

Caroline H. Wilson, PhD

Clinical Associate Professor of Health Sciences

Chapman University, Crean College of Health and Behavioral Sciences

Department of Health Sciences and Kinesiology

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EDUCATION

University of Hawai'i, Mānoa, HI

Postdoctoral Researcher at the Pacific Biosciences Research Center, Neurobiology 2006-2008

Research: Myelin formation and development in crustacean copepod nervous systems

Advisors: Daniel Hartline, PhD & Petra Lenz, PhD

University of Arizona, Tucson, AZ

PhD in Neuroscience with a minor in Molecular and Cellular Biology 2000-2005

Dissertation: "The effects of nitric oxide on antennal lobe (olfactory) neuron processing in the moth, *Manduca sexta*"

Advisors: Alan Nighorn, PhD; John Hildebrand, PhD; Tom Christensen, PhD

Allegheny College, Meadville, PA

BS in Neuroscience with a minor in Philosophy, cum laude 1996-2000

Areas of Concentration: Marine Studies in collaboration with Duke University Marine Laboratory

Research Experience for Undergraduates, University of Illinois, Chicago, with A. Don Murphy, PhD

Comprehensive Project Thesis: "Responses of rat olfactory sensory cells to carbon dioxide"

Advisor: Lee Coates, PhD

EXPERIENCE

Chapman University (Orange, CA)

Clinical Associate Professor of Health and Behavioral Sciences

Crean College of Health and Behavioral Sciences, Dept. of Health Sciences & Kinesiology 2017-present

Instructor, Human Anatomy Laboratory

University of Alaska Anchorage (UAA: Anchorage, AK)

Term Assistant Professor, WWAMI School of Medical Education 2015- 2017

Affiliate Assistant Professor, University of Washington Physiology Department 2016-2017

Affiliate Instructor Creighton University Occupational Therapy Program 2015-2017

- University of Washington School of Medicine (UWSOM) Curriculum Developer, AK
Course Co-Director & Instructor for Molecular & Cellular Basis of Disease, a course for the first year UWSOM Medical Students "Foundations Phase" (*developed course syllabi, learning objectives, and assessment questions; designed CANVAS learning web platform for course; created active learning in-class activities; lecturer; collaborated with colleagues from 5 WWAMI states using virtual meetings; attended UW faculty training*).
- Small group leader for WWAMI Cardiac, Pulmonary & Renal & Mind, Brain, Behavior courses
- Instructor of Record for Human Gross Anatomy Undergraduate Course (*Lecturer, Cadaver lab assistant, Anatomage © Virtual Cadaver Table & InVivo Software Trainer, Polar 3D printer trainer, developed syllabus and overall course structure, and administered all grades*)
- Instructor for Neurophysiology Course (UAA, Biological Sciences)
(*Developed syllabus and overall course structure, including Community Engaged Component for Science Outreach, Team Based Learning, Teammates Evaluation, and Human Neuroanatomy lab*)
- Creighton University Occupational Therapy Program (joint program between Creighton, NE & UAA).
 - Instructor of Record for Gross Anatomy Cadaver Course
 - Mentored research project for Creighton students (Thomas Robinson, Tyler Smoker, Oliver Kapusciok, Michelle Warner)
- Faculty Advisor, *Volunteers Around the World* (2016-2017)
- Premedical Advisory Committee Member (2016-2017)
- WWAMI State of Alaska Eligibility Committee Member (2016-2017)

University of Alaska Anchorage (UAA: Anchorage, AK)

Term Instructor, Biological Sciences

2010-2015

- Instructor for Anatomy & Physiology I & Anatomy & Physiology II (Developed syllabus & administered all grades for two-semester large lecture 100+ students / class), Special Topics in Neuroanatomy & Neurophysiology Course; Instructor & Director for WWAMI Cell Physiology (2012-14) & Musculoskeletal Anatomy (Fall 2014)
- Undergraduate Research Mentor (Stephen Chae, John Mathot*, Emily Rom, Jaeyon Cho*, Makala Bascome*) *Awarded UAA Honors or Research Scholarship

Denison University (Granville, OH)

Visiting Assistant Professor and Neuroscience Bridge Scholar

2008-2010

- Instructor for 1) Neurophysiology w/ Laboratory, 2) Molecular and Cellular Biology w/ Laboratory, 3) Introductory and Advanced Neuroscience
- Collaborated with faculty to develop Neuroscience labs for the concentration.
- Undergraduate Research Mentor (Kaitlin Costello*, Christopher Wessner*, Grant Adams)
* Awarded Battelle Foundation Research Fellowships

Leeward Community College (Pearl City, HI)

Lecturer

2007-2008

Instructor for Anatomy & Physiology I and II

University of Hawai'i (Mānoa, HI)

Guest Instructor and Research Mentor

2007-2008

- Guest lectured for NSF workshop (confocal microscopy), Comparative Animal Physiology, Graduate Neurophysiology, Intro to Neuroscience courses
- Undergraduate research mentor, Jennifer Kong (PhD)

OUTREACH AND PROFESSIONAL DEVELOPMENT

Montana Nurses Association Meeting, Continuing Education Update Alaska

Presenter / Team-Based Learning (TBL) Instructor

April, 2017

Invited presentation: *Learning, Teaching, and the Brain: Developing a Team-Based Learning Tool Kit for Improved Collaboration*

American College of Sports Medicine, Alaska Chapter Mini Conference

Judge

March, 2017

Student Bowl Competition

UAA Planetarium

Presenter

2011— 2017

- Live presentations of *Neurodome* and *Nanocam: A Trip into Biodiversity* to public

UAA CAFÉ (Center for Advancement of Faculty Excellence)

Presenter

2014— 2017

- Faculty presenter for *TBL* Techniques
- Led workshops / provided faculty support for Facilitation techniques, TBL 101, Multiple choice question writing

Alaska Brain Bee

Organizer & Founder Alaska Brain Bee High School Neuroscience Competition

2011— 2017

- Organizer and fundraiser for the regional AK Bee, part of the International Brain Bee
- Integrated Brain Bee into service learning component of Neurophysiology course
- Sponsored a Community Engaged Student Assistant (CESA) each year to assist with Bee and other outreach (Elementary science nights at Huffman and Oceanview, Creative Activities Fair). CESAS: Sean Costello (2010-13), Sarah Johns (2014-15), Emily Rom (2015-16), Madlen Penn (2017)
- Tutored local regional winner to prepare for National Brain Bee competition each March

Department of Energy & the Anchorage Museum STEM Mentor for Middle Schoolers Discussed neuroscience and displayed sheep brains to students; Provided mentorship	2015–2016
Allegheny College Alumni Volunteer Provide mentorship for any interested Allegheny College student on career advancement	2014– current
Urban in Alaska Conference Presenter One minute rapid fire talks on “The Alaska Brain Bee and the Rasmuson Museum: A Collaboration”	2014-2015
Hiland Correctional Facility, Romig Middle School, Hanshew Middle School, Polaris K-12 School, Service High School, Huffman Middle School, Della Keats Sciences Summer Program Invited Lecturer Topics included “Drug effects on the Brain”, Brain Anatomy and physiology	2012– 2017
Alaska Native Case Studies Institute Participant Learned about Pacific Northwest Native culture & its incorporation into active learning classrooms	2014
Rose Urban Rural Exchange Program, Alaska Humanities Forum Participant <ul style="list-style-type: none"> • Summer immersion camp at Dig Afognak, Afognak Native Corporation • Learned about Alaskan Native Cultures and the unique learning styles of the Alaska Native student population • Presented experience at AK Native Issues and Pedagogies Faculty Learning Community • Received letter grade, “A” in coursework 	2011

AWARDS

Community Builder Award, given to a member of the Anchorage Community for dedication to Community Service, Awarded by UAA Center for Community Engagement and Learning	April, 2017
Named an Influential Person by a first or second year student at UAA by Division of Student Access, Advising and Transition office, UAA	2015 – 2016
Travel Award to attend TBL conference to become TBL certified Trainer (San Diego & Ft. Worth)	2013 – 2014
Nominee, Chancellor’s Award for Excellence in the category of Excellence in Teaching, UAA	2012
UAA Center for Community Engagement and Learning Faculty Mini-grant for the Alaska Brain Bee (\$250-\$2700 / year)	2012 – 2016
Mount Desert Island Biological Laboratory New Investigator Award for “Identifying the novel formation of copepod myelin” (\$8000 towards lab space & housing)	2009
Cades Postdoctoral Fellowship, Pacific Biosciences Research Center, University of Hawaii	2007 – 2008
NIH/NIDCD Ruth L. Kirschstein Individual Predoctoral Fellowship (1 F31 DC006368-01A1)	2003 – 2005
NIH/NIA Institutional Predoctoral Training Program in Neuroscience (3 T32 AG007434-05S2)	2002 – 2003

PUBLICATIONS AND PRESENTATIONS (*Indicates *Undergraduate or *Graduate researchers*)

- Kapusciock O⁺, Robinson T⁺, Smoker T⁺, Warner M⁺, Elswick J, **Wilson CH**. (2017) Investigating Perceptions of Blood Bank of Alaska Attendees on the use of Three-Dimensional Model Printing for Patient Education on Rheumatoid Arthritis and Osteoarthritis. *Submitted, Patient Education and Counseling*.
- Lei H, Reisenman C, **Wilson C**, Gabbur P, Hildebrand JG. (2011) Spiking patterns and their functional implications in the antennal lobe of the tobacco hornworm *Manduca sexta*. *PLOS ONE* 6(8): e23382. doi: 10.1371/journal.pone.0023382.
- Wilson CH**, Hartline DK. (2011) The novel organization and development of copepod myelin I: ontogeny. *J Comp Neurol* (519):3259-80.

Wilson CH, Hartline DK. (2011) The novel organization and development of copepod myelin II: non-glial origin. *J Comp Neurol* (519): 3281-3205. **This article was selected by a member of the Faculty of 1000 (F1000), a service that places publications in a library of the top 2% of published articles in biology and medicine.** See: <http://f1000.com/prime/11672956>

Costello K*, Chung JS*, Skarke S*, Lenz P, **Wilson CH**. (2010) Identification of voltage-gated sodium ion channel genes in the copepods *Calanus finmarchicus*, *Bestiolina similis*, *Undinula vulgaris*, and *Parvocalanus crassirostris*. *MDIBL Bulletin* (49): 37.

Kilpatrick H*, Christie AE, **Wilson CH**. (2010) Immunofluorescent localization of voltage-gated sodium channels to identify node-like structures in nerve fibers of the sand shrimp (*Crangon septemspinosa*). *MDIBL Bulletin* (49): 31.

Wilson CH, Christie AE. (2010) Distribution of allatostatin C-like immunoreactivity in the central nervous system of the copepod crustacean *Calanus finmarchicus*. *Gen Comp Endocrin*. 1;167(2):252-60.

Wilson CH, Christensen TA, Nighorn AJ. (2007) Inhibition of nitric oxide and soluble guanylyl cyclase signaling affects olfactory neuron activity in the moth, *Manduca sexta*., *J Comp Physio [A]* 193(7): 715-728.

Published abstracts (recent):

Rom E*, **Wilson CH**. (2016) My role as a Community Engaged Student Assistant with the UAA Brain Bee. Alaska Public Health Summit, Anchorage, AK Feb 2.

Costello SM*, **Wilson CH**. (2013) Alaska's Brain Bee: a service learning opportunity for upper division biological science undergraduates. Society for Neuroscience Meeting, San Diego, CA. 22.16SA/MMM8.

Haughey C*, Albert C*, Stewart D*, **Wilson CH**, Hinterberger T. (2012) Evidence of a role for the muscle regulatory factor MRF4 in neural development of *X. laevis*. 14th International *Xenopus* Conference, Giens Peninsula, France. <http://xenopus2012.org/IMG/pdf/14IXC-booklet-final.pdf>

Invited presentations:

Wilson CH (October 22-25, 2013) 1) MRF4 in *Xenopus laevis* development; 2) Life in Alaska; 3) Team Based Learning. Invited lectures at Xi'an Medical University Hospitals and University, Xi'an, China.

Wilson CH & Christie AE (January 4, 2010) Distribution of allatostatin C-like immunoreactivity in the central nervous system of the copepod crustacean *Calanus finmarchicus*. Society for Integrative and Comparative Biology Meeting, Seattle, WA.

Wilson CH & Hartline DH (July 14, 2009) Calanoid copepod myelin and node development: structure and function. Frenchman Bay Crustacean Symposium, Mount Desert Island Biological Laboratory, Salisbury Cove, ME. Dan Hartline, Petra Lenz and Andrew Christie, organizers.

MEMBERSHIPS

Team Based Learning (TBL) Consortium (2013-present)
Faculty for Undergraduate Neuroscience (2008-present)
Society for Neuroscience (2001-present)

REFERENCES *More references available upon request.*

- Dr. Fred Rainey, DPhil, former Director Biological Sciences, University of Alaska Anchorage, farainey@gmail.com, (225) 235-7160
- Dr. Peter Fuerst, PhD, WWAMI School of Medical Education colleague & Associate Professor of Biological Sciences, University of Idaho, fuerst@uidaho.edu, (208) 885-7512
- Dr. Dan Hartline, Director, Bekesy Lab of Neurobiology, Pacific Biosciences Research Center, University of Hawaii, Mānoa, danh@pbrc.hawaii.edu, (808) 956-8003
- Dr. N. Jane Shelby, PhD, Director WWAMI School of Medical Education, UAA, njshelby@uaa.alaska.edu, (907) 786-4772