

# Statistical Inference and Hypothesis Testing in Data Science Applications

---

DTSA 5003 offered on Coursera

by the University of Colorado, Boulder

Instructor: J.N. Corcoran

---



Welcome to Statistical Inference and Hypothesis Testing in Data Science Applications! This is course 3 of a 3 part specialization in Data Science Foundations. It is also a pathway into a Master of Science in Data Science (MS-DS) degree offered by the University of Colorado at Boulder on the Coursera platform. You can take a non-credit version of this course to sharpen your data science skills and you can upgrade at any time to receive academic credit at CU Boulder. We truly care about providing an exceptional learning experience for all. Please note that we are not able to actively monitor forums and discussion boards, which are designed for peer support, for the non-credit version of this course. To report problems, including suspected typos or issues with autograders, there is a forum entitled “Questions and Urgent Help” that is monitored by course assistants.

Thank you for choosing to learn with us. Let’s do this!

## What is Hypothesis Testing?

Statistical inference is the process of learning about characteristics of a population based on what is observed in a relatively small sample from that population. In a “first” course in Statistics (such as DTSA 5002 or the equivalent) one learns how to estimate quantities for the population based on quantities observed in the sample. In this course, we will go further and use these sample quantities to make decisions! A sample will never give us the entire picture though, and we are bound to make incorrect decisions from time to time. We will learn how to derive and interpret appropriate tests to manage this error and how to evaluate when one test is better than another. We will learn what “black box” hypothesis tests in software such as R are doing and when they are applicable. More importantly, we will learn how to construct and perform principled hypothesis tests for a wide range of problems and applications when they are not. It’s going to be awesome.