

**UNIVERSITY OF WASHINGTON
HALBERT AND NANCY ROBINSON CENTER FOR YOUNG
SCHOLARS**

**EXTREME MATH!
SATURDAY SERIES
AT THE ROBINSON CENTER**

The Robinson Center for Young Scholars is delighted to announce its new Extreme Math! Saturday Series. Starting in January 2011, we will be offering two new Saturday math courses for interested students. The goal of this program is simple: to provide students in the Puget Sound region with an inspirational, challenging, and unique math experience.

Beyond age/grade specifications, there are no criteria for admission, though each class has prerequisites in order for students to make the most of the class. The only absolute requirement is that the student is interested and WANTS to do this.

Registration is on a first-come-first-served basis, and full tuition is required within five days of registration; students' places in class will not be finalized without full payment. Checks are to be made out to the University of Washington. Unfortunately, at this time we cannot accept credit cards for this class registration. Register on-line at our website (<http://depts.washington.edu/cscy>) just by following the prompts. Registration begins Friday December 10 at 8 a.m.

Classes will be held at the Robinson Center on the University of Washington campus: Guthrie Annex 2. (See <http://washington.edu/maps> for directions.)

We are offering two classes:

Zeno, Fractions within Fractions, and Unending Numbers (4th-5th grade)

Twenty-five hundred years ago, Zeno made a stunning observation: when an arrow is shot at a tree, it has to travel halfway to the tree before it hits it, then half the remaining distance, then half the remaining distance, and so on for infinity. But how can infinitely many parts fit inside a finite distance? Zeno's paradox remained a thorn in the side of philosophers and mathematicians for centuries to come.

In this class we will resolve this paradox. We will learn how to work with fractions, then fractions of fractions, and then infinite nestings of fractions. In some cases, we will see that it is possible to tame these "unending numbers," and resolve Zeno's paradox.

Prerequisites: Students should have exposure to multiplication, division, and fractions.

Time: 12:30-1:30 Saturdays, 1/15/11 – 3/12/11 (9 weeks)

Place: Robinson Center, University of Washington, Guthrie Annex 2

Cost: \$250 (check payable to UW)

Supplies: Bring a notebook and a pen

Turtles All the Way Down: The Problem of Infinity (8th-12th grade)

Profound mathematical ideas are often embedded in deceptively simple questions, such as:

- How can you make a square with double the area of another square?
- How can you measure the circumference of a circle?
- How does light reflect off a curved mirror?
- Are more numbers rational or irrational?

Hidden in these questions is the problem of infinity. Tackling this problem will be the central goal of this course. We will explore topics that students usually don't see until college or graduate school: algebraicity versus transcendence; Archimedean-style geometric/calculus constructions; fractals and self similarity; arithmetic of infinities. In the end, nothing will be off limits: we will go where our questions lead us. The course will be rigorous, but accessible to anyone with exposure to algebra.

Prerequisites: Students should have some experience with algebra.

Time: 2:30-4:30 Saturdays, 1/15/11 – 3/12/11 (9 weeks)

Place: Robinson Center, University of Washington, Guthrie Annex 2

Cost: \$450 (check payable to UW)

Supplies: Bring a notebook and pen

FOR MORE INFORMATION, CONTACT:

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