

The Almagest

The bi-weekly newsletter of the Alma College Department of Mathematics and Computer Science. Your trusted source for news.

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Next Colloquium – Tuesday, October 1st

The second Math & C.S. colloquium of the Fall semester will be given by **Dr. David Reimann**, professor of mathematics and computer science at Albion College. Dr. Reimann's talk is entitled "A Travelogue of the Mathematical Universe."

Mathematics is all around us, yet can be very abstract. The goal of mathematical art is to create artistic examples of mathematical concepts that can inspire and inform us, or to use mathematical concepts to artistically tell a story. In this talk, we will discuss a variety of mathematical concepts and view related mathematical artworks. Hopefully you will leave knowing a little more mathematics, and inspired to further explore the mathematical universe and create your own mathematical art travelogue! This talk will be accessible to a wide range of students. ~ *Dr. Reimann*

"A Travelogue of the Mathematical Universe"

Date: **Tuesday, October 1st**

Time: 4:00

Place: SAC 113

Refreshments at 3:50.

Remaining Math & C.S. Colloquia

Oct. 17: **Dr. Steuard Jensen** (Alma College)

Oct. 29: **Dr. Carl Lee** (Central Michigan U.)

Nov. 13: **Dr. Garry Johns** (SVSU)

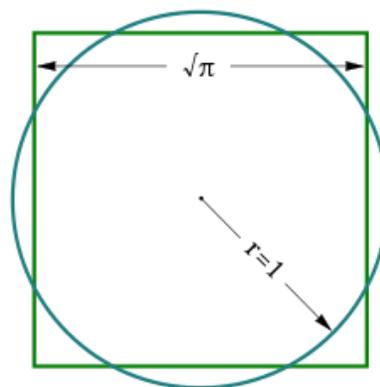
Nov. 26: **Dr. Andrew Thall** (Alma College)

All talks begin at 4:00, location TBA.

Squaring the Circle

One of the most interesting things about mathematics is how much intersection occurs between each of its areas. While many students are able to study a variety of these areas individually through classes, they often miss why studying them together can be crucial to solving the more complex problems that arrive in mathematics as a whole. One such problem that highlights the importance of the overlap between mathematical fields is the problem of Squaring the Circle.

The question asks whether it is possible to construct a square with the same area as a given circle using only a finite number of steps using a straightedge and compass.



This question had been plaguing the minds of mathematicians from before the Greeks and up until 1882. Before the 1800's mathematicians had been thinking about the problem geometrically. This singular focus on one branch of mathematics resulted in a roadblock that lasted over two thousand years. Finally the French mathematician Pierre Wantzel used algebra to show that if a number could be constructed using a straightedge and compass, the number had to be a solution to a certain polynomial with rational coefficients. This kind of

number is known as an algebraic number. Following Wantzel's work, German mathematician Ferdinand von Lindemann showed algebraically that pi could not be an algebraic number. This single piece of information was enough to show that Squaring the Circle was an impossible task.

As we can see from the example of Squaring the Circle, it wasn't until geometry and algebra worked together that mathematicians were able to find a solution for the problem. This concept can be applied in a number of different ways to try and tackle more complicated issues. ~ *Brandon Hart*

Math Club

The Math Club is back! It meets on Tuesday evenings at 9:00 pm in **Dow 132**.

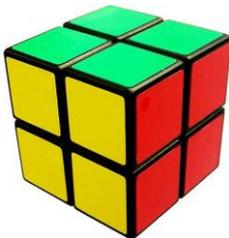
Everyone is welcome.

MATH Challenge – November 2nd

The **MATH Challenge**, a team math competition between many colleges and universities, will be held on **Saturday, November 2nd**. Please consider participating! Contact any math faculty member if you are interested.

Puzzle of the Bi-week

A Mini Rubik's Cube has dimensions 2x2x2. An ant is walking from one corner to the opposite corner and chooses to walk only along the edges of the smaller 1x1 faces that make up the exterior of the cube. How many different paths of length 6 units are there for the ant to take?

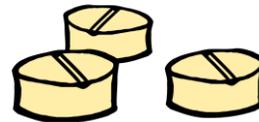


A prize of **\$3.00** will be awarded to the 1st student who submits a correct solution (with justification) to Dr. Molina.

Solution to Previous Puzzle

You have contracted an extremely rare and potentially fatal illness. Fortunately, you have obtained some very rare pills that will keep you alive! Bottles marked A and B each contain 5 pills, and you must take exactly one A pill and one B pill each day for 5 days. If you alter this dosage in any way, then you will die!

Things go well for two days, but on the third day, after putting one of the A pills in your hand, you accidentally let two of the B pills slip into the same hand. To your horror, all three pills appear identical, and you can't distinguish the A pill from the B pills.



These pills are extremely rare and additional pills are unavailable. Is all hope lost? Is there a foolproof strategy to keep yourself alive?

The first correct solution was submitted by **Mollie Strunk**. A different solution was later submitted by **Noah Whitford**. Mollie's solution earned her the \$5.00 prize:

You should take all six of the pills that remain, dissolve them in 600 ml water, and drink 200 ml each day as your dosage. It would ensure that you would be getting even dosages of each pill (shaking the solution first to ensure a homogenous mixture).

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If you would like to submit an announcement or a short article, please send it via e-mail to Brad Westgate (westgatebs@alma.edu).



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