

# ACES MATH: Statistics

## Course Description

This course serves as an introduction to major ideas in statistics. The main focus is not to mathematically understand statistics but to learn techniques in statistics and apply them to various problems. The starting point will be descriptive statistics that requires no background to understand but the ending point would be pretty far into the field of statistics.

**Prerequisite.** Students who plan to take this course should have taken the ACES mathematics course: Probability. A placement test is required for anyone who did not take the prerequisite course.

**Textbooks.** We recommend the following textbook for students to read:

Elementary Statistics, 12th Edition  
Mario F. Triola  
Pearson, 2012

**Main Topics.** The main topics of this course include but not limited to: (i) review of related probability theory; (ii) descriptive statistics; (iii) sampling from various distributions; (iv) simple parameter estimations; (v) confidence intervals and hypothesis testing; and (vi) correlation and regression.

**Homework.** Learning mathematics is very similar to learning to play piano: you can not learn anything unless you practice a lot, and if you practice a lot you will be good at it. There is no shortcut here. Therefore, we will have a large (but still reasonable) amount of homework for the students after each lecture.

**Notes on Competition Track.** Students on the competition track are expected to work on harder (meaning more difficult and in larger amount) homework sets.

**Communications.** Students and their parents are encouraged to communicate with the instructor on issues directly related to the course, through the email address [aces.math.info@gmail.com](mailto:aces.math.info@gmail.com); For other issues related to the ACES after school program, please email [aces4kidsinfo@gmail.com](mailto:aces4kidsinfo@gmail.com) .