Barbara Kuemerle PhD

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Career objective: To fully engage in the profession of academic instruction at the university level in the field of Biological Sciences, and to enhance student development in both academics and research by serving as an advisor and mentor.

Employment:

2015-present Senior instructor

2009-2014 Instructor
Department of Biology
Case Western Reserve University

Responsibilities and Skills:

Teaching: introductory and upper level courses comprised of both large and small student enrollments (indicated in parenthesis) in the Biological Sciences, including:

BIOL 114: Principles of Biology (~100)
BIOL 116: Introduction to Anatomy and Physiology I (~100)
BIOL 216: Development and Physiology (~135-280)
BIOL 216L: Development and Physiology Laboratory (~13)
BIOL 301/401: Biotechnology Laboratory: Genes and Genetic Engineering (~30)
BIOL 302/COGS 322: Human Learning and the Brain (SAGES Departmental Seminar) (~17) BIOL 325: Molecular Cell Biology (~30)
BIOL 385: Biological Processes in Learning and Cognition (SAGES Capstone Course) (~8) BIOL 389S: Independent Research in Biology (2)

Academic advising: for students majoring/minoring in Biology (~12-20/semester)

Service on Committees (see below for detailed descriptions)

2017-present CWRU Posse 1 Mentor
Responsibilities and Skills:
Conduct regular meetings with scholars (both individual and group) providing guidance, motivation, emotional support and role modeling. Aid in career exploration, goal setting, developing contacts and identifying resources. Submit weekly reports to Posse staff. Participate in regular training programs and Posse plus retreats.

2007-2008 Visiting Assistant Professor
Department of Biology, CWRU

Responsibilities and Skills: Included above and Supervisor of Biol 216 Laboratory Courses

Employment *(continued):*

2006- 2007 Adjunct Faculty Member
Lorain County Community College
Division of Science and Math

Responsibilities and Skills:

Teaching Biology 121: Anatomy and Physiology I (laboratory portion)
Obtained valuable experience in college level instruction in the field of Biological Sciences.

2000-2001 Pharmaceutical Marketing Advisory Panel Moderator
Arista Marketing Associates, Nelson Communications
2000 Lenox Drive Suite 100, Lawrenceville, NJ 08648

Responsibilities and Skills:

Participated in conferences where thought-leaders in the fields of Rheumatology and Gastroenterology presented scientific data on the use of the anti-TNF biologic, Remicade, for the treatment of Rheumatoid arthritis and Crohn's disease.
Received training in group dynamics
Conducted 2-hour didactic break-out discussion sessions
Asked catalyst questions, sequentially involving all the physician participants to address concerns and provide solutions to treatment challenges.
Honed skills in interpersonal communication, interactive presentation, persuasion and instruction.

1999-2007 Research Associate
Department of Neurosciences, Case Western Reserve University
Laboratory of Dr. Karl Herrup, Professor of Neurosciences
Research: The *En2* knock-out mouse as an animal model for the neuropathology of Autism Spectrum Disorder.

Responsibilities and Skills:

Planning and execution of a research project
Grant and publication writing, oral presentations
Direct management and training of others (students, research assistants)
Technical and laboratory skills include: immunohistochemistry, steriotactic surgery, application and assessment of neuronal tracers, mouse colony maintenance, microscopic analysis, Image J software, molecular biology techniques (DNA preparation/analysis, PCR, etc).

Honors:

2020, 2013 Nomination: Carl F. Wittke Award for Excellence in Undergraduate Teaching
2019 Nomination: The Guy Savastano Award for Outstanding Member of the CWRU Educational Community (Awarded by The Delta Upsilon Fraternity)
2018 Recipient: Dorothy Pijan Outstanding Faculty Award for Student Development
2017, 2009 Learning Fellowship: CWRU University Center for Innovation in Teaching and Education (UCITE)
2011 Nomination: Undergraduate Teaching Excellence Award by Undergraduate Student Government
2009 Recipient: The American Medical Student Association Golden Apple Teaching Award
1998 Recipient: National Research Service Award (NRSA)

Professional Affiliations:

The Society for Neuroscience (SFN)
American Association for the Advancement of Science (AAAS)
National Center for Case Study Teaching in Science (NCCSTS)

Scholarly Activities:

2020 Designed and implemented interactive learning modules for my textbook: Development and Physiology- The Biology of You. Cognella Publishing.
2020 Active role in planning and implementation of a new BS major in Neuroscience at CWRU
2020 Core curriculum redesign committee member for Department of Biology, CWRU
2019 The 50th Annual Society for Neuroscience Conference-Chicago IL (attendee)
2018 21st world Congress on Neurology and Therapeutics Conference- London England (attendee)
2018 Summer Teaching Institute Active Learning Conference (participant)
2018 First edition of customized text book released: Development and Physiology- The Biology of You. Cognella Publishing.
2018 Completed training and earned certificate for QPR Training
2017, 2018 Collaborative effort with James E. Zull writing the second edition of the text: "The Art of Changing the Brain- Enriching the Practice of Teaching by Exploring the Biology of Learning"
2014 Annual Fall Conference: National Center for Case Study Teaching in Science, NY (participant)
2012 Turning Technologies Learning Forum and Workshop, CWRU (participant)
2011, 2013 Reviewer: Campbell Biology Textbook (chapters in editions 9 and 10)
2010 ADInstruments Powerlab Bootcamp Training Conference, Colorado Springs (participant)

Research:

2020 Team member for research study entitled: "National AI Institute on Human Robot Coordination for Infrastructure Inspections and Decisions"
2020 Designed research study entitled: "Examining Disparities among Students through Assessment of Learning Retention and Stress in Online Learning"
2020, 2013 Completed the Human Research Curriculum, Group 2 Social & Behavioral Research Faculty, Staff and Students Basic Course/ 1 of The Collaborative Institutional Training Initiative (CITI)
2018 CWRU Research ShowCASE poster presentation entitled: "Learning Retention-A Comparison Between the May Term and the Fall term" Barbara A. Kuemerle and Michael P. Moore
2013 Grant recipient (The Nord Foundation) entitled: "A Longitudinal Study to Assess Learning Retention- Comparison of May Term (3 week course) to Fall Semester (15 week course).
2010 CWRU Research ShowCASE poster presentation entitled: "Addressing Malnutrition in Southern Africa: Development of Novel Molecular Markers for the Marama Plant" (1st author)

Education:

1997-1998 Post-doctoral Fellow
Center for Genetic Research, Department of Neurosciences, The Cleveland Clinic Foundation
Advisor: John Cowell, PhD
Research: Molecular Characterization of the breakpoint region associated with Multiple Myeloma

Technical skills acquired:
Pulsed field gel electrophoresis with Yeast Artificial Chromosomes (YACs)
Preparation of metaphase chromosomal spreads
Fluorescent *in situ* hybridization (FISH)

1993-1997 Doctorate in Genetics, May 1997

Thesis research, Department of Genetics
Alzheimer Research Laboratory, Case Western Reserve University Advisor:
Karl Herrup PhD

Thesis: The Role of *Engrailed-2* in Cerebellar Patterning and Compartmentation.

Skills acquired:
Understanding of developmental neuroscience
Ability to critically analyze scientific data (journal club presentation, grant review)
Immunohistochemistry, Microscopy
Tissue sectioning (cryostat, paraffin)
Molecular biology techniques (PCR, electrophoresis)
Mouse colony maintenance
Proficient with powerpoint and excel.

1992-1993 Doctoral candidate
The Jackson Laboratory, Bar Harbor, Maine Advisor:
John Schimenti, PhD
Research: Gene targeting of the T Complex responder gene.

(Dr. Schimenti relocated to The Jackson Laboratory during my graduate training. I continued my research with him in Maine for about a year before returning to CWRU to complete a new thesis project with Dr. Herrup).

Skills acquired:
Expertise in tissue culture, maintenance of mouse embryonic stem cells
Vector design, molecular cloning, (e.g., transformation, plasmid preparation, preparation of competent cells), Southern analysis, DNA sequencing

1988-1992 Graduate Student
Department of Genetics, Case Western Reserve University
Advisor: John Schimenti PhD
Research: Knock-out of the mouse T Complex responder gene.
Completed core courses in cellular and molecular biology as well as upper level genetics

1987-1988 Undergraduate laboratory assistant
Department of Molecular Genetics, Ohio State University
Advisor: Beryl Oakley PhD
Research: Mitotic recombination in Aspergillus nidulans

1987 Summer research student
Department of Biology, Case Western Reserve University
Advisor: Christopher Town PhD
Research: Anthranilate synthase activity in Arabadopsis thaliana

1984-1988 BS Molecular Genetics
Ohio State University, Columbus, OH
Active membership in Alpha Epsilon Delta (honors society) and Helix (biology association)

Publications:

Kuemerle, B. (2018) Development and Physiology- The Biology of You (First Edition) Cognella Publishing.
ISBN 978-1-63487-859-3

Kuemerle B., Bilovocky N., Gulden F., Williams, E. and Herrup, K. (2007). The mouse *Engrailed* genes: A window into autism. Behav Brain Res. Jan. 10; 176(1): 121-132.

Herrup, K., Murcia, C., Gulden, F., Kuemerle, B., and Bilovocky, N. (2005). The Genetics of Early Cerebellar Development: Networks not Pathways. Prog. Brain Res. 148: 21-27.

Kuemerle, B., Williams, EA., and Herrup, K. (2004), The *Engrailed-2* Mutant as a Model of the Neuropathology of Autism. Society for Neuroscience Abstract #116.9.

Kitamura, E., Kuemerle, BA, Chernova OB., Cowell, JK. (2001) Molecular Characterization of the Breakpoint Region Associated with a Constitutional t(2;5) (q34:q26) in a Patient with Multiple Myeloma. Cancer Genet. Cytogenet. 129 (2):112-119.

Kuemerle, B., Millen, K., Zanjani, H., Joyner, A. and Herrup, K. (1997). Pattern Deformities and Cell Loss in the Cerebellum of *Engrailed-2* Mutant Mice Suggest Two Separate Patterning Events during Cerebellar Development. The Journal of Neuroscience. 17: 7881-7889.

Herrup, K. and Kuemerle, B. (1997). The Compartmentalization of the Cerebellum. Annual Review of Neuroscience, 20: 60- 91.

Ewulonu, U.K., Schimenti, K., Kuemerle, B., Magnuson, T. and Schimenti, J. (1996). Targeted Mutagenesis of a Candidate T Complex Responder Gene in Mouse T Haplotypes does not Eliminate Transmission Ratio Distortion. Genetics, 144: 785-792.

Kuemerle, B., Maricich, S.M., and Herrup, K. (1996) Regional Variation in the Development of the Deep Cerebellar Nuclei: A Tale of Two Mutants. Society for Neuroscience Abstract, #23.14.

Kuemerle, B., Millen, K., Joyner, A. and Herrup, K. (1995). Sagittal Compartments of the Cerebellum are disrupted in *En-2* mutant mice. Society for Neuroscience Abstract, #416.9.

Bullard, D., Kuemerle, B., and Schimenti, J. (1992). Functional Evaluation of a T Complex Responder Gene. International Mouse Genome Conference, *abstract*.

Service-University/College/Department Level:

Present	Co-Chair, Faculty Senate Committee on Undergraduate Education- Student Life Subcommittee
Present	Student Success Initiative Faculty Advisory Committee (member)
Present	Department of Biology Curriculum Committee (member)
Present	Advisor for Dean's Approved Neuroscience Major
Present	Natural Science Major Advisor
Present	Pre-Vet Society Faculty Advisor
Present	Sponsor for students enrolled in Biology 388, 388S, and 390(Independent Research)
Present	Participation in a number of student fraternity/sorority activities (e.g., Spartan-a-thon, etc)
Present	Participate in volleyball and basketball teams' annual reception for faculty members

Service-University/College/Department Level (*continued*)

Present	Case Faculty Parents Organization (member)
2017-2019	Student Success Summit Conference (participant)
2017,2018	Participated in screening of candidates for Alexander A. Treuhaft and A. W. Smith Scholarships
2015	Participated in screening of candidates for the Title IX coordinator position
2015	Mentor to master's graduate student (BIOL 302/COGS 322)
2014	Speaking engagement: Presentation to Phi Kappa Tau Fraternity on careers in Biology
2014	Participated in Faculty Candidate Evaluations
2014	Conducted interviews and provided feedback for Pre-Professional Scholars Program
2013-2016	Judge, Research ShowCASE
2013-2014	Mentor to new faculty member for instruction in BIOL 216L, BIOL325
2013	Department of Biology Search Committee member (for 2 instructors)
2011-2014	Department of Biology Seminar Committee (member)
2011, '13,'15	Department representative at The Annual College of the Arts and Sciences Awards Ceremony
2010-2020	Mentor to student instructors (SI) in Biology 216
2010, 2012	Judge, The Michaelson-Morely Undergraduate Research Competition
2010	Participation in screening of candidates for the Director of Health Careers Advising
2009-2019	Participation in Biology lab tours and departmental meet-n-greets with prospective students
2009-2019	Mentor of student teaching assistants in Biol 216L
2009-2019	Write numerous letters of recommendation
2009-2019	Attend student presentations (SOURCE poster sessions, Research ShowCASE)
2009-2019	Advisor and/or committee member for undergraduate Honor Theses (Biology)
2009-2019	Member of graduate level qualifying exam and thesis committees
2009-2011	Undergraduate Curriculum Committee (member)
2009-2010	Science Olympiad Event Captain
2009-2010	Organized Biology Capstone Poster Session
2007-2008	Faculty advisor to the Undergraduate Biological Society

Service- Broader Community:

Present	Domestic Violence and Child Advocacy Center of Cleveland-Volunteer activities
2016-2020	Volunteer, St. Edward High School
2017-2020	Health Sciences Advisory Board-Committee member, St. Joseph Academy
2015-2018	Children's Miracle Network-Contributor to fundraising endeavors
2016	10th Annual Women's Leadership Symposium, St. Joseph High School- Presenter
2016	Building Futures Women's Leadership Event, St. Joseph High School- Contributor
2016	Annual Core Biology Instructor Meeting-Organizer
2016-2020	Spart-a-thon Fundraiser for Rainbow Hospital- Attendee/Contributor
2015	Education Advisory Board- committee member, Magnificat High school
2015	St. John Westshore fundraiser- speaking engagement
2015	Rainbow Hospital Radiothon fundraiser-speaking engagement
2015	Domestic Violence & Child Advocacy Center fundraiser-committee membe
2008-2015	Volunteer Coordinator-sports tournaments fundraisers, St. Joseph School
2013-2014	Biology tutor: Honors Biology, Magnificat High School
2013	Presidential Search Committee member, Magnificat High School
2013	Speaking engagement: Career Day Presentation, Magnificat High School
2012-2013	Speaking engagement: Science Fair Presentation, St. Joseph Elementary School
2010-2112	Designed and conducted a Summer Science Camp for junior high students

2012	Mentored junior high students at Lorain County Community College Robotics Tournament
2012	Advisory panel member for Surround Learning Initiative (Magnificat High School)
2011	Organized an interactive outreach program with CWRU Engineering and Biology Labs (PI's: Roger Quinn, PhD and Roy Ritzman, PhD) with a junior high school Robotics Club
2011	Fundraising solicitation: Community Resources Services (CRS) Avon Lake, Ohio
2010	Outreach Program: conducted a Developmental Biology experiment engaging students at Woodbury Middle School, Shaker Heights OH

References:

Christopher Cullis PhD
Chair, and The Francis Hobart Herrick Professor of Biology
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