CURRICULUM VITAE

MARY PAT WENDEROTH

March 30, 2020

PRESENT POSITION:

Principal Lecturer
Department of Biology, Box 351800 Phone: (206) 524-9923
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EDUCATION:

Rush Medical College, Chicago, IL *Dissertation*: Nascent myosin heavy chain incorporation into the thick filament of cardiac cells of thyroid treated rabbits: Localization by immunoelectron microscopy	1987 Ph.D. Physiology
Purdue University, Lafayette, IN *Thesis*: Percent Body Fat and Menstrual Rhythmicity in the Female Athlete.	1981 M.S. Exercise Physiology
George Washington University, Washington, D.C *Paper*: Physical Conditioning: A Feminist Strategy	1977 M.S. Women's Studies
Catholic University of America, Washington, D.C	1973 B.A. Biology

EMPLOYMENT:

Principal Lecturer, Department of Biology, University of Washington	2009-
Director of Waseda Faculty Development Program @UW	2009-2010
Co-Director of the UW Teaching Academy	2007-present
Faculty Coordinator of Undergraduate Curriculum Department of Biology (50% time), University of Washington, Seattle, WA	2004-2007
Special Assistant to the Dean of Undergraduate Education, Teaching Academy Coordinator. University of Washington	2004-2005
Faculty /Coordinator for Faculty Connections, First Year Program, University of Washington	2003- 2006
Senior Lecturer, Department of Biology, University of Washington	2000- 2009
Lecturer, Department of Zoology, University of Washington	1994-1999
Senior Fellow, Department Biochemistry, University of Washington	1988-1996
Post-doctoral Fellow, Department of Physiology, Rush University, Chicago, IL	1987-1988
Graduate Student, Research Assistant, Department of Physiology, Rush University, Chicago, IL	1984-1987
Research Assistant, Biochemistry Department of Indiana University School of Medicine. Indianapolis, IN	1982-1984
Instructor, Occupational Therapy Department, University School of Medicine. Indianapolis, IN	1982-1984
Instructor, Health Education Department	1979

Central Michigan University, Mt. Pleasant, MI

TEACHING EXPERIENCE:

Foundation in Physiology (Biol 350)	2004--	University of Washington
Mammalian Physiology (Zool 315/ Biol 460)	1998-	University of Washington
Advanced Animal Physiology (Zool 484/485----Biol 462/463)	1996-	University of Washington
Introductory Biology (Biol 220)	2004--2008	University of Washington
Introductory Biology (Biol 161)	2003--2005	University of Washington
Bioengineering 599- Cell Biol Lab	2003--2006	University of Washington- Extension
Honors Biology (Biol 220 partner)	2003--2008	University of Washington
Careers In Biology (Biol 490b)	2001--2004	University of Washington
General Biology (Biol 100)	1998-99	University of Washington
Basic Anatomy (Biostruc.301)	1996-01	University of Washington Extension
Introductory Biology (Biol 202)	1996-2002	University of Washington
Elementary Physiology (Zool 118/119)	1995-2002	University of Washington
Anatomy & Physiology	1994	Green River Community College, Auburn,WA
GI Physiology	1987	Illinois College of Optometry
Medical Physiology (Muscle and GI)	1985	Rush Medical College, Chicago, IL
Medical Gross Anatomy	1984	Rush Medical College, Chicago, IL
Neuroanatomy Occupational Therapy	1982	Indiana University School of Medicine, Indianapolis, IN
Histology	1981	Veterinary School of Medicine, Purdue University, West Lafayette, IN
Exercise Physiology	1978	Central Michigan University, Mt. Pleasant, MI

GRANTS: FUNDED

National Science Foundation- S-STEM (February 2018) Promoting Early Retention in STEM via the Program for Race and Equity: Achieving Change (REACH) in STEM PI Erica Cline (UW-T), Co-PI: Marc Nahmani, Emily Cilli-Turner, Joyce Dinglasan-Panillio, M.P. Wenderoth. $649,997- 5 years

National Science Foundation- IUSE- (Nov. 2017) CAUSE for Transformation to Evidence-Based Teaching at UW. PI- M.P.Wenderoth, Co-PI D.Wiegand and J. Doherty. $,998,456- 3 years.

National Science Foundation- EHR Core Research. (July 2017) Learning Progressions on the Development of Priciple-based Reasoning in Undergraduate Physiology: LeaP UP. PI J. Dohery, Co-PI M.P.Wenderoth $994,920 -3 years

Natonal Science Foundation- 2012-2013. Research Coordination Network- Undergraduate Biology Education (RCN-UBE). SABER- Acclerating the emergence of Biology Education Research as a new sub-disipline of Biology NSF-1143545 PI - $100,000

Natonal Science Foundation- 2011-2013. Transforming Undergraduate Education in the Sciences phase I (TUES-I) Curricular Learning to Optimize Science Education: **C.L.O.S.E. the Gap in Introductory Biology**. Expand the highly structured course format of Bioloyg 180 that lead to high success rates for under-represented minority students to 3 other institutions of higher learning. NSF- 1118890 Co-PI - $250,000

National Science Foundation- 2011-2014. Transforming Undergraduate Education in the Sciences phase I (TUES-I) **Science Process and Reasoning Skills Test- SPARST**: Assessing the Process of Science. Create a diagnostic test to be used to monitor science major's acquisiton of these basic skills over the course of their academic career. NSF- 1043283 Co-PI - $60,000.

National Science Foundation- 2010-2011. **Incubator** proposal for Research Coordination Networks – Undegraduate Biology Education (RCN-UBE): Creating a Network of Undergraduate Biology Education Researchers. NSF- 0955572 PI- $50,000

National Science Foundation 2010-2012. Course, Curriculum and Laboratory Investigations (NSF-CCLI) Guided Group Activities To Enhance Ways of Learning in Biology: **GATEWAY Learning in Biology**. NSF- 0942215 Co-PI $200,000

University of Washington 4 X 4 Writing Project for AY 06-07. One of a four faculty member team from Biology selected to design innovative ways to incorporate writing into our classes.

University of Washington, College of Arts and Sciences Learning Initiative for AYs 06-07 and 07-08. Co-author of proposal focused on developing learning outcomes and means of assessment of these learning outcomes for all the biology courses in the department. $36,000 for 06-07, $10,000 for 07-08.

"Disseminating a Package of Best Practices for Teaching and Assessing Analytical Reasoning in Biology" Funds to improve Post-Secondary Educaiton (FIPSEII grant). Subaward principal inve stigator, 9/04-8/07. Main grant resides with Drs. John Bell and William Bradshaw at Brighman Young University. The University of Washington receives $45,000 for this 3 year period.

Subaward principal investigator 3/05-/06, Center for Inquiry Science- Professional Development for Secondary School Science Teachers: Human Biology Challenges. Main grant resides with Insititute of Systems Biology

Faculty Initiative to Reform Science Teaching (FIRST)- member of University of Washington Institutional Team overseeing 5 community college faculty teams. May 2002—2005. Grant from the National Science Foundation, Dr. Diane Ebert-May from Michigan State University is the Principal Investigator. UW was a subcontract.

Co-Principal Investigator, 2/00 – 3/03, "Active Learning as a Basis for Reform of Undergraduate Life Science Education"- National Science Foundation -a grant to fund PERC's study of the prevalence of misconceptions in physiology and how to

change classroom activities to help the learner to learn. I received $30,000 over this three year period as a private consultant.

GRANTS- submitted -- <u>not</u> funded

National Science Foundation EHR Core Research 2020-2023
"Exploring inventing as a means of enhancing students' epistemic agency and ability to transfer reasoning across complex biological systems" $1,500,000
Role: C0-PI with Jennifer Doherty, UW Biology and co-PI Suzanne Brahmia, UW Physics

National Science Foundation- IUSE- (submitted Nov 8, 2016) Teaching Principle-based reasoning in Physiology. PI: Jennifer Doherty, Co-PI:M.P. Wenderoth. $299.980-3 years

National Science Foundation- EHR Core Research. Sept 10, 2015. LeaP-UP: Creating a Learning Progression for Undergraduate Physiology.PI J. Dohery, Co-PI M.P.Wenderoth $1,149,920 -3 years

National Science Foundation- IUSE- Nov 3, 2015. Pathways to Expertise in Physiology. PI: M.P. Wenderoth, Co-PI: Jennifer Doherty. $299.980-3 years

National Science Foundation- EHR Core Research. Feb 3, 2015 UP squared: Using Principles in Undergraduate Physiology Co-PI M.P.Wenderoth and J. Dohery. $1,149,920

UW Innovations Grants Sept. 2014- Principles First Active Learning: A Practical Primer for Course Transformation Co-PI M.P.Wenderoth and J. Dohery. $199,975. made it to the final two grant round but was not funded.

National Science Foundation- WIDER grant to Transform STEM teaching 2013-2015. CAUSE for Transformation of Introductory STEM courses: Center for the Advancement of Undergraduate Science Education NSF 1347555
PI- M.P. Wenderoth, Co-PI- Paula Heron $250,000

AWARDS:

American Society of Cell Biology Dec. 2019
Bruce Alberts Award for Excellence in Science Education

American Physiological Society April 2019
Claude Bernard Distinguished Lecture Award

National Association of Biology Teachers (NABT) Nov. 2017
Research in Biology Education Award

Biology Scholar 2008- Selected to be one of 20 faculty to take part in the first anational research residency program for Biology researchers sponsored by the American Society of Microbiology (ASM). This program focuses on developing biologists' knowledge and skills in evidenced-based research in learning.
http://www.biologyscholars.org/

UW Adviser of the Year- 2008. Voted Adviser of the year by Student Activities and Union Facilities (SAUF) for my role as Beta Beta Beta Biology Honor Society adviser.

UW Professor of the Year – 2007. Voted by UW graduating senior class of 2007 to give the Last Word lecture (UW Alumni Association event during Washington Weekend)

Outstanding Teaching Award-2007- Given by the students of Universtiy of Washington Honors program.

National Academies Education Mentor in the Life Sciences 2007-2008

National Academies Education Fellow in the Life Sciences 2006-2007 member of a two person faculty team to attend the Howard Hughes Medical Institute sponsored week long workshop at the Universtiy of Wisconsin.

Distinguished Teaching Award, University of Washington. **2001**.

Participant in the first **Institute for Teaching Excellence (ITE)**, sponsored by the Teaching Academy of the University of Washington, Spring **1999.**

STUDENT SPONSORSHIP:

Mary Gates Leadership Award (faculty sponsor)
Marcel Tam 2002
Rozanna Fang 2008

SPECIAL PROJECTS:

Faculty Lead, Provost's Initiative on Evidence-Based Teaching, 2015-2017
Ad-hoc committee to create new learning spaces in Odegaard Library 2012
Convinced the UW to make student photos available to all teaching faculty. March 2009
Developed **BioPics** program with Dave Hurley – software program that allows biology faculty to create photo class lists. September 2007
Ad hoc committee on status of Principal Lecturers in College of Arts and Sciences. 2008

INNOVATIONS IN THE CLASSROOM

Focus on **activation of prior knowledge** and **praise** for students in class. (2016) Activation of prior knowledge involves reminding students that they learned this a specific previous course of earlier in this course. Praise has been found to lead to greater student engagement in active learning exercises in the classroom.

Use of **random call** when students answer questions in class. I usually call on 6-12 students each class. Use of random call negates gender bias associated with calling on volunteers.

Use of new active learning classroom in MGH- students have individual white boards and ALL students answer questions alone before doing group work to promote equity and stronger sense of metacognition (2016-)

Focus on **principle based reasoning** in all Physiology courses. (2015-)

Introduction of **Free-Recall** as a student study skill. (2014-)

Introduction of "Desirable Difficulties" and the "**Testing Effect** " into the classroom. Desirable difficulties and testing effect have been identified by the cognitive science community to enhance learning. (2010-)

Introduction of use of **General Models** in all classes. (2005-)

Creating community in the classroom: Students learn names of all students in their quiz section to facilitate learning communities and study/testing groups. (2009-)

Have students write weekly **learning paragraphs** on connections they are making between course material and everyday life. Gives student practice in low-stakes writing and encourages student refelction on learning. (instituted in Biol 350 Spring 08-)

Designed an assessment tool (BBT) based on **Bloom's taxonomy of learning** to assist me in better aligning my course learning objectives and course exams. (Winter 08-)

Teach students how to use Bloom's as a means to help them monitor and change their learning process. (Spring 08-)

Implementation of student **Summary Sheets** in class to help students make and see connections between course material. (2005-)

WORK AT THE DEPARTMENTAL LEVEL

Member of ad-hoc committee to design new fee-based Biol 240 course: Introductory Biology for pre-Health Professionals

Lecturer Search committee 2013-2014

Co-founder and Director of Biology Education Research Group (BERG)- Learning Community 2006-(organize weekly BERG-LC meeting during academic year)

Undergraduate Currculum Committee, 2002-2012

Tenure and Promotion Committee, 2005-2013

Faculty Advisor for Biology Honor Society, Beta Beta Beta, 2001-2013

Moderator for Biology Networking Night- 1/quarter for academic years 2005-2013

Ad hoc Committee on Lecturer Promotion Protocol, 2004-2005

WORK AT THE UNIVERISTY LEVEL

Faculty Development

Faculty-Director Provost't Initiative for Evidence-Based Teaching 2015-2017

Faculty development program for UW Educational Outreach (Waseda) 2010-2013

Co-Chair UW Scholarship of Teaching and Learning Symposium, 2004-2010

Co-director of UW Teaching Academy 2007-2010

Co-director of UW Teaching and Learning Consortium 2006-2009

Selection Committee for UW Distinguished Teaching Award 2004-2010

Special Assistant to the Dean of Undergraduate Education, 2004-2005

Director of Institute of Teaching Excellence, 2007
On-site facilitator of Institute of Teaching Excellence, 2002- 2005

Facilitator and speaker
Large Class Collegium, Co-facilitator, April, 2002-2005

Speaker at
Faculty Fellows Workshop, Active Learning workshop, September, 2002-2004, 2007, 2013, 2014, 2015
Foster Business School Faculty Retreat-"Creating Active Learning courses and how the UW can support you." 2017

Facilitator and speaker
Provost's workshop, Redesign of courses, September 2005
Provost's workshop, Learning Objectives, September 2004
Provost's workshop, Effective Lecturing, August 2003

Steering Committee and event organizer for UW Career Discovery Week 2005-2008

Graduate Student Development

Annual TA Conference on Teaching and Learning,

"Motivating Students to Learn: Applying Principles of Learning to Teaching" 2004, 2005, 2006, 2007, 2008, 2009.
"Activities to Engage Your Students in Learning"2004

Undergraduate Development

Honors Council advisory board member 2007-2011

Reviewer for Mary Gates Undergraduate Research Awards 2008, 2009, 2010. 2014, 2015

First year Program (office of Undergradauate Academic Affairs)
Large Lecture Success, coordinator, 2006- 2008
Faculty Connections, coordinator, 2003- 2005. This activity required me to recruit 150 faculty and organize meetings with 150 FIGS on the Sunday of Dawg Daze.

Steering committee for Career Dsicovery Week, 2002-2005

Advisory committee for Career Discovery Week 2007-2010

Governance

Faculty Council on Faculty Affairs 2018-
Faculty Council on Instructional Quality (FCIQ), 2002-2010
Chair of FCIQ 2007-2010
Honors Council 2007- 2011
Ad-hoc committee on Lecturer promotion guidelines 2001-2

Special Committees

Member of task force on UW's Teaching & Learning in the 21st Century Initiative (Pedagogy working group)

WORK AT THE REGIONAL LEVEL

NW Partnership for Undergraduate Life Science Education (PULSE)- 2013, 2014, 2015, 2016, 2017: facilitator and steering committee for NSF funded program to promote institutional change in institutions of higher education in Pacific Northwest

Pacific Northwest Regional Summer Institute on Undergraduate Education (PNW-RSI). 2011, 2012 Co-Director with Dr. Clarissa Dirks of Evergreen State College of week long faculty development workshop sponsored by HHMI and National Academies of Science. Sept 7-11, 2011

Community College-University of Washington Partnership Program: funded by a Howard Hughes Science Education Program.
Coordinator of a week-long summer conference for Community College Faculty
August 2005-"Using Forensics to Enhance the Undergraduate Classroom"
August 2004-"Hot topics in Biology"
August 2003-Immunology- The real homeland defense
August 2002-Microbes in you, in the water, on land and in space.
August 2001-Genetics across the Disciplines
August 2000-Evolution as a Unifying Concept in Biology
August 1999-Anatomy and Physiology

Faculty Initiative to Reform Science Teaching (FIRST)- member of University of Washington Institutional Team overseeing 5 local community college faculty teams. May 2002—2005. Organize annual meetings of these five faculty teams to focus on advancing evidence based teaching and scholarship of teaching.

WORK AT THE NATIONAL LEVEL

Organizer of a Feature Topic session for annual American Physiology Society meeting (FASEB) 2012, Member of Teaching Section of American Physiology Society

Society for the Advancement for Biology Education Research **(SABER).**
Organizer of the first national meeting held at University of Minnesota July 2011
Organizer of all subsequent national meeting held at Univ. Minnesota 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019

Co-Founder of the Society for the Advancement for Biology Education Research **(SABER)** July 2010.

Editorial board of *CBE- LIfe Science Education* journal 2009-2016

Facilitator for Biology Scholars Research Residency 2009, 2010. Biology Scholars is a NSF funded project administered by the American Society of Microbiology. I mentored five faculty through this year long program.

Grant review panel for NSF –Course Curiculum and Laboratory Investigations Phase I grants. July 2007, July 2008, July 2011.

Facilitator for Summer Institute for Undergraduate Biology Education. 2007, 2008, 2009. 2010, 2011. Howard Hughes funded faculty development project to improve pedagogical practices in the classroom. University of Wisconsin, Madison.

Steering Committee of Human Anatomy and Physiology Society Institute – (HAPS-I). Coordinate offering of update seminars and courses for HAPS members through UW Outreach to offer graduate Biology credit. 2006-2010

Organizer of a Feature Topic session for annual American Physiology Society meeting (FASEB) 2008, Member of Teaching Section of American Physiology Society

Member of Education Committee of Society for Intergrative and Comparative Biology (SICB)

Member of the Teaching Section of American Physiological Society (APS). 2004-present

Chautauqua: National faculty development effort funded by NSF**.**
http://www.engrng.pitt.edu/~chautauq/
Facilitator and organizer for the following 2-3 day workshops

2003

- Physiology for Physiology and Biology Teachers, NSF Chautauqua Short Course #48. Held at the University of Washington, Seattle, WA. 1 July 9-12, 2003.

2002

- Helping the Learner to Learn in the Life Science Classroom, NSF Chautauqua Short Course #55. Held at the University of Washington, Seattle, WA. July 15-18, 2002.
- Physiology for Physiology and Biology Teachers, NSF Chautauqua Short Course #57. Held at the University of Washington, Seattle, WA. 1 July 22-24, 2002.

2001

- Helping the Learner to Learn in the Life Science Classroom, NSF Chautauqua Short Course #58. Held at the University of Washington, Seattle, WA. July 11-13, 2001.
- Physiology for Physiology and Biology Teachers, NSF Chautauqua Short Course #60. Held at the University of Washington, Seattle, WA. 1 July 16-18, 2001.

2000

- Creating an Active Learning Environment in the Life Science Classroom, NSF Chautauqua 2000 Short Course #56 August 10-12

- Physiology for Physiology and Biology Teachers. NSF Chautauqua Short Course #58 August 14-16, 2000.

WORK AT THE INTERNATIONAL LEVEL

2010-2011 Academic Director- Waseda Faculty Development program. UW Educational Outreach will organize and administer the 3 week program for 14 faculty from Waseda University, Japan.

INVITED PRESENTATIONS AND WORKSHOPS

SABER West, UC Irvine 1/12/2020

- Workshop: "Using computer-scorable, constructed-response formative assessments to transform your teaching of principle-based reasoning in biology

"Show Me the Data! Building and Supporting a Community of Biology Education Researchers to Maximize Student Learning" 12/4/2019 American Society of Cell Biology, Bruce Alberts Award for Biology Education. Washington, DC

Evidence-based Teaching: Which parts impact student performance" 7/26/2019
Society for the Advancement of Biology Education Research. Minneapolis, MN

"Active Learning and Gender Achievement Gaps in STEM" 7/4/2019
Western Conference on Science Education. London, Ontario, Canada

"Evidence-based teaching: So that ALL students may learn" 4/ 8/2019
Experimental Biology, Claude Bernard Award. Orlando, FL.

"Consortium for the Advancement of Undergraduate STEM Education: CAUSE for Tranformation to Evidence-based Teaching" 4/4/2019
ASCN – Transforming Institutions Conference, Pittsburgh, PA

SABER West, UC Irvine 1/12/2019

- Workshop: **"**Using Learning Progression Frameworks and Assessments to Improve Principle-based Instruction"

"The Future of Evidence-based Teaching" 9/20/2018
KeyNote address at the National Case Studies conference in Buffalo, NY

"The Future of Evidence-based Teaching" 9/13/2018
Biology Seminar at University of Memphis

SABER West, UC Irvine 1/12/2018

- Workshop: "Getting the most out of SABER West- for first timers"
- Workshop: "Using Whiteboards to Leverage Learning in Multiple Settings"

"The Future of Evidence-based Teaching" 4/9/2018
Virginia Tech, Blacksburg, VA

"The Future of Evidence-based Teaching" 11/10/2017,
Keynote at NABT National meeting St. Louis, MO

"An alternative to student evaluations of teaching (SETs)"
workshop NWBIO 2017 University of Washington- Tacoma May 5, 2017

"End of Lecture: The Future of Evidence-based Teaching" 4/28/2017
Plant Biology Department, UC Davis

SABER West, UC Irvine 1/14/2017

- Workshop: "Using PORTAAL to assess the level of active learning in your classroom"
- Workshop with J. Doherty: "Developing a learning progression framework and assessments"
- Talk with J. Doherty: "Implementing an intervention for test anxiety in a biology classroom"

"End of Lecture: The Future of Evidence-based Teaching" 9/2016
University of Miami and workshop on active learning

"End of Lecture" 5/2016
Oberlin College + workshop on active learning.

"End of Lecture" 4/2016
Center for Math and Science Education, Hugo Rossi talk, University of Utah.

"Implementing Evidence based teaching" 2/2016
South Seattle Community College

"Getting started in Discipline-based Education Research" 2/2016
Bastyr University

"End of Lecture" 9/2015
Keynote speaker at Association of College and University Biology Educators (ACUBE) National meeting

"End of Lecture?" 9/2015
Faculty Fellows, University of Washington

"Evidence-Based Teaching" 9/2015-
Public Health Dept, Univeristy of Washington

"Future of Evidence-Based Teaching" 2015,
Oregon State University

"Future of Evidence-Based Teaching" 2015
University of Oregon

"Future of Evidence-Based Teaching" 2015
SALTISE – Montreal Canada

"SPARST- Science Process and Reasoning Skills Test" 2013
Teaching Section Symposium, Experimental Biology, Boston, MA.

"Concept Assessment in Physiology" workshop
NWBIO, Edmonds, WA May 2012

"Assessment of Student Learning and Scientific Teaching" organizer of 2012
Teaching Section Symposium, Experimental Biology, San Diego, CA.

"Taking the Mystery Out of Science Education Research" organizer of 2011
Teaching Section Symposium, Experimental Biology, Washington, DC.

" Integrating Desirable Difficulties into the Classroom" 2011
Biology Leadership Conference. San Diego, CA.

"Assessment in the college classroom"- 2011
American Society of Microbiology- Conference on Undergraduate Education (ASM-CUE)

"Latest Results from Biology Education Research" 2011 American Society of Microbiology- Conference on Undergraduate Education (ASM-CUE)

"Using General Models, Summary Sheets and Learning Paragraphs to Integrate Learning in Physiology 2010 Experimental Biology, Anaheim, CA

"Bloomin' Biology: How to make alignment and assessment easier" Biology Leadership Conference 2010, Naples, FL

"Taking the mystery out of learning for your students" Biology Teaching Workshop: Theory and Practice March 2010, Washington, DC W, H, Freeman sponsor.

"Using the RSPQ and MAI to evaluate the effectiveness of classroom innovations." (2009) International Society for the Scholarship of Teaching and Learning.

"Taking the mystery out of learning for your students." (2009) Keynote address of UW-Scholarship of Teaching and Learning Annual Symposium

"Biology in Bloom: Using Bloom's Taxonomy to Enhance Learning in Biology." (2008) International Society for the Scholarship of Teaching and Learning.

"Prescribed active learning increases performance in introductory biology." (2008) Bastyr University, Faculty Development Seminar.

"Prescribed active learning increases performance in introductory biology." (2008) Experimental Biology- Physiology Teaching Section Symposium.

"Learning paragraphs: A simple method to increase student's writing and metacognition" UW Scholarship of Teaching and Learning Symposium 2008.

"Using General Models in an Undergraduate Physiology Course Improves Student Understanding." UW Scholarship of Teaching and Learning Symposium 2007

"Using Bloom's Taxonomy of Learning in the classroom to enhance faculty and student learning" Human Anatomy and Physiology Society (HAPS) annual meeting 2007

"Prescribed active learning increases performance in introductory biology". UW Scholarship of Teaching and Learning Symposium 2006

"Classrooms as Learning Environments" *Bioforums '02*, An educational symposia sponsored by Prentice Hall held at Cal State Fullerton.

"Incorporating Critical Thinking into the Biology Classroom". *NWBIO*. May 2002

"Classrooms as Learning Environments". *Bioforums* '01 An educational symposia sponsored by Prentice Hall. Minneapolis, MN. Spring 2001

"Active Learning Techniques for the Classroom". *Bioforums '00 Teaching for the New Millennium.* An educational symposia sponsored by Prentice Hall. Overland Park, KS. Spring 2000.

"Active Learning Techniques for the Classroom" , *Bioforums '99 Teaching for the New Millennium.* An educational symposia sponsored by Prentice Hall. Lewis & Clark College, Portland OR. Fall 1999

"Active Learning in the Life Science Classroom" *Bioforums '99 Teaching for the New Millennium*. Educational symposia sponsored by Prentice Hall. Golden West College, CA April 1999.

OTHER ACTIVITIES:

Member of Physiology Education Research Consortium (PERC), 1998 – present

PROFESSIONAL SOCIETIES:

2010	Society for the Advancement of Biology Education Research (SABER)
2007-2009	Society for Intergrative and Compartive Biology (SICB)
2006	American Physiological Society (APS)
2006-2008	Professional Organization of Developers (POD)
2006-2009	International Society for the Scholarship of Teaching and Learning (IS-SOTL)
2005-2009	Human Anatomy and Physiology Society (HAPS)
2003-2005	American Association of Higher Education
1988-1992	American Association of Anatomists

PUBLICATIONS:

PAPERS, SCIENCE EDUCATION

Submitted, in revision or in preparation:

Moon, S., M. Jackson, J.H. Doherty and M.P. Wenderoth. The dose-response effect of active learning: how much and which practices correlate with increases in student performance on exams. (submitted *Science Advances*)

Moon, S., M. Jackson, J.H. Doherty and M.P. Wenderoth. Incremental change over time to sustain evidence-based teaching practices (in preparation PLOS One)

Scott, E.E., J.A. Cerchiara, L.N. Jescovitch, **M.P. Wenderoth**, J McFarland, K.C. Haudek, and J.H. Doherty. Oaks to arteries: Undergraduate students' reasoning about bulk flow (in revision *CBE- Life Science Education)*

Doherty, J.H, J.A. Cerchiara, E.E. Scott, J. McFarland, J.M. Parker,and **M.P. Wenderoth**. Developing a learning progression for ion flux in electrophysiology. (in preparation for *CBE-Life Science Education*)

Published:

2020

Scott, E.E., **M.P. Wenderoth** and J.H. Doherty 2020 Design-based research: A methodology to extend and enrich Biology Education Research *CBE- Life Science Education*

2019

Scott, E.E., **M.P. Wenderoth**, and J.H. Doherty 2019 Learning progressions: an empirically-grounded, learner-centered framework to guide biology instruction. *CBE- Life Science Education*

Jescovitch, L.N., Scott, E.E., Cerchiara, J.A., Doherty, J.H., **M.P. Wenderoth**, Merrill, J.E., Urban-Lurain, M., Haudek, K.C. Deconstruction of Holistic Rubrics into Analytic Rubrics for Large-Scale Assessments of Students' Reasoning of Complex Science Concepts. *Practical Assessment, Research and Evaluation* https://pareonline.net/getvn.asp?v=24&n=7

Cerchiara, J.A., E.E. Scott, K. Kim, E. Meir, **M.P. Wenderoth** and J.H. Doherty. 2019. A new assessment to monitor student performance in introductory neurophysiology: Electrochemical Gradients Assessment Device (EGAD). *Advances in Physiology Education*. 43(2), 211–220. doi: 10/gf2rfg

2018

Jackson, M., A. Tran, **M.P.Wenderoth** and J.Doherty. 2018. Peer vs. Self Grading: Which is better? *CBE- Life Science Education* 17 (3): es44

2017

Doherty, J and **M.P. Wenderoth**. 2017 Implementing an Expressive Writing Intervention for Test Anxiety in a Large College Course. *Journal of Microbiology and Biology Education* 18 (2)

Michael, J., Martinkova, P., McFarland, J., Wright, A., Cliff, W., Modell, H., & **M.P.Wenderoth** 2017. Validating a conceptual framework for the core concept of "cell-cell communication". *Advances in Physiology Education*, 41(2), 260-265.

McFarland, J.L., Price, R.M., **M.P.Wenderoth**, Martinková, P., Cliff, W., Michael, J., Modell, H. and Wright, A., 2017. Development and validation of the homeostasis concept inventory. *CBE-Life Sciences Education*, 16(2), p.ar35.

Freeman, S., Theobald, R., Crowe, A. J., & **M.P.Wenderoth** 2017. Likes attract: Students self-sort in a classroom by gender, demography, and academic characteristics. Active Learning in Higher Education, 1469787417707614.

2016

Wright, C. D., S. L Eddy, **M.P. Wenderoth**, E. Abshire, M. Blankenbiller, & S.E. Brownell 2016. Cognitive Difficulty and Format of Exams Predicts Gender and Socioeconomic Gaps in Exam Performance of Students in Introductory Biology Courses. *CBE-Life Sciences Education*, 15(2), ar 23.

2015

McFarland, J**., M.P. Wenderoth,** J. Michael, W.Cliff, A.Wright, and H. Modell. 2015 A Conceptual Framework for Homeostasis: Development and Validation. *Advances in Physiology Education* 40 (2), 213-222.

Modell, H., W.Cliff, J. Michael, J. McFarland, **M.P. Wenderoth,** A.Wright. 2015 A Physiologist's View of Homeostasis. *Advances in Physiology* 39 (4):259-266.

Eddy, S.L.[*], S.E. Brownell[*#], P. Thummaphan, M-C. Lan, **M.P. Wenderoth** 2015 Caution, student experience may vary: Social identities and biology competency impact a student's experience in peer discussions. CBE-Life Science Education 14 (4) doi:10.1187/cbe.15-05-0108

Eddy, S.L., M. Converse, and **M.P.Wenderoth.** 2015 PORTAAL: a Practical Observation Tool to Assess Active Learning in the College Science Classroom. *CBE- Life Science Education 14 (2):1-16*) doi: 10.1187/cbe.14-06-0095

Theobald, E. J., A. Crowe, J. HilleRisLambers, M.P. Wenderoth, & S.Freeman. 2015. Women learn more from local than global examples of the biological impacts of climate change. *Frontiers in Ecology and the Environment,* 13(3), 132-137.

2014

Eddy, S.L.*, S.E. Brownell*, **M.P.Wenderoth.** 2014 Gender gaps in achievement and participation in multiple introductory biology classrooms. *CBE- Life Science Education* 13:478-492 * contributed equally

Freeman S., S.L. Eddy, M. McDonough, M.K. Smith, N. Okoroafor, H. Jordt **and M.P. Wenderoth**. 2014 Active learning increases student performance in science, engineering and mathematics. *PNAS* 111 (23) 8410-8415.

Brownell, S.E., S. Freeman, M. P. Wenderoth, and A. J. Crowe. 2014 BioCore Guide: A tool for interpreting the core concepts of Vision and Change for biology majors. *CBE Life Science Education* 13 (2):200-211

2013

Brownell, S.E., **M.P., Wenderoth**, R.J. Theobald, O. Okoroafor, M. Koval., S. Freeman, Walcher, C., and A.J. Crowe. 2013 How students think about experimental design: Novel conceptions revealed by in-class activities. *BioScience* 2013: doi: 10.1093/biosci/bit016

Eddy, S.L., **M.P.Wenderoth,** A.J. Crowe, and S.F. Freeman. 2013. How should we teach tree thinking? An experimental test of two hypotheses. *Evolution Education and Outreach 6:13*

Smith, M., **M.P. Wenderoth** and M. Tyler. 2013. The Teaching Demonstration: What Faculty Expect and How to Prepare for This Aspect of the Job Interview. *CBE Life Science Education* 12(1):12-18

2011

Freeman, S., D. Haak, and **M.P. Wenderoth**. 2011. Increased Course Structure Reduces Fail Rates in Introductory Biology. *CBE Life Science Education* 10 (2):175-186

Coil, D., **M.P. Wenderoth**, M. Cunningham, and C. Dirks. 2011. Teaching the Process of Science: Faculty Perceptions and an Effective Methodology. *CBE Life Science Education*. 9(4): 524-535.

2010

T.Balser*, C.Dirks*, S.Freeman*, K.Miller*, J.Momsen*, L.Montplaisir*, E. Offerstadhl*, M.Osgood*, K.Sirum*, **M.P.Wenderoth***, B.White*, W.Wood*. 2010 Meeting Report: Society for the Advancement of Biology Education Research (SABER) *CBE Life Science Education* 10(1):11-13. * Contributed equally to this manuscript.

2008

Crowe*, A, C. Dirks*, and **M.P. Wenderoth***. 2008. Biology in Bloom: Implementing Bloom's Taxonomy to Enhance Student Learning in Biology. *CBE-Life Sciences Education* 7 (4): 368-381*Authors contributed equally

2007

Wenderoth, M.P. 2007. A Manual for the Scientific (Teaching) Revolution. *CBE- Life Sciences Education* 6:271-2. (a book review)

Freeman,S., E. O'Connor, J. W. Parks, M. Cunningham, D. Hurley, D. Haak, C. Dirks, **M.P. Wenderoth**. 2007. Prescribed Active Learning Increases Performance in Introductory Biology. *CBE Life Sciences Education* 6(2): 132–139

2005

Modell, H., J.A. Michael, and **M.P. Wenderoth**. 2005. Helping the learner to learn: The role of uncovering misconceptions. *American Biology Teache*r 67(1): 20-25.

2002

Michael, J.A., **M.P. Wenderoth**, and H. Modell, W. Cliff ,B. Horwitz, P. McHale, D. Richardson, D. Silverthorn,S. Williams and S. Whitescarver 2002. Undergraduate's understanding of cardiovascular phenomena. *Adv. Physiol. Educ*. 26:72-84.

BOOKS

Dirks, C., **M.P. Wenderoth**, and M. Withers. 2013 *Assessment in the College Science Classroom.* W.H. Freeman Scientific Teaching.

ABSTRACTS SCIENCE EDUCATION:

McFarland, J., J. Michael, **M.P. Wenderoth**, H. Modell, A. Wright and W. Cliff. 2012. Conceptual framwork and misconceptions associated with the core principle of homeostasis. Experimental Biology, San Diego, CA.

Wenderoth, M.P. , A. Crowe & J. McFarland 2011. Biology Education Research Group (BERG) at University of Washington: A Learning Community. University of Washington Teaching and Learning Symposium

Wenderoth, M.P. 2011. Does Your Teaching Encourage Deep or Superficial Learning? Experimental Biology, Washington, D.C.

Wenderoth, M.P., A. Crowe & J. McFarland 2011. Biology Education Research Group (BERG) at University of Washington: A Learning Community. Experimental Biology Washington, D.C..

Wenderoth, M.P. 2010. Does Your Teaching Encourage Deep or Superficial Learning? American Society of Microbiology- Conference on Undergraduate Education (ASM-CUE), San Diego, CA

Wenderoth, M.P. 2010. Using General Models, Summary Sheets and Learning Paragraphs to Enhance Student Learning. Experimental Biology,

Haak, D & **M.P. Wenderoth** 2010 Improving student's academic insight. University of Washington Teaching and Learning Symposium.

Wenderoth, M.P. 2009. Enhancing Student's metacogniton: Can Bloom's Taxonomy help? American Society of Microbiology- Conference on Undergraduate Education (ASM-CUE)

Wenderoth, M.P. and Kate Henson. 2008. Using General Models in Physiology can Enhance Student Understanding. SICB

W. Cliff and J.A. Michael. 2003 Undergraduates' understanding of general models and renal physiology. *FASEB J.* 17(4):A383

Cliff, W, **M.P. Wenderoth** and J.A. Michael. 2003 Probing student's understanding of glomerular filtration. *FASEB J.* 17(5):A816

Michael, J.A., **M.P. Wenderoth**, and H.I. Modell. 2002. The inability to use general models is one possible source of student conceptual difficulties .FASEB J. 16(5):A756.

PAPERS, BASIC SCIENCE:

Mourey, R.J, Q.C.Vega, J.S. Campbell, **M.P.Wenderoth,** S.D. Hauschka, E.G. Krebs, and J.E Dixon. 1996. A novel cytoplasmic dual specificity protein tyrosine phosphatase in muscle and neuronal differentiation. *J. Biol. Chem.* 271: 3795-3802

Campbell, J.S., **M.P.Wenderoth**, S.D.Hauschka and E.G.Krebs. 1995. Differential activation of MAP kinase in response to bFGF in skeletal muscle cells. *P.N.A.S.*92:870-874

Russell, B.R., **M.P. Wenderoth**, and P.H. Goldspink. 1992. Remodelling of myofibrils: subcellular distribution of myosin heavy chain mRNA and protein. *Am. J. Physiol.* 262:R339-45.

Hauschka, S.D., S. Amacher, S. Apone, J.N. Buskin, D.B. Donoviel, M.A. Shield, T.J. Templeton, and **M.P. Wenderoth**. 1992. Comparative aspects of skeletal and cardiac muscle gene regulation. In Gene Expression in Neuromuscular Development. A.Kelly & H. Blau. (eds.)

Wenderoth, M.P. and B.R. Eisenberg. 1991. Ultrastructural distribution of myosin heavy chain mRNA in cardiac tissue: A comparison of frozen and LR White embeddment. *J. Histochem. Cytochem.* 39:1025-1033.

Eisenberg, B.R., P.H. Goldspink, and **M.P. Wenderoth**. 1991. Distribution of myosin heavy chain mRNA in normal and hyperthyroid heart. *J. Mol. Cell. Cardiol.* 23:287-296.

Hauschka, S.D., J.N. Buskin, S. Apone, J. Lin-Jones, M.A. Shield, T. Templeton, and **M.P. Wenderoth**. 1990. The role of growth factors in myogenic determination and terminal differentiation. In Growth Factors in Health and Disease. B. Westermark, C. Betsholtz, and B. Hokfelt. (Eds.) pp17-28.

Eisenberg, B.R., J.M. Kennedy, **M.P. Wenderoth**, D.J. Dix, and Z. Lin. 1988. Satellite cells, isomyosin switching and muscle growth. UCLA Symposium on Molecular and Cellular Biology. vol. 93 (eds.) F.Stockdale & L.Kedes. New York, Alan R. Liss.

Lin, Z., **M.P. Wenderoth** and B.R. Eisenberg. 1988. Individual rabbit cardiac myocytes have different thresholds for alpha myosin heavy chain regulation by thyroid regulation. *Am. J. Anat.* 185:455-461.

Wenderoth, M.P. and B.R. Eisenberg. 1987. Incorporation of nascent myosin heavy chains into thick filaments of cardiac myocytes in thyroid treated rabbits. *J. Cell Biol.* 105:2771-2780.

Eisenberg, B.R., D.J. Dix, Z.W. Lin, and **M.P. Wenderoth**. 1987. The relationship of the membrane systems in muscle to the isomyosin content. *Canadian J. Physiol. Pharmacol.* 65:598-605.

Snyder, A.C., **M.P. Wenderoth**, C.C. Johnson, Jr. and S.L. Hui. 1986. Bone Mineral content of elite lightweight amenorrheic oarswomen. *Human Biology*. 58:863-870.

Wenderoth, M.P., A.C. Snyder, and L.K. Steinrauf. 1984. Physiological testing: A case for its use in rowing. *Rowing USA* 16:15-24.