

## 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.

### **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 (~137-280)  
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: to students majoring/minoring in Biology (~12-20/semester)

2007-2008: Visiting Assistant Professor  
Department of Biology, CWRU

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

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, NJ08648

**Employment (continued):**

**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, stereotactic surgery, application and assessment of neuronal tracers, mouse colony maintenance, microscopic analysis, Image J software, molecular biology techniques (DNA preparation/analysis, PCR, etc).

**Honors:**

2018      Recipient: Outstanding Faculty Award for Student Development  
2017, 2009      Learning Fellowship: CWRU University Center for Innovation in Teaching and Education (UCITE)  
2013      Nomination: Carl F. Wittke Award for Excellence in Undergraduate Teaching  
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:**

2018      21<sup>st</sup> World Congress on Neurology and Therapeutics Conference in London, England (participant)  
2018      Posse Foundation Local Mentor Training Conference in New Orleans, LA (trainee)  
2018      Posse Foundation Posse Plus Retreat (contributor)  
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"  
2017      Posse Foundation International Mentor Training Conference, New York City (trainee)  
2017      Posse Foundation Local Mentor Training, New Orleans (trainee)  
2017      Posse Retreat, Baton Rouge, LA (contributor)  
2014      Annual Fall Conference: National Center for Case Study Teaching in Science, NY (participant)

**Scholarly Activities (continued):**

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:**

2018 Case Research ShowCASE poster entitled: "Learning Retention-A Comparison Between the May Term and the Fall Term" Barbara A. Kuemerle and Michael P. Moore  
2015 Recipient of Nord Grant entitled: "Longitudinal Study to Assess Learning Retention- A Comparison of May Term (3 week course) to Fall Semester (15 week course)"  
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)  
2010 Case Research ShowCASE poster entitled: "Addressing Malnutrition in Southern Africa: Development of Novel Molecular Markers for the Maramba Plant" (1<sup>st</sup> 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.

**Education (continued):**

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 *Arabidopsis 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. (2015) Development and Physiology- The Biology of You. Cognella Publishing. **ISBN13:** 9781621318132  
**ISBN10:** 1621318133

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.

**Publications (continued):**

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	Selected as the first mentor for the CWRU Posse Program
Present	Co-Chair, Faculty Senate Committee on Undergraduate Education- Student Life Subcommittee
Present	Chair, Department of Biology Awards Committee
Present	Faculty Advisor for the Student Success Initiative
Present	Faculty Advisor for Dean's Approved Major in Neuroscience
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 (luncheons, "Jail and Bail")
Present	Participate in volleyball and basketball teams' annual reception for faculty members
Present	Case Faculty Parents Organization (member)
2017-2018	Conducted interviews and provided feedback for Smith and Treuhaft 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 Faculty Search Committee member
2011-2014	Department of Biology Seminar Committee (member)
2011, '13, '15	Department representative at The Annual College of the Arts and Sciences Awards Ceremony
2010-2018	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
2009-2018	Participation in Biology lab tours and departmental meet-n-greets with prospective students
2009-2015	Mentor of student teaching assistants in Biol 216L
2009-2018	Write numerous letters of recommendation
2009-2018	Attend student presentations (SOURCE poster sessions, Research ShowCASE)
2009-2018	Advisor and/or committee member for undergraduate Honor Theses (Biology)
2009-2018	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	Health Sciences Advisory Board-Committee member, St. Joseph Academy
Present	Volunteer, St. Edward High School

**Service- Broader Community (continued):**

2016 10<sup>th</sup> 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 Spartathon Fundraiser for Rainbow Hospital-Contributor  
2015 Education Advisory Board- committee member, Magnificat High school  
2015 St. John Westshore fundraiser- speakingengagement  
2015 Rainbow Hospital Radiothon fundraiser-speakingengagement  
2015 Domestic Violence & Child Advocacy Center fundraiser-committee member  
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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