Teaching Effectiveness Colloquium

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ANNUAL MEETING

2019 Seattle

Agenda

2019 **INFORMS** TEACHING EFFECTIVENESS COLLOQUIUM

Friday, October 18 | **Sheraton Grand Hotel - Cirrus Room**

7–8pm **Welcome Reception**

Saturday, October 19 | **Sheraton Grand Hotel - Greenwood Room**

7–8am **Registration and Breakfast** - Metropolitan B, 3rd Floor

8–8:15am **Welcome Address**
Introductions

8:15–9am **Adventures with Alternative Grading Schemes**
Nelson Uhan, United States Naval Academy

9–9:45am **Mentorship and Online Course Development**
Carrie Beam, University of Arkansas

9:45–10am **Coffee Break**

10–10:45am **ngiseD suballyS sdrawkcaB: Designing Your Syllabus with the End in Mind**
Susan Martonosi, Harvey Mudd College

10:45–11:45am **Designing Reflection Activities for Engineering Education**
Jennifer Turns, University of Washington

11:45am–1pm **Lunch** - Metropolitan B, 3rd Floor

1–2pm **An Introduction to Inquiry-Based Learning**
Amy Ksir, United States Naval Academy

2:30–2:45pm **Coffee Break**

2:45–3:30pm **Teaching Optimization Using In-Class Group Activities and Open-Source Tools**
Mihai Banciu, Bucknell University

3:30–4:15pm **A Video Project and Technology Tidbits for the O.R. Classroom**
David Czerwinski, San Jose State University

4:15–4:45pm **Wrap-Up**

5pm **All-Colloquia Reception** - Metropolitan B, 3rd Floor

Colloquium Participants

Johnson Adebayo Fadeyi
University at Buffalo

Johnson Adebayo Fadeyi is an assistant professor of teaching in the Department of Industrial & Systems Engineering (ISE), University at Buffalo (UB), New York. He holds a PhD from the ISE Department, Wayne State University, Michigan. Currently, he is actively involved in teaching and developing courses for the nascent online Engineering Management Masters™ program at UB. In addition, he serves in committees to support the ISE department at UB.

His research interests include new product development, product end-of-life management, and multicriteria decision analysis. Johnson has publicized his research work through journal articles and conference presentations. He is also a reviewer for some journals. Johnson is a member of professional organizations including INFORMS.

Michelle Li
Assistant Professor, Babson College
dli@babson.edu

Michelle joined the Division of Mathematics and Science at Babson College in 2018. She received her PhD in business administration with a concentration in management science at the Isenberg School of Management of the University of Massachusetts Amherst. Since then, she has been teaching business analytics, management science/operations research, operations management, and supply chain management/logistics courses to undergraduate and MBA students. Her research interests include business analytics, supply chain network optimization, game theory, quality competition, sustainable systems, and information asymmetry.

John Meluso
University of Michigan
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John Meluso is a PhD candidate in design science at the University of Michigan with concentrations in complex system design and management and organizations. His research investigates how micro-level technical and social factors affect macro-level performance of complex engineered systems and the organizations that create them. He uses social science methods (semistructured interviews, surveys, grounded theory) to create rich understandings of how organizations develop and maintain complex systems. Through that knowledge, he applies methods from complexity science and systems engineering (agent-based modeling, network theory, Monte Carlo simulation, design optimization) to measure how technical and organizational factors alike affect system performance.

His latest work identified an example of networked "miscommunication" in engineering practice and demonstrated its potential to affect system performance through a novel method of simulating complex engineered system development processes. Collectively, his methods provide opportunities to substantially improve complex system and organizational performance.

Mohammad Moshref-Javadi
Visiting Assistant Professor
Northeastern University
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Dr. Mohammad Moshref-Javadi is a visiting assistant professor in the supply chain and information management group at Northeastern University. He earned his PhD degree in industrial engineering from Purdue University and worked for two years at the Megacity Logistics Lab at the Massachusetts Institute of Technology.

Dr. Moshref-Javadi has several years of experience of working on technology adoption projects, ranging from qualitative decision making to quantitative optimization and simulation modeling and analysis. His main research currently focuses on the design of efficient customer-centric distribution systems, data-driven decision-making models, and optimization algorithm design.

Alice Paul

Assistant Professor
Olin College of Engineering
apaul@olin.edu

Alice Paul is an assistant professor of applied math and computer science at Olin College of Engineering. Her research focuses on the design and analysis of algorithms, including the optimization algorithms underlying bike-share systems, machine learning, and other applications. Before joining Olin, she was a data science postdoctoral research associate at Brown University, studying new methods for clustering data points. Dr. Paul earned her PhD in operations research from Cornell University, where her thesis centered around developing efficient, data-driven algorithms for revenue management problems under probabilistic customer choice models.

Jose Luis Ruiz Duarte

University of Arizona
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Jose Luis Ruiz Duarte is a PhD student of the Systems and Industrial Engineering Department at the University of Arizona (U of A). He received both his bachelor's degree in industrial and systems engineering and his master's degree in industrial engineering at the University of Sonora, Mexico. Before starting his PhD program at the U of A, he worked as a lecturer at the University of Sonora for nine semesters and worked in the research coordination of the Research Center for Food and Development (CIAD, Mexico). His research interests include microgrids, renewable energy, and optimization, applied in a variety of systems.

Taylan Topcu

Virginia Tech
ttopcu@vt.edu

Taylan Topcu is a PhD candidate in the Grado Department of Industrial and Systems Engineering at Virginia Tech. His research studies and develops data-driven decision-making approaches for the design and management of complex engineered and socio-technical systems such as infrastructure, healthcare, and defense. Taylan's research projects include investigating the safe operating characteristics of the man-machine collaboration, designing robust evacuation strategies against natural hazards, and developing system design approaches to satisfy multiple stakeholders in competitive markets. He focuses on rigorous approaches founded in microeconomics; systems engineering; operational research; multivariate statistics; data analytics, and established interdisciplinary collaborations with the domains of human factors, social/behavioral sciences, and other engineering disciplines. He has a BS in aerospace engineering from the Middle East Technical University and an MS in systems engineering from the University of Alabama in Huntsville. Prior to joining the academia, Taylan spent three years as a systems engineer at Roketsan, Turkey, developing the HISAR Missile System.

Min Yu

University of Portland

Dr. Min Yu is an associate professor at the University of Portland. She teaches the operations and technology management curriculum at the undergraduate and graduate levels and in both in-class and online formats. She teaches an extensive array of courses including operations management, decision modeling, prescriptive analytics, and production and service operations management, among others. Her research interests include transportation networks, supply chain networks, game theory, risk management, and network optimization. She focuses on time-sensitive supply chains with applications including fashion, pharmaceuticals, and food.

Xiaowei Yue
Virginia Tech

Xiaowei Yue is an assistant professor at the Grado Department of Industrial and Systems Engineering, Virginia Tech. He got his PhD in industrial engineering and MS in statistics from Georgia Tech, an MS in engineering thermophysics from Tsinghua, and a BS in mechanical engineering from Beijing Institute of Technology. His research interests focus on engineering-driven data analytics. The objective is to develop new methodologies for predictive modeling, uncertainty quantification, system optimization, and model-based engineering). He won several best paper awards, to such as the *IEEE Transactions* on Automation Science and Engineering Best Paper Award, Mary G. and Joseph Natrella Scholarship from the American Statistical Association, and IISE Pritsker Doctoral Dissertation Award.

Committee

2019 COMBINED COLLOQUIA CHAIR

Sandra D. Eksioglu
Hefley Professor in Logistics and Entrepreneurship
Department of Industrial Engineering
University of Arkansas

Sandra Eksioglu is the Hefley Professor in Logistics and Entrepreneurship in the Department of Industrial Engineering, University of Arkansas. She received her PhD in industrial engineering from the University of Florida. Prior to joining the University of Arkansas, she was a faculty member at Mississippi State and Clemson universities. Her research interests include network optimization, stochastic programming, energy systems optimization, and supply chain optimization. She is an active member of INFORMS, the Institute of Industrial and Systems Engineers, and the American Society for Engineering Education.

2019 TEACHING EFFECTIVENESS CHAIR

Nelson Uhan
Associate Professor
United States Naval Academy
uhan@usna.edu

Nelson Uhan is an associate professor in the mathematics department at the United States Naval Academy where he teaches a wide variety of courses, many of which support the operations research major. Broadly speaking, his research interests are in mathematical optimization and game theory. For more details, visit his website at https://nelson.uhan.me.

Speakers & Presenters

Mihai Banciu
Associate Dean of Faculty
Associate Professor of Business Analytics and Operations
Bucknell University
mmb018@bucknell.edu

Dr. Mihai Banciu is the associate dean of faculty at the Freeman College of Management, Bucknell University, where he also holds an appointment as a tenured associate professor of business analytics and operations. His area of expertise revolves around the application of operations research models in pricing and revenue management as well as the development of algorithms for discrete optimization problems. His teaching interests include predictive and prescriptive analytics using a variety of tools, including spreadsheets.

His research has been featured in the flagship journals of the OR/MS field, including *Management Science*, *Operations Research*, and the *European Journal of Operational Research*, among others. Dr. Banciu received his PhD in operations research from the University of Pittsburgh's Joseph M. Katz Graduate School of Business Administration.

Carrie Beam
Clinical Assistant Professor
University of Arkansas
cmbeam@uark.edu

Since 2010, Dr. Carrie Beam has been teaching in the online Master of Science in Operations Management program in the Department of Industrial Engineering at the University of Arkansas. She has pioneered automatically graded homework in everything from R to Excel, introduced online class games, organized remote group work, and set up many other innovative online course design techniques.

She teaches courses in data analytics, statistics, operations management, maintenance management, risk, decision models, and more, and she has been the lead designer on over 10 different online master's level classes. She enjoys helping faculty move their classes from face-to-face environments to the online world. She earned her PhD in industrial engineering from the University of California, Berkeley.

David Czerwinski
Associate Professor, Business Analytics
San Jose State University
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David Czerwinski is an associate professor of business analytics and MBA Director at San Jose State University (SJSU). He has been honored with a number of teaching awards, most recently the SJSU Lucas College and Graduate School of Business's 2019 Distinguished Graduate Teaching Award. David's research focuses on applying data mining, visualization, and optimization methods to problems in healthcare and transportation. David has a PhD in operations research from the Massachusetts Institute of Technology and a BS with distinction in mathematical and computational science from Stanford University.

Amy Ksir
Professor, United States Naval Academy
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Amy Ksir is a professor of mathematics at the United States Naval Academy and a workshop facilitator for the Academy for Inquiry-Based Learning. She has extensive experience with student-centered pedagogy, with a focus on creating environments where all students are supported to do mathematics at a high level. Her writing on algebraic geometry has won the Merten Hasse Prize and Lester Ford Award from the Mathematical Association of America.

She is an officer of the Mathematical Association of America's special interest group on inquiry-based learning (IBL SIGMAA) and a co-director of the Maryland-DC-Virginia IBL Consortium.
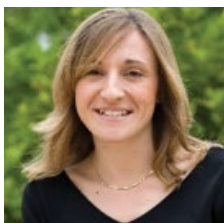
Susan Martonosi
Professor of Mathematics
Harvey Mudd College
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Dr. Susan Martonosi is professor of mathematics at Harvey Mudd College where she works with extraordinarily talented undergraduates in her research program and classroom. She has supervised over 80 undergraduate research students, several of whom have gone on to receive PhDs in operations research or related fields. Dr. Martonosi has been honored by the Mathematical Association of America with the Henry L. Alder Award for Distinguished Teaching by a Beginning College or University Mathematics Faculty Member. From 2014 to 2019 she held the Joseph B. Platt Professorship for Teaching Excellence.

Dr. Martonosi serves on the Board of INFORMS as Vice President of Membership and Professional Recognition and has been active in WORMS and the Forum on Education. Her research specialty is public sector applications of operations research, including homeland security and public health. She has also (co-)authored several survey articles pertaining to OR/MS and statistics education, particularly on the topic of sponsored field-based capstone project courses. Dr. Martonosi received her PhD from the MIT Operations Research Center.
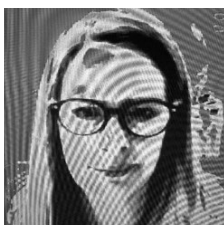
Jennifer Turns
Professor, University of Washington
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Dr. Jennifer Turns is a full professor in the Human Centered Design and Engineering Department in the College of Engineering at the University of Washington. Engineering education is her primary area of scholarship and has been throughout her career. In her work, she currently focuses on the role of reflection in engineering student learning and the relationship between research and practice in engineering education.

In recent years, she has been the co-director of the Consortium to Promote Reflection in Engineering Education (CPREE, funded by the Helmsley Charitable Trust), a member of the governing board for the International Research in Engineering Education Network, and an associate editor for the *Journal of Engineering Education*. Dr. Turns has published over 100 journal and conference papers on topics related to engineering education.

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