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Come Together, Right Now, Over Mu: Bridging the Gap Between Theory and Practice in Statistical Pedagogy

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Recent recommendations for the teaching of undergraduate statistics in any field emphasize the need for students to become critical consumers of results presented in the media while also developing proficiency in the collection, presentation, analysis, and communication of data (GAISE, 2016). Additionally, instructors should provide undergraduates the opportunity to grapple with the difference between practical vs. statistical significance, to evaluate the presentation of statistics in research and the media, and to apply appropriate statistics to the question posed (APA, 2013) and include coverage of concepts related to open science, the new statistics, and data ethics (Baumer et al., 2020; Cummings, 2014; Morling and Calin-Jageman, 2020). Though research is clear on what we should be teaching, study after study finds that statistics instructors continue to persist in teaching traditional content (focus on NHST, emphasis on hand-calculations, less focus on new statistics, etc.) at the expense of current recommendations (e.g. Friedrich et al., 2020). Why do we see this disconnect between theory and practice? How can we encourage students to invest in the course material and to engage in scientific thinking? How can we structure our course to optimize instruction to align with best practices? What would a course look like that focuses on statistical literacy rather than statistical computation? Given time constraints, what content should we include in an introduction to statistics course, and what content should we let go? The purpose of this presentation is to share an example of an undergraduate introduction to statistics course design that attempts to address the above recommendations.

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statistical literacy, statistical pedagogy

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