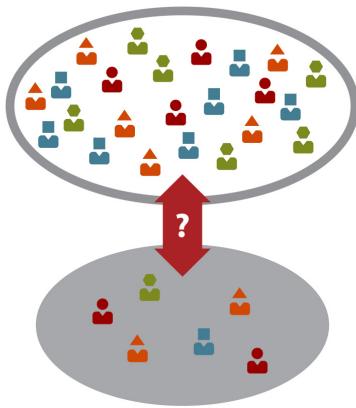


# Enhance your statistics teaching skills.

## **Teaching Statistics Through Inferential Reasoning**

**Reasoning** is a free online professional development course designed for educators to strengthen skills and learn to teach statistics, along with colleagues from other schools, by engaging students in grades 6-12 and postsecondary settings in a statistical investigation cycle focused on making inferences and claims.

**Starts 2/5/2018**



## **Benefits of TSIR**

- + Focused professional development
- + Access to learning community
- + Proven instructional methods
- + Support from experts
- + FREE, and can earn CEUs

## **Emphasis on Inferential Reasoning**

To prepare the next generation of data-active citizens, we need to engage learners of all ages in investigations focused on making inferences and claims supported by samples of data. You will develop instructional strategies to emphasize inferential reasoning through posing different investigative questions. You will engage with rich data sources and dynamic graphing tools to support data exploration for investigative questions that give students opportunities to make inferences about contexts and issues of interest them.

*"I am a stronger teacher in statistics. My lessons are deeper and involve more technology."*

Past Participant

*"The most important aspect of this MOOC-Ed was hearing from master teachers about things that they feel are important in their classrooms.*

*There were a great many ideas shared that will make a positive difference in my classroom."*

Past Participant

*"So many resources! The sample activities and extend your learning sections exposed me to a lot of resources for teaching statistics that I was previously unaware of."*

Past Participant

Visit us online at [go.ncsu.edu/tsir](http://go.ncsu.edu/tsir)

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# Course Outline

## Unit 1: What is Inferential Reasoning?

This unit focuses on core aspects of inferential reasoning, why it is important in statistics, and how it develops, from informal approaches with early learners to more formal approaches as learners get more sophisticated, as described in the SASI framework. You will learn three general types of questions that can provide opportunities for students to build inferential reasoning skills. Each type of question will be the focus of the next three units.

## Unit 2: Inferential Reasoning with Comparing Groups

This unit takes a deep dive into questions that provide opportunities for learners to compare two or more groups. When learners have a need to find similarities or difference among distributions, their understanding of key characteristics of distributions becomes an essential aspect of making comparative statements and generalizing beyond the data at hand. You will investigate a comparing groups question, see samples of students' work, and consider other tasks for their potential to promote inferential reasoning.

## Unit 3: Inferential Reasoning Between Samples and Population

Generalizing from a sample to a population is often considered the quintessential way to make inferences in statistics. In this unit we consider questions that engage learners in considering what is likely true about a population. You will engage with a task that includes reasoning about a sample to make claims about a population, view students' work, and consider different ways to support inferential reasoning.

## Unit 4: Inferential Reasoning with Competing Models

This unit focuses on how learners can engage with questions that focus on making decisions about which model is the most plausible for describing a population. Within tasks that engage learners to compare competing models, you will consider how learners can use different approaches and levels of sophistication for supporting claims.

## Unit 5: Making Inferential Reasoning Essential in Your Practice

This unit will assist you in making plans to change teaching practices that can really engage students in inferential reasoning. You will reflect on, assess, and share what you have learned throughout the course.

## Certificate/CEU Information

A certificate of completion for 20 hours (2.0 CEUs) of professional development will be provided to participants who do the following in each unit:

- Access and engage with the Essentials.
- Complete the Explore and Discuss, which includes engaging in activities/discussion forum.
- Post at least one discussion/comment in each discussion forum.
- Complete the End-of-Course Survey.

There are also opportunities to participate in performance assessments to demonstrate your competency with ideas presented in the course and apply them to your educational practices. These performance assessments, called [micro-credentials](#), can allow you to earn **additional** hours/CEUs. You can earn 5 - 35 hours (0.5-3.5 CEUs) by successfully completing any of the six *Teaching Statistics* micro-credentials, even if you choose to not complete the course requirements for the 20-hour certificate.

## Course Leader



Dr. Hollylynne S. Lee is a Professor of Mathematics and Statistics Education in the department of Science, Technology, Engineering, and Mathematics Education at NC State. With 17 years of experience in creation of software and simulation, her current work focuses on preparing teachers of statistics to use innovative approaches and technology tools to engage learners. Dr. Lee is a University Faculty Scholar, recognized for her outstanding research and teaching. She is the editor of *Statistics Education Web: An Online Journal for K-12 Statistics Lessons*, and Associate Editor of the *Statistics Education Research Journal*.

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