

ACES MATH: Probability

Course Description

This is an introductory course on the theory of probability, with emphasis on applications. Even though the main focus is on discrete probability (since students would not have much calculus background), we still hope to cover a wide range of topics in probability theory. This course would provide students a solid background for studying advanced statistics.

Prerequisite. Students who plan to take this course should have taken the ACES mathematics courses: Algebra (I) at least. A placement test is required for anyone who did not take the prerequisite courses.

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

Introduction to Probability
Joseph K. Blitzstein and Jessica Hwang
CRC Press, 2015

Main Topics. The main topics of this course include but not limited to: (i) basic combinatorics; (ii) basic probability concepts such as random events, sample space etc; (iii) independence and dependence; (iv) various discrete random variables; (v) expectation and variance; and (vi) applications of probability theory;

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; For other issues related to the ACES after school program, please email aces4kidsinfo@gmail.com .