# University of New Mexico Offers Statistical Literacy

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

Statistical Literacy is critical thinking about social statistics used as evidence in everyday arguments.  Statistical literacy studies how statistics are constructed and manipulated.

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.

Social statistics can be influenced by Confounding.   Students work multivariate problems using weighted averages without computers.

- In the UK, *vaccinated* cases of Delta-Covid were 2.5 times as likely to die as the unvaccinated.  But the vaccinated were older: a confounder. After controlling for age, students find that the *unvaccinated* were 3.4 times as likely to die as the vaccinated.  This reversal is Simpson's paradox.
- Students find that in one year 40% of the white-black family income gap was explained (confounded) by marital status: married vs. single parent.  Students learn that this adjusted statistic may be influenced in turn by racial disparities in education, employment and incarceration.

Social statistics can be influenced by Assembly: how statistics are defined, compared and presented.  Students use ordinary English to describe and compare rates and percentages in tables and graphs.  Students learn that "*the percentage of diseased that test positive*" is different from "*the percentage of positives that have a disease*":  confirmation versus prediction.

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.*

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