# Mathematical Sciences Spring 2022 Colloquium Series

## **Dr. Milo Schield**

University of New Mexico Professor Emeritus, Augsburg University

Online (Zoom) Meeting :
Friday, February 18 : 3pm :
Click on this announcement to access the Zoom link

## UNM's MATH 1300 Statistical Literacy: Rationale and Design

Abstract

Statistical literacy is what students, citizens and policy makers need in order to read, interpret and evaluate everyday social statistics. UNM's MATH 1300 is a different statistical literacy course (www.statlit.org/UNM.htm) focusing on how social statistics are constructed and manipulated. The textbook (www.StatLit.org/pdf/2021-Schield-StatLit-Textbook-TOC-Index.pdf) focuses on all the influences using the admonition "Take CARE," where the letters of CARE identify 4 kinds of influence: Confounding, Assembly, Randomness and Error. The textbook addresses 7 common pitfalls: (1) Failing to distinguish association from causation, disparity from discrimination. (2) Failing to recognize how easily statistics can be manipulated by changing the way that things are defined, classified, counted, measured, summarized and presented. (3) Failing to recognize that amazing coincidences become more likely as the size of the data increases (Law of Truly Large Numbers). (4) Failing to recognize that an association of ratios can be confounded: Simpson's paradox. (5) Failing to distinguish numerator from denominator in describing rates and percentages using ordinary English: the confusion of the inverse. (6) Failing to recognize that some count-based statistics (e.g., # of deaths from second-hand smoke, obesity or diesel fumes) are model based. (7) Failing to recognize that a statistically-significant result in an observational study can become statistically insignificant (and vice-versa) after controlling for a related factor. We also examine anonymous student end-of-course feedback: www.StatLit.org/pdf/2021-Fall-UNM-MATH1300-S1.pdf.

For further information, please contact Dr. Emil Schwab, eschwab@utep.edu



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