
Course Description:

Statistical Thinking will one day be as necessary for efficient citizenship as the ability to read and write.- H.G. Wells

That day is now. Have you ever wondered why first the newspaper tells you that coffee prevents cancer, and the next day the headlines proclaim coffee will kill you? Are you aware that some stock fund statistics are technically true, but presented in a way designed to manipulate you? When a doctor tells you that a test for a disease is 99 percent accurate (and you just tested positive) what questions should you ask?

This course is designed to equip you with the statistical tools and knowledge to interpret and analytically analyze data. We will cover graphing techniques for presenting data, data sampling techniques, descriptive techniques, confidence intervals, regression toward the mean and central limit theory, basic probability, estimation and tests of significance as well as other topics. Mastering this material will provide you with the ability to interpret statistics related to public policy, education, business, and the social, health, and physical sciences. You will understand that statistics provides useful information for decision making but will also learn to recognize when the data is being manipulated in order to confuse or obscure the truth.

Understanding statistics allows you to make rational decisions in your own life and to think critically about potential outcomes. If you have taken the equivalent of College Algebra (Math 121) you certainly have the math skills for this class. If you have not taken an algebra class, please contact me before signing up.

The class is asynchronous, with assignments due at midnight on the class meeting dates.

Readings/Texts:

Required texts will include “Naked Statistics: stripping the dread from data” by Charles Wheelan "What is a p-value anyway? 34 Stories to Help You Actually Understand Statistics by Andrew J. Vickers"

We will also be reading provided selections from “Damned Lies and Statistics”by Joal Best and “The Drunkard’s Walk: How Randomness Rules our Lives” by Leonard Mlodinow as well as selections from other books, current journals and media. These will be available online.

Student Requirements:

Most days you will have two assignments,a reflection on your reading and an online simulation lab
Some of these assignments will include collecting, interpreting and presenting of your own data. You will write two papers. For further information see https://sites.google.com/view/uohonstatistics/home.

**About the Instructor:**
I have taught both physics and mathematics from middle school level through college. I have a Ph.D in Educational Psychology, a M.S. in Science Education and a B.S. in Physics. But what should really matter to you is that I have experience in making science and math useful, exciting and interesting.