ACES MATH: Integral Calculus
Course Description

This is the second part of a two-semester sequence on calculus with an emphasis on problem solving. The current course covers mainly materials on integral calculus (mainly Riemann integrals of single and multiple variables and their applications). Students are expected to be able to understand some of the mathematical theory of calculus and apply the theory to solve problems. However, they are not expected to be able to prove theorems. This course is roughly on the same level as the UT Austin mathematics course 408D.

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

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

`Calculus, Early Transcendentals, 7th Edition`
`James Stewart`
`Brooks/Cole, 2012.`

This course covers roughly the second half of the textbook.

Main Topics. The main topics of this course include: (i) Riemann integrals; (ii) rules and techniques in computing integrals; (iii) application of integrals in geometry; (iv) polar coordinates; (v) multiple integrals; and (v) introduction to differential equations.

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.

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 .