Curriculum Vitae

Melanie Ann Roberts Reber
Assistant Professor
Department of Chemistry
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PROFESSIONAL APPOINTMENTS

Assistant Professor: University of Georgia, Department of Chemistry 2016-Present
Courtesy Appointment: College of Engineering, School of Electrical and Computer Engineering, University of Georgia 2020-Present
Courtesy Appointment: Department of Physics, University of Georgia 2020-Present
Postdoctoral Associate: Stony Brook University, Department of Physics, Supervisor: Prof. Thomas Allison 2013-2016
Graduate Research: University of Colorado, Boulder, Department of Chemistry, Advisor: Prof. David J. Nesbitt 2005-2012
Teaching Assistant: General Chemistry II, University of Colorado, Department of Chemistry Summer 2012, Spring 2007
Undergraduate Research: Macalester College, Department of Chemistry, St. Paul, MN, Advisor: Prof. Thomas D. Varberg 2004
Americorps Volunteer: Student Conservation Association, New York Adirondacks 2000-2001

EDUCATION

University of Colorado, Boulder and **JILA**, *Boulder, CO* 2005-2012
Ph.D. Chemical Physics
Advisor: David J. Nesbitt

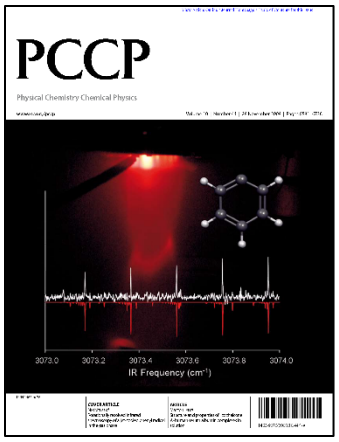
Macalester College, *St. Paul, MN* 2001-2005
B.A. Chemistry, *cum laude*

PEER-REVIEWED PUBLICATIONS (12 total, h-index = 7, Total citations 219)

(* indicates undergraduate co-author)

15. T. Eliason, P. Parker* and M. A. R. Reber. *Electro-Optic Frequency Comb Generation with Cascaded Harmonic Modulations.* In Preparation
14. W. M. Jones and M. A. R. Reber. *Ultrafast Structured Light through Nonlinear Frequency Generation in an Optical Enhancement Cavity.* In preparation.
13. J. Zhan, N. D. Cooper, and M. A. R. Reber. *Three-Wave Mixing between Continuous-Wave and Ultrafast Lasers.* In preparation.
12. N. D. Cooper, U. M. Ta* and M. A. R. Reber. *Spectral shaping of an ultrafast modelocked Ytterbium fiber laser through a passive intracavity optical filter: a simple and reliable route to sub-45 fs pulses.* Appl. Opt. 2023; 62 (9): 2195-2199. ArXiv: https://arxiv.org/abs/2210.00083
11. A. Kortyna, M. A. R. Reber, and D. J. Nesbitt. *High-resolution CH stretch spectroscopy of jet-cooled cyclopentyl radical: First insights into equilibrium structure, out of place puckering, and IVR dynamics.* J. Chem. Phys. 2022; 157: 034302.

10. X. Li, M. A. R. Reber, C. Corder, Y. Chen, P. Zhao, and T. K. Allison. *High-power ultrafast Yb: fiber laser frequency combs using commercially available components and basic fiber tools.* Rev. Sci. Instrum. 2016; 87: 093114.
9. M. A. Roberts Reber, Y. Chen, and T. K. Allison. *Cavity-Enhanced Ultrafast Spectroscopy: ultrafast meets ultrasensitive.* Optica. 2016; 3:311.
8. M. A. Roberts, E. N. Sharp-Williams, and D. J. Nesbitt. *High-resolution direct-absorption spectroscopy of hydroxymethyl radical in the CH symmetric stretching region.* J. Phys. Chem. A. 2013; 117:7042-7049.
7. M. A. Roberts, C. Savage, F. Dong, E. N. Sharp-Williams, A. B. McCoy, and D. J. Nesbitt. *Sub-Doppler infrared spectroscopy of CH_2D radical in a slit supersonic jet: Isotopic symmetry breaking in the CH stretching manifold.* J. Chem. Phys. 2012; 136:234308.
6. E. N. Sharp-Williams, M. A. Roberts, and D. J. Nesbitt. *Dark state vibronic coupling in the $A^2\Pi$-$X^2\Sigma^+$ band of ethynyl radical via high resolution infrared absorption spectroscopy.* Phys. Chem. Chem. Phys. 2011; 13:17474-17483.



5. E. N. Sharp-Williams, M. A. Roberts, and D. J. Nesbitt. *High resolution slit-jet infrared spectroscopy of ethynyl radical: $^2\Pi$-$^2\Sigma^+$ vibronic bands with sub-Doppler resolution.* J. Chem. Phys. 2011; 134:064314.
4. E. N. Sharp, M. A. Roberts, and D.J. Nesbitt. *Rotationally resolved infrared spectroscopy of jet-cooled phenyl radical in the gas phase*. Phys. Chem. Chem. Phys. 2008; 10:6592-6596. cover art
3. F. Dong, M. Roberts, and D. J. Nesbitt. *High-resolution infrared spectroscopy of jet cooled vinyl radical: symmetric CH_2 stretch excitation and tunneling dynamics.* J. Chem. Phys. 2008; 128:044305.
2. D. J. Nesbitt, E. S. Whitney, M. Roberts, and C. Savage. *Spectroscopy in slit supersonic jet discharges: fine and hyperfine structure calculations for asymmetric top radicals with multiple nuclear spins.* Molecular Physics 2007; 105:467-475. J. M. Brown special issue invited paper
1. M. A. Roberts*, C. G. Alfonzo*, K. J. Manke*, W. M. Ames*, D. B. Ron*, and T. D. Varberg. *Hyperfine structure in the electronic spectrum of ReO.* Molecular Physics 2007; 105:917-921. J. M. Brown special issue invited paper

PATENTS AND PATENT APPLICATIONS (5 total)

5. Walker M. Jones and Melanie A. R. Reber *"A new spatial light modulator design"* Disclosure filed 5/24/2023
4. Melanie A. R, Reber *"Tunable, frequency conversion of ultrafast light".* Provisional Filed 10/25/2023
3. Todd Eliason and Melanie A.R. Reber. *"Ultrafast laser using electro-optical modulators"*. Coversheet Provisional Patent Filed 07/2023. UGA intends to file full patent.
2. Melanie A. R. Reber *"Compact, turn-key multi-dimensional spectrometer".* Coversheet Provisional Patent Filed 07/2023. UGA intends to file full patent.
1. Nicholas D. Cooper and Melanie A.R. Reber. *"Fiber laser frequency tuning with intracavity spectral filter"* Provisional Patent Filed 07/2021. Full patent application filed 07/2022. Patent Pending: US-2023029316-A1

AWARDS AND RECOGNITIONS

NSF CAREER Award, 2024
UGA Innovation Fellowship, 2021
Excellence in Peer Review Award, American Chemical Society, Petroleum Research Fund, 2020
Poster Session Winning Entry, Vibrational Spectroscopy Gordon Research Conference, Biddeford, ME 2014
Colorado Measurement Science and Engineering Graduate Fellowship, University of Colorado Department of Physics, 2012
First Place Entry, Colorado Photonics Industry Student Poster Competition, Boulder, CO 2007
Optical Science and Engineering Fellowship (OSEP), NSF-IGERT, University of Colorado, Boulder 2005
NSF-GRF Honorable Mention, 2005
Summer Research Grant, Macalester College, 2004

GRANTS RECEIVED AS PI ($1.754 Million total, **5 external**, 3 internal)

National Science Foundation CAREER, Mathematical and Physical Sciences, Chemistry Division: Chemical Structure, Dynamics, and Mechanisms A
Title: *CAREER: Detecting Quantum Signatures in Nonadiabatic Molecular Dynamics*
Amount: $675,000.00
Role: PI Status: Awarded, January 2024 – December 2028

National Science Foundation, Mathematical and Physical Sciences, Physics Division: Atomic, Molecular and Optical Physics – Experiment
Title: *Development of Cavity-Enhanced Two-Dimensional Spectroscopy for Coherent Control Experimental Design*
Amount: $525,682.00
Role: PI Status: Active, August 2022 – July 2025

Department of Energy, Office of Basic Energy Science, Gas Phase Chemical Physics Program
Title: *Renewal - Ultrafast Transient Absorption Spectroscopy of Hydrocarbon Radicals*
Amount: $200,000.00
Role: PI Status: Active, September 2022- December 2024

University of Georgia, Faculty Seed Grants in the Sciences
Title: *Cavity-Enhanced Two-Dimensional Spectroscopy with Dual Comb Detection*
Amount: $24,930.00
Role: PI Status: Complete, Fiscal Year 2022

University of Georgia, Innovation Gateway IP Development Award
Title: *Fiber laser frequency tuning with intracavity spectral filter*
Amount: $3,000.00
Role: PI Status: Complete, June 2022

Department of Energy, Office of Basic Energy Science, Gas Phase Chemical Physics Program
Title: *Ultrafast Transient Absorption Spectroscopy of Hydrocarbon Radicals*
Amount: $200,000.00
Role: PI Status: Complete, September 2019-January 2022

American Chemical Society, Petroleum Research Fund, Doctoral New Investigator Grant
Title: *Ultrafast Transient Absorption Spectroscopy of Hydrocarbon Radicals*
Amount: $110,000.00
Role: PI Status: Complete, September 2019- September 2021

University of Georgia, Junior Faculty Seed Grant in STEM
Title: *Ultrafast Cavity-Enhanced Transient Absorption Spectroscopy of Light-Harvesting Molecules for Solar Energy*
Amount: $15,000.00
Role: PI. Status: Complete, Fiscal Year 2019

INVITED SEMINARS (24 total)

University of Pittsburgh, Department of Chemistry Seminar, Pittsburgh, PA, March 2024 *"Frequency combs as the route to the spectroscopic trifecta: high time resolution, high frequency resolution, and high sensitivity".*

Wake Forest University, Department of Chemistry Seminar, Winston-Salem NC, February 2024 *"Frequency combs as the route to the spectroscopic trifecta: high time resolution, high frequency resolution, and high sensitivity".*

University of Colorado, Boulder, Physical Chemistry Chemical Physics Seminar, Boulder CO, February 2024 *"Frequency combs as the route to the spectroscopic trifecta: high time resolution, high frequency resolution, and high sensitivity".*

Brown University, Physical Chemistry Seminar Providence, RI, November 2023 *"Frequency combs as the route to the spectroscopic trifecta: high time resolution, high frequency resolution, and high sensitivity".*

Southeastern Regional Meeting of the American Chemical Society, Nonlinear and Ultrafast Spectroscopy Symposium, Durham, NC, October 2023. *"Frequency combs as the route to the spectroscopic trifecta: high time resolution, high frequency resolution, and high sensitivity".*

University of Maryland, Department of Chemistry, Department Seminar, College Park, MD September 2023. *"Frequency combs as the route to the spectroscopic trifecta: high time resolution, high frequency resolution, and high sensitivity".*

National Meeting of the American Chemical Society, Symposium in Honor of Marsha I. Lester, San Francisco, CA, August 2023 *"Frequency combs as the route to the spectroscopic trifecta: high time resolution, high frequency resolution, and high sensitivity"*

National Meeting of the American Chemical Society, Symposium: Bridging the Gap: Using Gas-Phase and Cluster Studies to Model the Dynamics of Complex Systems, Indianapolis, IN, March 2023 *"Ultrafast spectroscopy with frequency combs: Enabling new measurements of dilute species in molecular beams."*

Gordon Research Conference. Molecular Dynamics and Interactions, Easton, MA, July 2022 "*Ultrafast spectroscopy with frequency combs: enabling new measurements of dilute species in molecular beams*"

75th International Symposium on Molecular Spectroscopy. Mini-symposium: Spectroscopy meets Chemical dynamics, Champaign-Urbana, IL, June 2022 "*Ultrafast spectroscopy with frequency combs: enabling new measurements of dilute species in molecular beams*"

Augusta University, Materials Science & Biophysics Research Seminar, Augusta, GA, March 2022 *"A symphony of light: frequency comb lasers and new frontiers in ultrafast spectroscopy*"

Kennesaw State University, Department of Chemistry Seminar, March 2022 *"A symphony of light: frequency comb lasers and new frontiers in ultrafast spectroscopy*"

Southeast Regional Meeting of the American Chemical Society. Birmingham, AL. Nov, 2021. "*Ultrafast Spectroscopy with Frequency Combs: Enabling new Measurements of Dilute Species in Molecular Beams*"

University of Central Florida, Department of Physics Colloquia, Virtual. March, 2021. "*Ultrafast spectroscopy with frequency combs: enabling new measurements of dilute species in molecular beams*."

SLAC National Accelerator Laboratory, Workshop on Non-linear Multidimensional Methodologies for Studying Chemical Sciences. LCLS-II, Virtual. Dec, 2020. "*Multidimensional spectroscopy of free radicals and other transient species*."

OSA Frontiers in Optics and Laser Science, APS/DLS. Washington, DC. September 2018. "*Cavity-enhanced Ultrafast Spectroscopy: Enabling Transient Absorption Spectroscopy of Dilute Species in Molecular Beams*."

University of Georgia, Department of Physics Colloquium, Athens, GA. August 2018. "*Ultrafast Spectroscopy with Frequency Combs: The What, Why, and How*."

Southeast Ultrafast Conference, Atlanta, GA. August, 2018. "*Ultrafast Spectroscopy with Frequency Combs: The What, Why, and How*."

University of Georgia, Applied Physics Seminar, Athens, GA. 2018. "*Developing ultrafast spectroscopies with frequency combs: new frontiers in ultra-sensitive and multidimensional measurements*."

Herty Medalist Undergraduate Research Symposium, Morehouse College, Atlanta, GA. 2017. "*A Symphony of Light: Using lasers and resonators to study ultrafast chemistry*."

UGA Student Group Seminar of SPIE, the international optical society, Athens, GA. 2017. "*Ultrafast goes Ultra-Sensitive: cavity-enhanced transient absorption spectroscopy*."

Lawrence Berkeley National Lab, Atomic, Molecular, and Optical Science Seminar, Berkeley, CA, 2015. "*Ultrafast goes Ultra-Sensitive: Cavity-Enhanced Transient Absorption Spectroscopy*"

SLAC National Accelerator Laboratory, Photon Science Seminar. Menlo Park, CA, 2015. "*Ultrafast goes Ultra-Sensitive: Cavity-Enhanced Transient Absorption Spectroscopy*".

Macalester College, Chemistry Department Seminar. St. Paul, MN, 2010. "*Making Sense of Combustion Chemistry One Radical at a Time: Spectroscopic Studies of Partially Deuterated Methyl Radical*".

CONTRIBUTED CONFERENCE TALKS (10 total)

National Meeting of the American Chemical Society, Orlando, FL Spring 2019 *"Ultrafast spectroscopy with frequency combs: enabling new measurements in time-resolved vibrational spectroscopy."*

71st International Symposium on Molecular Spectroscopy. Urbana, IL 2016 *"Cavity-enhanced ultrafast spectroscopy: ultrafast meets ultrasensitive."*

Vibrational Spectroscopy Gordon Research Conference. Biddeford, ME 2014 *"Cavity-enhanced ultrafast transient absorption spectroscopy."*

66th International Symposium on Molecular Spectroscopy. Columbus, OH 2011 *"Modeling Vibrational Structure Using Harmonically-Coupled Morse Oscillators: a Global Description of the CH Stretches in Methyl Radical and its Deuterated Isotopomers."*

64th International Symposium on Molecular Spectroscopy, Columbus, OH 2009 *"Fine and Hyperfine Structure in Sub-Doppler Infrared, Ch-Stretching Spectra of Monodeuterated Methyl Radical."*

64th International Symposium on Molecular Spectroscopy, Columbus, OH 2009 *"High Resolution Direct Absorption Spectroscopy of Hydroxymethyl Radical in the Mid-Infrared."*

63rd International Symposium on Molecular Spectroscopy, Columbus, OH 2008 *"First high-resolution infrared spectroscopy of gas phase cyclopentyl radical: structural and dynamical insights from the lone CH stretch region."*

63rd International Symposium on Molecular Spectroscopy, Columbus, OH 2008 *"Toward an Ab Initio Understanding of Quantum Tunneling Dynamics in Vinyl Radical: A Vibrationally Adiabatic Approach."*

62nd International Symposium on Molecular Spectroscopy, Columbus, OH 2007 *"Microslit injectors in a supersonic slit jet expansion: a new tool for radical synthesis and kinetics."*

61st International Symposium on Molecular Spectroscopy, Columbus, OH 2006 *"High resolution infrared spectroscopy of CH_2D."*

POSTER PRESENTATIONS (6 total)

Time Resolved Vibrational Spectroscopy Conference. Cambridge, England, 2017 *"Cavity-enhanced transient absorption spectroscopy of species in molecular beams."*

XXVI International Symposium on Molecular Beams, Segovia, Spain, 2015 *"Cavity-enhanced transient absorption spectroscopy of clusters in molecular beams."*

Vibrational Spectroscopy Gordon Research Conference, Biddeford, ME 2014. (Poster session winner) *"Cavity-enhanced ultrafast transient absorption spectroscopy."*

Quantum Control of Light and Matter, Gordon Research Conference, South Hadley, MA 2013. *"Cavity-enhanced transient absorption spectroscopy."*

Vibrational Spectroscopy Gordon Conference, Biddeford, ME 2010. *"High resolution sub-Doppler IR spectroscopy of jet-cooled combustion radicals"*

Colorado Photonics Industry Student Poster Competition, Boulder, CO 2007. (First place entry) *"High-resolution infrared spectroscopy of supersonically cooled combustion radicals"*

PROFESSIONAL SERVICE

Session Chair: Vibrational Spectroscopy Gordon Research Conference, Summer 2022

Session Chair: International Symposium on Molecular Spectroscopy 2017, 2018, 2022

Workshop participation and report: Vibrational Non-Equilibrium Impact in Chemistry and Physics, DOE BES, virtual, October 2021

Workshop participation and report: Non-Linear Multidimensional Methodologies for Studying Chemical Sciences, Pulse Institute and LCLS, virtual, December 2020

Workshop participation and report: Applications of X-Ray lasers to Gas Phase Chemical Physics Research, SLAC and Pulse Institute at Stanford, Menlo Park, CA, January 2020

Workshop participation: Multi-Agency Coordinating Committee for Combustion Research, Arlington, VA, Sept 9-11, 2019

Session Chair: Meeting of the American Chemical Society, Spring 2019

Symposium Organizer: "Spectroscopy and Dynamics" Full Day Symposium, 70th Southeastern Regional Meeting of the American Chemical Society (SERMACS), Fall 2018

Poster Judge: Herty Medalist Undergraduate Research Symposium Poster Competition, Atlanta, GA, Fall 2017

Manuscript Reviewer: Journal of Physical Chemistry Letters, Journal of Physical Chemistry A, Research (a Science partner journal), Optics Letters

Program Reviewer: Department of Energy, Office of Defense - Nuclear Nonproliferation Independent Review, Quantum-Enhanced Sensing Isotope Program, Review Panel member, 2023

Grant Reviewer:

National Science Foundation, Physics Division Ad hoc reviewer, 2024
National Science Foundation, Chemistry Division Panel Reviewer, 2022
National Science Foundation, Physics Division Panel Reviewer, 2022
National Science Center, Poland 2021, 2024

American Chemical Society, Petroleum Research Fund ad hoc reviewer, 2020
National Science Foundation, Chemistry Division, CAREER proposal, Ad hoc 2020

RESEARCH STUDENT MENTORING

Doctoral Student Research Advisor

Nicholas Cooper	Summer 2016-present (PhD, Spring 2024)
Walker Jones	Fall 2017-present
Todd Eliason	Fall 2020-present
Jie Zhan	Spring 2023-present

Post-Doctoral Scholar Research Advisor

Parashu Nyaupane	2017-February 2020 (currently: permanent scientist at UCF/CREOL)

Supervision of Undergraduate Research

Payton Parker	Summer 2022 – Spring 2023, Physics
Arjan Sandhu	Fall 2022-Spring 2023, Chemistry
Uyen Ta	Fall 2021 – present, Chemistry (Grad school Stanford Chemistry, Fall 2024)
Mariah Castillo	Summer 2022, Georgia Tech Student, SURO program
Kameron Johnson	Spring 2022 – Fall 2022, Chemistry
Joshua Courtney	Fall 2018 – Spring 2020, Physics

Supervision of "Young Dawgs" High Schools Students

Matthew Quintera	Summer 2018, Summer 2019
Nash Martin	January 2019

AWARDS WON BY RESEARCH STUDENTS

Zuegel Family Scholarship, merit-based award to attend Siegman International School on Lasers – Jie Zhan (graduate student), 2024
Summer Internship at ASML – Jie Zhan (graduate student), summer 2024
Siegman International School on Laser Admission – Jie Zhan (graduate student), 2024
Graduate Research Fellowship, National Science Foundation – Uyen Ta (undergraduate student), 2024
Buck Rogers Award for Undergraduate Research, University of Georgia, Department of Chemistry - Uyen Ta (undergraduate student), 2023
Best Undergraduate Paper in the Physical and Environmental Sciences, University of Georgia, Center for Undergraduate Research Opportunities (CURO) - Uyen Ta (undergraduate student), 2023
Summer Research Grant for Graduate Students – Todd Eliason (graduate student), 2022
Summer Internship at BAE Systems, Inc. – Todd Eliason (graduate student), 2021
Siegman International School on Lasers Admission – Nicholas Cooper (graduate student), 2020
Young Dawgs Presentations, Second Place – Matthew Quintera (high school student), 2019
CURO Summer Fellowship – Joshua Courtney (undergraduate), 2019
Young Dawgs Presentation, First Place – Matthew Quintera (high school student), 2018

STUDENT AND POST-DOC PRESENTATIONS (11 total)

J. Zhan *"Ultrafast transient absorption spectroscopy of hydrocarbon radicals"* Southeastern Regional Meeting of the American Chemical Society. Durham, NC, October 2023 (poster)

W. Jones *"Locking frequency combs to optical cavities for signal enhancement of two-dimensional spectroscopy"*. International Symposium on Molecular Spectroscopy. Champaign-Urbana, Il. June 2023 (oral)

T.D. Eliason *"Electro-optic frequency comb generation with phase-locked loop stabilized RF Modulation"*. International Symposium on Molecular Spectroscopy. Champaign-Urbana, Il. June 2023 (oral)

U. Ta *"Building ytterbium fiber lasers for ultrafast spectroscopy*". National Meeting of the American Chemical Society, Indianapolis, IN, Spring 2023. (poster)

U. Ta *"Yb-doped-fiber-laser femtosecond pulse compression with double-pass gratings and intracavity filters*". Herty Medalist Undergraduate Research Symposium. Gwinnett, GA Sept 2022. (poster)

W. Jones *"Cavity Enhanced 2D Spectroscopy"* Coherent Multidimensional Spectroscopy Conference, Austin, TX 2022. (poster)

N.D. Cooper *"Spectral Broadening and Tuning of a Modelocked Ultrafast Yb:Fiber Laser Through the Inclusion of a Free-Space Optical Filter"* OSA/APS Frontiers in Optics + Laser Science, virtual conference, 2021. (poster)

N.D. Cooper *"Cavity-enhanced transient absorption spectroscopy of singlet fission processes in molecules."* Ultrafast Photoinduced Energy and Charge Transfer Faraday Discussions. Venture, CA April 2019 (poster)

P. Nyaupane *"Cavity-enhanced ultrafast 2D Spectroscopy with Yb:fiber frequency comb laser."* Annual Graduate Students and Postdocs in Science Research Day, Athens, GA 2018 (poster)

P. Nyaupane *"Ultrafast 2D Spectroscopy with Frequency Combs: towards cavity-enhanced multidimensional spectroscopy in molecular beams."* Pacific Conference on Spectroscopy and Dynamics, San Diego, CA January 2019 (poster)

P. Nyaupane *"Ultrafast 2D spectroscopy with frequency combs: towards cavity-enhanced multidimensional spectroscopy in molecular beams."* International Symposium on Molecular Spectroscopy. Champaign-Urbana, Il. June 2017 (oral)

TEACHING:

COURSES DEVELOPED

CHEM 8990: Special Topics in Physical Chemistry: Lasers in chemistry, 2016-2017

CHEM 3110: Active learning style course for Fundamentals of Physical Chemistry, 2018-2019

COURSES TAUGHT

Course Number Course Title	Enrollment	Credit Hours	Semester
CHEM 8990 Special Topics in Physical Chemistry: Lasers in Chemistry	8 Grad	3	Spring 2023
CHEM 3110 Fundamentals of Physical Chemistry	16 U	3	Fall 2022
CHEM 8990 Special Topics in Physical Chemistry: Lasers in Chemistry	4 Grad	3	Spring 2022

CHEM 3110 Fundamentals of Physical Chemistry	36 U	3	Fall 2021
CHEM 3512 Experimental Methods II	14 U	3	Spring 2021
CHEM 3110 Fundamentals of Physical Chemistry (online)	31 U	3	Fall 2020
CHEM 8140 Physical Chemistry Seminar	35 Grad	1	Spring 2020
CHEM 8990 Special Topics in Physical Chemistry: Lasers in Chemistry	5 Grad	3	Fall 2019
CHEM 3110 Fundamentals of Physical Chemistry	27 U	3	Fall 2019
CHEM 4200 / CHEM 8990 Special Topics in Physical Chemistry: Lasers in Chemistry	14 U/ 3 Grad	3	Spring 2019
CHEM 8140 Physical Chemistry Seminar	37 Grad	1	Spring 2019
CHEM 3110 Fundamentals of Physical Chemistry	26 U	3	Fall 2018
CHEM 4200 / CHEM 8990 Special Topics in Physical Chemistry: Lasers in Chemistry	9 U, 6 Grad	3	Fall 2017
CHEM 4200 / CHEM8990 Special Topics in Physical Chemistry: Lasers in Chemistry	7 U, 5 Grad	3	Fall 2016

PROFESSIONAL DEVELOPMENT

University of Georgia, NSF I-Corps, Technical Lead, Fall 2021
University of Georgia, NSF I-Corps, Technical Lead, Summer 2020
Initiator, Participant in Junior Faculty Learning Community with DELTA project, 2020
Innovation Bootcamp through the UGA Innovation Gateway, Fall 2019
Participant in Assessment in Active Learning Faculty Learning Community, Fall 2019
New Laser Scientist Meeting, APS-Division of Laser Science, Washington, DC, Fall 2018
Early Career STEM Faculty – Strengthening Instruction University of Georgia Faculty Learning Community, Fall 2017-Spring 2018
Cottrell Scholar Collaborative New Faculty Workshop, Washington, DC, August 2017
NSF-Chemistry Early Career Investigator Workshop, Arlington, VA, March, 2017

LEADERSHIP

Initiator and Organizer, Assistant Professor Weekly Lunches, University of Georgia, 2022-present
Active Learning Classroom Renovation Ad Hoc Committee Initiator, Dept of Chemistry, University of Georgia, 2019
NCAA Varsity Track and Field Captain, Macalester College, 2003-2004
Club Women's Ice Hockey, Founder and Head, Macalester College, 2002-2005