

# DR. LAUREN A. COOPER

Teaching Associate Professor · Mechanical Engineering · University of Colorado Boulder  
Associate Program Director, WCU-CU Boulder Engineering Partnership Program  
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## EDUCATIONAL PREPARATION

**Ph.D. Mechanical Engineering**  
University of Colorado, Boulder

Graduated May 2014  
GPA 3.71

Research focus: To explore 1) best practices related to project-based learning; 2) how project-based learning impacts student motivation; 3) how to integrate the context of service into project-based learning.

**M.S. Civil Engineering**  
University of Colorado, Boulder

Graduated December 2008  
GPA 3.68

Research focus: Developed easy-to-use residential-scale energy auditing software and educational materials to train novice energy auditors. Created curriculum for a bio-inspired design for first-year engineering students.

**B.S. Engineering, Mechanical Specialty**  
Colorado School of Mines  
Minor in Humanitarian Engineering

Graduated May 2006  
GPA 3.25

Recipient of the Maryanna Bell Kafadar Award for Excellence in the Humanities

## TEACHING EXPERIENCE

### **University of Colorado Boulder, Boulder CO**

Teaching Associate Professor, Department of Mechanical Engineering  
Associate Program Director, WCU-CU Boulder Engineering Partnership Program  
(January 2022 – current position)

### **California Polytechnic State University, San Luis Obispo, CA**

Assistant Professor, Department of Mechanical Engineering  
(September 2018 – December 2021)  
Lecturer, Department of Mechanical Engineering (January 2018 – June 2018)

### **Colorado School of Mines, Golden CO**

Adjunct Faculty, Division of Engineering, Design, and Society (2016 – 2017)  
Program Coordinator, Humanitarian Engineering (2016 – 2017)  
Teaching Assistant Professor, Department of Civil and Environmental Engineering  
(2011-2014)

**University of Colorado, Boulder CO**

Adjunct Instructor, Integrated Teaching and Learning Program and the Department of Mechanical Engineering (2009 – 2011)

**University of Colorado, Boulder CO**

K-12 “TEAMS” Engineering Outreach Fellow (2006 – 2009)

**INDUSTRY EXPERIENCE**

**International Center for Appropriate and Sustainable Technology, Lakewood CO (2010)**

- Created excel-based energy auditing tool for residential building applications
- Performed energy audits and building energy modeling to recommend energy efficiency measures
- Co-developed training course and video series in energy auditing, energy efficiency, and renewable energy as part of iCAST’s “green” workforce development initiative

**NexGen Energy Partners, Boulder CO (2009)**

- Prepared and submitted grants for government funding (ARRA)
- Oversaw site analysis, permitting, materials acquisition, and power purchase agreements
- Created wind energy curriculum for school customers

**National Wind Technology Center, Golden CO (2006)**

- Developed wind power performance analysis tool in Visual Basic
- Assessed power performance of a small 400-watt turbine onsite

**AWARDS**

**STEM-NET Faculty Fellows Grant Award (2020 – 2021)**

- Awarded one-year faculty fellowship by the California State University to support and encourage the development of new STEM research and the submission of external grants.

**Northrop Grumman Excellence in Teaching Early Career Award (2020)**

- Received award for demonstrated excellence in teaching and commitment to student success.

**Center for Innovation and Entrepreneurship (CIE) Faculty Fellow (2019 – 2021)**

- Awarded three-year faculty fellowship in Cal Poly’s Center for Innovation and Entrepreneurship.
- Objective to connect students with pathways in entrepreneurship and innovation.

## PUBLICATIONS

1. **Cooper, L.**, and J. Mott (2021). Implementing Social Justice Projects in Thermal System and Mechanical Design Courses. Proceedings of the 2021 American Society for Engineering Education Virtual Annual Conference.
2. De Souza, N., Ochotonera, M., Self, B., and **L. Cooper** (2021). Sudden Shift to Online Learning: COVID-19's Impact on Engineering Student Experiences. Proceedings of the 2021 American Society for Engineering Education Virtual Annual Conference.
3. **Cooper, L.**, A. Johnston, E. Hubbard, and B. Self (2020). Development of Empathy in a Rehabilitation Engineering Course. Proceedings of the 2020 American Society for Engineering Education Annual Conference.
4. Johnson-Glauch, N., **L. Cooper**, and T. Harding (2020). Goal Setting as a Means of Improved Mental Health Outcomes for Materials and Mechanical Engineering Students. Proceedings of the 2020 American Society for Engineering Education Annual Conference.
5. Schuster, P., **L. Cooper**, E. Elghandour, E. Rossman, and S. Harding. (2020). Senior Capstone Team Formation Based on Project Interest: Team Selection by Students Compared to Team Selection by Instructors. Proceedings of the 2020 American Society for Engineering Education Annual Conference.
6. Schuster, P., B. Self, E. Elghandour, and **L. Cooper** (2020). A Hybrid Approach to Team-forming for Capstone Design Projects. Proceedings of the 2020 American Society for Engineering Education Annual Conference.
7. **Cooper, L.** (2017). Lauren Cooper: Human-Centered Design for Emotional Accessibility.[Video file]. Retrieved from: <https://www.youtube.com/watch?v=5iooL4ij5Cc>
8. **Cooper, L.** (2014). Designing the Design Experience: Identifying Factors of Student Motivation in Project-based Learning and Project-Based Service-learning. Mechanical Engineering Graduate Theses & Dissertations. Retrieved from: [http://scholar.colorado.edu/mcen\\_gradetds/86](http://scholar.colorado.edu/mcen_gradetds/86)
9. **Cooper, L.**, D. Kotys-Schwartz, and D. Reamon. (2012). Using Random Forests to Identify Factors of Student Motivation in a Project-Based Learning Course. Proceedings of the ASME 2012 International Mechanical Engineering Congress and Exposition.
10. **Cooper, L.**, M. Zarske, D. Kotys-Schwartz, and D. Reamon. (2012). One Day's Pay: Educating K-16 Engineers to Design Affordable Innovations. Proceedings of the 2012 National Science Foundation Engineering Education Awardees Conference.
11. **Rockenbaugh (Cooper), L.**, D. Kotys-Schwartz, and D. Reamon. (2011). Project-Based Service-Learning and Student Motivation. Proceedings of the 2011 American Society for Engineering Education Annual Conference.
12. **Rockenbaugh (Cooper), L.**, M. Zarske, D. Kotys-Schwartz, and D. Reamon. (2011). Engineering for American Communities: Engaging Engineering Students in Multidisciplinary Altruistic Engineering Design Projects. Proceedings of the 2011 American Society for Engineering Education Annual Conference.

## **FUNDED GRANTS**

“Integrating Social Justice Projects in Thermal System and Mechanical Design Courses.” \$9,000 funded internally through Cal Poly College of Engineering’s Summer Undergraduate Research Program (2021). Role: Co-PI.

“Transforming Engineering Pedagogy and Culture.” \$39,923 funded through CSU’s STEM-NET Faculty Education SEED Grant Program (2020/2021). Role: Co-PI.

“Cal Poly Maker Institute: Maker Tools in the K-12 Classroom.” \$185,785 funded through a private donor (2019 – current project). Role: Co-PI.

“Cultivating Empathy and Mental Health in Engineering Students.” \$3000 funded internally by the Center for Expressive Technologies Seed Grants Program (2019). Role: Co-PI.

“Projects to Help People with Mobility Losses: Introduction to Rehabilitation Engineering.” \$1200 funded internally by Cal Poly College of Engineering’s Connect Program (2019). Role: PI.

## **GRADUATE STUDENTS**

Committee Chair for Cal Poly Mechanical Engineering Graduate Students:

- Project title: Dual Crystal Backlighter Imager: Development of Five Degree of Freedom Precision Stages
- Student: Nicholas Nguyen
- Graduated May 2020
  
- Project title: Hybrid III 95th Male Finite Element Model Neck Alteration
- Student: Eric Day
- Graduated December 2019

## **PUBLIC SPEAKING**

- Speaker at American Society for Engineering Education (Pacific Southwest) webinar series, Fall 2020.
- Speaker at “Inclusion Starts with Me Teach In,” hosted by Cal Poly’s College of Liberal Arts, February 2020.
- Panelist at “Women in Engineering Night,” hosted by Cal Poly’s Society of Women in Engineering, February 2019.
- Speaker at “Engineering Perspectives and Impact Conference,” hosted by Cal Poly’s chapter of American Society of Mechanical Engineers, May 2019.
- Speaker at “Research Week Lighting Talks,” hosted by Cal Poly’s Office of Research and Economic Development, October 2019.