

Matthew N. Cavalli, Ph.D., P.E.

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- Education:**
- Ph.D. University of Michigan, Ann Arbor, MI
Mechanical Engineering, 2003

Thesis: Cohesive Zone Modeling of Structural Joint Failure
Committee Chair: Dr. Michael Thouless
 - M.S. University of Michigan, Ann Arbor, MI
Mechanical Engineering, 2000

Thesis: Effect of Damage Nucleation on Adhesive Joint Toughness
Committee Chair: Dr. Michael Thouless
 - B.S. University of Wyoming, Laramie, WY
Mechanical Engineering, 1998

Professional Experience:

- 2009-Present Associate Professor, Department of Mechanical Engineering, University of North Dakota, Grand Forks, ND
- Department Chair, 6/2010-Present
 - Assistant Dean for Outreach and Recruiting, 6/2010-Present
 - Deputy Department Chair, 11/2009-5/2010
 - Graduate Director, 2007-Present
- 2003-2009 Assistant Professor, Department of Mechanical Engineering, University of North Dakota, Grand Forks, ND
- Graduate Director, 2007-2009

Courses Taught:

ME 101 - Introduction to Mechanical Engineering, ENGR 201 - Statics, ENGR 202 - Dynamics, ME 301 - Materials Science, ME 313 - Materials Properties and Selection, ME 420 - Composite Materials, ME 480 - Senior Seminar, ME 524 - Deformation and Fracture, ME 542 - Thermodynamics of Materials

Archival Publications:

Rahman, A.H.M.E., **M.N. Cavalli**, "Strength and Microstructure of Diffusion Bonded Titanium Using Silver and Copper Interlayers," *Materials Science and Engineering A*, **527**(20), 5189-5193, 2010.

- Cavalli, M.N.**, N. Lilke, "Mechanical Milling for Catalyst Loading of Polymer Filters," *Journal of Materials Processing Technology*, **209**, 5423-5428, 2009.
- Billups, E.K., **M.N. Cavalli**, "2D Damping Predictions of Fiber Composite Plates: Layup Effects," *Composites Science and Technology*, **68**, 727-733, 2008.
- Cavalli, M.N.**, M.D. Thouless, Q.D. Yang, "Modeling the Deformation and Fracture of Spot-Welded Joints," *Fatigue and Fracture of Engineering Materials and Structures*, **28**, pp. 861-874, 2005.
- Cavalli, M.**, G. Bibel, "Virtual Steel Lab," *Computers in Education*, **XV**, 108-112, 2005.
- Cavalli, M.N.**, M.D. Thouless, Q.D. Yang, "Modeling the Deformation and Fracture of Weldbonded Joints," *Welding Journal*, **83**, pp. 133s-139s, 2004.
- Cavalli, M.N.**, M.D. Thouless, "Effect of Damage Nucleation on the Toughness of an Adhesive Joint," *Journal of Adhesion*, **76**, pp. 75-92, 2001.
- McKay, J. F., D. E Walrath, R. E. Robertson, **M. N. Cavalli**, "Effect of Aggregates on Isothermal (Steric) Hardening of Asphalts," *International Journal of Road Materials and Pavement Design*, **2**, pp. 195-204, 2001.

Technical Reports:

- Cavalli, M.** and A. Phadke, "Stress Corrosion Cracking of Nickel- and Iron-based Alloys in Gasification Environments," Prepared for Siemen's Power Generation, Inc., Fall 2007.

Peer-Reviewed Proceedings:

- Cavalli, M.**, W. Semke, M. Kulkarni, "Engineering Outreach for Under-Resourced High Schools," Proceedings of the 2009 North Midwest ASEE Regional Conference, Milwaukee, WI, October 2009.
- Cavalli, M.**, N. Carlson, P. Compton, "Design Collaboration between High School, On-Campus and Distance Engineering Students," Proceedings of the International Mechanical Engineering Congress and Exposition, Seattle, Washington, November, 2007.
- Cavalli, M.**, L. Stanlake, S. Tolbert, "Investigation of Retention and Perceptions Among Freshman Engineering Students," Proceedings of the 2007 North Midwest ASEE Regional Conference, Houghton, Michigan, September, 2007.
- Billups, E.K., **M.N. Cavalli**, "Energy Dissipation in Composite Plates," Proceedings of the 2006 Materials Science and Technology Conference, Cincinnati, OH, October, 2006.
- Cavalli, M.**, N. Carlson, P. Compton, "A High School/Undergraduate Collaboration for Materials Selection and Design," Proceedings of North Midwest ASEE Regional Conference, Menomonie, Wisconsin, October, 2006.

Cavalli, M., Bibel, G., "Use of Virtual Lab Activities to Teach Materials Concepts," Proceedings of North Midwest ASEE Regional Conference, Brookings, South Dakota, October, 2005.

Patents:

Hurley, J., D. McNally, N. Bernstein, **M. Cavalli**, "Joining of Difficult-to-Join Materials."

**Grants and
Contracts**

Funded:

- Nov 2009- Dec 2010 "Strength Testing Methods for Composite Laminate Repairs," LM Glasfiber, P.I. B. Tande, co-P.I. **M. Cavalli** \$64,375.
- August 2009- July 2012 "Integrated Research and Educational Activities in Diffusion Bonding of Metal Alloys," NSF DMR-0907616, P.I. **M. Cavalli**, \$335,990
- Experimental and numerical investigation of diffusion bonding of nickel and iron alloys for high temperature applications
- March 2009- February 2010 "Strength, Corrosion, and Fatigue Behavior of Diffusion Bonded Joints," UND SSAC, P.I. **M. Cavalli**, \$2,177
- Experimental investigation of properties of diffusion bonded titanium joints
- May 2008- April 2009 "Enhanced Fatigue and Corrosion Facilities for Research and Education," DOD DURIP-N000140810855, P.I. **M. Cavalli**, \$200,250
- Purchase Bose Electroforce fatigue testing system with corrosion fatigue and dynamic mechanical analysis capabilities
- Summer 2007- Fall 2008 "Experimental Data to Support Diffusion Modeling of High Temperature Alloys," UND Faculty Seed Grant, P.I. **M. Cavalli**, \$20,000
- Purchase high temperature vacuum tube furnace and supplies for conducting diffusion bonding studies
- Spring 2006- Spring 2009 "High Temperature Materials Development for Hydrogen Applications," EERC NCHT, P.I. B. Folkedahl, Co-Investigators: J. Hurley, **M. Cavalli**, \$320,000.
- Investigation of transient liquid phase bonding of materials for oxide-dispersion strengthened alloys and nickel superalloy
 - Primarily responsible for thermodynamic calculations and modeling of diffusion processes; also literature review of stress corrosion cracking
- Fall 2005 "Effect of Math and Science Preparation on Retention and Perceptions of Beginning Engineering Students," ASEE Rigorous Research in Engineering Education Mini-Grant, P.I. **M. Cavalli**, \$3,000.
- Two year study to into the effect of preparation and support network on success of starting engineering students at UND
- Spring 2004 "Impregnation of Catalyst Particles into Pollution Control Filters by Mechanical Milling," UND New Faculty Scholar Award, P.I. **M. Cavalli**, \$5,000
- Purchase of mechanical milling machine and supplies for investigating an innovative method for producing improved pollution control in powerplant baghouse filters

Fall 2003 “Desktop Injection Molding Machine for Classroom Demonstrations,” 3M Academic Relations Committee and UND Mechanical Engineering, P.I. **M. Cavalli**, \$7895.

Fall 2002-
Fall 2003 Graduate Fellowship Research Grant, American Welding Society

- \$25,000 award based on a proposal submitted for a year-long research program with possible extensions for up to three years of graduate work

**Grants
Submitted:**

“Effect of Cyclic Environmental Conditions and Fatigue Loading on Polymer Composite Performance,” National Science Foundation, P.I. **M. Cavalli**, B. Tande, \$338,735, *not funded* (September 1, 2010-August 31, 2013).

“Assessment Instruments for Problem Conceptualization in Engineering Education – High School to Undergraduate,” National Science Foundation, P.I. W. Hung, **M. Cavalli**, \$401,954, *not funded* (July 1, 2010-June 30, 2013).

“Dynamic Testing Cluster for Composites Research and Education,” Department of Defense, Army Research Laboratory, P.I. **M. Cavalli**, B. Tande, \$411,450, *not funded* (April 15, 2010-April 14, 2011).

“Weather Incorporated for Needs Development,” Department of Energy, P.I. Mike Mann, Co-P.I. **M. Cavalli**, J. Neubert, M. Zahui, H. Salehfar, B. Tande, B. Mitton, \$4,277,360, *not funded* (January 1, 2010 – December 31, 2011).

"CAREER: Integrated Research and Educational Activities in Diffusion, Recrystallization, and Bonding of High Temperature Metal Alloys," National Science Foundation, P.I. **M. Cavalli**, \$508,257.00, *not funded* (June 1, 2008 - May 31, 2013).

"Improved Coating Characterization Capabilities for Research and Education," Sponsored by Department of Defense, P.I. **M. Cavalli**, \$296,777.00, *not funded*. (May 1, 2009 - April 30, 2010).

Computer-Aided Design of Joining Materials for High Temperature Alloys," Sponsored by Department of Energy, Co-P.I. **M. Cavalli**, \$329,176.00, *not funded*. (January 1, 2007 - December 31, 2009).

"Virtual Training in NDE via Second Life," Nuclear Regulatory Commission, P.I. **M. Cavalli**, \$182,471.00, *not funded*. (July 1, 2008 - June 30, 2009).

“CAREER: Integrated Research and Educational Activities in Diffusion, Recrystallization, and Bonding of High Temperature Metal Alloys,” NSF, P.I. **M. Cavalli**, \$508,257, *not funded*.

“Virtual and On-line Science Laboratories for Under-Resourced North Dakota High Schools,” State of N. Dakota/SEM, P.I. M. Kulkarni, **M. Cavalli**, W. Semke, \$20,000, *not funded*.

- “Investigation and Optimization of Anodic Coatings for Magnesium Alloys,” DOD-SERDP, P.I. **M. Cavalli**, D.B. Mitton, W. Gorman, \$598,877 (preproposal), *not funded*
- “Computer-Aided Design of Joining Materials for High Temperature Alloys,” DOE, P.I. J. Hurley, **M. Cavalli**, \$329,176, *not funded*.
- “Improved Armor for Ballistic Impact Resistance,” DOD, P.I. **M. Cavalli**, J. Hurley, D. Grow, \$391,428, (white paper), *not funded*.
- “Predicting Ductile Fracture of Aluminum Alloys Based on Processing History,” ND EPSCoR Seed Grant, P.I. **M. Cavalli**, \$19,964, *not funded*.
- “Fabrication of Novel Composite Structures for Impact Protection and Passive Control,” UND SSAC New Faculty Scholar Award, P.I.: **M. Cavalli**, \$5,000, *not funded*.
- “Computer-Aided Design of Joining Materials for an ODS Alloy,” DOE, P.I. J. Hurley, **M. Cavalli**, \$199,334, *not funded*.
- “CAREER: Integrating Research and Education Through Concepts of Materials Behavior and Fracture,” NSF, P.I.: **M. Cavalli**, \$572,426, *not funded*.
- “Red River Valley Partnership for Innovations in Impact Protection,” NSF, P.I.: J. Watson, **M. Cavalli**, J. Hurley, M. Mahinfalah, J. Stamp, \$599,999, *not funded*.
- “Development of Active Sealing Technology for Critical Piping Connections,” NSF, P.I.: G. Bibel, **M. Cavalli**, A. Efremov, \$443,858, *not funded*.
- “Investigations of Pollution-Control Filter Impregnation,” NSF EET Division, P.I.: **M. Cavalli**, \$167,269, *not funded*.
- “CAREER: Integrating Research and Education Through Concepts of Ductile Fracture,” NSF, P.I.: **M. Cavalli**, \$560,090, *not funded*.
- “Computer-Aided Design of Joining Materials for an ODS Alloy,” DOE, P.I. J. Hurley, **M. Cavalli**, \$199,334, *not funded*.
- “Mechanical Milling for the Production of Advanced Materials,” University Senate Faculty Seed Money, P.I.: **M. Cavalli**, \$40,000, *not funded*.
- “Characterization of Advanced Materials,” NSF MRI Preproposal, P.I.: E. Kolodka, W. Semke, E. Delbridge, L. Stahl, \$178,858, *not funded*.
- “Inelastic Fracture of Aluminum Alloys,” University Senate Faculty Seed Money, P.I.: **M. Cavalli**, \$35,210, *not funded*.
- “Development of an Advanced Materials Development Cluster for Materials Research and Education,” NSF IMR, P.I.: **M. Cavalli**, W. Semke, E. Kolodka, E. Delbridge, L. Stahl, \$180,273, *not funded*.

Invited

Presentations:

“Integrating Experiments and Numerical Modeling for Improved Adhesive Joint Performance,” Presentation for 3M Adhesive Modeling Group, St. Paul, MN, July, 2008.

“Cohesive Zone Modeling of Structural Joint Failure,” Presentation for UND Physics Colloquium, Grand Forks, ND, October, 2003.

**Presentations/
Proceedings:**

Okoro, E., **M.N. Cavalli**, "Simulated Corrosion-Fatigue via Ocean Waves on 2024-Aluminum," Proceedings of 2010 Society for Experimental Mechanics Annual Meeting, Indianapolis, IN, June , 2010.

Rahman, A.H.M.E., **M.N. Cavalli**, "Strength and Fracture Behavior of Diffusion Bonded Joints," Proceedings of 2010 Society for Experimental Mechanics Annual Meeting, Indianapolis, IN, June 2010.

Cavalli, M.N., E. Okoro, “Effects of Testing Parameters on Corrosion-Fatigue of 2024-T351 Aluminum,” Proceedings of 2009 Society for Experimental Mechanics Annual Meeting, Albuquerque, NM, June 2009.

Cavalli, M.N., E. Okoro, “Effects of Testing Parameters on Corrosion-Fatigue of 2024-T351 Aluminum,” Proceedings of 2009 Society for Experimental Mechanics Annual Meeting, Albuquerque, NM, June 2009.

Cavalli, M.N., E. Okoro, “Effects of Testing Parameters on Corrosion-Fatigue of 2024-T351 Aluminum,” Proceedings of 2009 Society for Experimental Mechanics Annual Meeting, Albuquerque, NM, June 2009.

Larson, D., **M.N. Cavalli**, D.B. Mitton, “Corrosion Considerations of Friction Stir Welded (FSW) Aluminum,” NACE Corrosion 2009, Atlanta, GA, March 2009.

Fischer, J., D. Umland, B. Trenbeath, J. Vein, J. Jorgenson, J. Messer, **M. Cavalli**, D. Larson, D.B. Mitton, R. Todorovic, D. Wilmot, J. Schell, B. Hoiland, J. Rindt, “Advances in Chemically Accelerated Vibratory Surface Finishing (CAVSF),” Proceedings of Sur/Fin 2008, Indianapolis, IN, June 16-18.

Larson, D., **M. Cavalli**, D.B. Mitton, V.J. Gelling, J. Rindt, “Degradation Studies of Friction Stir Welds,” Aeromat 2008, Austin, TX, June 2008.

Cavalli, M.N., V. Mandava, “Effect of Temperature and Aging Time on 2024 Aluminum Behavior,” Proceedings of the 2008 Society for Experimental Mechanics Annual Meeting, Orlando, FL, June 2008.

Fischer, J., D. Umland, B. Trenbeath, **M. Cavalli**, D. Larson, B. Mitton, R. Todorovic, D. Wilmot, J. Schell, B. Hoiland, J. Rindt, “Basic Studies Concerning Chemically Accelerated Vibratory Surface Finishing (CAVSF),” Proceedings of the Tri-Service Corrosion Conference, December, 2007.

Cavalli M., J. Broadway, J. Lindbo, “Experimental Verification of Energy Dissipation in Composite Plates,” Proceedings of the 2007 Society for Experimental Mechanics Annual Meeting, Springfield, MA, June, 2007.

Cavalli, M., “Listening to What Departments Say About General Education,” *On Teaching*, University of North Dakota, **15**(6), pp. 3, 2006.

Cavalli, M.N., V. Mandava, “Effect of Processing on Inelastic Fracture Behavior of 2024 Aluminum,” Proceedings of Society for Experimental Mechanics Annual Meeting, St. Louis, Missouri, June, 2006.

Cavalli, M.N., T.A. Luoma, “Effect of Processing on Inelastic Fracture Behavior of 6061 Aluminum,” Proceedings of Society for Experimental Mechanics Annual Meeting, Portland, Oregon, June, 2005.

Cavalli, M.N., Q.D. Yang, M.D. Thouless, “Dimensional Analysis of Welded Joints Using the Cohesive-zone Model,” Proceedings of Society for Experimental Mechanics Annual Meeting, Costa Mesa, California, June, 2004.

Cavalli, M.N., Q.D. Yang, M.D. Thouless, “Modeling the Deformation and Fracture of Weldbonded Joints,” Society for Experimental Mechanics Annual Meeting, Charlotte, North Carolina, June, 2003.

Cavalli, M.N., Q.D. Yang, M.D. Thouless, “Modeling the Deformation and Fracture of Spot-Welded Joints,” Proceedings of Society for Experimental Mechanics Annual Meeting, Milwaukee, Wisconsin, June, 2002.

Posters:

Rahman, A.H.M.E., **M. Cavalli**, “Strength and Microstructure of Diffusion Bonded Ti Using Ag and Cu Interlayers,” ND EPSCoR Annual Conference, September 2009.

Rahman, A.H.M.E., **M. Cavalli**, “Transient Liquid Phase Bonding of Pure Iron,” UND Graduate School Scholarly Forum, March 2009.

Honors and Awards:

Summer Research Professorship, UND Graduate School, 2009

Classroom Climate Award, Society of Women Engineers, UM Chapter, 2002

National Science Foundation Graduate Fellowship, 1998-2001

Member, Tau Beta Pi Engineering Honor Society

Member, Pi Tau Sigma Mechanical Engineering Honor Society

Member, Phi Kappa Phi Honor Society

Professional Service:

Fatigue and Fracture Technical Division, Society for Experimental Mechanics

- Vice Chair, 2008-2010

- Secretary, 2006-2008

- Chair, Annual Conference Paper Review Committee, 2004-2006

NDUS Academic Affairs Council STEM Academic Discipline Group

- Member, 2009-Present

- UND Senate Budget, Restructuring and Reallocation Committee
 - Member, 2010-2013
- UND Faculty Instructional Development Committee
 - Member, 2009-2012
- UND Senate Scholarly Activities Committee
 - Member, 2008-2011
- UND General Education Committee
 - Past Chair, 2007-2008
 - Chair, 2006-2007
 - Member, 2004-2008
- UND Curriculum Committee
 - Chair, 2007-2008
 - Member, 2005-2008
- UND General Education Task Force
 - Steering Committee, 2007-2008
 - Member, 2005-2008
- UND Small Group Instructional Diagnosis (SGID) Consultant
 - Consultant Fall 2007-Present (1 SGID performed/semester)
- School of Engineering and Mines Curriculum Committee
 - Member, 2008-2009
- School of Engineering and Mines Vision Building Blocks Committee
 - Member, Community Vision Building Block Subcommittee, 2009-2010
- ME Graduate Program, UND ME Department
 - Graduate Director, Fall 2007-Present
 - M.S. Program Coordinator, 2006-2007
- FE Review Sessions (topic varies by semester)
 - Statics
 - Dynamics
 - Materials Science
- Grand Forks Public Schools Career and Technical Education Advisory Board Member, 2007-Present
- Reviewer:
 - Journal of Composite Structures
 - Journal of Manufacturing Science and Engineering
 - Journal of Sound and Vibration
 - Corrosion Engineering Science and Technology
 - SAE Transactions
 - NSF
 - DOE
 - NASA EPSCoR
 - Strain
 - Composites Science and Technology

**Graduate
Advisor:**

- Tanveer Chawla, Ph.D. (2009-Present)
- Esfakur Rahman, Ph.D. (2008-Present)
- Ali Amiri, M.S. (2010-Present)
- Hussain Khozema Zaveri, M.S. (2010-Present)

Korby Heinsen, M.Engr. (2009-Present)
Jarrod Schell, M.S. (2008-Present)
Jesse Henrikson, M.S., "Corrosion Fatigue of Friction Stir Welds," graduated 5/10
Henry Okoro, M.S., "Effect of Load Waveform and Grain Direction on the Corrosion Fatigue Behavior of Al 2024-T351 in Salt-water Environments," graduated 5/10
Aniruddha Kulkarni, M.S., "Analytical Study to Predict Fracture Behavior of Al6061 Using Void Nucleation Method," graduated 5/08
Vijay Mandava, M.S., "Influence of Heat Treating Parameters on Deformation and Fracture of 2024 Aluminum," graduated 5/08
Dustin McNally, M.S., "Modeling of Diffusional Bonding Using Thermodynamic Simulation Software," graduated 8/07
Eric Billups, M.S., "Variation of Specific Damping Capacity of Fiber Reinforced Composites", graduated 12/06
Trent Luoma, M.S., "Relations Between Processing and Properties of 6061 Aluminum Alloy", graduated 5/06

Graduate Committee

Member:

Gregory Dvorak, M.S., "Development of a Sliding-Rolling Contact Fatigue Tester for Superfinished Surfaces"
Srinivas Avasarala, M.S., "Finite Element Analysis of Bjork-Shiley Convexo-Concave Heart Valve"
Abhijit Deshpande, M.S., "Underwater Sound Produced By Micro Water Droplets"
Sumit Agrawal, M.S., "Modeling of Bjork-Shiley Convexo-Concave Heart Valve"
Hemant Yedav, M.S., "Study of the Effect of Curvature on Magnetic Tape Winding"
Richard Voeller, M.S., "Closed-Cell Foam Characterization for Packaging and Testing of Agricultural Camera (AgCam) System"

Undergraduate Research

Supervisor:

Erik Anderson, Fall 2009-Summer 2010
Brandon Hoggarth, Fall 2008
Tyler Peterson, Fall 2008-Spring 2009
Korby Heinsen, Spring 2008, ND Space Grant Fellowship Program
Jeremy Broadyway, Spring 2007
Jody Lindbo, Fall 2006, ND Space Grant Fellowship Program
Nathan Lilke, Fall 2004-Spring 2005, ND EPSCoR Science Bound Program

Professional Development Activities:

Workshop, "Exploring How People Learn Engineering," Golden, CO (August 1-August 4, 2010).
Seminar, "The Clarity Imperative," CRM Learning - John A. Jenson (July 16, 2010).
Workshop, "Chairing the Academic Department," American Council on Education, Washington, D.C.. (June 16, 2010-June 19, 2010).
Seminar, "Three Keys to Effective Decision-making for Academic Leaders," Magna Online Seminar – Kent Crookston, Ph.D. (March 9, 2010).
Seminar, "Engaging Faculty in Departmental Strategic Planning," Magna Online Seminar – Anne Massaro, Ph.D. (February, 2010).

- Seminar, "Global Energy Challenges Require Leadership from Engineers and Scientists," UND Jodsaas Center, Grand Forks, ND. (February 22, 2010).
- Workshop, "Building Successful Teams: How to be a Valuable Team Player," UND Jodsaas Center, Grand Forks, ND. (November 18, 2009).
- Colloquium, "Reflecting on Teaching: An All Campus Colloquium on the Scholarship of Teaching and Learning," UND, Grand Forks, (October 16, 2009).
- Workshop, "Diffusion Modeling and Simulation Using DICTRA," Thermo-Calc, Inc., State College, PA. (April 22, 2009 - April 23, 2009).
- Workshop, "Computational Thermodynamics Using Thermo-Calc," Thermo-Calc, Inc., State College, PA. (April 20, 2009 - April 21, 2009).
- Seminar, "Becoming a Skillful Teacher," Office of Instructional Development, Grand Forks, ND. (September 5, 2008).
- Seminar, "Made to Stick," OID, Grand Forks, ND. (January 2008 - April 2008).
- Seminar, "Educational Uses of Second Life," CILT, Grand Forks, ND. (April 23, 2008).
- Seminar, "Responsible Conduct in Research," RD&C, Grand Forks, ND. (April 22, 2008).
- "Introduction to Second Life," CILT, Grand Forks, ND. (April 10, 2008).
- Continuing Education, "Principles of Metallography," ASM International, Grand Forks, ND. (January 2008 - March 2008).
- Workshop, "Blackboard Building Blocks: Wikis," CILT, Grand Forks, ND. (February 12, 2008).
- Workshop, "Rigorous Research in Engineering Education," ASEE, Golden, CO. (August 1, 2005 - August 5, 2005).
- Seminar, "What the Best Teachers Do," OID, Grand Forks, ND. (September 1, 2004 - December 1, 2004).
- Seminar, "New Approaches in Materials and Manufacturing Education," ASEE, Salt Lake City, UT. (June 20, 2004).
- Workshop, "National Effective Teaching Institute," ASEE, Salt Lake City, UT. (June 17, 2004 - June 19, 2004).
- Seminar, "Digital Image Correlation Short Course," SEM, Costa Mesa, CA. (June 6, 2004).
- Workshop, "Case Studies in Science," NSF, Buffalo, NY. (May 17, 2004 - May 21, 2004).
- Seminar, "Alice T. Clark New Faculty Program," UND, Grand Forks, ND. (August 15, 2003 - May 15, 2004).
- Seminar, "Evaluating Teaching," OID, Grand Forks, ND. (October 24, 2003).
- Seminar, "ASME Essential Teaching Seminar," ASME, Tulsa, OK. (May 15, 2003 - May 17, 2003).

Professional Member:

- American Society of Mechanical Engineers, #5485321
American Society for Engineering Education, #49373
ASM International, #477970
National Society of Professional Engineers, #104026583
- Professional Engineer, State of North Dakota, PE-6673
- Society for Experimental Mechanics, #60094
- Chair, Fatigue and Fracture Technical Division, 2010-2012
 - Vice Chair, Fatigue and Fracture Technical Division, 2008-2010
 - Secretary, Fatigue and Fracture Technical Division, 2006-2008

Wyoming Engineering Society