

EDUCATION

University of Missouri PhD, Curriculum and Instruction 2008 - 2013

Western Illinois University M.S. Biology 2005 - 2008

Iowa State University B.S. Biology, Minor Spanish 2001 - 2004

SKILLS

- Qualitative, Quantitative, and Mixed Methods Research
- Writing and Securing External Grant Funding
- High Impact Practices
- Evidence-Based STEM Instruction
- Diversity, Equity, and Inclusion in STEM

LANGUAGES

- English (fluent)
- Spanish (conversational)
- Arabic (basic)
- American Sign Language (basic)

DR. EMILY M. WALTER, PHD

She/Her/Hers Postsecondary Biology Education & STEM Student Success Expert

ABOUT ME

I am an educator, researcher, and mentor. My research examines teaching practices of university instructors, the factors that influence these practices, and how we can work together to innovate university-level STEM learning environments to achieve more student success. These projects frequently prioritize how we can best support historically marginalized people in STEM, including women and people of color. Since 2015, my lab at Fresno State has been home to 35 students, including undergraduate, honors program, and graduate students.

RESEARCH & PROFESSIONAL EXPERIENCE

• Associate Professor, Biology California State University, Fresno 2021 - present

- Redesigned and taught 2-semester course-based undergraduate research course for first-year STEM majors focused on UN Sustainable Development Goals and doing authentic research on college students' views about the UN SDGs as socioscientific issues
- Implemented a standards-based grading system
- Designed, taught, and studied curriculum using culturally responsive teaching in biology and astronomy (with lessons on fermentation, Earth-moon-Sun patterns, and photosynthesis)
- Secured external funding through competitive grant proposals to support research activities, including interdisciplinary work that integrated knowledge on native plants, sense of place, and native culture into biology using our Herbarium collection at Fresno State
- Supervised undergraduate research teams and graduate students' thesis work as PI
- Continued 3-3 teaching load and advising for 60 majors on career options in major and required courses to meet objectives

Assistant Director

Jan-Aug 2023

2018 - present

Transforming Higher Education Systems Project College of Education, Michigan State University

- Managed the administration and financial oversight of a \$17 million USAID contract to reform higher education systems in Malawi.
- Led cross-cultural workshops and training sessions focused on evidence-based teaching practices and institutional capacity building.
- Coordinated reporting and compliance efforts for international stakeholders, ensuring alignment of milestones and deliverables.
- Directed project logistics, including resource allocation, hiring, and performance monitoring, to support sustainable systemic change.

Director, STEM Education Center

California State University, Fresno

- In my faculty role, in tandem with this director role, I brought in \$3.8M in funding with effective grant writing and interdisciplinary connections
- Built public interest in STEM through multifaceted outreach strategies for local K12 students, including Science Explorers' Workshop, Feria de Educación, and events for the Transit of Mercury and the 2023 and 2024 solar eclipses
- Workshops for STEM faculty to learn active learning and culturally responsive pedagogies



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RESEARCH & PROFESSIONAL EXPERIENCE

Assistant Professor, Biology

2015 - 2021

California State University, Fresno

- Created new graduate courses on College Science Teaching and History and Philosophy of Science
- Published 12 papers before tenure with a 3-3 teaching load
- Started research lab with undergraduate and graduate students in postsecondary biology education
- Wrote and obtained external state and federal research grants
- Redesigned large enrollment general education biology course and upper division science course for future elementary teachers
- Advising for 60 majors on career options in major and required courses to meet objectives

Post-Doctoral Researcher

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2013 - 2015

2008 - 2013

Western Michigan University, Department of Physics Mentors: Dr. Charles Henderson and Dr. Andrea Beach

- NSF-funded research project aimed at creating a baseline understanding (a) postsecondary instructional practices and (b) organizational conditions related to instructional improvement.
- Henderson, Beach, Grunert, Stapleton & Greene, NSF WIDER: Evidence-based Instructional Practices at WMU: An Examination of Instructor Practices, Institutional Climate, and Social Networks, NSF #1256505.
- Assisted in preparation and submission of new research grants, scientific papers, peer-reviewed articles and research-related correspondence.
- Qualitative and quantitative research methods and framework development
- Provided mentorship to PhD student researcher, including data analysis, co-construction of research manuscripts and presentations, and guidance on career development opportunities.

Graduate Research & Teaching Assistant University of Missouri, Department of Biology

- Graduate Assistant to the Editors Aquatic Mammals Journal
- Managed manuscript preparation and ensured APA compliance, working with authors and reviewers to improve clarity.
- Represented the journal at conferences and coordinated submissions, tracking, and communication with editorial teams.
 Teaching Assistant – Biology 1010 (Introduction to Biology)
- Led discussions and graded assignments for over 100 students per semester, developing course materials and exams.
- Provided academic support through office hours, mentoring, and personalized feedback to enhance student performance.
- Instructor Writing-Intensive Ecology Course
 - Designed and taught a writing-intensive ecology course, guiding students through research proposals and peer-reviewed assignments.
 - Evaluated submissions with detailed feedback and facilitated workshops to improve scientific writing and critical thinking.



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RESEARCH GRANT FUNDING

Total career funds awarded: \$3,771,372.

23 submitted projects total: 12 total funded projects; 4 national grants funded (Co-PI or institutional lead); 2 intramural grants funded (as PI); 3 state-level grants funded (2 as PI, 1 as Co-PI). 2 grants pending.

- PI. PLANTWISE: Teaching STEM through Story Using Indigenous Species and Ecosystems to Create Culturally Responsive Lessons and Preserve Local and Native Traditions. National Science Foundation. \$298,227 estimate requested for 8/1/25 to 7/31/27.
- Co-PI. PLANTWISE: Preserving Local and Native Traditions with Indigenous Species and Ecosystems. National Endowment for the Humanties. NEH Cultural and Community Resilience: \$149,019 requested for 1/1/25 to 12/31/26.
- Co-PI. STEM-NET Faculty Interdisciplinary Collaborative Research Seed Grant: Native plants, places and people: Linking STEM education to local cultural and linguistic diversity. \$24,820 funded for period 1/1/23 to 12/31/24.
- Pl. "Investigating Instructional Strategies to Reduce Science Denial: An International Collaboration among Health Sciences Faculty" Research and Creative Activities Award, Fresno State College of Science and Mathematics. \$5,000 awarded for the period 6/1/22 to 8/31/22.
- PI (with M. Banuelos, L. Guzman, C. Jones, A. Ressler, & X. Xu). "Teaching Camp for NERDS: Networking for Engagement and ReDesign in STEM teaching." NSF HSI supplementary grant of \$68,489.
- Co-PI (with PI Ira Clark, UCLA). California Learning Lab. "Introducing Research Deconstruction Pedagogy into Gateway Courses to Improve Student Engagement with STEM" project (CLL Grant). Cal Learning Lab Innovation Grant. \$1,100,000 awarded for period 1/1/20 to 12/31/23.
- Co-PI (with M. Pirouz Nia, D. Donnelly, & R. Mehta). "Advancing Computational Thinking for Teacher Education in Central California." NSF NOYCE #1950031. Awarded \$1,199,999 for period 1/15/20 to 12/31/24.
- PI (with M. Banuelos, L. Guzman, C. Jones, A. Ressler, R. Romanoff, & X. Xu). Summer Family Camp: Building Community, Belonging, and Excellence in STEM Teaching. NSF HSI Ideas supplementary grant; \$53,000.
- Institutional Co-PI. STEM Teacher Education and School Strengthening Activity (STESSA). USAID Contract 72026318C00003. \$24.1M (Fresno State sub-contract \$1,156,983). Awarded for period 1/1/19 to 12/31/2024.
- Primary Investigator (with J. Goto, C. Jones, and C. Meyer; Co-Pls). Graduation Initiative 2025 Student Success Grant. "Values Affirmations in CSM Courses." \$10,400 awarded for period 10/1/20 to 5/31/21.
- Key Personnel (with C. Meyer, A. Hasson, & C. Jones). "A Network Approach to Enhancing Faculty Diversity in the College of Science and Mathematics at CSU Fresno State: Boot Camp to Prepare Future Faculty. " \$272,500 awarded for the period 1/1/18 to 12/31/18.
- PI. "Bulldogs for Excellence in STEM Teaching (BEST): A College Wide Transformation for Student Success." Research and Creative Activities Award, Fresno State College of Science and Mathematics. \$5,000 awarded for the period 7/1/17 to 6/30/18.



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RESEARCH MENTORING

Student Name	Project Level	Years Active
Cheyenne Woods	M.S. Biology	2024 - present
Tony Chontong	M.S. Biology	2021 - 2024
Arron Ridenour	M.S. Biology	2021 - 2023
Emma Guerrero	M.S. Biology	2021 - 2022
Micah Johnson	M.S. Biology	2020 - 2022
Miriam Kiran	B.S. Biology Honors Thesis	2019 - 2021
Manaal Maan	B.S. Biology Honors Thesis	2019 - 2021
Orlando Lopez	B.S. Biology Honors Thesis	2019 - 2023
Alyssa Gomez	B.S. Biology Honors Thesis	2018 - 2019
Evelin Munoz	M.S. Biology	2016 - 2020
Edgar Munoz	M.S. Biology	2017 - 2019
Lillian Senn	M.S. Biology	2017 - 2019
Sanjana Krishnamurthy	M.S. Biology	2016 - 2017

ACCOMPLISHMENTS

- I have mentored 9 masters and 26 undergraduate students since 2015, resulting in three accepted manuscripts and one expected for submission in Fall 2024.
- Their majors have included: biology, natural sciences-biology, mathematics, economics, liberal studies, sociology, and psychology.
- Of those students, 25 have presented a poster or oral presentation at the Central California Research Symposium (held every spring on our campus), CV-RISER, a regional education research conference in Central California, or at national conferences like NABT, AAC&U, NARST, or AERA.
- All current and past students in my lab have written for and been successfully funded the College of Science and Mathematics, Division of Undergraduate Studies, and Associated Students, Inc. Research Grants (rGrants); these support stipends and research supplies.
- Students from my lab have been admitted to Masters (Fresno State, Washington, Florida State) & PhD programs (Cornell, Washington State); as well as Medical, Genetic Counseling, & PA programs (USC, UCSF, UCSD). Another has a tenure-track faculty position at Fresno City College.

STUDENT PUBLICATIONS

- Walter, E.M., Chontong, T., & Gill, H. (in development). Fish sauce, fermentation, and finally belonging: Southeast Asian American culture as a lens for culturally responsive teaching in undergraduate majors' biology. International Journal of Science Education.
- Walter, E. M., Bailey, M. L., Gill, A., & Fernandez, P. (2022). Suddenly online: Exploring postsecondary teaching, attitudes, technology, and faculty mental well-being. CBE-Life Sciences Education.
- Walter, E. M., Senn, L., & Munoz, E. E. (2020). Navigating the Barriers to Adoption and Sustained Use of Active Learning. In Active Learning in College Science (pp. 59-70). Cham: Springer. (download)
- Romine, W. L., Walter, E. M., Bosse, E., & Todd, A. N. (2017). Understanding patterns of evolution acceptance—A new implementation of the Measure of Acceptance of the Theory of Evolution (MATE) with Midwestern university students. *Journal of Research in Science Teaching*, 54, 642-671. doi: 10.1002/tea.21380 (download)



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TEACHING EXPERIENCE

 Science Content Courses General Education Biology (15 semesters) Instructor of Record; Graduate Teaching Assistant Fresno State, University of Missouri, Westminster College, BlackHawk Community College 	2006 - present
 Environmental, Earth, and Life Science (10 semesters) Instructor of Record, Fresno State Content course for future elementary teachers Aligned with NGSS 	2015 - present
Evolution (1 semester)Instructor of Record, Fresno StateWriting intensive capstone for majors	2022
Introductory Biology for Majors (3 semesters)Instructor of Record, Westminster College	2010 - 2011
Writing Intensive Ecology Lab (1 semester)Graduate Teaching AssistantUniversity of Missouri	2012
Anatomy and Physiology (1 semester)Instructor of Record, Blackhawk College	2007
 Interdisciplinary Courses First-Year Experience CURE in STEM (4 semesters) Instructor of Record, Fresno State Students design a study, gather data, & present findings on how people think about socioscientific issues 	2023 - present
History & Philosophy of Science (2 semesters)Instructor of Record, Fresno StateGraduate Course	2019 - present
 Pedagogy Courses College Science Teaching (8 semesters) Instructor of Record, Fresno State Graduate Course Central principles of constructivist pedagogy, write and revise a teaching philosophy, and learn 	2016 - present
strategies for equitable and inclusive classrooms	



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PUBLICATIONS

1. Walter, E.M., Chontong, T., & Gill, H. (in development). Fish sauce, fermentation, and finally belonging: Southeast Asian American culture as a lens for culturally responsive teaching in undergraduate majors' biology. International Journal of Science Education.

2. Shapiro, C., Toven-Lindsey, B., Romero-Calderón, R., Levis-Fitzgerald, M., Donnelly-Hermosillo, D., Thai, S., Tower, A., Walter, E. M., Hasson, A., Meyer, C., & Clark, I.E. (in review). Research deconstruction: A scalable model for faculty to introduce research skills in lower-division science classes. *International Journal of Science Education*.

3. Walter, E. M., Bailey, M. L., Gill, A., & Fernandez, P. (2022). Suddenly online: Exploring postsecondary teaching, attitudes, technology, and faculty mental well-being. *CBE-Life Sciences Education*.

3. Walsh, L., Bills, R. J., Lo, S., Walter, E.M., Weintraub, B., & Withers, M. D. (2022). We can't fail again: Arguments for professional development in the wake of COVID-19. Journal of Microbiology and Biology Education, 23(1), e00323-21. doi: 10.1128/jmbe.00323-21.

4. Walter, E. M., Beach, A. L., Henderson, C., Williams, C. T., & Ceballos Madrigal, I. (2021). Navigating the complex environment of postsecondary instructors: Development and validation of the Survey of Climate for Instructional Improvement (SCII). *International Journal of Technology in Education*. (download)

5. Pilgrim, M. E., McDonald, K. K., Offerdahl, E. G., Ryker, K., Shadle, S. E., Stone-Johnstone, A., & Walter, E. M. (2021). *An Exploratory Study of What Different Theories Can Tell Us About Change*. In C. Henderson & M. Stains (Eds.)., Transforming Institutions: Accelerating Systemic Change in Higher Education. Pressbooks. (download)

6. Walter, E. M., Senn, L., & Munoz, E. E. (2020). *Navigating the Barriers to Adoption and Sustained Use of Active Learning*. In Active Learning in College Science (pp. 59-70). Cham: Springer. (download)

7. Mintzes, J. J., & Walter, E. M. (2020). Active Learning in College Science: The Case for Evidence-Based Practice. New York, NY: Springer. (order the book)

8. Dunk, R. D., Barnes, M. E., Reiss, M. J., Alters, B., Asghar, A., ... Walter, E. M., Brownell, S. E., & Wiles, J. R. (2019). Evolution education is a complex landscape. *Nature Ecology & Evolution*, 1. (download)

9. Romine, W. L., Todd, A. N., & Walter, E. M. (2018). A closer look at the items within three measures of evolution acceptance: analysis of the MATE, I-SEA, and GAENE as a single corpus of items. Evolution: Education and Outreach, 11, 17. (download)



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PUBLICATIONS, CONTINUED

10. Kenyon, L.O., Walter, E. M., & Romine, W. L. (2018). Transforming a college biology course to engage students in science and engineering practices: Exhploring shifts in knowledge and mechanistic reasoning. In U. Harms and M. J. Reiss (Eds.), Evolution Education Re-Considered: Understanding What Works. Springer. (download)

11. Romine, W. L., Walter, E. M., Bosse, E., & Todd, A. N. (2017). Understanding patterns of evolution acceptance—A new implementation of the Measure of Acceptance of the Theory of Evolution (MATE) with Midwestern university students. *Journal of Research in Science Teaching*, *54*, 642-671. doi: 10.1002/tea.21380 (download)

12. Walter, E. M., Henderson, C., Beach, A., & Williams, C. T. (2016). Introducing the Postsecondary Instructional Practices Survey (PIPS): A concise, interdisciplinary, and easy-to-score survey. *CBE-Life Sciences Education*, 15. doi: 10.1187/cbe.15-09-0193 (download)

13. Walter, E. M., Beach, A. L., Henderson, C., & Williams, C. T. (2016). *Measuring postsecondary teaching practices and departmental climate: The development of two new surveys.* In G. C. Weaver, W. D. Burgess, A. L. Childress, & L. Slakey (Eds.), Transforming institutions: Undergraduate STEM in the 21st Century. Purdue, IN: Purdue University Press. (download)

14. Williams, C. T., Walter, E. M., Henderson, C., & Beach, A. (2015). Describing undergraduate STEM teaching practices: A comparison of instructor self-report instruments. *International Journal of STEM Education*, *2*, 18. doi: 10.1186/s40594-015-0031-y (download)

15. Romine, W. L., & Walter, E. M. (2014). Assessing the efficacy of the Measure of Understanding of Macroevolution as a valid tool for undergraduate non-science majors. *International Journal of Science Education*, *36*, 2872-2891. doi: 10.1080/09500693.2014.938376 (download)

16. Walter, E. M., Halverson, K. L., Boyce, C-J. (2013). Investigating the relationship between college students' acceptance of evolution and tree thinking understanding. *Evolution: Education and Outreach*, *6*, 26. (download)



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PRESENTATIONS & POSTERS, 2021-2024

1. Walter, E. M., Ressler, A.L., & Mendez, A. (2024, October). Networking for engagement and re-design in STEM teaching (NERDS)!: Exploring outcomes from a faculty teaching camp using applied improvisation and storytelling. Poster presented at 4th International Conference on Science and Technology Education.

2. Mauger, L.A., Vokos, S., Smith, D.L., Walter, E.M., Macalalag, A., El Naggar, Z., Abd El Aziz, A., Merlino, F.J., Elsarafy, H., & Abouserie, R. (2024, October). Developing university STEM programs using culturally relevant socio-scientific issues. Poster presented at 4th International Conference on Science and Technology Education. Porto, Portugal.

3. Mauger, L.A., Vokos, S., Smith, D.L., Walter, E.M., Macalalag, A., El Naggar, Z., Abd El Aziz, A., Merlino, F.J., Elsarafy, H., & Abouserie, R. (2024, October). Approaching introductory STEM courses through a transdisciplinary lens. Oral presentation at 4th International Conference on Science and Technology Education. Porto, Portugal.

4. Walter, E.M., Chontong, T., & Gill, H. (2024, May). Fish Sauce, Strawberries, and Moon's Ramadan: Supporting Diversity, Equity, and Inclusion through Culturally Responsive Teaching. Workshop presented at the Central Valley Region Interdisciplinary Symposium on Education Research.

5. Chontong, T., Walter, E.M., & Gill, H. (2024, May). Fish Sauce, Fermentation, and Finally Belonging: Southeast Asian American Culture as a Lens for Culturally Responsive Teaching in Undergraduate Majors' Biology. Poster presented at the Central Valley Region Interdisciplinary Symposium on Education Research.

6. Chontong, T., Walter, E.M., & Gill, H. (2024, March). Secret sauce: Southeast Asian culture as a lens for culturally responsive teaching in undergraduate biology. Paper presented at the National Association for Research in Science Teaching Conference, Denver, CO. <u>Link</u>

7. Nelson, F., Walter, E.M., & Van Horn, S. (2024, January). When faculty play nicely together: Collaborating in course redesign for equity and social justice. Paper presented at the Hawaii International Conference on Education, Waikoloa, HI.

8. Walter, E. M., Johnson, M. J., Lopez, O.N., & Martin, G. (2022, March). Going beyond the Content: Impact of a values affirmation writing exercise on student outcomes in an undergraduate majors' biology course. Paper presented at the National Association for Research in Science Teaching, Vancouver, BC, Canada.

9. Smith, D.L., & Walter, E. M. (2021, December). Transdisciplinary education to meet Earth system challenges: Development of the Egyptian STEM school and teacher education curricula. Talk presented at the American Geophysical Union, New Orleans, LA.



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PRESENTATIONS & POSTERS, 2019-2021

10. Walter, E.M., Nelson, K., Macalalag, A., Nelson, F.P., & DiDio, R. (2021, October). Pedagogical insights emerging from Egyptian STEM teacher education professional development: An international collaborative self study. Talk presented at the International Conference on Science and Technology Education. Porto, Portugal.

11. Offerdahl, E., Pilgrim, M., Walter, E. M., & Ryker, K. (2021, June). University systems in the time of punctuated equilibrium: Understanding adaptations to rapid and unpredictable change. Talk presented at the ACSN Transforming Institutions Conference.

12. Walter, E. M., Bailey, M. L., Fernandez, P., & Gill, A. (2021, April). Suddenly Online: Exploring Postsecondary Teaching, Attitudes, Technology, and Faculty Mental Well-Being in Spring 2020. Paper presented at the National Association for Research in Science Teaching Conference.

13. Munoz, E. E., & Walter, E. M. (2020, April). A Multi-Institutional Exploration of Teaching Practices, Attitudes, and Organizational Climate. Talk presented at the Central California Research Symposium. Fresno, CA.

14. Lopez, O., & Walter, E. M. (2020, April). Unpacking relationships in student attitudes and learning outcomes in Undergraduate Biology. Poster presented at the Central California Research Symposium. Fresno, CA.

15. Kiran, M., Mian, M., & Walter, E. M. (2020, April). Using active learning in the face of personal and institutional barriers: A mixed methods study. Keynote oral presentation at the Central California Research Symposium. Fresno, CA.

16. Walter, E. M. (2019, April). Knowing yourself and becoming an agent of inclusive teaching practice. Invited keynote plenary at the 2019 Project Kaleidoscope (PKAL) Upstate New York Regional Network Meeting. Rochester, NY.

17. Senn, L. G., Munoz, E. E., Lemus, M., Ceballos-Madrigal, I., Mendez, A., Martin, G., & Walter, E. M. (2019, April). Investigating faculty adoption of new active learning strategies through the Theory of Planned Behavior: A case study. Paper presented at the National Association for Research in Science Teaching. Baltimore, MD.

18. Martin, G., Gomez, A., Ceballos-Madrigal, I., & Walter, E. M. (2019, April). Building Biology Experts: A Longitudinal Analysis of Students' Attitudes and Knowledge in Majors' Biology Courses. Paper presented at the National Association for Research in Science Teaching. Baltimore, MD.



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PRESENTATIONS & POSTERS, 2017-2019

19. Munoz, E. F., & Walter, E. M. (2019, May). The Impact Of A First-Year-Experience (FYE) on the STEM Identity of Undergraduate Students. Talk presented at Central California Research Symposium. Fresno, CA.

20. Senn, L. G, & Walter, E. M. (2018, November). Embracing Change: A Case Study of Attitudes, Norms and Perceived Barriers. Poster presented at the AAC&U Transforming Institutions Conference. Atlanta, GA.

21. Ceballos-Madrigal, I. & Walter, E. M. (2018, November). Building Theory: Exploring Attitudes, Norms, and Teaching Behavior of Faculty. Poster presented at the AAC&U Transforming Institutions Conference. Atlanta, GA.

22. Walter, E. M., & Ceballos-Madrigal, I. (2018, April). Exploring Patterns in Teaching Practices and Organizational Barriers to Teaching Improvement. Paper presented at the American Educational Research Association conference. New York, NY.

23. Munoz, E., Lemus, M., & Walter, E. M. (2018, March). Exploring Intent and Behavior through the Observed and Self-Reported Teaching Practices of Postsecondary STEM Instructors. Paper presented at the National Association for Research in Science Teaching conference. Atlanta, GA.

24. Bosse, E., & Walter, E. M. (2018, March). An Exploration of Post-Instruction Shifts in Evolution Acceptance 'Profiles' as Documented by the Measure of Acceptance of the Theory of Evolution (MATE). Paper presented at the National Association for Research in Science Teaching conference. Atlanta, GA.

25. Walter, E. M., & Ceballos-Madrigal, I. (2017, November). Individual Patterns in Teaching Practices and their Relationship with Organizational Barriers to Teaching Improvement. Paper presented at the National Association of Biology Teachers Conference. St. Louis, MO.

26. Walter, E. M., & Ceballos-Madrigal, I. (2017, November). Exploring Institutional Patterns in Teaching Practices and Organizational Climate. Paper presented at the American Association of Colleges and Universities' Transforming STEM Higher Education Conference. San Francisco, CA.

27. Kenyon, L.O., Walter, E. M., & Romine, W. L. (2017, September). Evolution learning and conceptual change: Exploring shifts in evolution knowledge and mechanistic reasoning after a practice-based college biology course. Paper presented at the Implementing and Researching Evolution Education Symposium. Kiel, Germany.



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PRESENTATIONS & POSTERS, 2016-2017

28. Walter, E. M., Beach, A. L., Henderson, C., Williams, C. T., & Ceballos Madrigal, I. (2017, April). Exploring Organizational Climate for Teaching in Postsecondary Settings: The Development and Validation of the Survey of Climate for Instructional Improvement (SCII). Paper presented at the annual conference for the American Educational Research Association (AERA), San Antonio, TX.

29. Walter, E. M., Bosse, E., & Romine, W. L. (2017, April). A mixed method exploration of evolution acceptance profiles as delineated by the Measure of Acceptance of the Theory of Evolution (MATE). Paper presented at the annual conference for the National Association for Research in Science Teaching (NARST), San Antonio, TX.

30. Krishnamurthy, S., & Walter, E. M. (2017, April). The impact of different instructional strategies on students' understanding about the cell cycle in a general education biology course. Presentation at the Central California Research Symposium, Fresno, CA.

31. Lemus, M., Munoz, E., & Walter, E. M. (2017, April). Is what they say what they do?: Comparing observed and self-reported teaching practices of faculty in STEM. Presentation at the Central California Research Symposium, Fresno, CA.

32. Ceballos Madrigal, I., & Walter, E. M. (2017, April). Looking beyond a 'lack of resources': Exploring the influence of institutional environments and structures on individual teaching practices in STEM. Presentation at the Central California Research Symposium, Fresno, CA.

33. Muller, U. K., Merana, G., Bosse, E., Lent, D. D., & Walter, E. M. (2017, January). Exploring student understanding and attitudes in introductory biology courses: Lessons learned. Poster presented at the Society for Integrative and Comparative Biology, New Orleans, LA.

34. Bosse, E., & Walter, E. M. (2016, November). An Exploration of Evolution Acceptance Profiles as Measured by the Measure of Acceptance of the Theory of Evolution (MATE). Poster at the National Association of Biology Teachers Conference, Denver, CO.

35. Beach, A. L., Walter, E. M., & Henderson, C. (2016, April). Self-report of instructional climate and practices: Two new instruments. Paper presented at the AAAS-NSF Envisioning the Future of Undergraduate STEM Education (EnFUSE): Research and Practice Symposium, Washington, DC.



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PRESENTATIONS & POSTERS, 2015-2016

36. Walter, E. M., Williams, C. T., Henderson, C., Beach, A. L., & Grunert, M. (2016, April). Comparing self-report and observational data: An investigation of faculty instructional practices. Paper presented at the annual conference for the National Association for Research in Science Teaching, Baltimore, MD.

37. Romine, W. L., & Walter, E. M. (2016, April). Assessing the efficacy of the MATE as a valid measure for understanding of macroevolution for undergraduate non-science majors. Paper presented at the annual conference for the National Association for Research in Science Teaching, Baltimore, MD.

38. Walter, E. M., Muller, U., & Merana, G. (2015, November). Developing shared vision: Community change and course redesign in an interdisciplinary faculty learning community. Poster presented at the annual conference for the National Association of Biology Teachers, Providence, RI.

39. Walter, E. M., Beach, A. L., Henderson, C., & Williams, C. T. (2015, April). *Development and preliminary validation of the survey of Departmental Climate for Teaching Improvement (DCTI)*. Paper presented at the annual conference for the American Educational Research Association (AERA), Chicago, IL.

40. Walter, E. M., Henderson, C., Beach, A. L., & Williams, C. T. (2015, April). *Development and preliminary validation of the Postsecondary Instructional Practices Survey (PIPS)*. Paper presented at the annual conference for the American Educational Research Association (AERA), Chicago, IL.

41. Williams, C. T., Walter, E. M., Henderson, C., Beach, A. L., & Williams, C. T. (2015, April). *Describing undergraduate STEM teaching practices: A comparison of instructor self-report instruments.* Paper presented at the annual conference for the National Association for Research in Science Teaching, Chicago, IL.

42. Walter, E. M., Beach, A. L., Henderson, C., & Williams, C. T. (2014, October). *Measuring postsecondary teaching practices and departmental climate: The development of two new surveys.* Paper presented at the Transforming Institutions: 21st Century Undergraduate STEM Education Conference, Indianapolis, IN.

43. Romine, W. L., & Walter, E. M. (2014, April). Applying Rasch modeling to assessment development and validation. Paper presented at the Annual Conference of the National Association for Research in Science Teaching, Pittsburgh, PA.



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PRESENTATIONS & POSTERS, 2008-2014

44. Walter, E. M., & Friedrichsen, P. (2013, April). The influence of pedagogical content knowledge for teaching macroevolution on student knowledge of macroevolution and evolution acceptance in a non-majors' biology course. Paper presented at the Annual Conference of the National Association for Research in Science Teaching, San Juan, Puerto Rico.

45. Walter, E. M. (2012, March). Influence of PCK for teaching macroevolution on student outcomes in a non-majors' college course. Poster presented at the annual conference of the National Association for Research in Science Teaching, Indianapolis, IN.

46. Halverson, K. M., Walter, E. M., & Boyce, C-J. (2012, March). Investigating the relationship between college students' acceptance of evolution and tree thinking understanding. Paper presented at the Annual Conference of the National Association for Research in Science Teaching, Indianapolis, IN.

47. Walter, E. M., & Friedrichsen, P. J. (2011, April). Non-science majors' perceptions of evolution: A phenomenological study. Poster presented at the annual conference of the National Association for Research in Science Teaching, Orlando, FL.

48. Walter, E. M., & West, A. B. (2010, March). Anticipating student questions: A self-study approach to develop PCK for teaching theory and law. Paper presented at the Annual Conference of the National Association for Research in Science Teaching, Philadelphia, PA.

49. Walter, E. M., Thomas, J. A., & Stalf, C. (2008, March). Visual discrimination of three-dimensional stimuli by an Asian elephant (Elephas maximus) using match-to-sample. Presentation at the International Conference on Comparative Cognition, Melbourne, FL.

50. Thomas, J. A., Walter, E. M., Stalf, C., & Crowell, S. (2008, March). *Training an Asian elephant for a visual match-to-sample test*. Presentation at the International Conference on Comparative Cognition, Melbourne, FL.

51. Crowell, S., Thomas, J. A., Walter, E. M., & Stalf, C. (2008, March). *Error patterns by an Asian elephant during a visual match-to-sample task.* Poster presented at the International Conference on Comparative Cognition, Melbourne, FL.



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INVITED TALKS

- Walter, E. M. (2022, April). Recognizing and Combating Science Denial in the Age of Misinformation. University of Missouri Division of Biological Sciences; Diamond Jubilee Seminar Series. Walter, E. M. (2020, February). Knowing yourself and becoming an agent for inclusive teaching practice. Provost's Awards Lecture Series. California State University - Fresno.
- 2. Walter, E. M. (2019, April). Knowing yourself and becoming an agent of inclusive teaching practice. Invited keynote plenary at the 2019 Project Kaleidoscope (PKAL) Regional Network Meeting. Rochester, NY.
- 3. Walter, E. M. (2016, March). Exploring patterns in Institutional Climate and Instructional Practices in Postsecondary Settings. Middle Tennessee State University Research Seminar Series, Murfreesboro, TN.
- 4. Walter, E. M. (2015, March). Looking beyond a lack of time and money: Examining how features of a department and institution can influence the teaching practices of STEM faculty. Wright State University Biology Education Research Seminar Series, Dayton, OH.
- 5. Walter, E. M. (2014, October). Measuring teaching practices and departmental climate in post-secondary settings. Michigan State Physics Ed Research Lab Seminar Series, East Lansing, MI.

COMMITMENT TO DIVERSITY, EQUITY, AND INCLUSION

I have extensive experience teaching, mentoring, and developing student success initiatives at a minority-serving institution (HSI and AANAPISI) with 72% Pell-eligible students. My research focuses on reducing achievement gaps in STEM and higher education more broadly.

In my courses, I highlight the contributions of historically marginalized people and interrogate whiteness in STEM. I design curriculum that fosters diversity, equity, and inclusion by preparing future teachers, scientists, and professionals to create more inclusive learning environments. My instructional strategies also aim to dismantle white supremacy culture by addressing how its elements manifest in education —for example, the worship of the written word or the insistence on a singular "right way" of learning.

Beyond my faculty role, I have a strong background in individualized instruction. During graduate school, I tutored and provided one-on-one support for advanced students, students with learning disabilities, and English language learners, further reflecting my commitment to equitable education.



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PROFESSIONAL MEMBERSHIPS

- National Association for Research in Science Teaching (NARST)
- National Association of Biology Teachers (NABT)
- Society for the Advancement of Biology Education Research (SABER)
- American Educational Research Association (AERA)
- California Association of Science Educators (CASE)

SERVICE TO THE PROFESSION

National Science Foundation (NSF) Panelist (2020- present)

• Serve on NSF panels (IUSE and S-STEM) reviewing 8–12 proposals related to student success in STEM.

National Association for Research in Science Teaching (NARST)

- Proposal Reviewer & Graduate Student Mentor (2015 Present)
 - Review 3–7 five-page proposals annually.
 - Provide mentoring to participants at the Graduate Student Symposium.
- Equity and Ethics Committee Member (2022 Present)
 - Support diversity, equity, and inclusion initiatives by offering leadership and guidance on issues such as gender, ethnicity, socioeconomic status, and representation in science education

Central Valley STEM Network (2019 - Present)

- Founding and Active Member
- Develop and implement plans for a sustainable regional STEM network in the Central Valley, CA.
- Promote the mission of supporting the needs of children, with a focus on low-income students.

Oregon State University (2019-2020)

- Doctoral Committee Member
- Provided guidance through comprehensive exams, individual meetings, and dissertation defense for Lyn Eisenhower.

Manuscript Reviewer (2015 - present)

- CBE Life Sciences Education
- International Journal of Technology in Education
- Review 3–7 manuscripts per year and provide constructive feedback to authors.

Western Michigan University (2014 - 2015)

- Graduate Teaching Assistant Institute Co-Facilitator, 2014-2015
- Co-facilitated a year-long professional development program for graduate students.



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UNIVERSITY AND DEPARTMENT SERVICE

1. Co-Chair – Increasing HIPS Participation Task Force, 2024 - Present

- Analyze student data patterns from post-graduation exit surveys
- Synthesize literature on strategies to reduce equity gaps in participation in high impact practices by historically marginalized students.
- Create report for provost to use for re-accreditation purposes and strategic planning
- 2. Search Committee Member Interim Dean of Graduate and Research Studies (DRGS), Spring 2022
 - Reviewed application materials and provided ranking recommendations to the Provost.
- 3. Strategic Plan Sub-Committee Member: Enhance Personal Wellbeing and Professional Fulfillment for Students, 2022-2023
 - Analyzed data from High-Impact Practices (HIPS) and reviewed literature to identify strategies for reducing equity gaps in HIPS participation.
 - Created strategic planning priorities and indicators for those priorities
- 4. Academic Senator Department of Biology, 2019 2022
 - Represented both the department and university-wide interests on the Academic Senate.
- 5. Faculty Mentor Fresno State Anime Club, 2018 2022
 - Guided the club in growing membership and advancing interests.
- Attended meetings in cosplay to engage with members.
- 6. Chair Vice Provost's High Impact Practices (HIPS) Task Force, 2018 - 2020
 - Collaborated faculty with 3 colleges to form department action teams focused on student success priorities for those departments
 - Met bi-weekly with these teams to develop active learning and high impact practice pedagogies in target courses.

7. Chair - Department Assessment Committee, 2018 - 2020

- Helped instructors select valid and reliable assessments to measure learning outcomes in their courses and gather data from those instruments over time
- Collected and analyzed course data to assess departmental performance.
- Produced a ~50-page annual report evaluating Biology learning according to the Student Outcomes Assessment Plan (SOAP).
- 8. Member College Curriculum Committee, College of Science and Mathematics, Fall 2018
 - Reviewed course proposals and program changes at the college level.
- 9. Chair Science Education Faculty Search Committee, 2017 2018
 - Led the search for a new faculty member, from the Job Vacancy Announcement to the final recommendation to the Dean.
 - Estimated time commitment: 100 hours.



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AWARDS, RECOGNITION, AND HONORS

2022 College of Science and Math Outstanding Teaching Award California State University, Fresno

2020 Provost's Award for Extraordinary Teaching in Extraordinary Times California State University, Fresno

2019 Provost's Promising New Faculty Award California State University, Fresno

2018 Provost's Promising New Faculty Nominee California State University, Fresno

2017 Professional Development Award California State University, Fresno

2015 Fresno State Talks Nominee California State University, Fresno

Sandra K. Abell Institute Scholar (2011)

National Association for Research in Science Teaching – A prestigious program for early-career scholars and doctoral students focusing on advancing research in science education.

Walter Scott Monroe Research Fellowship (2009, 2010, 2011) University of Missouri – College of Education

Phi Delta Kappa Graduate Scholarship (2010) University of Missouri – College of Education

Phi Beta Kappa (2004) Iowa State University – Recognizing excellence in the liberal arts and sciences.

Phi Beta Phi (2004) Iowa State University – Promoting scholarship, leadership, and service across academic disciplines.