

University of New Mexico Offers Statistical Literacy

Fall 2021: the University of New Mexico enrolled 132 students in Statistical Literacy: Math1300. This new catalog course satisfies a mathematics requirement in New Mexico's General Education curriculum. Math1300 is designed for students in non-quantitative majors.

Statistical Literacy is critical thinking about social statistics used as evidence in everyday arguments.

Students think about how and why statistics were constructed, how they could have been constructed, and how they might be influenced.

This course is different: minimal algebra, less than a 30% overlap with traditional statistics.

Students distinguish association from causation, experiments from observational studies, and disparity from discrimination. The admonition "Take CARE" reminds students that social statistics can be influenced by Confounding, Assembly, Randomness and Error.

Statistical literacy focuses on Confounding. Students work multivariate problems using weighted averages without computers.

- Suppose that *"people who read home and fashion magazines are more likely to get pregnant than those who read car and sport magazines"*. This may be confounded by gender.
- Suppose City hospital has a higher patient death rate than Rural. This may be confounded if sicker patients are more likely to go to City hospital.
- Students learn that social disparities used as evidence for systematic discrimination can be influenced. In one case, *40% of the white-black income gap was explained by taking into account marital status.*

Statistical literacy focuses on Assembly: how statistics are defined, grouped, compared and presented. Students use ordinary English to describe and compare rates and percentages in tables and graphs. They learn *"the percentage of men who run"* is different from *"the percentage of men among runners."*

Student comments:

- *I like the content and critical thinking aspect of the class. As someone who had to drop the regular stats class I was very happy to have this class as an option.*
- *This course is an answer to my prayers, I am a music major and horrible at math so fulfilling my math requirement has been hard. This is the first math class I actually liked. ... the material is about things I can apply to everyday life. ...I would recommend this class for anyone.*

Submitted by Dr. Milo Schield, Statistical Literacy consultant to UNM, Fellow of the American Statistical Association, President of the National Numeracy Network, and US Representative of the International Statistical Literacy Project.