The future depends on us

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The world's population has faced unprecedented catastrophes over the last two years. From devastating bushfires, tornedos to COVID-19 pandemic. Global citizens glued to their TV screens watched COVID-19 infection rates, hospitalisation rates, death rates and later immunisation rates and tried to make sense of what these numbers mean for their daily lives. Discussions on climate change also became daily news, especially with COP26 meeting in Glasgow, which was followed by scenes of protesting people demanding evidence-based decision making from their politicians. Many of us wondered what is going on, what we can do, how we can make sure that key people, who can make a difference to our daily lives, can make good decisions.

We, the teachers and the academics also faced difficulties. How could we teach our students under COVID-19 restrictions? In developed countries almost 100% of classes moved to fully online teaching supported by technology. We re-designed our curricula, assessments and interactions with our students. In less developed countries, our colleagues who were not able to use internet and technology-based alternatives as much as we could, creatively found ways to keep their students busy.

Our professional conferences also adapted and became fully online. At the end of 2020, we were more connected with each other across the globe than ever before. Online conferences popped up here and there. Our International Association for Statistical Education (IASE) Roundtable in July 2020, planned for Nanjing, China, but quickly moved online (https://iase-web.org/conference/roundtable20/?programme) due to Covid-19. The IASE satellite conference in September 2021 (https://iase-web.org/conference/satellite21/) was also fully online. These online conferences gave opportunities for colleagues who would not normally attend to contribute with their presentations and engage with the colleagues across the world. Lots of opportunities for webinars and online workshops brought us together to learn from each other and become better teachers for our students. IASE ran its first online workshop in November 2021 (https://iase-web.org/Webinars.php) in English and in Spanish. We are planning more targeted online workshops to engage with you.

Statistics plays an important role for decision making. During 2020 and 2021, many people were presented with more statistics than ever before. Whether they could make sense of those statistics and can differentiate between the real and the fake news determined their behaviour. For a better future, we, the teachers and the academics of statistics, have an important role to play, *educate our students to be statistically literate - the future depends on us*.

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Season's Greetings and Happy New Year 2021
from the ISLP project

This course is designed for students in non-quantitative majors: majors that do not require a particular mathematics course. This confounder-based course has less than a 30% overlap with a traditional introductory statistics course.

Statistical Literacy is critical thinking about statistics as evidence in arguments. Students learn to distinguish association from causation: disparity from discrimination. Given an association of averages, rates or percentages, they learn how to take into account (control for) a measured confounder (multivariate regression) using simple arithmetic and graphical techniques. They use ordinary English to describe and compare rates and percentages (conditional probability) as presented in tables and graphs. Students use non-overlapping confidence intervals as a sufficient condition for statistical significance. They study the Cornfield conditions to see whether a measured confounder can nullify or reverse an association. They learn how the choice of a denominator can change the size and direction of an association of counts or totals. E.g., Comparing Covid deaths in two countries using deaths per capita versus deaths per test or deaths per case. Students work problems involving observational data to see whether controlling for a measured confounder can transform statistical significance into insignificance — and vice versa.

Given this background, students focus on evaluating statistics presented in the everyday media. This course uses a Statistical Literacy textbook authored by Milo Schield: a US representative of the International Statistical Literacy Project (ISLP), a Fellow of the American Statistical Association (ASA), an elected member of the International Statistical Institute (ISI) and the President of the US National Numeracy Network (NNN-US).

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UNM offers confounder-based Statistical Literacy

Milo Schield*

Starting in fall 2021, the University of New Mexico (Albuquerque, US) is offering MATH 1300: Statistical Literacy. This confounder-based course studies how statistics are constructed and manipulated. Fall enrollment, 2021 is 130 students in four sections. This catalog course satisfies a mathematics requirement in the UNM core curriculum and in the New Mexico General Education curriculum.