Jerome M. Fox

Associate Professor
Department of Chemical and Biological Engineering
University of Colorado, Boulder

Education

- Harvard University — 2013-2015
  Postdoctoral Fellow, Department of Chemistry and Chemical Biology
- University of California, Berkeley — 2012
  Ph.D., Chemical Engineering
- Johns Hopkins University — 2007
  B.S., Environmental Engineering (with honors)
  2nd Major: Natural Science (concentration in chemistry)
  Minor: Mathematics

Research and Professional Experience

- Associate Professor, University of Colorado, Boulder — 2023-pres.
  Department of Chemical and Biological Engineering
- Assistant Professor, University of Colorado, Boulder — 2016-2023
  Department of Chemical and Biological Engineering
- Postdoctoral Fellow, Harvard University — 2013-2015
  Department of Chemistry and Chemical Biology
  Advisor: George Whitesides
- Ph.D. Student, University of California, Berkeley — 2007-2012
  Department of Chemical and Biomolecular Engineering
  Advisors: Doug Clark and Harvey Blanch

Honors and Awards

- Presidential Early Career Awards for Scientists and Engineers (PECASE) — 2025
- Senior Member, National Academy of Inventors — 2024
- Dean's Performance Award – Teaching (awarded to one faculty each year based on nominations across the College of Engineering and Applied Science) — 2023
- Outstanding Undergraduate Teaching Faculty Award, Department of Chemical and Biological Engineering, CU Boulder (awarded by student vote) — 2020, 2022
- National Institutes of Health Maximizing Investigators' Research Award (MIRA) — 2021
- Army Early Career Award for Scientists and Engineers (ECASE) — 2018
  PECASE nomination pending (2018-pres.)
- Army Research Office Young Investigator Award — 2018
- National Science Foundation CAREER Award — 2018
- NSF Graduate Fellow — 2008-2011
- Lucien Brush Award: Excellence in Environmental Engineering, Johns Hopkins — 2007
- Certificate in the Arts (theater), Johns Hopkins University — 2007
- Tau Beta Pi, Engineering Honor Society — 2006
- Vredenburg Scholar, University of Sydney, Australia — 2006

Key for Publications: *, corresponding author; #, postdoctoral trainee in Fox Lab; †, graduate trainee in Fox Lab; ‡, undergraduate trainee in Fox Lab

Publications (CU Boulder) – Submitted

- Hren AP†, Abraham JP, Tumen-Velasquez MP, Vergara MM, Guss AM, Alexander WG, Pfleger BF*, **Fox JM***, Eckert CA* (2024). High-efficiency transformation and gene expression in Picosynechococcus sp. PCC 7002. ***Submitted.***
- Hren AP†, Lollini N‡, Carper DL, Abraham PE, Cameron JC, **Fox JM***, Eckert C.* (2024). High-density CRISPRi screens reveal adaptive transcriptional gradients in cyanobacteria. ***Submitted.***

Publications (CU Boulder)

- Friedman AJ, Padgette HM, Kramer L#, Liechty ET†, Donovan GW†, **Fox JM***, and Shirts MR* (2023). A biophysical rationale for the selective inhibition of PTP1B over TCPTP by nonpolar terpenoids. ***Journal of Physical Chemistry B,*** 127 (39), 8305–8316.
- Liechty ET†, Hren A†, Kramer L#, Donovan G†, Friedman A, Shirts MR, and **Fox JM*** (2023). Analysis of Neutral Mutational Drift in an Allosteric Enzyme. ***Protein Science,*** 32 (8), e4719.
- Mains K† and **Fox JM*** (2023). Ketosynthase Mutants Enable Short-Chain Fatty Acid Biosynthesis in E. coli. ***Metabolic Engineering***. 77, 118-127.
- Kramer L#, Sarkar A†, Foderaro T, Markley A, Lee J, Edstrom H†, Gill E‡, Traylor M, and **Fox JM*** (2023). Genetically Encoded Detection of Biosynthetic Protease Inhibitors. ***ACS Synthetic Biology*****,** 12 (1), 83–94.
- Friedman AJ, Liechty ET†, Kramer L#, Sarkar A†, **Fox JM***, and Shirts MR* (2022). Allosteric inhibition of PTP1B by a nonpolar terpenoid. ***Journal of Physical Chemistry B,*** 126 (42), 8427-8438.
- Peoples J‡, Ruppe S†, Mains K†, and **Fox JM*** (2022). A Kinetic Framework for Modeling Oleochemical Biosynthesis in E. coli. ***Biotechnology and Bioengineering.*** 119 (11), 3149-3161.
- Sarkar A†, Foderaro T, Kramer L#, Markley AL, Lee J, Traylor MJ, and **Fox JM*** (2022). Evolution-Guided Biosynthesis of Terpenoid Inhibitors. ***ACS Synthetic Biology,*** 11(9), 3015–3027.
- Mains KM†, Peoples J‡, and **Fox JM*** (2022). Kinetically Guided, Ratiometric Tuning of Fatty Acid Biosynthesis. ***Metabolic Engineering*****,** 69, 209-220.
- Hongdusit A†, Liechty ET†, and **Fox JM*** (2022). Analysis of Three Architectures for Controlling PTP1B with Light. ***ACS Synthetic Biology*****,** 11 (1), 61–68.
- Sarkar A†, Kim EY#, Jang T, Hongdusit A†, Kim H, Choi JM, and **Fox JM*** (2021). Microbially guided discovery and biosynthesis of biologically active natural products. ***ACS Synthetic Biology***, 10 (6), 1505-1519.
- Hongdusit A† and **Fox JM*** (2021). Optogenetic Analysis of Allosteric Control in Protein Tyrosine Phosphatases. ***Biochemistry,*** 60 (4), 254-258.

- Ruppe A[†], Mains K[†], and **Fox JM**[*] (2020). A Kinetic Rationale for Functional Redundancy in Fatty Acid Biosynthesis. ***Proceedings of the National Academy of Sciences***, 117 (38), 23557-23564
- Hongdusit A[†], Liechty ET[†], and **Fox JM**[*] (2020). Optogenetic interrogation and control of cell signaling. ***Current Opinion in Biotechnology***, 66, 195-206.
- Hongdusit A[†], Zwart PH, Sankaran B, and **Fox JM**[*] (2020). Minimally Disruptive Optical Control of Protein Tyrosine Phosphatase 1B. ***Nature Communications***, 11 (1), 1-11.
- Ruppe A[†] and **Fox JM**[*] (2018). Analysis of Interdependent Kinetic Controls of Fatty Acid Synthases. ***ACS Catalysis,*** 8, 11722-11734.
- Hjortness MK[†], Riccardi L, Hongdusit A[†], Zwart PH, Sankaran B, De Vivo M, and **Fox JM**[*] (2018). Evolutionarily Conserved Allosteric Communication in Protein Tyrosine Phosphatases. ***Biochemistry,*** 57 (45), 6443-6451.
- Hjortness MK[†], Riccardi L, Hongdusit A[†], Ruppe A[†], Zhao M, Kim EY[#], Zwart P, Sankaran B, Arthanari H, Sousa MC, De Vivo M, and **Fox JM**[*] (2018). Abietane-Type Diterpenoids Inhibit Protein Tyrosine Phosphatases by Stabilizing an Inactive Enzyme Conformation. ***Biochemistry,*** 57 (40), 5886-5896.
- **Fox JM**, Zhao M., Fink MJ, Kang K, and Whitesides GM (2018). The Molecular Origin of Enthalpy/Entropy Compensation in Biomolecular Recognition. ***Annual Review of Biophysics***, 47 (1). Note: This journal does not designate correspond authors.

Publications (Berkeley and Harvard)

- **Fox JM**, Kang K, Sastry, M, Sherman W, Sankaran B, Zwart P, and Whitesides GM[*] (2017). Water-Restructuring Mutations Can Reverse the Thermodynamic Signature of Ligand Binding to Human Carbonic Anhydrase. ***Angewandte Chemie International Edition,*** 56 (14), 3833-3837.
- Semenov SN, Kraft LJ, Ainla A, Zhao M, Baghbanzadeh M, Campbell VE, Kang K, **Fox JM**, and Whitesides GM[*] (2016). Autocatalytic, Bistable, Oscillatory Networks of Biologically Relevant Organic Reactions. ***Nature***, 537 (7622), 656-660.
- Kang K, Choi J-M, **Fox JM**, Snyder PW, Moustakas DT, and Whitesides GM[*] (2016). Acetylation of Surface Lysine Groups of a Protein Alters the Organization and Composition of Its Crystal Contacts. ***Journal of Physical Chemistry B*****,** 120 (27), 6461-6468.
- **Fox JM**, Kang K, Lockett MR, Baghbanzadeh M, Sherman W, Héroux A, Sastry M, Whitesides GM[*] (2015). Interactions between Hofmeister Anions and the Binding Pocket of a Protein. ***Journal of the American Chemical Society,*** 137 (11), 3859-3866.
- **Fox JM** and Whitesides GM[*] (2015). Warning Signals for Eruptive Events in Spreading Fires. ***Proceedings of the National Academy of Sciences,*** 112 (8), 2378-2383.
- Nemiroski A, Gonidec M, **Fox JM**, Jean-Remy P, Turnage E, and Whitesides GM[*] (2014). Engineering Shadows to Fabricate Optical Metasurfaces. ***ACS Nano***, 8 (11), 11061-11070.
- **Fox JM**, Jess P, Jambusaria RB, Moo GM, Liphardt J[*], Clark DS[*], Blanch HW[*] (2013). A Single-Molecule Analysis Reveals Morphological Targets for Cellulase Synergy. ***Nature Chemical Biology***, 9 (6), 356-61.

- **Fox JM**, Levine SE, Blanch HW*, and Clark DS* (2012). An Evaluation of Cellulose Saccharification and Fermentation with an Engineered *Saccharomyces cerevisiae* Capable of Cellobiose and Xylose Utilization. ***Biotechnology Journal***, 7 (3), 351-373.
- **Fox JM**, Levine SE, Clark DS*, and Blanch HW* (2012). Initial- and Processive-Cut Products Reveal Cellobiohydrolase Rate Limitations and Role of Companion Enzymes. ***Biochemistry***, 51 (1), 442-452.
- Levine SE, **Fox JM**, Clark DS*, and Blanch HW* (2011). A Mechanistic Model for the Rational Design of Optimal Cellulase Mixtures. ***Biotechnology and Bioengineering***, 108 (11), 2561-2570.
- Levine SE, **Fox JM**, Blanch HW*, and Clark DS* (2010). A Mechanistic Kinetic Model of the Enzymatic Hydrolysis of Cellulose. ***Biotechnology and Bioengineering***, 107 (1), 37-51.

Licensed Intellectual Property (University of Colorado, Boulder)

Licensee: Think Bioscience has taken over patent prosecution for all three patent families.

- **Fox JM**, Sarkar A, Hongdusit A, and Kim EY. A Genetically Encoded System for Constructing and Detecting Biologically Active Agents. US/17/141,321
- **Fox JM** and Sarkar A. Discovery and Evolution of Biologically Active Metabolites. PCT/US2021/012621.
- **Fox JM**, Sarkar A, Kramer L, Foderaro T, Traylor M, and Donovan G. Methods and Systems for High-Throughput Biochemical Screens. PCT/US2022/79253

Research Support: > $5.9M (Fox Lab); > $4.7M (as PI)

- NSF CBET 2402636 Fox (PI) 08/2024 – 07/2027
  National Science Foundation
  Fox Lab: $454,056 (total)
  NSF-BSF: Design of Batch Biochemical Oscillators
- DE-SC0023142 Edgar Cahoon (PI, UN-Lincoln) 09/2022 – 08/2027
  Department of Energy
  Fox Lab: $1,128,427 (total) Fox (Co-PI)
  B5: Bigger Better Brassicaceae Biofuels and Bioproducts
- OEDIT APP-386842 Fox (PI) 07/2022 – 06/2023
  Colorado Office of Economic Development and International Trade
  Fox Lab: $56,250 (total)
  A Class-Wide Screen for Biosynthetic Inhibitors with Therapeutic Applications: Part B
- TB 000004 Fox (PI) 04/2022 – 04/2023
  Think Bioscience and CU Boulder
  Fox Lab: $64,980 (total from Think Bioscience) $41,521 (CU Boulder Licensing Incentive)
  Genetically Encoded Detection of Modulators of the Ubiquitin-Proteasome System
- NIH 1R35GM143089-01 Fox (PI) 07/2021 – 04/2026
  National Institute of General Medical Sciences
  Fox Lab: $1,763,162 (total)
  Microbially Guided Discovery and Biosynthesis of Biologically Active Natural Products

- TB 000002 Fox (PI) 04/2021-04/2022
  Think Bioscience
  Fox Lab: $47,748 (total)
  Personnel Support for Microbial Discovery and Biosynthesis of Targeted Protease Inhibitors (COVID-19)
- NSF STTR Kramer (PI), Kaar (Co-PI) 12/2020 – 11/2021
  National Science Foundation
  Fox Lab: $81,534
  Microbial Discovery and Biosynthesis of Targeted Protease Inhibitors (COVID-19)
  *Prof. Fox wrote this proposal, but NSF rules precluded him from serving as PI or Co-PI.
- OEDIT DO 2021-2417 Fox (PI) 03/2021 - 02/2022
  Colorado Office of Economic Development and International Trade
  Fox Lab: $100,000 (total)
  Awardee, CU Venture Challenge
  A Class-Wide Screen for Biosynthetic Inhibitors with Therapeutic Applications
- DOD W911NF1910135 Fox (PI) 03/2019-02/2020
  Army Research Office
  Fox Lab: $256,770 (total)
  DURIP: Instrumentation for the Analysis and Design of Tunable, Stimuli-Responsive Biocatalytic Systems
- DOD ECASE W911NF1810159 Fox (PI) 12/2018-12/2023
  Army Research Office
  Fox Lab: $999,575 (total)
  Analysis and Design of Nonlinear Processing and Emergent Dynamics in Biocatalytic Networks
- NSF CBET 1804897 Fox (PI) 07/2018-09/2021
  National Science Foundation
  Fox Lab: $357,613 (total)
  Minimally Disruptive Optical Interrogation of Intracellular Signaling Networks
- ARO W911NF1810159 Fox (PI) Original: 05/2018-04/2021
  Army Research Office
  Fox Lab: $359,999 (original total) Revised: 05/2018-12/2018
  $60,000 total (revised total, replaced with ECASE)
  YIP: Analysis and Design of Nonlinear Processing and Emergent Dynamics in Biocatalytic Networks
- NSF CBET 1750244 Fox (PI) 04/2018-04/2023
  National Science Foundation
  Fox Lab: $618,105 (total)
  CAREER: Biosynthesis and Evolution of Pharmaceutical Leads

Invited Presentations (University of Colorado, Boulder)

- Bond Life Sciences Center, University of Missouri Columbia, Missouri. 11/2024
- ACS National Meeting. New Orleans, LA. 04/2024
- Discovery on Target. Boston, Massachusetts. 09/2023
- Society of Industrial Microbiology and Biotechnology Annual Meeting. Minneapolis, Minnesota. 07/2023
- Department of Chemical and Biological Engineering. Colorado State University 11/2022
- Department of Chemical and Biological Engineering. University of New Mexico. Albuquerque, New Mexico. 11/2022
- School of Chemical and Biomolecular Engineering, Georgia Institute of Technology. Atlanta, GA. 03/2022
- Department of Chemical and Biomolecular Engineering, University of California, Berkeley. Berkeley, CA. 03/2022
- Department of Chemical and Biomolecular Engineering, Tulane University. New Orleans, LA. 12/2021
- Molecular Engineering and Sciences Institute (MolES), UW Seattle. Seattle, WA. 12/2021
- Dissipation in Open Material Systems, Virtual Research Seminar Series on Complex Active and Adaptive Material Systems. 07/2021
- Department of Molecular Biology & Biophysics, University of Connecticut Health Center. Farmington, Connecticut. 04/2021
- Army Research Lab: ECASE Symposium. Adelphi, MD. 04/2019
- Department of Biochemistry. University of Nebraska, Lincoln. Lincoln, NE 02/2019
- Department of Chemical and Environmental Engineering. University of California, Riverside. Riverside, CA 11/2018

Invited Presentations (Harvard University and University of California, Berkeley)

- Rowland Institute, Harvard University. Cambridge, MA. 05/2015
- Department of Chemical Engineering, Columbia University. New York, NY. 02/2015
- Department of Biochemistry and Department of Chemical and Biological Engineering, University of Wisconsin, Madison. Madison, WI. 02/2015
- Institute for Molecular Engineering and Institute for Genomics and Systems Biology, University of Chicago. Chicago, IL. 02/2015
- Department of Chemical Engineering, MIT. Cambridge, MA. 01/2015
- Department of Chemical and Biological Engineering, University of Colorado, Boulder. Boulder, CO. 01/2015
- Biotechnology Institute and Department of Biochemistry, Molecular Biology, and Biophysics, University of Minnesota, Twin Cities. Minneapolis, MN. 01/2015
- School of Chemical Engineering, Purdue University. West Lafayette, IN. 03/2014
- School of Chemical and Biomolecular Engineering, Georgia Institute of Technology. Atlanta, GA. 01/2014
- Genencor, Inc. (now Dupont Industrial Biosciences). Palo Alto, CA. 06/2012

Contributed Presentations (University of Colorado, Boulder; *, presenter)

- Hren A, **Fox JM*,** and Eckert C*. Subtle multiplex transcriptional adjustments Improve environmental adaptation in energy-stressed cyanobacteria. SIMB: oral presentation 2024
- **Fox JM*.** Turning Cryptic Pockets into Drugs: Using (Bio)Synthetic Probes to Land in Drug-Like Chemical Space. Drug Discovery Chemistry 2024: oral presentation. 2024
- Mains K, Andrzejewski S, Friedman A, Shirts M, and **Fox JM*.** Metabolic crosstalk in an influential soil microbe: Discovery of a 3-oxoacyl-ACP reductase that bridges fatty acid synthesis to the production of a bioactive polyketide. ACS Spring National Meeting: oral presentation. 2024
- Hren A, Cameron J, Eckert C, and **Fox JM*.** Highly redundant CRISRPi screens reveal intermediate, adaptation-improving transcriptional changes in cyanobacteria. ACS Spring National Meeting: oral presentation. 2024
- **Fox JM*.** Bringing Synthetic Biology to Bear on the Protein Tyrosine Phosphatome. EMBO Signal Regulation by Protein Phosphatases 2023
- Mains K, Ruppe S, Peoples J, and **Fox JM*.** Kinetically Guided Rewiring of Fatty Acid Biosynthesis. SIMB Annual Meeting: oral presentation. 2023
- Mains K and **Fox JM***. Decoupling Fatty Acid Synthesis from Microbial Growth Enables the Production of Short-Chain Fatty Acids by Ketosynthase Mutants. Gordon Conference on Plant Lipids: Structure, Metabolism and Function: poster. 2023
- Mains K and **Fox JM.** * Dynamic replacement of ketoacyl synthases for the production of short and medium chain fatty acids in Escherichia coli. SIMB 72nd Annual Meeting: poster 2022
- Mains K, Peoples J*, and **Fox JM**. Comprehensive kinetic framework for controlling fatty acid biosynthesis in E. coli. ACS National Meeting 2022: poster 2022
- Sarkar A, Edstrom H*, Foderaro T, and **Fox JM**. Evolution-guided biosynthesis of biologically active terpenoids. ACS Spring 2022 National Meeting: poster. 2022
- Mains K* and **Fox JM**. Changes in intracellular enzyme ratios enable fine-tuning of fatty acid profiles in *Escherichia coli*. ACS Fall 2021 Meeting: oral presentation 2021
- Sarkar A*, Kim EY, Jang T, Hongdusit A, Kim H, Choi JM, and **Fox JM**. Microbially Guided Discovery and Biosynthesis of Allosteric Inhibitors of PTP1B. ACS Fall 2021 National Meeting: oral presentation. 2021
- **Fox JM***. Microbially Guided Discovery and Biosynthesis of Biologically Active Natural Products. International Conference on Biomolecular Engineering: oral presentation. 2021
- Mains K*, Ruppe S, and **Fox JM**. Ratiometric Tuning of Fatty Acid Biosynthesis. AIChE Annual Meeting: oral presentation. 2020
- Liechty E*, Hongdusit A, Sarkar A, and **Fox JM**. Directed Evolution of Photoswitchable Enzymes. AIChE Annual Meeting: oral presentation. 2020
- Sarkar A, Kim E, Hongdusit A, and **Fox JM***. Evolution-guided design of pharmaceutical leads. ACS Fall 2020 National Meeting: oral presentation. 2020
- Ruppe S, Mains K, and **Fox JM***. Kinetic rationale for functional redundancy in fatty acid biosynthesis. ACS Fall 2020 National Meeting: oral presentation. 2020

- Sarkar A* and **Fox JM.** Microbial synthesis and evolution of pharmaceutical leads. Gordon Research Conference on Natural Products and Bioactive Compounds: oral presentation and poster. 2019
- Ruppe A and **Fox JM***. Kinetically Guided, Ratiometric Tuning of Fatty Acid Biosynthesis. ACS Spring 2019 National Meeting: oral presentation. 2019
- Hongdusit A, Zwart P, Sankaran B, and **Fox JM*.** Minimally Disruptive Optical Control of PTPs. ACS Spring 2019 National Meeting: oral presentation. 2019
- Hjortness M, Riccardi L, Hongdusit A, Ruppe A, Kim E, Zhao M, Zwart P, Sankaran B, Arthanari H, Sousa M, DeVivo M, and **Fox JM***. Evolution-Guided Design of Phosphatase Inhibitors. ACS Spring 2019 National Meeting: oral presentation. 2019
- Hjortness M*, Riccardi L, Hongdusit A, Ruppe A, Kim E, Zhao M, Zwart P, Sankaran B, Arthanari H, Sousa M, DeVivo M, and **Fox JM**. Evolution-Guided Design of Phosphatase Inhibitors. AIChE Annual National Meeting: oral presentation. 2018
- Ruppe A* and **Fox JM**. Analysis and Design of Kinetic Controls of Fatty Acid Synthesis. AIChE Annual National Meeting: oral presentation. 2018
- **Fox JM*.** Analysis and Design of Tunable, Stimuli-Responsive Biocatalytic Systems. Gordon Conference on Biocatalysis: poster. 2018

Contributed Presentations (Harvard University and University of California, Berkeley)

- **Fox JM***, Kang K, Sastry, M, Sherman W, Sankaran B, Zwart P, and Whitesides GM. (2017). Water-Restructuring Mutations Can Reverse the Thermodynamic Signature of Protein-Ligand Association. AIChE Annual Meeting: oral presentation 2016
- **Fox JM***, Kang K, Lockett MR, Sherman W, Héroux A, Sastry M, Baghbanzadeh M, and Whitesides GM. AIChE Annual Meeting: oral presentation. 2014
- **Fox JM*** and Whitesides GM. Slow Dynamics as a Warning Signal for Eruptive Events in Spreading Fires. AIChE Annual Meeting: oral presentation. 2014
- **Fox JM***, Jess P, Jambusaria RB, Moo GM Liphardt J, Clark DS, Blanch HW. A Single-Molecule Analysis Reveals Morphological Targets for Cellulase Synergy. AIChE Annual Meeting: oral presentation. 2013
- **Fox JM***. Initial- and Processive-Cut Products from Cellobiohydrolase-Catalyzed Hydrolysis of Cellulose Reveal Rate-Limiting Steps and Role of Companion Enzymes. Society for Industrial Microbiology and Biotechnology (SIMB): Symposium on Biotechnology for Fuels and Chemicals (SBFC): oral presentation. 2012
- **Fox JM***, Jess P, Liphardt J, Clark DS, and Blanch HW. Characterization of Cellulase-cellulose Interactions with Photoactivation Localization Microscopy (PALM). Gordon Conference on Cellulases, Cellulosomes, and Other Carbohydrate Modifying Enzymes: poster. 2011
- **Fox JM***, Levine SE, Clark DS, and Blanch HW. Investigation of Cellobiohydrolase Complexation Behavior. SIMB SBFC: poster. 2011
- **Fox JM***, Levine SE, Clark DS, and Blanch HW. Assessment of the Influence of Surface Area….. Enzymatic Cellulose Hydrolysis Rates. SIMB SBFC: poster. 2010

Teaching Experience

- Instructor, General Chemistry for Engineers 1 (CHEN 1201, fall) 2024
- Instructor, Chemical Engineering Thermodynamics (CHEN 3320, Jan short) 2023
- Instructor, General Chemistry for Engineers 1 (CHEN 1201, fall) 2022
- Instructor, General Chemistry for Engineers 1 (CHEN 1201, spring) 2021
- Instructor, Chemical Engineering Thermodynamics (CHEN 3320, fall) 2016-2021
- Instructor, General Chemistry for Engineers (CHEN 1210, spring) 2019
- Instructor, Synthetic Biology and Biological Control (CHEN 5838, spring) 2018
- Instructor, Biochemical Engineering Fundamentals (CHEN 6820, spring) 2016
- Mentor (while at CU Boulder): 4 high school students, 18 undergraduates, 10 graduate students, and 2 postdoctoral researchers 2016-pres.

Professional Service

- Co-Chair, *Protein Engineering for Therapeutic, Diagnostic, and Sensor Applications*, ACS National Meeting 2023
- Co-Chair, *Advances in Biocatalysts and Biocatalytic Processes*, AIChE Annual Meeting 2022
- Co-Chair, *Enzyme Engineering for Biocatalysis*, ACS National Meeting 2022
- Co-Chair, *Biocatalysis and Biobased Products*, AIChE Annual Meeting 2021
- Co-Chair, *Enzyme Engineering & Biocatalysis*, ACS National Meeting 2021
- Session Chair, *Dissipation in Open Material Systems*, Virtual Research Seminar Series on Complex Active and Adaptive Material Systems 2021
- Co-Chair, *Engineering Protein Therapeutics,* AIChE Annual Meeting 2020
- Co-Chair, *Protein Engineering, Bispecifics & Conjugates*, ACS Fall National Meeting. 2020
- Co-Chair, *Biomolecular Engineering,* AIChE Annual Meeting 2019
- Co-Chair, *Computational Approaches to Protein Engineering,* AIChE Annual Meeting 2019
- Instructor, *Synthetic Biology, EngiNearMe, University of Colorado Boulder (hands-on educational initiative for high school students underrepresented in STEM)* 2018
- Co-Chair, *Combinatorial Techniques in Protein Engineering,* AIChE Annual Meeting 2018
- Co-Chair, *Big Data and Biomanufacturing*, ACS National Meeting 2017
- Grant Review: 2016-pres.
    - NSF Panel (2021)
    - NSF CBET Panel: CAREER (2019)
    - NSF CBET Panel: Reaction Networks (2018)
    - NSF CBET: Ad hoc (2017)
    - Kentucky Science and Engineering Foundation (2016)
- Member, American Chemical Society 2015-pres.
- Member, American Institute of Chemical Engineers 2013-pres.
- Editorial Board: *Synthetic and Systems Biotechnology* 2021-pres.
- Journal Review (5-8/year): *PNAS, ACS Catalysis, Metabolic Engineering*, *Biochemistry, J. Phys. Chem. B., J. Med. Chem.*, *Biotechnology and* 2008-pres.

Bioengineering, Biochemical Engineering Journal, Mathematical Biosciences, FEBS Letters Annual Review of Chemical and Biomolecular Engineering, PLOS ONE, *Bioprocess and Biosystems Engineering*, *Advanced Functional Materials, Nature Communications, Nature Chemical Biology, Angewandte Chemie, Science Advances*