Goal: To introduce students in non-quantitative majors (consumers of statistics) to the most important statistical ideas needed to read and interpret the statistics presented in the everyday media: in text, tables and graphs.

Approach: Teaching confounding to this audience should be without use of computer software and with a minimal use of Algebra. It should involve a heavy usage of ordinary English with special attention to grammatical nuances. This is critical for ESL students or students with weak English skills.

Goals: Students should be able to describe and compare statistics presented in text, tables and graphs. They should be able to analyze and evaluate news stories that use statistics as evidence.

They recognize that statistics involves four essentials:

1. Social statistics are numbers in context (counts and measures in reality).
2. Social statistics are socially constructed.
3. Social statistics can be influenced.
4. The best advice in dealing with statistics is "Take CARE".
- They recognize that all the influences on a statistic can be grouped into four categories.
- They understand the four categories: Confounding, Assembly, Randomness and Error/bias.
- They understand how the items in each category can influence a statistic.
- They can distinguish association from causation when presented in ordinary English

Course Outcomes:

Students should be able to

1. Distinguish association from causation (disparity from discrimination).
2. Compare counts and measures using ordinary English.
3. Describe and compare rates and percentages in English as presented in tables and graphs.
4. Read, interpret and evaluate the resilience of statistics to other influences.
5. Think critically about statistics used as evidence in arguments.
6. Think critically about how statistics have been constructed and possibly manipulated.
7. Think hypothetically about the influence of plausible confounders.

REFERENCES BY M. SCHIELD:

The Basics:

Statistical Literacy: A Short Introduction 2010   www.statlit.org/pdf/2010Schield-StatLit-Intro4p.pdf

Statistical Literacy and Liberal Education at Augsburg College. 2004 AAC&U *Peer Review*
http://www.statlit.org/pdf/2004SchieldAACU.pdf

Introducing Statistical Literacy: A Lesson Plan   2022   ECOTS
http://www.statlit.org/pdf/2022-Schield-ECOTS-Lesson-Plan.pdf

Statistical Literacy: The Diabolical Denominator.   2021 Mathfest
http://www.statlit.org/pdf/2021-Schield-MathFest.pdf

Intermediate:

Confounding and Cornfield: Back to the Future.   2018 ICOTS-10 Invited Paper. Kyoto Japan
http://www.statlit.org/pdf/2018-Schield-ICOTS.pdf

Association vs. Causation; Disparity vs. Discrimination. 2022 ICOTS-11 Rosario Argentina.
http://www.statlit.org/pdf/2022-Schield-ICOTS.pdf

Presenting Confounding Graphically Using Standardization, 2006 ASA *STATS* magazine
http://www.statlit.org/pdf/2006SchieldSTATS.pdf

Statistical Literacy: Teaching Confounding.   2021 USCOTS Workshop
http://www.statlit.org/pdf/2021-Schield-USCOTS.pdf

Offering and Implementing:

Offering Confounder-Based Statistical Literacy: For Deans, Department Chairs and Teachers. 2021
http://www.statlit.org/pdf/2021-Schield-Offering-Statistical-Literacy.pdf

Implementing a Statistical Literacy Program. Research Paper 2019
http://www.statlit.org/pdf/2019-Schield-Implementing-Statistical-Literacy-Program.pdf

Statistical Literacy at the University of New Mexico

UNM approves confounder-based Statistical Literacy. ISLP Newsletter.
http://www.statlit.org/pdf/2021-Schield-ISLP.pdf

UNM Statistical Literacy webpage. http://www.statlit.org/UNM.htm

Schield has written over 70 papers on various aspects of statistical literacy.
For a listing by topic of all of Schield's papers (with free access), go to www.statlit.org/Schield-Pubs.htm