

2014 Ad Astra
Statistics Advanced Placement Summer Institute
July 21-24, 2014

Institute Overview

This participant-driven workshop will focus on the unique issues facing AP Statistics teachers. Typically, AP Statistics teachers are math teachers who have been convinced, coerced, and/or “volunteered” to teach this college-level statistics course. Together we will learn many of the interesting nuances of teaching statistics to high school students. In all four major areas of the course, there will be overviews of the important statistical concepts, engaging instructional activities, invigorating discussions, clues to good communication and exposure to AP Statistics Exam problems and rubrics. Participants will leave with a deeper understanding of statistical concepts, relevant experiences with statistical technology (Fathom, web-based resources, graphing calculators, iPad apps), pedagogical tools with which to teach the course, a better understanding of the AP Statistics Exam, and renewed confidence.

Consultant Background – David Ferris

I have taught mathematics at Noblesville High School (Noblesville, IN) for 31 years, I have taught AP Statistics for 13 years, and I have graded the AP Statistics exam for six years. Since 2009, I have served as a statistics consultant for the NMSI initiatives in Indiana and Kentucky, where I conducted numerous Saturday AP Exam Study Sessions for students and led workshops for beginning teachers. I especially enjoy the professional stimulation of leading College Board AP Statistics workshops for teachers. Although I serve as a consultant primarily for the Midwest Region, I have also had the opportunity to lead workshops in the South and West Coast. I thoroughly enjoy the unique dynamics of AP summer institutes and will work to ensure that you are engaged and inspired.

Institute Goals

We will cover all four major “pillars” of the course: Data Exploration, Experimental Design, Probability and Inference. Included in each day’s experiences will be important conceptual foundations that will help you to teach with confidence, relevant activities that help anchor conceptual understanding, exposure to engaging and helpful technology, familiarity with the AP Exam and rubrics, and opportunities to share experiences and ask questions. The speed vs. coverage ratio will be adjusted daily to meet the needs of those present. Please bring as much technology as is feasible. The most important tool will be a graphing calculator, but you will also find a laptop to be useful.

Tentative Institute Syllabus and Outline

Monday, July 21--Data Exploration

First Day Surveys and Ideas: StatCrunch, Census at School, Google Forms

Using technology

Normal models and calculations

Correlation and regression

AP Exam problems

Tuesday, July 22—Sampling and Experiments

Sampling Activities

Experiment Activities
Addressing vocabulary issues
AP Exam problems

Wednesday, July 23—Probability
Review activity
Random variables
Binomial and geometric models
AP Exam problems

Thursday, July 24—Inference
Sampling Distribution activities
Confidence intervals and tests
P-values
Errors and power
AP Exam problems

Graduate Credit Option

Participants may also earn three graduate education hours for any of the AP Summer Institutes from Washburn University for a reduced tuition rate the successful completion of an academic assignment.

Additional Information

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