldonado, T.A.**; Jones, R.E.; and Norris, D.O. Distribution of β -amyloid precursor protein in the brain of spawning (senescent) salmon: a natural, brain-aging model. *Brain Research* 858 (2000), 237-251.
- Norris, D.O.; Camp, J.; **Maldonado, T.A.**; and Woodling, J.D. Some aspects of hepatic function in feral brown trout, *Salmo trutta*, living in metal contaminated water. *Comp. Biochem. Physiol. Part C* 127 (2000) 71-78.
- Carruth, L.L.; Dores, R.A.; **Maldonado, T.A.**; Norris, D.O.; Ruth, T.; and Jones, R.E. Elevation of plasma cortisol during the spawning migration of a landlocked Pacific salmon (*Oncorhynchus nerka kennerlyi*). *Comp. Biochem. Physiol. Part C* 127 (2000), 123-131.
- Kreiser, B.R.; Woodling, J.D.; and **Maldonado, T.A.** The redbelly dace (*Phoxinus*) of Colorado. *Copeia*, (2001).
- **Maldonado, T.A.**; Jones, R.E.; and Norris, D.O. Intraneuronal amyloid precursor protein (app) and appearance of extracellular β -amyloid peptide (A β) in the brain of aging kokanee salmon. *J. Neurobiol.* 53, (2002) 11-20.
- **Maldonado, T.A.**; Norris, D.O.; and Jones, R.E. Timing of neurodegeneration and β -amyloid

(Aβ) peptide deposition in the brain of aging kokanee salmon. *J. Neurobiol.* 53, (2002) 21-35.

- Tsai, P.-S.; **Maldonado, T.A.**; and Lunden, J.B. Localization of gonadotropin-releasing hormone in the central nervous system and a peripheral chemosensory organ of *Aplysia Californica*. *Gen. Comp. Endo.* (2003) 130, 20-28
- Vajda, A.M.; Lopez, E.M.; **Maldonado, T.A.**; Woodling, J.D.; Norris, D.O. Reproductive disruption and intersex in white suckers *Catostomus commersoni* downstream of a Colorado wastewater treatment plant. *Integr. Comp. Biol.* 44, (2004) 655.
- John, D. Woodling; Elena M. Lopez; **Tammy A. Maldonado**; David O. Norris; Alan M. Vajda. Intersex and other reproductive distribution of fish in wastewater effluent dominated Colorado streams. *Comp. Biochem and Physiol. Part C* 144 (2006) 10-15.

BOOK CHAPTER REVIEW

- BSCS Biology: A Human Approach 4th Edition Chapter 4

PRESENTED SCIENCE CURRICULE AT CONFERENCES

- Symposium on STEM Education
- National Association for Biology Teachers
- National Science Teachers Association
- Colorado Science Conference
- Colorado Biology Teachers Association

INVITED SPEAKER/GUEST LECURES

University of Colorado, Boulder

- Professional Skills for the Research Scientist (IPHY 6830) – Fall 2019
- Comparative Vertebrate Anatomy, Stream Biology, Introduction to Neurophysiology
- Sigma Xi Scientific, The Scientific Research Honor Society

University of Colorado Health Sciences Center (CU Anschutz), Denver

- Pathology Grand Rounds Seminar Series – 1/18/2001

GRANTS AND FELLOWSHIPS

Education

2006-2017	HHMI – Part of a team that wrote grants to secure funding and implement Course-based Undergraduate Research Experiences (CUREs), apprentice-based undergraduate research experiences and UCB Outreach.
2017	CU Outreach Grant – Teacher Professional Development Workshop - Plant Forensics. Grant funding supported purchase of “Plant Forensic” textbooks, forensic media and forensic activity supplies.
2014	CU Outreach Grant – Teacher Professional Development Workshop and Bee’s Needs Citizen Science project. Grant supported equipment and supplies for construction of Bee Boxes, and display boxes.
2009	CU Outreach Council Grant – Teacher Professional Development Workshop – Forensic Science (multi-day program). Grant funding supported graduate student participants, forensic science classroom supplies.
2009	American Academy of Forensic Scientists (AAFS) Grant – Collaboration between CU and the AAFS to develop and host a multi-day conference that brought local and nationally recognized forensic experts to the University of Colorado.
2007-Present	NSF – Worked with CU faculty to write and implement the Broader Impacts component of their NSF grants.
2007	NIH – Worked with Dr. Shelley Copley and implement Broader Impact component of research grant.

Research

2000-2001	NSF Postdoctoral Fellowship - University of Colorado, Boulder
1997-1999	NIH/National Institute of Aging Pre-Doctoral Fellowship

1991-1993 Environmental, Population and Organismic Biology Departmental Grant - University of Colorado, Boulder
1991- 1993 Howard Hughes Medical Institute Undergraduate Research Grant - University of Colorado, Boulder
1993-1997 Howard Hughes Medical Initiative - Wrote multiple training grant awarded on behalf of undergraduate Mentees – 33 University of Colorado, Boulder

ADDITIONAL OUTREACH EXPERIENCE

1993-1998 **Pre-collegiate Development Program** – Summer enrichment and CU recruitment program. Designed and taught various biological science courses to first-generation and under-represented minority high school students from the Denver, Colorado area.
2002 - 2009 **La Raza** – Designed and delivered science presentation for an enrichment program for Hispanic and Native American middle school students.
2018 **Denver March For Science** – Raised funds and recruited presenters for a public teaching table.
2008 – Present **Boulder Café Scientifique** – Organized all aspects of a scientific research lecture series for the public.
2008 – Present **Grants in Aid of Research** – Recruited CU graduate and undergraduate applicants for grant awards.
2008 – Present **Science Field Trips** – Recruited CU scientist to lead field trips (e.g., geology, museum) for the public.

ELECTED POSITIONS

2007-2012 President of the University of Colorado Chapter of Sigma Xi (The Scientific Research Honor Society).
2012-2015 Vice President of the University of Colorado Chapter of Sigma Xi (The Scientific Research Honor Society).
2015-Present President of the University of Colorado Chapter of Sigma Xi (The Scientific Research Honor Society).

NATIONAL ELECTED POSITIONS

2016-2018 Chair of the Sigma Xi President Nominating Committee.
2018-Present **Director** of the Sigma Xi **Research & Doctoral Constituency**.
2018-2020 Executive Board of Directors - Sigma Xi.
2020-Present Executive Board of Directors - Sigma Xi (re-elected)
2018-Present Chair of the International Awards Committee, Sigma Xi.
2020-Present Chair of Committee on Lectureship, Sigma Xi
2020-Present Executive Board of Directors - Sigma Xi.

PROFESSIONAL MEMBERSHIPS

2000-Present Sigma Xi - The Scientific Research Honor Society President Nominating Committee 2016.
2002-Present National Science Teacher Association.
2002-Present Colorado Biology Teachers Association.
2002-Present National Association of Biology Teachers.

COMPUTER SKILLS

Software: Microsoft Word, Excel, PowerPoint, Zoom, Camtasia, Kaltura Video Capture, TechSmith Relay Video Capture, Outlook, D2L, Canvas, Qualtrics and Google Docs.
Assisted faculty training for K-12 teachers to use various software programs (Cn3D and 3D Electron Microscopy Cell Modeling software).