

# eCOTS Regional Conference in Iowa: Preparing Statistics Students for Today's Data Challenges

Agenda for Wednesday, May 25<sup>th</sup>, 2022, 9:30am-5pm

Meet at Student Innovation Center, Room 2221

9:30 – 10:00am: Registration and Informal Gathering

10:00 – 10:15am: Welcome

10:15 – 11:00am: Keynote Speaker – Why and How to Teach Statistics? – Barb Barnet

11:00 – 11:50am: Discussions #1

- I. High school statistics table
- II. Online teaching
- III. Topics based on survey questions

Move to Snedecor Hall, Room 3105

12:00 – 1:00pm: LUNCH

1:00 – 1:45pm: Breakout Sessions #1

- I. Diversity, equity, and inclusion in data science and statistics – Laura Ziegler
- II. How has the pandemic changed how we approach teaching? – Ulrike Genschel

1:50 – 2:40pm: Breakout Sessions #2

- I. 🎵 Should it stay or should it go? 🎵 A discussion of the essential topics in Intro Stat – Jillian Downey
- II. Statistical significance and  $p$ -value controversy – Anna Peterson

2:40 – 3:10pm: BREAK (ice cream and photos)

3:15 – 3:45pm: What we might do differently in Stat 101 – Jeff Witmer (Virtual)

3:50 – 5:00: Reflections, Discussions, and Closing

## Abstracts:

### 10:15 – 11:00am: Keynote Speaker – Why and How to Teach Statistics? – Barb Barnett

Abstract: Why do we teach statistics? Why is it important to the students of today and future students? I will talk about these questions as well as best practices for teaching, regardless of what level the course is at. I will also discuss the AP statistics program, what the reading is like and how to become an AP reader.

### 1:00 – 1:45pm: Breakout Sessions #1

#### I. Diversity, equity, and inclusion in data science and statistics – Laura Ziegler

Abstract: How can we address Diversity, Equity, and Inclusion (DEI) related issues in the courses we teach? In this breakout session, we will discuss simple steps we can take as well as examples we can cover in our courses.

#### II. How has the pandemic changed how we approach teaching? – Ulrike Genschel

Abstract: The last two years have undoubtedly changed how we teach in the classroom. *What effects have these changes had on students' learning?* is a question we need to reflect on before we begin another academic year in the Fall and with Covid here to stay, at least in the foreseeable future. While changes were necessary at the time, many instructors' experiences suggest that students' learning decreased, students appeared disengaged and struggled to keep up with academic expectations that once were routine. What can and must we do, to get students back to where they need to be?

### 1:50 – 2:40pm: Breakout Sessions #2

#### I. 🎵 Should it stay or should it go? 🎵 A discussion of the essential topics in Intro Stat – Jillian Downey

Abstract: Active learning and varied teaching methods have been shown to increase student understanding and interest. But pedagogical techniques such as activities and projects take up substantially more class time than lecturing. It seems like an impossible task to cover all the required content in intro stats in a manner that keeps the students engaged and promotes understanding. In this breakout session, we will discuss/debate the essential topics for a first course in statistics, specifically addressing (1) technology requirements, (2) sampling and scope of inference, (3) randomization and theory-based inference, and (4) inference beyond two means/proportions. During this discussion, we will also reflect on whether the essential topics vary based on type of school, structure of the class, and the level of preparation students need for further courses.

#### II. Statistical significance and $p$ -value controversy – Anna Peterson

Abstract: Despite the American Statistical Association's announcement regarding  $p$ -values in 2016<sup>1</sup>, many statistics courses continue to teach hypothesis testing focusing on "statistical significance." Should we move away from statistical significance? How do you approach these topics?

### 3:15 – 3:45pm: What we might do differently in Stat 101 – Jeff Witmer (Virtual)

Abstract: Statistics education continues to evolve and we do many things right; but not everything. I'll suggest changes we should be making and invite discussion. Participants are invited to bring their own list of proposed changes.

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<sup>1</sup> Ronald L. Wasserstein & Nicole A. Lazar (2016) The ASA Statement on  $p$ -Values: Context, Process, and Purpose, The American Statistician, 70:2, 129-133, DOI: [10.1080/00031305.2016.1154108](https://doi.org/10.1080/00031305.2016.1154108)