

Facilitating Experiential Learning for Emerging and Novel Technologies (ExLENT)

Committee

George T. Ligler

Chair

George T. Ligler is Professor of Multidisciplinary Engineering and Holder of the J.L. "Corky" Frank/Marathon Ashland Chair at Texas A&M University, and also the proprietor of GTL Associates, a consultancy that has provided a wide range of interdisciplinary systems integration/engineering and product management services to clients on three continents. From August 2018 to joining Texas A&M in early 2022, Dr. Ligler was also, on a half-time academic year basis, the Dean's Eminent Professor of the Practice at the University of North Carolina at Chapel Hill/North Carolina State University Joint Department of Biomedical Engineering. He received the Radio Technical Commission for Aeronautics Achievement Award—the organization's highest honor—in both 2006 and 2017 (co-recipient) for his contributions to satellite-based navigation system initiatives, ADS-B, and the development of standards for unmanned aircraft systems. Recognized as a lifetime National Associate of the National Academies in 2014, Dr. Ligler has participated in numerous committees (chairing three) advising the Departments of Transportation, Treasury, and Commerce as well as the National Academies' Aeronautics and Space Engineering Board and Division on Engineering and Physical Sciences Committee. He holds a D.Phil. in mathematics and computation from the University of Oxford, with his studies supported by a Rhodes Scholarship. Elected to the National Academy of Engineering in 2017, Dr. Ligler is a former chair of NAE Section 12, Special Fields and Interdisciplinary Engineering.

George R. Boggs

Member

George Boggs is Superintendent/President Emeritus of Palomar College and President and CEO Emeritus of the American Association of Community Colleges. He currently serves as Chair of the Board of Directors of Phi Theta Kappa, the international honor society for students at associate degree-granting colleges. Earlier in his career, Dr. Boggs was a faculty member, division chair, and Associate Dean of Instruction at Butte College in California. He has served on numerous boards, including the California Association of Community Colleges, the Community College League of California, the Western Association of Schools and Colleges, and AACC. His National Academies roles include Chair of the Committee on Evolving Relationships and Dynamics Between Two- and Four-Year Colleges and Universities: A Summit, and as a member of the Planning Committee for a Workshop Investigating Science Courses in the Undergraduate Context and the Committee on Undergraduate Science Education. Dr. Boggs earned a B.S. in Chemistry from The Ohio State University, an M.S. in Chemistry from the University of California, Santa Barbara, and a Ph.D. in Education Administration from the University of Texas at Austin.

Gabriela Cruz Thompson

Member

Gabriela Cruz Thompson is Director of Corporate University Research and Academic Collaboration at Intel Corporation. She has served as a member of the Advisory Committee to the Computer and Information Science and Engineering (CISE) directorate at the National Science Foundation. Earlier in her career, Ms. Thompson served as the Chief of Staff at Intel Labs and as a Technical Assistant to Intel's Chief Technology Officer. She has also held numerous other roles in the company's manufacturing operations during her 20-year career. Her National Academies roles include serving as a participant and contributor to the workshop on Enhancing U.S. Science and Innovation with Novel Cross-Sector Partnerships. Ms. Thompson earned a Chemical Engineering Degree from the University of Costa Rica and an M.S. in Materials Science and Engineering from Arizona State University.

Latonia M. Harris

Member

Latonia M. Harris is Senior Director of Product Quality Management for BioTherapeutics at Johnson & Johnson Innovative Medicine. Dr. Harris previously served as a Chemistry, Manufacturing, and Controls Leader within the company's R&D Portfolio Management group where she was the strategic leader of a multidisciplinary team focused on developing processes for and gaining regulatory approval of several large molecule oncology therapies. For over 3 decades, Dr. Harris has been committed to supporting outreach in STEM education at all levels: K-12, university, and business. She has mentored dozens of individuals who aspire to careers in science, engineering or medicine. Dr. Harris holds a Ph.D. in Chemical Engineering from Northwestern University and a B.S.E. in Chemical Engineering from the University of Michigan - Ann Arbor. She was elected a Member of the National Academy of Engineering in 2020 and currently serves as Chair of the NAE's Peer Committee for Bioengineering and as a member of the Committee on Membership.

Louis A. Martin-Vega

Member

Louis A. Martin-Vega is the Dean of Engineering and Distinguished University Professor Emeritus at North Carolina State University. He joined NC State as its Dean of Engineering in 2006 and served in this position for 17 years. Prior to joining NC State he served as Dean of Engineering at the University of South Florida for five years. His academic career also includes administrative and academic appointments at Lehigh University, Florida Institute of Technology, University of Florida and University of Puerto Rico at Mayagüez. Dr. Martin-Vega's research and teaching interests are in production and manufacturing systems, logistics and distribution, operations management, engineering education and broadening participation in the field of engineering. Dr. Martin-Vega has also held several prestigious positions at the National Science Foundation, including acting head of its Engineering Directorate and director of its Division of Design, Manufacture and Industrial Innovation. His efforts at NSF led to the creation of the foundation-wide Grant Opportunities for Academic Liaison with Industry (GOALI) program as well as many other initiatives that enhanced industry-university research collaboration and strengthened the engineering profession by engaging a wider range of perspectives and expertise. He is a Fellow of the American Association for the Advancement of Sciences (AAAS) , the Institute of Industrial and Systems Engineers (IISE), the Society of Manufacturing Engineers (SME) and the American Society for Engineering Education (ASEE). Dr. Martin-Vega earned his B.S. in Industrial Engineering (magna cum laude) from the University of Puerto Rico at Mayagüez, an M.S. in Operations Research from New York University and M.E. and Ph.D. degrees in Industrial and Systems engineering from the University of Florida. He was elected a Member of the National Academy of Engineering in 2021 "[f]or support of engineering and engineering education through industry-academic collaboration and opportunities for underrepresented groups." He is also a Member of the Pan American Academy of Engineering.

Kalyn S. Owens

Member

Kalyn Shea Owens is a Professor in the Department of Chemistry at North Seattle College and co-director of the college's undergraduate research program, which has served as a national model for engaging students in research early in their college experience, particularly at small institutions. She previously served at the National Science Foundation (NSF) as co-creator and lead program officer of the Innovation in Two-Year College STEM Education (ITYC) program, and as a program officer for the ExLENT, Improving Undergraduate STEM Education (IUSE), NSF Scholarships in Science, Technology, Engineering, and Mathematics (S-STEM), and Advanced Technological Education (ATE) programs. Dr. Owens's professional interests center on designing early postsecondary STEM curricula, with an emphasis on embedding interdisciplinary, research-focused experiences that engage students in the social construction of new knowledge. She earned a B.S. in Chemistry from the University of California, San Diego, a Ph.D. in Chemistry from the University of California, Davis, and conducted postdoctoral research in STEM education at the University of Washington.

Rebecca Shearman

Member

Rebecca Shearman is Executive Director of Industry Engagement at the University of Massachusetts Lowell. She was previously a program director in the Technology, Innovation, and Partnerships (TIP) Directorate at the U.S. National Science Foundation (NSF), where she oversaw a portfolio of initiatives aimed at advancing technological innovation and in workforce development in areas critical to national and global interests. Included in her portfolio was the NSF Regional Innovation Engines program, which catalyzes innovation ecosystems across the United States by fostering economic growth and technological advancement at the regional level. She also stood up the NSF Enhancing Partnerships in Inclusive and Innovative Communities (EPIIC) program, which focuses on capacity building initiatives at non-R1/R2 universities (including MSIs and 2-yr intuitions) and the ExLENT (Experiential Learning for Emerging and Novel Technologies) program. Before her tenure at NSF, Dr. Shearman was an associate professor at Framingham State University, where her focus was on undergraduate education, program and curriculum assessment, and on increasing participation in STEM higher education. She earned her Ph.D. in Biological Sciences from the University of Chicago and a Bachelor of Art in Biology at Franklin and Marshall College.

Karl A. Smith

Member

Karl A. Smith is Professor Emeritus in the School of Engineering Education at Purdue University and Professor Emeritus in the Department of Civil, Environmental, and Geo- Engineering at the University of Minnesota. His research and development interests include building rigorous research capabilities in engineering education; the role of cooperation in learning and design; problem formulation, modeling, and knowledge engineering; and project and knowledge management. He is a Fellow of the American Association for the Advancement of Science, and Fellow of the American Society for Engineering Education and past Chair of the Educational Research and Methods Division. Dr. Smith has served as PI and Co-PI on several NSF funded projects including two NSF Centers for Learning and Teaching. He was Co-PI on an NSF Course, Curriculum, and Laboratory Improvement (CCLI) National Dissemination grant titled "Rigorous Research in Engineering Education: Creating a Community of Practice" and on the NSF CCLI Phase III project "Expanding and Sustaining Research Capacity in Engineering and Technology Education: Building on Successful Programs for Faculty and Graduate Students." Dr. Smith has authored or co-authored numerous books including "Active Learning: Cooperation in the College Classroom, 3rd Ed.", "Cooperative Learning: Increasing College Faculty Instructional Productivity; Strategies for Energizing Large Classes: From Small Groups to Learning Communities"; and "Teamwork and Project Management, 5th Ed." His Bachelor's and Master's degrees are in Metallurgical Engineering from Michigan Technological University, and he holds a Ph.D. in Educational Psychology from the University of Minnesota.

David Butler

Staff Officer

David A. Butler is the J. Herbert Hollomon Scholar of the National Academy of Engineering (NAE). He also serves as Director of NAE's Responsible Engineering Practice program and as PI of NAE's Facilitating Experiential Learning for Emerging and Novel Technologies (ExLENT) project. Before joining the National Academies, Dr. Butler served as an analyst for the U.S. Congress Office of Technology Assessment, was a research associate in the Department of Environmental Health of the Harvard T.H. Chan School of Public Health, conducted research at Harvard's John F. Kennedy School of Government and practiced as a product safety engineer at Xerox Corporation. He has directed numerous National Academies studies on engineering and technology policy topics, including "Extraordinary Engineering Impacts on Society: Proceedings of a Symposium" and "Impacts of National Science Foundation Engineering Research Support on Society". Dr. Butler earned his BS and MS degrees in electrical engineering from the University of Rochester and his PhD in public policy analysis from Carnegie Mellon University. He is a recipient of the National Academies' Cecil Medal for Research.