Alice M. Nightingale, Ph.D.
Assistant Professor of Teaching
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EDUCATION

Ph.D., Aerospace and Mechanical Engineering, University of Notre Dame, May 2011
Areas of focus: Adaptive optics control and Aero-optics
M.S., Aerospace and Mechanical Engineering, University of Notre Dame, May 2007
B. S., Mechanical Engineering, Lake Superior State University, May 2003

PROFESSIONAL EXPERIENCE

Assistant Professor of Teaching, Department of Engineering Education
University at Buffalo, Buffalo, NY
August 2020 - present

Adjunct Professor, Department of Engineering Education
University at Buffalo, Buffalo, NY
August 2018 – May 2020

Visiting Research Assistant Faculty
University of Notre Dame, Notre Dame, IN
August 2011 – October 2013

Algebra II Instructor
Culver Academies, Culver, IN
August 2008 – June 2009

RESEARCH COLLABORATION

Faculty partner on National Science Foundation Grant Application in collaboration with Dr. Jessica Swenson (research in the Formation of Engineers (RFE) program solicitation 19-1340)
Title: "Understanding and Scaffolding the Productive Beginnings of Engineering Judgement"
Contribution: Developing Open-Ended Modeling Problems for Statics and Dynamics courses to reinforce course concepts while providing students with an opportunity to apply learned skills to "open-ended" engineering problems, collecting data in the form of Surveys, and Assignment Submissions, and aiding in development of scaffolding guidelines through collaborative data analysis and discussion.

JOURNAL ARTICLES

Vitali, R., Ramo, N., Bell, M., Treadway, E., Nightingale, A., Swenson, J., and Johnson, A. (2022) Incorporating Open-ended Modeling Problems into Undergraduate Introductory Dynamics Courses. In proceedings of the American Society for Engineering Education Conference. Minneapolis, Minnesota.

Nightingale, A. M., Gordeyev, S., Jumper, E. J., "Optical Characterization of a Simulated Weakly-Compressible Shear Layer: Unforced and Forced", *AIAA Journal*, Vol 47, No. 10, October 2009, pp. 2298-2305, doi: 10.2514/1.34244.

Nightingale, A. M., Goodwine, B., Lemmon, M., and Jumper, E. J., "Phase-Locked-Loop Adaptive-Optic Controller and Simulated Shear Layer Correction", *AIAA Journal*, Vol. 51, No. 11, November 2013, dol: 10.2514/1.J052425.

Nightingale, A. M. and Gordeyev, S., "Shack-Hartmann Wavefront Sensor Image Analysis: A Comparison of Centroiding Methods and Image-Processing Techniques", *Optical Engineering*, Vol. 52, No. 7, March 2013, doi: 10.1117/1.OE.52.7.071413.

Nightingale, A. M., Rennie, R. M., Gordeyev, S., Kelly, R., Cavalieri, D., and Jumper, E. J., "Flight-Test Measurement of the Aero-Optical Environment of a Helicopter in Hover", *AIAA Journal*, Vol. 54, No. 9, September 2016, doi: 10.2514/1.J054549.

CONFERENCE PROCEEDINGS

Swenson, J., Rola, M., Johnson, A.W., Treadway, E., Nightingale, A., Koushyar, H., Lee, J.W., & Wingate, K. (2021) Consideration for Scaffolding Open-ended Engineering Problems: Instructor Reflections after Three Years. In *Frontiers in Education Conference (FIE) 2021*.

Nightingale, A., Goodwine, B., Lemmon, M., and Jumper, E. J., "'Feedforward' Adaptive-Optic System Identification Analysis for Mitigating Aero-Optic Disturbances", 38th Plasmadynamics and Lasers AIAA Conference, Miami, June 2007, *AIAA-2007-4013*.

Nightingale, A., et al., "Adaptive-Optic Correction of a Regularized Compressible Shear Layer", 37th Plasmadynamics and Lasers AIAA Conference, San Francisco, June 2006, *AIAA-2006-3072*.

Nightingale, A., et al., "Computed Aero-Optic Characteristics of a Free Shear Layer using the Weakly-Compressible Model", Directed Energy Professional Society (DEPS) conference, Feb. 2006.

Nightingale, A., et al., "Regularizing Shear Layer for Adaptive Optics Control Applications", 36th AIAA Plasmadynamics and Lasers Conference, Toronto, June 2005, *AIAA-2005-4774*.

PROFESSIONAL ACTIVITIES

Working with SEAS faculty in the Center for Educational Innovation to develop online courses for EAS207 and EAS208. Online courses will be implemented and taught at the University of Buffalo beginning Fall 2024.
September 2021 – present

Created and implemented an Open-Ended Modeling Problem (OEMP) for Statics courses providing students with an opportunity to apply acquired skills from class to a real-world type of engineering problem. The OEMP also serves to better fulfill ABET requirements for core engineering courses.

Supervised a Dynamics Honors Project for a student in EAS208 during Fall 2023 semester. Student used Dynamics concepts from class to explore force plate data collected from several athletes to predict jump height.

PROFESSIONAL AWARDS

UB Teaching Innovation Award for 2023

UNIVERSITY SERVICE

Department Committees

Member, ENS Undergraduate Curriculum Committee, December 2022 – present
Member, DEE Faculty Search Committee, September 2021 – May 2022
Member, DEE Faculty Search Committee, September 2023 - present

University Committees

Member, LMS Committee, September 2021 – May 2022
Member, LMS Implementation Committee, May 2022 – May 2023

EDUCATIONAL AWARDS

University of Notre Dame

Directed Energy Professional Society (DEPS) scholarship, 2005 – 2008
2006 Kaneb Outstanding Graduate Student Teaching Award
2003 NCAA Postgraduate Scholarship Winner

Lake Superior State University

GPA 3.98, Dean's list all eight semesters, 1999-2003
Student respondent graduation speaker, 2003
Co-Outstanding Mechanical Engineering Student Award, 2003
Verizon Academic All-American First Team, 2003
NCAA Division II Scholar Athlete of the Year, 2002/2003

Sault Area High School

Distinguished Alumnus Award, 2022

PROFFESSIONAL AFFILIATIONS

AIAA student member 2004-2008
DEPS Fellow, 2005-2008

ATHLETICS

Lake Superior State University

Division II Women's Basketball, 1999-2003
Captain/MVP, 2000-2003
NCAA Top VIII Award, 2003
NCAA Division II Daktronics All-American, 2003
NCAA Division II Kodak/Women's Basketball Coaches All-American, 2003