

Anita K. McCauley, Ph.D.

414 Westbourne Ct., Kernersville, NC 27284

WFU Email: mccaalak@wfu.edu

WFU Phone: 336-758-3909

EDUCATION

Ph.D., Neurobiology, 2002

Wake Forest University, Winston-Salem, NC

Dissertation: *Development of Nitrergic Circuitry in the Ferret Visual Thalamus*

B.S., Biology, 1997

Elon College, Elon, NC

Summa Cum Laude

APPOINTMENTS

2019- present	Assistant Director, Curriculum Development and STEM Programming, Center for the Advancement of Teaching, WFU
2017-2019	Assistant Director, STEM Initiatives, Teaching and Learning Collaborative, WFU
2016-2017	Adjunct Instructor, Dept. of Neurobiology and Anatomy, Wake Forest University
2013-2017	Part-Time Assistant Professor of Biology/Adjunct Associate Professor of Biology
2012–2017	Research Associate Professor, Dept. of Biology, Wake Forest University
2012–2014	Microscopy Consultant, David H. Murdoch Research Institute
2008-2012	Senior Lecturer, Dept. of Biology, Wake Forest University
2002-2012	Director of Microscopy, Dept. of Biology, Wake Forest University
2002-2008	Adjunct Assistant Professor, Dept. of Biology, Wake Forest University
1998-1999, 2001	Microanatomy Teaching Assistant, Dept. of Neurobiology and Anatomy, Wake Forest University

TEACHING EXPERIENCE

All Undergraduate Courses Taught

BIO 353 -- Functional Neuroanatomy, Spring 2010 – Spring 2012; Fall 2013; Fall 2014; Spring 2016 - present

NEU 200 -- Introduction to Neuroscience, 2003-2004, 2007-present (fall semesters)

Teach 1-2 class sessions each year on sleep circuitry, functions of sleep, and sleep pathology

BIO 114 -- Comparative Physiology, Spring 2014, Fall 2015, Fall 2016

BIO 391-394 -- Research, 2004, 2008-2012

NEU 300 -- Neuroscience Seminars, 2004-2012

Lead two class sessions and hosted a speaker on neuroscience research topics each year

BIO 214 -- Cellular Biology

Guest lectures on Microscopy, Histology; Pilot laboratory on Muscle Differentiation Using Confocal Microscopy

BIO 371 -- Neuroscience, Elon University, Guest Lecturer, 1999

Lead three class sessions on Neurotransmitters and Receptors; Plasticity; and Consciousness

All Graduate Courses Taught

NEUR 701 -- Introduction to Neuroscience I, Neuroanatomy Section Director, 2016; Co-Director 2015

BIO 775 -- Microscopy for the Biological Sciences, 2003-2012

BIO 702 -- Cellular and Molecular Methods, 2006-Fall 2009, fall and spring semesters

NBAT 710 -- Cellular Biology, 2006 – 2008, spring semesters

Lead two sessions per semester: Video Microscopy; Ethics, Professionalism, and Research Misconduct

NEU 713 -- Introduction to Neuroscience II, 2002

Taught a class session on Retinal Organization and the Retinogeniculate Pathway

NBAT 735 -- The Development and Anatomy of Sensory Systems, 1999-2001

Taught a class session on Cross-Modal Plasticity

All Medical Courses Taught

Microanatomy I, Laboratory Teaching Assistant; 1998, 1999, 2001

Lecture on Thyroid and Other Endocrine Glands, 2001

Significant Course Creation and Innovation Activities

Biology 353: Functional Neuroanatomy, Spring 2010 – 2012; Fall 2013 - 2014; Spring 2016 - present

This is a course which I created to serve students pursuing a Biology degree or a Neuroscience minor. The course emphasizes the use of learner-center strategies to create an engaged and relevant classroom climate in which students learn the content while growing their critical thinking and problem-solving skills. Topic relevance is emphasized through current events, mystery pathologies, scientific literature, and clinical cases. Cases are used in varying ways during the semester, ranging from content review to the primary method for teaching a topic. Relevance is also emphasized through the semester long integration of a self-selected and self-directed current topics project. Reading recent non-fiction neuroanatomy-related books as a class, as well as partnering with clinicians and scientists from WakeHealth, have also enhanced previous offerings of the course.

Biology 114: Comparative Physiology, Spring 2014; Fall 2015, Fall 2016

The section of this course which I taught was intentionally designed to integrate active and reflective learning elements into a traditionally lecture-format course. The course emphasized the development of self-directed and self-regulated learning skills as well as critical thinking and problem-solving skills while guiding students to learn the course content. Classroom time intermixed lecture with active learning tools in which students clarified, practiced, and applied the content. A mix of formative and low-stakes summative assessments were used within and outside the classroom to provide feedback on learning progress. Just-in-time strategies were

used to address misunderstanding and misconceptions based upon online quiz and activity results. Unit reflections and exam wrappers helped students reflect, analyze, and correct content and preparation mistakes.

Bio 775: Microscopy in the Biological Sciences, Spring 2003 - 2012

This lecture and laboratory course provided theoretical and practical knowledge and training to graduate students in Biology, Chemistry, and Physics. As the Director of Microscopy, I selected and designed the course content, classroom materials, activities, and laboratory experiments. The course explored light, electron, and confocal microscopy, digital imaging and quantitative analysis, with an emphasis on the development of proficient skill. In Fall 2009, I revised the laboratory component to create a full 3-hour weekly lab. Additionally, asynchronous online peer and instructor feedback enhanced student image capture and processing skills as well as critical analysis of microscopy literature.

Neuroscience 701: Introduction to Neuroscience – Neuroanatomy Section, Fall 2015, 2016

This course served post-baccalaureate students, neuroscience health disparities graduate students, and neuroscience masters and doctoral graduate students. As Section Director, I revised this lecture and laboratory course from one taught using a passive lecture experience to one with a more learner-centered focus which incorporated active and reflective learning elements. Learning outcomes were created and shared with the students in order to guide their reading, studying, and laboratory efforts. Lecture sessions were modified to follow an inductive format in which students were introduced to a question or pathology at the onset of session, and that topic was revisited periodically during the remainder of the session. Weekly reflective thinking assignments guided students to build an integrated understanding of the overall course content as well as to examine their own learning progress. Directed individual feedback based upon the reflections facilitated greater student learning and enhanced student motivation. An exam wrapper following the last exam gave students an opportunity to revisit and better learn the course content as well as reflect on their overall progress toward becoming a successful graduate student. Additionally, I mentored two graduate student teaching assistants.

Cellular and Molecular Methods Lunch Group, Fall 2006 – Fall 2009

This course began following recognition by both faculty and graduate students in the Biology department that students needed more training in the critical analysis and application of scientific methods as well as oral presentation skills. Therefore, I created and coordinated a lunch discussion group composed of faculty and graduate students, which eventually became a 700-level seminar course entitled Cellular and Molecular Methods. This group provided an opportunity for faculty and graduate students with an interest in Cellular and Molecular Methods to discuss papers, techniques, and research problems. Topics with Imaging, Cellular Methods, and Molecular Methods were emphasized each semester.

EDUCATIONAL DEVELOPMENT EXPERIENCE

Assistant Director, Curriculum Development and STEM Programming

6/1/2017 - Present

Center for the Advancement of Teaching, Wake Forest University

Responsibilities: Provide support for departments and programs for the development and revision of curriculum as well as assessment of student learning; Develop and deliver programming for STEM departments and faculty on the Reynolda and WakeDowntown campuses; Support and contribute to all educational development programming provided by the Center including institutes, workshops, book groups, and individual consultations; Provide pedagogical training opportunities for graduate students, teaching assistants, and postdoctoral fellow; Contribute to the development and renovation of learning spaces on campus through service on the Learning Spaces Committee.

Customized Workshops and Retreats for Departments

Building the Entrepreneurship Program Curriculum, Part 2

Entrepreneurship Minor, Wake Forest University, June 2019

This was a half-day retreat for the Entrepreneurship Program to support their efforts to continually improve their minor degree program and to build out a curriculum, student learning outcomes, and an assessment plan. Outcomes included awareness and revision of draft student learning outcomes and required courses and collaborative visioning of learning sequences contributing to student achievement of mastery.

Building the Entrepreneurship Program Curriculum, Part 1

Entrepreneurship Minor, Wake Forest University, January 2019

This was a full-day retreat developed and facilitated for the Entrepreneurship Program to support their efforts to continually improve their minor degree program and to build out a curriculum, student learning outcomes, and an assessment plan. Outcomes included identifying ideal graduate attributes, aligning with liberal education ideals, and determining themes to guide the development of student learning outcomes for the program.

Building the Environment and Sustainability Program Curriculum, Part 2

Environment and Sustainability Program, Wake Forest University, March 2019

This was a full-day retreat developed and facilitated for the Environment and Sustainability Program which built off the work of the March 2019 retreat. Outcomes from this retreat included revising student learning outcome statements; revising course requirements for the BA and BS degree; and making a curricular map.

Building the Environment and Sustainability Program Curriculum, Part 1

Environment and Sustainability Program, Wake Forest University, March 2019

This was a full-day retreat developed and facilitated for the Environment and Sustainability Program to support their efforts to build a curriculum and student learning outcomes for BA and BS degrees. Outcomes included identifying ideal graduate attributes, aligning with liberal education ideals, and determining themes to guide the development of student learning outcomes for the program.

Developing a Plan to Assess Student Learning

Department of Computer Science, Wake Forest University, August 2019

This was a half-day retreat developed and facilitated for the Computer Science department which built off the work of the CS Curriculum Committee during AY 18-19 and the outcomes of the May 2019 retreat. The goal of this retreat was to iterate on the development of rubrics to assess student mastery of learning outcomes as well as to identify potential assignments and learning artifacts to be used for program-level assessment.

Developing the Core: Aligning Courses, Content, and Learning Outcomes

Department of Computer Science, Wake Forest University, May 2019

This was a half-day retreat developed and facilitated for the Computer Science department which built off the work of the CS Curriculum Committee during AY 18-19. During this retreat, faculty developed a curricular map based on a newly proposed curriculum, including working to visualize scaffolded learning experiences and integrate professional content and learning outcomes with technical, discipline-specific content.

Identifying and Integrating WFU Computer Science Goals and Ideals with ABET Criteria

Department of Computer Science, Wake Forest University, August 2018

This was a full-day retreat developed and facilitated for the Computer Science department which built off the work of the May 2018 retreat. The outcomes for this retreat included identifying ideal graduate attributes,

aligning attributes with student learning outcomes, identifying themes, and drafting performance indicators.

Using the Assessment Process to Meet Multiple Departmental Goals

Department of Computer Science, Wake Forest University, May 2018

This was a half-day mini-retreat developed and facilitated for the Computer Science department. The goals for the retreat were to ensure that all faculty understood the issues and needs associated with improving and revising their curriculum, in particular related to potentially seeking ABET accreditation; and to do work which contributed to the department's annual report and academic program evaluation report.

Infusing "Educating the Whole Engineer" Attributes into the Curriculum

Department of Engineering, Wake Forest University, February – April 2019

This was a series of 1-hour workshops designed to continue the iteration and development of educational experiences that would support student achievement of mastery of select program attributes. These sessions were conducted with the WFU Engineering team as well as candidates for faculty positions. The goals for these sessions were: to develop a common working definition for the attribute in the context of engineering and education; to identify the knowledge, skills, and attitudes (KSA's) competencies associated with that attribute; to connect those KSA's with the ABET student learning outcomes for our program; and to brainstorm examples of aligned curricular learning experiences along with evidence of learning from those experiences, that could be infused into the curriculum. Attributes included: sustainable thinking; building character; Pro Humanitate; Entrepreneurial Mindset; Cultural Reasoning; and Ethical Reasoning.

Curriculum Design Challenge: Developing Learning Experiences for Whole Engineer Attributes

Department of Engineering, Wake Forest University, February – April 2018

This was a series of 1-hour workshops conducted with the WFU Engineering team in addition to candidates for faculty positions. The goal of these workshops was to brainstorm types of educational experiences that would support achieving mastery of a chosen attribute and to identify how and when to thread those experiences into the 4-year curriculum. Attributes included empowered mindset; fearless adaptability; self-awareness; personal and professional growth; diversity and inclusion; collaboration; social consciousness; and ethical reasoning.

Development of a Liberal-Arts Infused Undergraduate Engineering Program

Department of Engineering, Wake Forest University, August 2017 – present

This represents intensive, iterative, and collaborative work with the entire WFU Department of Engineering to develop a brand-new degree program. Programming and consultations have included defining values; aligning dreams to the institution; identifying design requirements; integrating and aligning internal and external expectations with student learning outcomes; developing performance indicators, curricular experiences, and curriculum; and curricular mapping

Undergraduate Curriculum: Program Outcomes, Curricular Mapping, and ACS Guidelines

Department of Chemistry, Wake Forest University, August 2017

Workshops

Active Learning Part 1: Principles and Practices; Active Learning Part 2: Designing a Learning Experience; Writing Learning Outcomes; Syllabus Design; Learner-Centered Teaching; Small Teaching; Assessing Mastery of Student Learning; Strategies for Departments and Programs of Study; Dealing with Challenging Situations; Good Teacher/Bad Teacher: Becoming the Teacher You Want to Be; Active Listening: Principles and Practices

Book and Reading Communities for STEM Faculty, Graduate Students and Postdoctoral Fellows

Small Teaching; Learner Centered Teaching; Dynamic Lecturing; Teach Students How to Learn
S.T.E.M.: Scholarly Teaching – Evidence and Methods

Conference Presentations

McCauley, AK, Verbeke, KJ, Pierrakos, O, Santago, P. 2018. Creating Liberal Education-Integrated STEM Programs: A Program and Curriculum Development Toolkit. AACU: Transforming STEM Higher Education Conference, Nov. 8-10, 2018.

Professional Training

Fundamentals of Program Assessment Workshop, ABET, October 2018

This was a 1-day workshop on theoretical and practical training in best practices for program assessment.

Institute for New Faculty Developers, POD Network, June 2017

This was a multi-day intensive institute on best practices in pedagogy and educational development.

Getting Started: Workshop for New Faculty Developers, POD Network, 2016

This was a two-day intensive workshop on best practices in pedagogy and educational development.

WFU Teaching and Learning Center Programs:

Faculty Fellow Book Discussion Leader, Fall 2016: *“Teaching and Learning STEM: A Practical Guide”*

Book Discussion Participant: *“What the Best College Teachers Do”* (S2010), *“Teaching What You Don’t Know”* (S2011), *“How Learning Works”* (S2011), *“Learner-Centered Teaching”* (F2013); *“Making it Stick”*, (F2014), *“Specifications Grading”* (S2015), *“Creating Self-Regulated Learners”* (F2015)

Workshop Participant: Lecturing, Syllabus Construction, and Teaching Philosophy, 2009; Creating Assignments and Assessing Learning, 2014

Teaching and Advancement Seminar Course, Spring, 2002; WFU (course taught by Dr. Ann Lambros)

Association of Neuroscience Departments and Programs, Spring 2000

One of two graduate students and three post-doctoral fellows selected nationally for a year-long program. We met throughout the year, identified an area of need in professional preparation, collected data and compiled research, and organized a program to be presented at the annual meeting of neuroscience graduate program directors. My presentation focused on the need for greater teaching training for graduate students.

ADDITIONAL PROFESSIONAL EXPERIENCE

Microscopy Consultant

2012 – 2014

David H. Murdoch Research Institute

Responsibilities: As a consultant for DHMRI, I was responsible for training users, managing and maintaining equipment, performing experiments, collaborating with users on experimental design and analysis, and maintaining usage and billing records.

Director of Microscopy

2002 – 2012

Biology Department, Wake Forest University

Responsibilities: I was responsible for training users, managing and maintaining facility equipment, collaborating with users on experimental design and analysis, teaching a graduate course, writing grants, and overseeing facility and grant budgets. Significant successes included writing and serving as principle investigator on four grants which brought nearly \$1 million dollars in federal and foundation funding to WFU for new equipment; building collaborative relationships with faculty in Biology, Chemistry, and Physics on the Reynolda Campus as well as faculty in Biochemistry, Physiology and Pharmacology, Neurobiology, and Microbiology on the medical center campus in order to increase research capabilities and results; acquiring three new microscopes, new sample preparation equipment, as well as digital analysis software and workstations; creating the Confocal Microscopy Center; and organizing and hosting workshops and seminars which brought nationally-renowned scientists to WFU and increased the visibility and recognition of microscopy, and research overall, at WFU.

Development of Local and Regional Workshops and Conferences

Regional Microscopy Workshops

Biology Department, Wake Forest University

I developed, organized, and hosted two multi-day hands-on microscopy workshops, in collaboration with Carl Zeiss MicroImaging, for the Wake Forest University academic community as well as the NC regional community. The first seminar, focusing on FRET microscopy, occurred November 2010 with 70+ attendees from 7 different institutions. The second seminar, focusing on fluorescent labeling in live cells, occurred November 2011, with 90+ attendees from 8+ institutions. National and regional experts participated as conference speakers.

Microscopy and Digital Imaging Seminars

Biology Department and Center for Molecular Signaling, Wake Forest University

I developed, organized and hosted a yearly interdisciplinary seminar (2009-2012), co-sponsored and supported by the Biology, Chemistry, and Physics departments, and the Center for Molecular Communication and Signaling. The seminars focused on imaging methods and their application to biological questions and the speakers were nationally known microscopy experts -- Jim McNally (NIH), David Piston (Vanderbilt Univ.), and Enrico Gratton (UC-Irvine). I also organized and hosted a two-day workshop on deconvolution for the greater WFU community in spring 2003. An application engineer from a leading deconvolution company (Autoquant) provided seminars and hands-on training in the principles and applications of deconvolution for ~30 attendees.

Neuroscience Conference: SYNAPSE 2010 and 2011

Neuroscience Minor, Wake Forest University

I assisted with planning the SYNAPSE annual meetings hosted by WFU in 2010 and 2011. Additionally, I served as a presenter for a confocal microscopy workshop for students and faculty during the 2010 meeting and as the moderator for a Careers in Neuroscience workshop in 2011. SYNAPSE is a two-day symposium for neuroscience undergraduate student researchers and their faculty in the southeastern United States.

Perspectives in Biology Symposium -- Research and Resources

Biology Department, Wake Forest University

Along with Dr. Erik Johnson, I co-created and organized the "Research and Resources" session of the Biology Department's annual Perspectives in Biology symposium from Fall 2008 – Fall 2012. This session served to highlight recent research findings from the department and to provide education and hands-on demonstrations of microscopy techniques to PIB attendees, who are typically 2-yr and 4-yr college teaching faculty from the region. Each year I provided a brief seminar, question-and-answer session, and demonstration on microscopy.

Center for Molecular Communication and Signaling – Imaging Working Group

This working group was a subgroup of the Center for Molecular Communication and Signaling for faculty whose research interests involved microscopic imaging and analysis. As the leader of this group, I organized and hosted monthly meetings focused on the application of imaging tools to faculty research interests.

Professional Microscopy Training

Image Pro Plus Training Course, Media Cybernetics, Inc., 2006

2-day course which provided theoretical and practical training for Image Pro Plus image analysis software.

Optical Microscopy and Imaging in the Biomedical Sciences, Marine Biological Laboratory, 2002

Intensive 10-day course providing extensive training in light and fluorescence microscopy, and image analysis.

PUBLICATIONS

Journal Articles

Klomsiri C, Rogers LC, Soito L, McCauley AK, King SB, Nelson KJ, Poole LB, Daniel LW. (2014) *Endosomal H2O2 production leads to localized cysteine sulfenic acid formation on proteins during lysophosphatidic acid-mediated cell signaling*. *Free Radic Biol Med* 71:49-60. doi: 10.1016/j.freeradbiomed.2014.03.017

Gassman, NR, Clodfelter JE, McCauley AK, Bonin K, Salsbury FR, Scarpinato KD. (2011) *Cooperative nuclear localization sequences lend a novel role to the N-terminal region of MSH6*. *PLoS One* 6(3): e17907. doi:10.1371/journal.pone.0017907.

McCauley AK, Frank ST, Godwin DW. (2009) *Brainstem Nitroergic Innervation of the Mouse Visual Thalamus*. *Brain Research* 1278: 34-49.

Johnson, E.C., F.W. Tift, A.K. McCauley, L. Liu, and G. Roman. 2008. *Functional characterization of kurtz, a Drosophila non-visual arrestin, reveals conservation of GPCR desensitization mechanisms*. *Insect Biochem. Mol. Biol.* 38:1016-1022.

McCauley AK, Carden WB, Godwin DW. 2003. *Brain Nitric Oxide Synthase Expression in the Developing Ferret Lateral Geniculate Nucleus: Analysis of Timecourse, Localization, and Synaptic Contacts*. *Journal of Comparative Neurology* 462 (3): 342-354.

McCauley AK, Meyer GA, Godwin DW. 2002. *Developmental regulation of brain nitric oxide synthase expression in the ferret thalamic reticular nucleus*. *Neuroscience Letters* 320:151-155.

Moore RJ, Vinsant S, McCauley AK, Kurukulasuriya NC, Godwin DW. 2001. *Transneuronal Retrograde Transport of Attenuated Pseudorabies Viruses Within Central Visual Pathways*. *Visual Neuroscience* 18:633-640.

Abstracts

Bonin KD, Guthold M, Macosko J, Holzwarth G, McCauley AK, Scarpinato K, Guo X, Sigley J, Smelser A, Jarzen J. 2013. *Changes in the Mechanical Properties of Cells Undergoing Neoplastic Transformation*. *Biophysical Society, 57th Annual Meeting*. 13-A-3040-BPS

Horita DA, Bowen DW, McCauley AK, Bonin KD. 2012. *Detection of Protein-Lipid Interactions Using Confocal Microscopy*. WFU Center for Molecular Communication and Signaling Retreat.

Jennings M, Shao E, Wiggins W, McCauley AK, Godwin DW. 2011. *The role of low-threshold calcium channels in alcohol-mediated sleep disruption*. SYNAPSE 2011.

McCauley AK, Carden WB, Godwin, DW. 2002. *Ontogeny and Synaptic Contacts of BNOS+ Circuitry in the LGN*. Society for Neuroscience Abstracts.

McCauley AK, Meyer GA, Godwin DW. 2001. *Two Modes of Brain Nitric Oxide Synthase (BNOS) Expression in the Thalamic Reticular Nucleus (TRN)*. Society for Neuroscience Abstract.

McCauley AK, Moore RJ, Godwin DW. 2000. *Brain Nitric Oxide Synthase (bNOS) Is Expressed In Interneurons During LGN Development*. Society for Neuroscience Abstract. Vol. 26, No. 447.22, pp. 1198

Moore RJ, McCauley AK, Vinsant S, Kurukulasuriya N, Perrault T, Xu, C, Godwin DW. 1999. *Transneuronal Retrograde Transport of Pseudorabies Virus Within Central Visual Pathways*. Society for Neuroscience Abstract. Vol. 25, No. 574.4, pp. 265.

FUNDED GRANT PROPOSALS

Equipment

Major Research Instrumentation Grant, DBI-NSF 1039755, “**MRI: Acquisition of Accessories to Upgrade A Confocal Microscope Used for Research and Teaching at Wake Forest University**”, 08/15/10-07/31/13 (McCauley, PI), \$258,251

Major Research Instrumentation Grant, DBI-NSF 0722926, “**MRI: Acquisition of a Laser Scanning Confocal Microscope for Research and Training in Biology and Physics at Wake Forest University**”, 08/01/07-07/31/09 (McCauley, PI), \$385,000

The Cannon Foundation, “**Enhancement of Imaging Capabilities at Wake Forest University**”, 3/06 – 12/06 (McCauley, Co-PI), \$100,000

Multi-User Biological Equipment and Instrumentation Grant, DBI-0500702, NSF, “**A Stereomicroscope Imaging System for Faculty-Student Research in the Microscopy Core Facility at Wake Forest University**”, 05/01/2005-04/30/2008 (McCauley, PI), \$52,000

Research

CMMI – Materials and Surface Engineering, CMMI-NSF 1106105, “**Cell Mechanics and Protein Mobility during Neoplastic Transformation**”, 7/15/11 – 6/30/14, (McCauley, Co-PI; Bonin, PI; Guthold and Macosko, Co-PI), \$ 400,000

Center for Molecular Communication and Signaling, Wake Forest University, “**Development and Application of Fluorescence-Based Analyses of Protein-Lipid Targeting**”, 5/11-12/12 (McCauley, PI; Horita and Bonin, Co-PI's), \$10,000

Science Research Fund, Wake Forest University, “**The Neural Circuitry Associated with Nitric Oxide Synthase Expression in the Developing Thalamus: An Anatomical Foundation for Synaptic-Driven Nitric Oxide Production and Axon Refinement**”, 2004-2005 (McCauley, PI), \$10,000

Individual National Research Service Award, NIMH, MH12527 “**Nitric Oxide in the Developing and Adult Thalamus**”, 2000-2002

Education

Educational Blueprint Association, “**Linking Lego to Life**”, 2013 - 2016 (McCauley developed, designed, and wrote the proposal; N. Strange, PI), ~\$3000

STUDENT TRAINING AND MENTORING

Graduate Student Committees

Morgan Burnette, PhD committee, 2011 – 2012; anatomy and physiology
Jason Braco, MS committee, 2011-2012; neural control of stress physiology
Madison Shoaf, MS committee, 2011-2012; pain signaling
Jerry Kielbasa, PhD committee, 2011; committee chair, nanoparticles (Physics Dept)
Tara Weaver, PhD committee, 2010; committee chair, analytical chemistry (Chemistry Dept)
Matthew Trump, MS committee, 2008-2010; invertebrate aquatic biology
Kyle Luth, MS committee, 2008-2010; parasitology
Poornima Sukumar, PhD committee, 2006-2010; hormonal signaling and plant biology
Karin Edwards, MS committee, 2003-2005; hormonal signaling and plant biology
Alex Jordan, PhD committee, 2002-2005; sexual selection and developmental biology

Postdoctoral Fellows*

Doris Molina, 2012; confocal image acquisition and quantitative analysis (Phys/Pharm Dept)
Gao Klomsiri, 2011-2012; confocal image acquisition and quantitative analysis (Biochemistry Dept)
Greg Maloney, 2010-2012; confocal image acquisition
Hanya Chrispeels, 2010-2011; confocal image acquisition
Michelle DaCosta, 2008-2009; stereomicroscopy; scanning electron microscopy
Rodrigo Velarde, 2008-2010; epi-fluorescence; confocal image acquisition
Sangeeta Negi, 2008-2009; stereomicroscope; confocal image acquisition
Helen Murphy, 2007-2008; stereomicroscope and transmitted light image acquisition
Charles Buer, 2002-2005; epi-fluorescent image acquisition and analysis

Graduate Students*

Jason Braco, 2010 – 2012; confocal image acquisition and analysis
Justin Sigley, 2009-2012; sample preparation; scanning electron microscopy; confocal (Physics Dept)
David Klorig, 2008-2012; widefield epi-fluorescent and confocal imaging (Neurobiology/Anatomy Dept)
Walter Wiggins, 2010–2011; confocal image acquisition and analysis (Neurobiology/Anatomy Dept)
Madison Shoaf, 2010 – 2012; confocal image acquisition and analysis

Leon Friesen, 2010 – 2011; confocal image acquisition; scanning electron microscopy
Jonathan Isley, 2009-2011; confocal image acquisition
Shannon Strong, 2009-2010; epi-fluorescent and confocal image acquisition
Emily Gillespie, 2009-2010; sample preparation; scanning electron microscopy
Matthew Trump, 2008-2010; sample preparation; scanning electron microscopy; fluorescent imaging
Jerry Kielbasa, 2008-2011; scanning electron microscopy sample preparation (Physics Dept)
Kyle Luth, 2008-2010; sample preparation, scanning electron microscopy
Mary Beth Lovin, 2008-2009; DIC and stereomicroscope image acquisition
Colin Bretz, 2008; experimental design, image analysis of fluorescence
Erika Bechtold, 2007-2009; 3-D epi-fluorescent image acquisition (Chemistry Dept)
Cassie Mattox, 2007-2009; DIC, epi-fluorescent, and confocal image acquisition
Tom Poorten, 2007-2008; DIC, phase contrast and epi-fluorescent image acquisition
Jesse Barber, 2006-2007; scanning electron microscopy image acquisition
Glory Jaffe, 2006; stereomicroscope image acquisition, scanning electron microscopy
Ravid Shahar, 2006; confocal image acquisition (visiting student Hebrew University)
Tanja Schuster, 2005-2006; scanning electron microscopy preparation and image acquisition
Poornima Sukumar, 2004-2010; epi-fluorescent and confocal image acquisition, quantitative analysis
Kerry Alley, 2004-2005; scanning electron microscopy image acquisition
Karin Edwards, 2004-2005; confocal image acquisition, quantitative analysis
David Hill, 2003-2004; immunohistochemistry, fluorescent imaging, analysis (Physics Dept)

Undergraduate Students Trained*

Daniel Bowen (Summer Fellowship, **Bio 391**), 2011-2012; confocal imaging; immunohistochemistry; FRAP; RICS
Sean Tomaro (**Bio 391-394**), 2011-2012; confocal imaging; immunohistochemistry; FRAP; RICS
Elaine Shao (**Bio 391-392**), 2010-2011; confocal imaging; immunohistochemistry; poster at SYNAPSE 2011
Michael Jennings (**NEU, Bio 391**), 2010-2011; confocal imaging; immunohistochemistry; poster at SYNAPSE 2011
Sada Spangle (**Bio 391-392**), 2008-2009; immunohistochemistry; brightfield and confocal imaging
Janie Roden (**Bio 391**), 2004; immunohistochemistry; brightfield light microscopy; electron microscopy
Zachary Vance, 2009-2010; confocal image acquisition and quantitative analysis
Katlin Varga, 2011; confocal image acquisition, quantitative analysis, experimental design
Daniel Herlihy, 2008-2009; brightfield and widefield epi-fluorescent image acquisition
Sean Miller, 2008; stereomicroscopy, time-lapse image acquisition, movie creation
Brittini Hollingsworth, 2008; stereomicroscopy, digital imaging, electron microscopy (Salem College)
Teresa Tang, 2007; 3-D epi-fluorescent image acquisition, deconvolution
Kasee Metcalf, 2006-2007; DIC image acquisition
Jeffrey Jackson, 2006-2008; 3-D fluorescent image acquisition, deconvolution, quantitative analysis
Jon Holley, 2003; sample preparation, scanning electron microscopy image acquisition

** only individuals receiving significant levels of training are listed*

SERVICE

National Grant Review Panels

National Science Foundation, Major Research Instrumentation

FY13, PANEL 4; FY12, PANEL 4; FY11, PANEL 4; FY10, PANEL I

University Service

Learning Spaces Committee, Wake Forest University, 2017 - present

Center for Molecular Signaling, 2010 - 2012

Advisory Committee Member

Director, Imaging of Signaling Subgroup

Biology Department Microscopy Committee, Chair, WFU Biology Department, 2002 – 2012

Graduate Student Association, Wake Forest University, 1999 - 2001

Coordinator, Teaching Seminar Initiative

Co-Chair, Graduate Student Association, 2000-2001

Graduate Council Policy Committee, Graduate Student Association Representative, 2000-2001

Departmental Representative, 1999-2000

Steering Committee Member, WFU Year of Science and Technology, 1999

Co-Organizer, Neurobiology and Anatomy Alternative Careers in Science Forum, 1998

Additional University Service

Creation of the Confocal Microscopy Center

Following the awarding of a NSF grant to purchase a confocal microscope, I designed and guided the complete renovation of a 400 sq. ft. office and storage room into the Reynolda Campus Confocal Microscopy Center.

Creation of the Microscopic Imaging Core Facility Web Site

Created and maintained (2006-2012) a web site for the Biology Department Microscopic Imaging Core Facility (college.wfu.edu/microscopy). This website highlighted departmental microscopy resources, microscopy-based research, and housed detailed protocols developed for each instrument.

Creation of Digital Presentation Templates

Created large-format poster templates used extensively by research labs and undergraduate students for the creation of research posters and taught graduate students and faculty about effective poster design.

Regional Microscopy Training Services

Fluorescent Microscopy -- High Point University

Assisted the HPU Biology department with the selection, configuration, and purchase of a microscope (2005).

Electron Microscopy Training -- Meredith College

Provided the Biology department faculty at Meredith College with training and assistance for a newly purchased scanning electron microscope and associated equipment, including operational protocol documents, and hands-on training (2003-2004).

Professional-Related Community Service

Science Outreach: Holy Cross Child Development Center, School-Age Summer Camp, 2011

Microscopy Outreach: Piney Grove Elementary School, Kindergarten Class, Fall 2010

Microscopy Outreach: Northwest Middle School, 8th grade tours, Spring 2009, 2011

Technology Career Days '09, sponsored by GTCC and Piedmont Triad Partnership, 2009
STARS: Science and Technology Access for Rural Students, 2005-2009, 2011
Science Fair Judge, Kernersville Elementary School, 2006
Microscopy Outreach: International Baccalaureate students, Parkland High School, 2006
Evolution Short Courses; Main St. United Methodist Church, 2006, 2008

HONORS AND AWARDS

Received

Outstanding Doctoral Student Award, Wake Forest University Graduate School, 2003
Outstanding Research Poster, Western North Carolina Chapter, Society for Neuroscience, 2000
Training Fellow, Association of Neuroscience Departments and Programs, 1999-2000
Graduate Fellowship, Wake Forest University, 1997-1999
Outstanding Biology Student Award, Elon College, 1997
Summa Cum Laude, Elon College, 1997

Created

Outstanding Graduate Faculty Award, Wake Forest University Graduate School
As Co-Chair of the WFU Graduate Student Association, I worked with the other Co-Chair and GSA representatives to write the guidelines, develop an evaluation process, and create a formal award to honor graduate faculty demonstrating excellence in, and a commitment to, graduate training.