

V0G 2021 Schield ASA Speed 1

## UNM: New Confounder-Based Statistical Literacy Course

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**Milo Schield, Univ. New Mexico**  
*Fellow: American Statistical Association*  
*Elected Member: International Statistical Institute*  
*US Rep: International Statistical Literacy Project*  
*President: National Numeracy Network*


**JSM Online August 11, 2021**  
 Video: [www.StatLit.org/pdf/2021-Schield-ASA-Speed-Video.mp4](http://www.StatLit.org/pdf/2021-Schield-ASA-Speed-Video.mp4)  
 Paper: [www.StatLit.org/pdf/2021-Schield-ASA.pdf](http://www.StatLit.org/pdf/2021-Schield-ASA.pdf)  
 Speed: [www.StatLit.org/pdf/2021-Schield-ASA-Slides-Speed.pdf](http://www.StatLit.org/pdf/2021-Schield-ASA-Slides-Speed.pdf)  
 Slides: [www.StatLit.org/pdf/2021-Schield-ASA-Slides.pdf](http://www.StatLit.org/pdf/2021-Schield-ASA-Slides.pdf)

V0G 2021 Schield ASA Speed 2

## Statistical Literacy: MATH 1300 in the UNM Catalog

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**Statistical Literacy** 

**MATH 1300 (3)**  
 Participants will study the social statistics encountered by consumers. Investigate the story behind the statistics. Study the influences on social statistics. Study the techniques used to control these influences. Strong focus on confounding.

Meets New Mexico General Education Curriculum Area 2: Mathematics and Statistics.

V0G 2021 Schield ASA Speed 3

## UNM Math 1300: Quick Summary

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Less than 30% overlap with traditional statistics

Holistic: Studies all influences on a statistic:  
 confounding, assembly, randomness & error

Statistical: Study design, Cornfield conditions,  
 confounder-influence on statistical significance

GAISE 2016: MV regression: standardization

Ordinary English: conditional probability

Applied/literary: Analyze one or two cases/week

V0G 2021 Schield ASA Speed 4

## UNM Math 1300: Big Ideas

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Association is not [always] causation;  
 Disparity is not [always] discrimination

Crude association: An association that does not take anything else into account; a mixed-fruit (apples & oranges) comparison.

To take into account (to control for) a confounder is to adjust (balance) the confounder mixture.

V0G 2021 Schield ASA Speed 5

## UNM Math 1300: Student Learning Outcomes


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1. Distinguish association from causation; form two-group comparisons using ordinary English.
2. Identify and evaluate kinds of statistical influence: confounding, assembly, randomness and error.
3. Can identify, evaluate and use techniques to take control of – or control for – these influences.
4. Can describe and compare rates and percentages using ordinary English
5. Can analyze and evaluate the statistics in the everyday media, press releases and journal articles.

V0G 2021 Schield ASA Speed 6

## Confounder-Based Statistical Literacy Textbook

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**Statistical Literacy: A New Discipline**

*"Schield's approach to statistical literacy helps Capella students think critically while satisfying Capella's general education requirement in mathematical and logical reasoning." Dr. Valerie Perkins, Dean of Capella's School of Undergraduate Studies*

*"I am convinced that the standard first course in statistics, which focuses on getting to significance testing and confidence intervals, isn't an appropriate aim for a lot of students. I think Schield's approach to statistical literacy is much closer to what is needed by journalists, by policy makers, by those in business, commerce or management and by most people in everyday life." Peter Holmes, Royal Statistical Society Centre for Statistical Education.*

*"A small educational movement advocating statistical literacy has emerged." Professor Milo Schield, Director of the W. M. Keck Statistical Literacy Project, at Augsburg College in Minneapolis, in the movement's leading voice." Dr. Joel Best, author of More Damned Lies and Statistics.*

**Milo Schield**  
 Dr. Milo Schield is a consultant with the University of New Mexico. His Ph.D. in Space Physics is from Rice University. Schield is a Fellow of the American Statistical Association (ASA), the US Coordinator for the International Statistical Literacy Project (ISLP) and the President of the National Numeracy Network (NNN).

**Statistical Literacy 2021**  
 2021: Seeing the story behind the statistics

V0G 2021 Schield ASA Speed 7

**Study Confounder-Based  
Statistical Literacy**

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*Statistical Literacy: The Diabolical Denominator*  
[www.StatLit.org/pdf/2021-Schild-MathFest.pdf](http://www.StatLit.org/pdf/2021-Schild-MathFest.pdf)

*Statistical Literacy: Teaching Confounding*  
[www.StatLit.org/pdf/2021-Schild-USCOTS.pdf](http://www.StatLit.org/pdf/2021-Schild-USCOTS.pdf)

*Confounding and Cornfield: Back to the Future*  
[www.StatLit.org/2018-Schild-ICOTS.pdf](http://www.StatLit.org/2018-Schild-ICOTS.pdf)

*University of New Mexico Offers Math 1300*  
[www.StatLit.org/pdf/2021-Schild-ASA.pdf](http://www.StatLit.org/pdf/2021-Schild-ASA.pdf)

For all of Schield's papers by topic,  
[www.StatLit.org/Schild-Pubs.htm](http://www.StatLit.org/Schild-Pubs.htm)

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*Slides: [www.StatLit.org/pdf/2021-Schild-ASA-Slides.pdf](http://www.StatLit.org/pdf/2021-Schild-ASA-Slides.pdf)*

*Paper: [www.StatLit.org/pdf/2021-Schild-ASA.pdf](http://www.StatLit.org/pdf/2021-Schild-ASA.pdf)*

*Slides2: [www.StatLit.org/pdf/2021-Schild-ASA-Slides-Speed.pdf](http://www.StatLit.org/pdf/2021-Schild-ASA-Slides-Speed.pdf)*

# Statistical Literacy: MATH 1300 in the UNM Catalog

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## Statistical Literacy



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## Statistical Literacy 2021

## Statistical Literacy

2021: Seeing the story behind the statistics





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