

The Department of Educational Psychology's Research Methods, Measurement, & Evaluation (RMME) program and the Department of Statistics at the University of Connecticut present:

Searching for Truth through Data

Dr. Edsel A. Pena, University of South Carolina

Friday, 10/7/2022, 11:15am ET

<https://uconn-cmr.webex.com/uconn-cmr/j.php?MTID=m9667e91caf1197b47fc45f50529388b9>

This talk concerns the role of statistical thinking in the Search for Truth using data. This will bring us to a discussion of p -values, a much-used tool in scientific research, but at the same time a controversial concept which has elicited much, sometimes heated, debate and discussion. In March 2016, the American Statistical Association (ASA) was compelled to release an official statement regarding p -values; a psychology journal has even gone to the extreme of banning the use of p -values in its articles; and in 2018, a special issue of *The American Statistician* was fully devoted to this issue. A main concern in the use of p -values is the introduction of a somewhat artificial threshold, usually the value of 0.05, when used in decision-making, with implications on reproducibility and replicability of reported scientific results. Some new perspectives on the use of p -values and in the search for truth through data will be discussed. In particular, this will touch on the representation of knowledge and its updating based on observations. Related to the issue of p -values, the following question arises: "When given the p -value, what does it provide in the context of the updated knowledge of the phenomenon under consideration, and what additional information should accompany it?" To be addressed also is the question of whether it is time to move away from hard thresholds such as 0.05 and whether we are on the verge of -- to quote Wasserstein, Schirm and Lazar (2019) -- a "World Beyond $P < 0.05$."



Dr. Edsel A. Pena is a Professor of Statistics at the University of South Carolina (UofSC) in Columbia, South Carolina. He is a Fellow of the American Statistical Association (ASA) and an Elected Member of the International Statistical Institute (ISI). He is currently serving as Executive Secretary of the Institute of Mathematical Statistics (IMS). Since August 2020, he has been serving as a Rotator Program Director at the National Science Foundation in the Statistics Program of the Division of Mathematical Sciences. He obtained his PhD degree from Florida State University in 1986. Prior to joining UofSC in 2000, he was a Professor at Bowling Green State University in Ohio. His research interests are in mathematical statistics, stochastic processes, survival analysis, reliability theory, multiple decision-making, nonparametric statistics, and foundational issues of statistical inference.

ONLINE INTERDISCIPLINARY SEMINARS ON STATISTICAL METHODOLOGY FOR SOCIAL AND BEHAVIORAL RESEARCH: Support for this seminar comes from Department of Educational Psychology's Research Methods, Measurement, & Evaluation (RMME) program and the Department of Statistics at the University of Connecticut (UConn), the Statistical and Applied Mathematical Sciences Institute (SAMSI), and the New England Statistical Society (NESS). This seminar aims to promote connection between the statistics and social/behavioral science communities and encourage interdisciplinary research across faculty and students.

For announcements and WebEx live streaming links, please contact Tracy Burke (tracy.burke@uconn.edu). For questions related to the seminars, please feel free to contact the session organizers, Prof. Xiaojing Wang (xiaojing.wang@uconn.edu) and/or Prof. Betsy McCoach (betsy.mccoach@uconn.edu). For information about previous and upcoming speakers, please visit <https://stat.uconn.edu/online-seminars/> or <https://rmme.education.uconn.edu/>.

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