

Carrie Ann Menke
University of California, Merced
Physics
Office Phone: (209) 228-3078
Department Phone: (209) 228-4309
Fax: (209) 228-4060
Email: cmenke@ucmerced.edu
Website: <http://faculty.ucmerced.edu/cmenke/>

Research Interests

I'm interested in physics education research, pedagogy, and assessment. I'm gathering data to determine the efficacy of our introductory physics courses as compared to other UC campuses, national measures, and other universities that have a student demographic similar to ours.

Education

PhD, University of California, Irvine, 2005.
Major: Physics/Chemical and Materials Physics
Dissertation Title: Selected Chemical Physics Studies of Weakly Bound Systems
Advisor: Janda, K. C.

MS, University of California, Irvine, 2002.
Major: Physics/Chemical and Materials Physics
Dissertation Title: Vibrational Spectroscopy of Solvation in a Hydrogen-Bonded System: A Study of (NH₃)(HF)
Advisor: Janda, K. C.

BS, *Cum laude*, University of Tennessee, 1996.
Major: Physics

Professional Positions

Undergraduate Chair, Physics Major, (2018).

Lecturer SOE (Teaching Professor), PHYSICS, Physics, University of California, Merced (2019-2020).

Lecturer SOE, PHYSICS, Physics, University of California, Merced (2017-2019).

Professional Memberships

SACNAS - Society for the Advancement of Chicanos/Hispanics and Native Americans in Science. (February 2017 - Present).

American Physical Society. (2013 - Present).

American Association of Physics Teachers. (July 2011 - Present).

Awards and Honors

Distinguished Undergraduate Teaching Award for a Senate Faculty, UC Merced Senate. (May 2020).

RESEARCH

Contracts, Grants and Sponsored Research

Grant

Menke, Carrie Anne (Principal Investigator), Callaghan, Kristina (Collaborator), Stone, Antoinette (Collaborator), "UC Merced Online/Hybrid Course Development Award," UCOP grant, \$90,440.00. Status: **Funded**. (April 2019 - December 2020).

Menke, Carrie Anne, Kristina, Callaghan (Collaborator), Stone, Antoinette (Collaborator), "Zero Cost Course Materials Grant," UC Merced, \$3,000.00. Status: **Funded**. (July 2019 - June 2020).

Menke, Carrie Anne (Principal Investigator), Vickery, Jess (Co-Principal Investigator), "REU Site: Applications in Modern Materials (AiMM)," NSF - National Science Foundation, \$296,703.00. Status: **Funded**. (February 2014 - July 2017).

Professional Service

Lecturer Promotion Case Reviewer, Reviewer, Merced, CA, US, Elected, Pro Bono. (October 2019).

Professional Development

Conference Attendance, "International Learning Assistant Alliance Research Symposium and Conference," Colorado University, Boulder, Boulder, CO. (October 2019).

Conference Attendance, "Physics Education Research (PER) Conference," American Association of Physics Teachers, American Physical Society, Provo, UT. (July 2019).

Conference Attendance, "American Association of Physics Teachers (AAPT)," AAPT and American Physical Society (APS), Provo, UT. (July 2019).

Workshop, "HERS," Denver, CO. (June 2018).

Workshop, "Education Research Workshop," UC Merced, Merced, CA. (January 2018).

Workshop, "Queer Ally Training," UC Merced, Merced, CA. (January 2018).

Workshop, "Diversity Awareness Workshop," UC Merced, Merced, CA. (January 2018).

Research in Progress

"Efficacy of Introductory Physics Courses" (On-Going)

Question: How do UC Merced student knowledge gains compare to national norms, other UC campuses, and other campuses with student demographics similar to our? Current state: collecting data using research-based Inventories (ie. Force Concept Inventory). Using PhysPort Assessment tool.

"Information Literacy and Communication Skills in Introductory Physics Courses" (On-Going)

Integrated scaffolded assignments for research activity in introductory courses. Students identify and summarize scientifically-reputable journal articles and present their findings on a physics-related topic of their choice. This supports Physics PLOs and WSCUC Core competencies in Communication.

"Program Development & Assessment" (On-Going)

Adopting and adapting research-based teaching, learning, and assessment methods for the UC Merced Physics program.

"Sense of Belonging in STEM" (Planning)

Through class interventions, surveys (including validating for our student population), interviews, and focus groups students' sense of belonging in STEM, particularly in physics. This is also a research question for an SNS-wide Learning Assistant grant proposal (NSF-HSI) to be submitted in September 2020. Working on a proposal for a CITRIS grant with colleagues from UC Davis to fund SATAL students (from CETL) to conduct interviews and focus groups.

TEACHING

Teaching Experience

University of California, Merced

Spring, 2020

- PHYS 19, Intro Physics II for Bio Lab. (Spring 2020)
- PHYS 199, Upper Div Individual Study. (Spring 2020)
- PHYS 9, Introductory Physics II. (Spring 2020)

Fall, 2019

- PHYS 116, Mathematical Methods. (Fall 2019)
- PHYS 9, Introductory Physics II. (Fall 2019)

Summer, 2019

- PHYS 19, Physics II -- Bio. (Summer 2019)
- PHYS 9, Introductory Physics II. (Summer 2019)

Fall, 2018

- PHYS 10, Introductory Physics III. (Fall 2018)
- PHYS 18, Physics I - Bio. (Fall 2018)

Spring, 2018

- PHYS 196, Undergraduate Thesis. (Spring 2018)
- PHYS 9, Introductory Physics II. (Spring 2018)

Fall, 2017

- PHYS 10, Introductory Physics III. (Fall 2017)
- PHYS 196, Undergraduate Thesis. (Fall 2017)
- PHYS 9, Introductory Physics II. (Fall 2017)

Summer, 2017

- PHYS 19, Physics II -- Bio. (Summer 2017)

Other

Workshop, (August 20, 2019 - August 23, 2019).

SNS TA and Professional Development Training for new graduate students as part of GROW. New graduate students engage in various discussions and activities including microteaching, grading, TA expectations, characteristics student-centered teaching, cultivating and managing classroom culture.

Workshop, (August 20, 2018 - August 21, 2018).

Physics & Math TA Training for new graduate students as part of GROW. Over two afternoons, new graduate students engage in various discussions and activities including microteaching, grading, TA expectations, characteristics student-centered teaching, cultivating and managing classroom culture.

Workshop, (August 21, 2017 - August 22, 2017).

Physics & Math TA Training for new graduate students as part of GROW. Over two afternoons, new graduate students engage in various discussions and activities including microteaching, grading, TA expectations, characteristics student-centered teaching, cultivating and managing classroom culture.

SERVICE

Department Service

- Member, Physics Curriculum Committee. (August 2019 - Present).
- Chair, Physics Undergraduate Executive Committee. (August 2019 - Present).
- Mentor, Faculty Mentor for Lecturer Kristina Callaghan. (August 2018 - Present).
- Mentor, Faculty Mentor for Lecturer Toni Stone. (August 2016 - Present).
- Member, Physics Undergraduate Executive Committee. (August 2015 - Present).
- Design and provide training for TAs, Teaching Assistant Training. (August 2010 - Present).
- Chair, Physics Undergraduate Executive Committee. (August 2018 - December 2018).
- Vice-Chair, Physics Undergraduate Executive Committee. (August 2016 - June 2018).

School/College Service

- Mentor, Teaching Assistant Mentor. (2011 - Present).
- Wrote letters of recommendation, Letters of Recommendation. (May 2008 - Present).
- Member, NSF Continuing Appointment Review Committee. (November 2019).
- Member, Case Review Committee, Physics faculty member. (October 2018).

University Service

- Advisor, Society of Physics Students. (August 2011 - Present).
- Attendee, Preview Day. (October 2019).
- Attendee, Preview Day. (October 2018).
- Vice-Chair, General Education Subcommittee (GESC). (August 2017 - August 2018).
- Attendee, Bobcat Day. (April 2018).
- Attendee, Preview Day. (October 2017).
- Member, General Education Subcommittee (GESC). (December 2016 - August 2017).

Public Service

- Guest Speaker, American Association of University Women (AAUW) Science Camp, Merced, CA. (February 2020).
- Guest Speaker, American Association of University Women (AAUW) Science Camp, Merced, CA. (February 2018).