CURRICULUM VITA
Michelle A. Harris

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Emeritus Teaching Faculty
Biology Core Curriculum (Biocore)
University of Wisconsin-Madison

Former Position

1999 – 2022 Distinguished Teaching Faculty Associate, Biology Core Curriculum (Biocore) Program, UW-Madison

Education

1999 *Ph.D., Zoology*
University of Wisconsin-Madison
Advisor: Dr. Karen Steudel
Field of Study: Functional Morphology
Dissertation title: Relationships between maximal jump performance and hindlimb morphology/physiology in the domestic cat (*Felis silvestris catus*)

1994 *M.S., Zoology*
University of Wisconsin-Madison
Advisor: Dr. Karen Steudel
Thesis title: Ecological correlates of hindlimb length in the Carnivora

1989 *B.S., Teaching of Biology*
University of Illinois-Champaign

Teaching Experience

1999 – 2022	Chair, Principles of Physiology Lab (Biocore 486; formerly Organismal Biology Lab) and co-Chair, Cell Biology Lab (Biocore 384)
2011 – 2022	Chair, Principles of Physiology Lecture (Biocore 485; formerly Organismal Biology Lecture)
2020 – 2022	Chair, Becoming a Scientist: Doing Biology Research (Biocore 181)
1991- 1998	Teaching Assistant, UW-Madison (Zoology 101/102 Introductory Animal Biology Lecture & Lab; Zoology 431, Comparative Anatomy Lab; Zoology 612, Comparative Physiology Lab)
1989- 1991	High School Biology & Chemistry Teacher (Elk Grove Village, Illinois)

Awards

2021	Letters & Science Mid-Career Award
2019	Distinguished Faculty Associate Title
2019 & 2009	University Housing Honored Instructors Award (student nomination)
2017	Phi Beta Kappa Excellence in Teaching Award (student nomination)
2016	Distinguished Honors Faculty- College of Letters and Science Honors Program (student nomination)
2011	February 2011 Jefferson Award for Public Service (Madison, Wisconsin)
2005	University of Wisconsin-Madison Teaching Academy Fellow
1995	College of Letters and Science Teaching Fellow

Professional Affiliations

- ACE-Bio (Advancing Competence in Experimentation – Biology) NSF-funded RCN-UBE network
- Society for the Advancement of Biology Education Research (SABER)
- Association of Biology Laboratory Educators (ABLE)
- National Association of Biology Teachers (NABT)
- Wisconsin Society for Science Teachers (WSST)

Peer-Reviewed Publications

Forbes-Lorman, R.M, M.A. Korb, A.R. Moser, M.A.Franzen, and **M.A. Harris** (2022) Interactive, physical course materials as formative assessment opportunities to improve student learning of molecular structure-function relationships. Journal of College Science Teaching. 52(2):54-67.

Batzli, J.M., **M.A. Harris**, D. Lee and H.A. Horn (2022). Feedback and discourse as critical skills for the development of experimentation competencies. *In* N.J. Pelaez, S.M. Gardner, and T.R. Anderson editors. Trends in Teaching Experimentation in the Life Sciences: Putting research into practice to drive institutional change. Springer Nature Switzerland. pp 243-262.

Daoud, A., E.V. Nordheim, S.A.McGee and **M.A. Harris** (2022). Environmental conditions and husbandry approach affect the survival and physiology of the California Blackworm (*Lumbriculus variegatus).*

Forbes-Lorman, R., **M.A. Harris**, W.S. Chang, E.W. Dent, E.V. Nordheim, and M.A. Franzen (2016). Physical models have gender-specific effects on student understanding of protein structure-function relationships. Biochemistry and Molecular Biology Education. 44:326-335. doi:10.1002/bmb.20956.

Remsberg, A.J., **M.A. Harris**, and J.M. Batzli (2014). Statistics across the curriculum using an iterative, interactive approach in an inquiry-based lab sequence. Journal of College Science Teaching 44(2):72-81.

Cox-Paulson, E.A., T. M. Grana, **M.A. Harris**, and J. M. Batzli (2012). Studying Human Disease Genes in *C. elegans*: A Molecular Genetics Laboratory Project. Cell Biology Education-Life Sciences Education 11(2): 165-179.

Harris, M.A., R.F. Peck, S. Colton, J. Morris, E. Chaibub Neto, and J. Kallio (2009). A combination of hand-held models and computer imaging programs helps students answer oral questions about molecular structure and function: a controlled investigation of student learning" Cell Biology Education-Life Sciences Education 8(1): 29–43.

Phillips, A.R., A.L. Robertson, J. Batzli, **M. A. Harris**, & S. Miller (2008). Aligning Goals, Assessments and Activities: An Approach to Teaching PCR and Gel Electrophoresis. Cell Biology Education-Life Sciences Education. 7:96-106.

Bichler, A., A. Swenson, and **M.A. Harris** (2006). A combination of caffeine and taurine has no effect on short term memory but induces changes in heart rate and mean arterial blood pressure. Amino Acids 31:471-476.

Harris, M.A. and K. Steudel (2002). The relationship between jumping performance and hind limb morphology/physiology in domestic cats (*Felis silvestris catus*). The Journal of Experimental Biology 205:3877-3889.

Harris, M.A. and K. Steudel (1997). Ecological correlates of hind-limb length in the Carnivora. Journal of Zoology (London) 241:381-408.

Conference Proceedings

Harris, Michelle A., McGee, S. A., Batzli, J.M. (2018). Uncooking Yeast: Cells signaling a rise to inquiry. Tested Studies for Laboratory Teaching. Proceedings of the Association for Biology Laboratory Education (ABLE) 38(9).

Harris, Michelle A., Grange, S.J., Feeney, A.K., Odorico, S.K. (2018). Undergraduate students are the key to community science outreach partnerships. Tested Studies for Laboratory Teaching. Proceedings ABLE. 39(30).

Batzli, Janet M., **Harris, M.A**., McGee, S.A. (2018). It Takes Time: Learning process of science through an integrative, multi-semester lab curriculum. Tested Studies for Laboratory Teaching. Proceedings of ABLE. 39(21)

Harris, M.A. (2003). Using physical models to complement computer -based bioinformatics labs: assessing student performance & reactions. Proceedings of the 25th Workshop/Conference of ABLE. 25:358-364.

Conference Abstracts

Cary, T., S. M. Hong, A. Kowalkowski, and **M.A. Harris** (2021). A Conclusion Assessment Rubric (CAR) for Assessing a Key Experimentation Competency. Annual Meeting of the Society for the Advancement of Biology Education Research (SABER).

Cary, T., **M.A. Harris**, and S.M. Hong (2019). Test Driving the Conclusion Assessment Rubric. AAC&U Transforming STEM Higher Education Conference.

Pelaez, N.J. and **M.A. Harris**. (2019) Development and Testing of Biology Students' Competencies for Experimentation. ESA Life Discovery - Doing Science (Education Conference).

Pittner, M., S. Kohler, B. Khan, K. Nakamura, V. Seitz, S. Tung,Z. Zhang and **M.A. Harris** (2019) Making the Case for Phenomenon Science Teaching. Annual Meeting of the Wisconsin Society of Science Teachers (WSST).

Cary, T., **M.A. Harris**, S. Hong, and Y. Yin (2018). Moving beyond experimental design: how do we assess student ability to make logical conclusions from biological experimentation? Annual Meeting of the Society for the Advancement of Biology Education Research (SABER).

Gardner, S.M., K.J. Wilson, D.L. Newman, and **M.A. Harris**. (2018) Pre-SABER Workshop: Development and Testing of Assessments for Measuring Experimentation Competence in Biology. Annual Meeting of SABER.

Harris, M.A. and J.B. Batzli (2017) Learning experimentation and process of science through an integrative, multi-semester research curriculum. Advancing Competence in Experimentation – Biology (ACE-Bio) Network Retreat.

Harris, M.A. (2017) Utilizing Process of Science Approach and NGSS in K12 Science Outreach. Gordon Conference on Undergraduate Biology Education Research.

Forbes-Lorman, R., **M.A. Harris**, A.R. Moser, W.S. Chang, and M.A. Franzen (2015). Instructional approaches that help students understand how genetic mutations disrupt cell signaling pathways. Annual Meeting of SABER.

Forbes-Lorman, R., **M.A. Harris**, W.S. Chang, E.V. Nordheim, E.W. Dent, and M.A. Franzen (2015). Physical models have gender-specific effects on student understanding of protein structure-function relationships. Annual Meeting of SABER.

Harris, M.A., M.A. Franzen, R. Forbes-Lorman, and J. Velasco (2014). Physical models improve student understanding of molecular structure →function. Annual Meeting of SABER.

Harris, M.A., M.A. Franzen, and J. Velasco (2013). Impact of Molecular Modeling Curricular Tools on Student Performance and Attitudes. Annual Meeting of SABER.

Harris, M.A., J. Batzli, and R. Lorimer (2012). Using rubrics to guide teaching assistant professional development in writing intensive courses. Annual Meeting of SABER.

Batzli, J. **M.A. Harris**, X. Yu, and K. Clark. (2011) Assessment of undergraduate genetics learning in UW-Madison Biocore program. Annual Meeting of SABER.

Batzli, J., **M.A. Harris**, K. Harell, K. Clark, and X. Yu (2011). Generating an assessment framework using UW ELOs. UW System President's Summit on Excellence in Teaching and Learning.

Morrison, K., L. Smigiel, T. Sharma, D. Parrell, K. Rhude, and **M.A. Harris** (2011). Inquiry-based science outreach in rural Wisconsin schools: an undergraduate perspective. Annual Meeting of the Wisconsin Society of Science Teachers (WSST).

Harris, M. A., M. Elworthy, and C. Banaszynski (2011). A Model for Connecting Institutes of Higher Education with Rural K-12 Schools. Annual Meeting of the Wisconsin Association of School Boards.

Harris, M.A. and K. Niemi (2010). Engaging Science Teachers in Inquiry by Having Them Observe a Summer Science Camp for Students. Annual Meeting of the Wisconsin Society of Science Teachers (WSST).

Harris, M.A. (2009). Students answer complex questions about molecular structure and function better after using a combination of hand-held models and computer imaging programs. 1st Annual Conference on Multi-Sensory Science Education, UW-Madison Institute for Chemical Education. Also presented for the Department of Chemistry, Purdue University, West Lafayette, Indiana in October, 2009.

Harris, M.A., K. Niemi, C. Gullickson, K. Evert, A. Kuranz, and K. Suhs (2008). K-12 Teachers, Undergraduates, University Instructors, and Graduate Students Partner to Develop and Implement Authentic and Engaging Inquiry-Based Science Lessons. Annual Meeting of the National Association for Biology Teachers (NABT).

Harris, M.A. (2007). Grading student lab papers and oral presentations fairly and consistently using rubrics. Annual meeting of the Society of Integrative and Comparative Biology (SICB).

Harris, M.A. and J. Batzli (2005). Engaged learning in biology labs: The support ←→ challenge continuum. Annual Meeting of the National Association for Biology Teachers (NABT). Also presented at the UW-Madison Teaching & Learning Symposium, May 2005.

Harris, M.A., M. Patrick, and T. Herman (2004). How do we assess the efficacy of our teaching tools? Results of a controlled study in an undergraduate cell biology lab. Annual Meeting of the National Association for Biology Teachers (NABT).

Harris, M. A. (1999). The relationship between maximal jumping performance and hindlimb morphology in domestic cats (*Felis silvestris catus*). Annual Meeting of the Society of Integrative and Comparative Biology (SICB).

Harris, M.A. and K. Steudel (1993). Hindlimb length correlates in the Carnivora. Annual Meeting of the Society for Integrative and Comparative Biology (SICB).

Committees

- L&S Professional Development and Recognition Committee (2021-2022)
- Biology Major Program Committee (2015–2022)
- Delta Steering Committee (2007–2022)
- Delta Internship Program Advisory Board (2005-2022)
- Chancellor's Scholar Mentor Friend (Fall 2015– present)
- ASEC Physical Sciences/Engineering Area Review Committee (May 2013-2022)
- UW-Madison Institute for Cross-college Biology Education (ICBE) Steering Committee (2005-2008)

Community Outreach

I was the advisor for the Biocore Outreach Ambassador Program (BOA) since its inception in 2004 until my retirement in 2022. I mentored about 50 current and former Biocore students as they pursued a variety of outreach projects (see below). I met regularly with BOA chairs (3 senior Biocore alumni) and co-chairs elect (3 junior Biocore students) to mentor and coordinate outreach activities.

- Science Nights: Ambassadors implemented 3-4 Science Nights per school year in primarily rural school districts since 2009. There is no charge for families to attend our Science Nights. Attendance at these Science Nights ranges from 100-250 students, parents, and teachers. We offered three virtual, synchronous Science Nights during the 2020-21 school year due to the COVID-19 epidemic.
- Summer Science Camp: Since 2007 Biocore Outreach Ambassadors, Biocore instructors, and UW-Madison scientists and outreach specialists have volunteered in 13 week-long Science Camps, mentoring students in grades 4-11 as they pursued their own research questions. The Science Camp is now part of the Wisconsin Heights Summer School Program. Camp attendance has ranged from 20 - 60 students. I lead the camp.
- After School Science Club (ASSC): The ASSC is held at the MOO in Mazomanie Elementary School twice each month through the school year and serves between 40-60 students in grades 3, 4 and 5.
- Classroom visits: Two BOA members visited elementary classrooms in rural schools twice per month, to work alongside teachers to implement authentic science inquiry activities aligned with NGSS standards.
- BOA Contributions to Campus: UW Science Expeditions, Expanding Your Horizons, Science Festival, and Wisconsin Institute for Discovery (WID) Science Saturdays, American Family Children's Hospital (AFCH).

Grants

- Baldwin Wisconsin Idea Grant (2009 – 2011). $102,839. Funds were used to establish a UW-Madison – Mazomanie Science Outreach Outpost (MOO) at Mazomanie Elementary School in the Wisconsin Heights School District.
- NSF DUE grant (August 2013-August 2016). $599,994. I was a co-PI along with Dr. Tim Herman and Dr. Margaret Franzen on the CBM (Center for BioMolecular Modeling, Milwaukee School of Engineering) project entitled "*CREST: Connecting Researchers, Educators and Students*." A portion of this CREST award supported Dr. Robin Forbes-Lorman from June 1, 2014 - May 30, 2016 as a 50% Biocore teaching post-doc.
- NSF CCLI grant (2011-2013). $8,000/year. I led Biocore's partnership in Dr. Tim Herman's (Center for BioMolecular Modeling, Milwaukee School of Engineering) project entitled "*Connecting Researchers, Educators and Students (CREST): A Role for Physical Modeling Projects in the Undergraduate Curriculum*." Biocore used these funds to support two teams of Biocore students who designed and produced physical molecular models and curricular materials in partnership with UW-Madison faculty researchers and instructors.
- I wrote or co-wrote these Instructional Laboratory Modernization (ILM) grants funded by L&S:
    - (2019) $56,017; (2018) $104,937; (2011-2012) $101,326; (2004) $31,000; (2003) $39,000
- Educational Innovation & Professional Development for Introductory Biology Instruction (MIU) grant (February 2019). $4,667. Biocore was awarded to support the integration and conversion of our Biocore Lab Curricular materials into a Pressbooks e-series called the Process of Science Companion.
- I have authored or co-authored several grants to support science outreach efforts in rural Wisconsin communities.
    - Kemper K. Knapp Fellowship (2020). $4,312. Biocore Outreach Ambassador and Peer Advisor leaders co-wrote this grant for grant to support activities for underrepresented 7-12th grade students in the Madison community who might not otherwise consider a STEM major at UW-Madison.
    - Evjue Grant (2009, 2016, 2017, 2018, 2019, and 2021). $4,000-5,000. Biocore Outreach Ambassador students have used Evjue grants to continue and expand their outreach efforts in rural school districts.

- Kemper K. Knapp Fellowship (2013). $5,662. Biocore Outreach Ambassadors Maria Pittner and Megan Duffey received this grant to support the BOA outreach program.
- Wisconsin Idea Undergraduate Fellowship (2011). $5,000. Biocore Outreach Ambassadors Daniel Parrell and Rebecca Breuer received this grant to support their outreach program "*Biocore Outreach Ambassadors: Improving Rural K-12 Science Education*." .
- Kemper Knapp Fellowship (2008 – 2009). $6,390. Biocore Outreach Ambassador students were awarded this grant to continue and expand current outreach efforts in local rural school districts near Madison.
- Wisconsin Idea Undergraduate Fellowship (2007). $5,000. Biocore Outreach Ambassadors Katie Gielissen and Kate Dielentheis received this grant to support their K12 outreach.
- Wisconsin Idea Undergraduate Fellowship (2004). $5,000. Biocore students Allison Bichler and Annika Swenson received this grant to establish the Biocore Outreach Ambassador program.

- I was awarded Academic Staff Professional Development Grants in the range of $1,000-2,000 to attend national conferences in 2005, 2007, 2008 and 2019.

Graduate Student & Post-doctoral Mentoring

- Together with Dr. Janet Batzli, I mentored these Biocore Teaching post-doctoral researchers as they co-taught sections of our Biocore 382, 384 and 486 labs and conducted education research projects:
  - Devin Wixon (2011 - 12)
  - Zach Pratt (2013 - 14)
  - Robin Forbes-Lorman (2014 – 16)
  - Cherisse Hall (2016)
  - Carly Kibbe (2016)
  - Claire Luby (2017 - 18)
  - Heidi Horn (2018 - 20)
  - Anna Kowalkowski (2020 – 2022)

- June 2017 – 2022: I was a PhD thesis committee member for Corri Hamilton, a plant pathology student in Dr. Caitilyn Allen's lab.
- Directed Study (Biocore 699) undergraduate students:
  - 2020 – 2021. I mentored Biocore alumnus Abdel Daoud in his investigation of California Blackworm physiology and optimal husbandry conditions.
  - 2021 - Together with Janet Batzli and Seth McGee, I mentored three students (Kaylynn Imsande, Luke Wheeler and Lucy McGuire) on an independent research project investigating how green light influences plant growth in *Brassica rapa* Fast plants. This project is an extension of a Biocore 382 research project that began in fall 2020. These 3 students presented their research poster at the UW-Madison Undergraduate Research Symposium in April 2021.
  - 2018 Together with Seth McGee, I mentored three students (Olympia Mathaiparanam, Anushri Kartik-Narayan and Brandon Bruce) on an independent research project investigating the relationship between seed scarification and germination in the threatened prairie plant Lespedeza leptostachya. This project is an extension of a Biocore 486 research project that Brandon, Olympia and Anushri began in fall 2017. These 3 students presented their research poster at a Prairie Enthusiasts Conference in spring 2018 and at the UW-Madison Undergraduate Research Symposium in Spring 2018.
  - 2017 - 2018: Together with Janet Batzli and Seth McGee, I mentored Claudia Schmitt, Madeleine Blazel, and Anna Kosmach as they carried out an independent research project exploring cell signaling in the yeast mating response. in Spring 2018 these 3 undergraduate researchers presented their poster at the Posters on the Rotunda at the Wisconsin State Capitol, and at the UW-Madison Undergraduate Research Symposium.
- Delta Internship and Certificate Programs:
  - 2006-2020: I mentored three graduate students (Paul Riley, Alysa Remsberg and Josh Pultorak) and two post-doctoral researchers (Reed Stubbendieck & Miranda Cullins) as they completed requirements for the Delta Certificate in Research, Teaching, and Learning and/or for the Delta internship.
  - June 2012 - September 2013: Delta Certificate Facilitator for Tawnya Cary in her project entitled "*Re-structure of Biocore 324 Physiology Lab Syllabus: Enhancement of student learning process*."

- Fall 2020 – I mentored Dr. Miranda Cullins as she developed, taught and assessed a curricular unit for Biocore 181 students as part of her Delta Internship.
- Together with Janet Batzli and Sarah Miller I have mentored three teams of HHMI Wisconsin Program for Scientific Teaching (WPST) Fellows (graduate students Allison Thompson, Amber Robertson, Cassandra Theusch, Peter Kuhn, Leith Nye, and post-doc Liza Holeski).

Teaching Outside of Biocore

- 2019: Along with Janet Batzli and Seth McGee, I developed and taught a new course called "*Becoming a Scientist: Doing Biology Research (InterLS 101)* for freshmen students.
- 2016, 2017, and 2021: Along with Janet Batzli, I developed and taught a course called "*Inquiry Based Teaching Practicum*" for post-docs and graduate students.
- 2014 and 2016: Along with Professor Rick Nordheim (Statistics), I taught a Delta IMD (Instructional Materials Development) course "*Integrating Statistics into STEM Courses*." Rick and I mentored several IMD teams as they developed, implemented, and assessed new curricular materials using a backwards design model.
- 2009, 2010, 2011, and 2012. With Dr. Kevin Niemi from the WISCIENCE/WiSTEP Program, I taught week-long courses including "*Science Inquiry-Based Teaching: an Immersion Course for K-12 Teachers*", "*Advanced Topics in Inquiry-Based Science Teaching*" and "*Investigating the Next Generation Science Standards: a Course for K12 Teachers*".
- 2006-2010: I co-facilitated one section of the Undergraduate Research Seminar (Biology 375).
- 2005-2008; 2010: I facilitated a Delta Expeditions in Learning Seminar for graduate students & faculty.

Other Instructional Activities

- I regularly review manuscripts for the Journal of College Science Teaching, and occasionally review manuscripts for the Advances in Physiology Education and CBE - Life Sciences Education Journals.
- 2006-present: Co-presenter, with Janet Batzli, of "Training for New TAs in Communication-B Courses" workshops organized by the UW-Madison Writing Center.
- August 2017: I led a STEM Bootcamp workshop incoming BioScience students.
- May 2017: I was a co-presenter of two workshops at the UW-Madison Teaching & Learning Symposium. Members of our Biocore 485 and Biocore 487 teaching teams co-presented "*Incorporating active learning into your classroom: let's start today*". Cameron Cook (Digital Curation Resident Librarian, Research Data Services) and I co-presented "*Leveraging Partnership and Backward Design to Create a Data Management Curriculum: A Collaboration between Biocore and RDS*".
- Spring 2013 and 2015: reviewed presentation and poster abstract submissions for the 2015 SABER meeting.
- December 2008 – December 2010: I assisted Janet Batzli with the assessment of undergraduate genetics education in the Biocore Program.
- November 2010: Co-presenter, with Janet Batzli, Kiel Harell, and Xinxin Yu, of "*Multi-semester curriculum assessment of Biocore genetics education*" to the UW-Madison University Assessment Council.
- October 2009: Invited seminar speaker to the Chemical Education Division at Purdue University. My seminar presentation was entitled, "*Students answer complex questions about molecular structure and function better after using a combination of hand-held models and computer imaging programs*."
- 2008: Janet Batzli, WPST's Sarah Miller, and I presented a talk at the UW-Madison Teaching & Learning Symposium entitled "*How do You Know What They Know? Assessment of student learning."*
- 2007 & 2008: attendee & presenter, Proteins in Active Learning Module (PALM) workshop at the Milwaukee School of Engineering.
- August 2008: Janet Batzli, Diane Ebert-May, and I facilitated a day-long workshop at the annual Ecological Society of America (ESA) Meeting in Milwaukee, Wisconsin entitled "*Innovative Teaching & Active Learning*."
- May 2007: Together with Janet Batzli and Biocore students Kate Dielentheis and Kate Gielissen, I presented a short talk "*Academic Enrichment through Peer Mentoring & Outreach in Biocore*" at the UW-Madison Teaching & Learning Symposium.
- Spring 2007: Author of an article in Writing Across the Curriculum's "Time to Write" newsletter entitled "*What Was it They Said? The Challenge of Evaluating Oral Presentations*".
- April 2004: Guest lecturer, UW-Madison Physics 207 course**:** *Using Domestic Cats and Physics to Study the Relationship between Structure and Jump Performance*, and UW-Whitewater Biology Department colloquium.