

NATHAN J. McNEILL

Educational Background

- 2010 PhD in Engineering Education
Purdue University, West Lafayette, IN
- Dissertation: “Global Engineering Education Programs: More Than
 Just International Experiences”
- Committee: Monica F. Cox, E. Daniel Hireman, Brent K. Jesiek,
 & Ruth A. Streveler
- 2006 MS in Mechanical Engineering
Georgia Institute of Technology, Atlanta, GA
- 2006 Master Professionnelle
Ecole Nationale Supérieur d'Arts et Métiers (ENSAM), Metz, France
- 1999 BS in Engineering (concentration in Mechanical Engineering)
Walla Walla University, College Place, WA

Employment History

- 2020 - present Faculty Director, *University of Colorado Boulder–Colorado Mesa
University Engineering Partnership Program*
- 2012 - present Associate Teaching Professor of Mechanical Engineering, *University of
Colorado Boulder*
- Teach upper-division courses for engineering partnership program at
Colorado Mesa University
- 2010 - 2012 Postdoctoral Associate, *University of Florida*
- Supervisor: Elliott P. Douglas
- Investigated relationship between epistemic beliefs and approaches to
problem solving used by engineering students
 - Co-authored 5 journal articles and 3 conference papers
- 2007 - 2010 Graduate Research and Teaching Assistant, *Purdue University*
- Evaluated learning outcomes of study abroad programs for engineering
students (Dissertation)
 - Served as member of development team for National Science
Foundation funded project to create a virtual organization to support
global team projects (GlobalHUB.org)
 - Taught one section of ME 200 Thermodynamics I (115 students)
 - Developed and taught ME 497 Topics: Classroom Acoustics in the
Developing World (7 students)

Employment History (continued)

1999 - 2005	Mechanical Design Engineer, <i>Forge Industrial Engineering</i> , Abbotsford, BC, Canada
	<ul style="list-style-type: none">· Designed batching, conveying, mixing, and dust collection equipment for production of dry concrete products using SolidWorks· Conducted economic studies, prepared project budgets, presented project proposals to clients, acquired building permits, developed factory layouts, and managed equipment fabrication and installation

Teaching Accomplishments

ECEN 2010 Electrical and Computer Engineering as a Profession (1 credit)	
Fall 2023	9 students
ENGR 140 First Year Engineering Projects (3 credits)	
Spring 2013	5 students
ENGR 312 Engineering Thermodynamics (3 credits)	
Fall 2016	10 students
ENGR 435 Industrial Controls (3 credits)	
Fall 2012	9 students
Spring 2014	11 students
Spring 2015	14 students
Spring 2016	14 students
Spring 2017	19 students
ENGR 496 Topics: Engineering in a Global Context (3 credits)	
Fall 2016	9 students
MCEN 2000 Mechanical Engineering as a Profession (1 credit)	
Fall 2017	44 students
Fall 2018	26 students
Fall 2020	27 students
Fall 2021	24 students
Fall 2022	33 students
Fall 2023	28 students
MCEN 3012 Thermodynamics (3 credits)	
Fall 2012	12 students
Fall 2013	13 students
Fall 2014	19 students
Fall 2015	24 students
Fall 2016	25 students
Fall 2019	16 students
Fall 2023	25 students

Teaching Accomplishments (continued)

MCEN 3025 Component Design (3 credits)	
Spring 2014	24 students
Spring 2015	24 students
Spring 2016	35 students
MCEN 3032 Thermodynamics 2 (3 credits)	
Spring 2013	13 students
Spring 2014	14 students
Spring 2015	19 students
Spring 2016	26 students
Spring 2017	27 students
Spring 2018	28 students
Spring 2019	25 students
Spring 2020	20 students
Spring 2021	28 students
Spring 2022	25 students
Spring 2023	20 students
MCEN 4026 Manufacturing Processes and Systems (3 credits)	
Fall 2013	23 students
Fall 2014	13 students
Fall 2018	28 students
Fall 2019	27 students
Fall 2021	24 students
Fall 2022	17 students
Fall 2023	25 students
MCEN 4037 Measurements Lab (2 credits)	
Fall 2012	15 students
Fall 2013	11 students
Fall 2014	14 students
Fall 2015	18 students
MCEN 4045 Mechanical Engineering Design Project 1 (3 credits)	
Fall 2017	24 students
Fall 2018	28 students
Fall 2019	26 students
Fall 2020	23 students
MCEN 4085 Mechanical Engineering Design Project 2 (3 credits)	
Spring 2018	24 students
Spring 2019	28 students
Spring 2020	26 students
Spring 2021	23 students
Spring 2022	26 students

Teaching Accomplishments (continued)

MCEN 4228 Special Topics: Heating, Ventilation, and Air-Conditioning Design (3 credits)	
Spring 2013	8 students
Spring 2015	17 students
Spring 2017	18 students
Spring 2018	18 students
Spring 2020	7 students
Spring 2023	9 students
MCEN 4228 Special Topics: Advanced Machine Design (3 credits)	
Fall 2017	26 students
Fall 2018	11 students
MCEN 4228 Special Topics: Introduction to Acoustics (3 credits)	
Spring 2019	8 students

Consulting Work

2019 - 2023	External Evaluator, National Science Foundation Grant 1908900 - <i>Aligning the Science Teacher Education Pathway: A Networked Improvement Community</i> <ul style="list-style-type: none">· Research team is developing an online community to support the use of training tools developed in a prior project· PI Michele Korb, California State University East Bay
2018 - 2020	External Evaluator, National Science Foundation Grant 1763357 - <i>Engineering Students' Beliefs about Decision-Making</i> <ul style="list-style-type: none">· Study of the use of rational, intuitive, and emotive reasoning in senior capstone design courses· PI Emily Dringenberg, Ohio State University
2015 - 2019	External Evaluator, National Science Foundation Grant 1418440 - <i>Next Generation Alliance of Science Educators Toolkit</i> <ul style="list-style-type: none">· Evaluated project monthly and provided suggestions for project improvement to research team· Developed tools to provide training in NextGen Science and Engineering Standards for pre-service K-12 teachers· PI Michele Korb, California State University East Bay
2016	Subject Matter Expert, <i>McGraw-Hill</i> <ul style="list-style-type: none">· Transitioned textbook problems to online problem solving environment for <i>Shigley's Mechanical Engineering Design</i>· Completed 4 chapters of book

Grants

- 2023 “Girls Inspire: Engineering Your Spring Break”
- \$4,000 University of Colorado Boulder Community Impact Grant
 - Engineering camp for second and third grade girls
- 2018 - 2019 “Design and Fabrication of an Engine Test Stand for Measuring Internal Combustion Engine Performance While Burning Unconventional Fuels”
- \$14,000 award from *Unconventional Energy Center* at Colorado Mesa University
 - Team of three senior mechanical engineering students designed and built a small engine dynamometer
 - Dynamometer is used for laboratory activities in two thermodynamics courses each year

Leadership and Service Activities

- 2020 - present Chair of curriculum committees for each degree program within the Engineering Partnership Program
- 2020 - 2021 Curriculum committees in:
Department of Civil, Environmental, and Architectural Engineering
Electrical, Computer, and Energy Engineering
Paul M. Rady Department of Mechanical Engineering
- 2021 - present Marketing and outreach committee for the Engineering Partnership Program
- 2020 - present Industry Advisory Councils for each degree program within the Engineering Partnership Program
- 2008 - present Reviewer, *American Society for Engineering Education (ASEE)*
- Review 1 or 2 journal manuscripts and 5 conference papers each year
- 2013 - 2019 Session Moderator, *American Society for Engineering Education (ASEE)*
- Moderate one session each year for Educational Research Methods Division at annual ASEE conference

Licensure

- 2013 - present Professional Engineer in Colorado. License Number: PE.0048407

Journal Publications

- Zhu, J., Chen, J., **McNeill, N.**, Zheng, T., Liu, Q., Chen, B., & Cai, J. (2018). Mapping engineering students' learning outcomes from international experiences: designing an instrument to measure attainment of knowledge, skills, and attitudes. *IEEE Transactions on Education*, 62(2), 108-118.
- Koro-Ljungberg, M., Douglas, E. P., **McNeill, N. J.**, Therriault, D. J., Lee, C. S., & Malcolm, Z. (2017). Academic Problem-Solving and Students' identities as engineers. *The Qualitative Report*, 22(2), 456-478.
- McNeill, N. J.**, Douglas, E. P., Koro-Ljungberg, M., Therriault, D. J., & Krause, I. (2016). Undergraduate Students' Beliefs about Engineering Problem Solving. *Journal of Engineering Education*, 105(4), 560-584.
- Roumani, A. M., **McNeill, N.**, Patil, L., Ouzzani, M., and Hirleman, E. D. (2014). GlobalHUB: A Model for Sustainable Online Communities. *International Journal of Web Portals*, 6(2), 1-13.
- Lee, C. S., **McNeill, N. J.**, Douglas, E. P., Koro-Ljungberg, M. E., & Therriault, D. J. (2013). Indispensable Resource? A Phenomenological Study of Textbook Use in Engineering Problem Solving. *Journal of Engineering Education*, 102(2), 269-288.
- Koro-Ljungberg, M., Douglas, E. P., Therriault, D., Malcolm, Z., & **McNeill, N.** (2013). Reconceptualizing and decentering think-aloud methodology in qualitative research. *Qualitative Research*, 13(6), 735-753.
- Douglas, E. P., Koro-Ljungberg, M., **McNeill, N. J.**, Malcolm, Z. T., & Therriault, D. J. (2012). Moving beyond formulas and fixations: solving open-ended engineering problems. *European Journal of Engineering Education*, 37(6), 627-651.
- Cox, M. F., Cawthorne, J., **McNeill, N. J.**, Cekic, O., Frye, M., & Stacer, M. (2011). Assessing the Pedagogical Impact of the VaNTH Engineering Research Center on Faculty and Postdoctoral Professionals. *International Journal for the Scholarship of Teaching and Learning*, 5(2), 1-19.
- Cox, M. F., Hahn, J., **McNeill, N.**, Cekic, O., Zhu, J., & London, J. (2011). Enhancing the Quality of Engineering Graduate Teaching Assistants through Multidimensional Feedback. *Advances in Engineering Education*, 2(3), 1-20.

Conference Papers (Peer Reviewed)

Bairaktarova, D., Pilotte, M. K., & **McNeill, N. J.**, & Cox, M. F. (2014). Challenging Students' Values and Assumptions Through Project-Based Learning. Presented at the American Society for Engineering Education Annual Conference. Indianapolis, IN.

McNeill, N. J., & Cox, M. F. (2011). Global Engineering Programs: Identifying and Supporting a Diverse Array of Learning Outcomes. Presented at the American Society for Engineering Education Annual Conference. Vancouver, BC, Canada.

Douglas, E. P., Koro-Ljungberg, M., Malcolm, Z., **McNeill, N. J.**, Therriault, D. J., & Lee, C. S. (2011). Moving Beyond Formulas and Fixations: Exploring Approaches to Solving Open-Ended Engineering Problems. Presented at the American Society for Engineering Education Annual Conference, Vancouver, BC.

Therriault, D. J., Lee, C. S., Douglas, E. P., Koro-Ljungberg, M., & **McNeill, N. J.** (2011). Open-Book Problem-Solving in Engineering: An Exploratory Study. Presented at the American Society for Engineering Education Annual Conference, Vancouver, BC.

Koro-Ljungberg, M., Douglas, E. P., **McNeill, N.**, Therriault, D. J., & Malcolm, Z. (2011). Layered data collection methods. Presented at the Seventh International Congress of Qualitative Inquiry, Urbana-Champaign, IL.

McNeill, N. J., Blevins, M., Drott, E., Kremer, A., Kusch, M., Pluhar, B., Ringer, A., et al. (2010). Classroom acoustics in the developing world: A student project to develop simple assessments and treatments. Presented at Noise-Con, Baltimore, MD.

Wang, J. Q., Li, S. S., **McNeill, N.**, & Jesiek, B. K. (2010). Growing Pains: Chinese Engineering Education During the Late Qing Dynasty. Presented at the American Society for Engineering Education Annual Conference, Louisville, KY.

Cox, M. F., & **McNeill, N.** (2010). Developing a Global Real-Time Assessment Tool for the Teaching Enhancement of Engineering Graduate Teaching Assistants. Presented at the American Society for Engineering Education Annual Conference, Louisville, KY.

McNeill, N. J., Hirleman, E. D., & Jesiek, B. K. (2009). Using an Engineering Virtual Organization to Support Global Service Learning: Case Study of a US-Rwanda Irrigation Project. Presented at the American Society for Engineering Education Global Colloquium, Budapest, Hungary.

McNeill, N. J., Cox, M. F., Medley, T., & Hayes, J. (2008). Development of an Instrument to Collect Pedagogical Data from Graduate Teaching Assistants Within Engineering Laboratories. Presented at the American Society for Engineering Education Annual Conference, Pittsburgh, PA.