Event 1 Organizer: Dr. Julie Bergner

UC Riverside Mathematics Department

Math ℂlub ∑veℕt

"Metric Geometry"

Grad Student Volunteers:

- Nishu Lal
- Andrew Monnott
- Matthew Arvanitis

Speaker: Mike Sill, UCR

Abstract:

This talk will be a basic introduction to the geometry of metric spaces. We'll discuss the transition from calculus to Riemannian geometry and from Riemannian geometry to comparison geometry.

Please join the Math Club as they start the new quarter!

Monday, January 9th in Surge 284 from 4:10 p.m. – 5 p.m.

Food & Drinks will
be provided at the event

http://mathdept.ucr.edu/ugrad/ugrad-mathclub.html

Event 2 & 3 Organizer: Dr. Julie Bergner

UC Riverside Mathematics Department

Math ℂlub ∑veℕts

Grad Student Volunteers:

- Nishu Lal
- Andrew Monnot
- Matthew Arvanitis

Undergrad Student Volunteers:

- Emad Totari
- Amanda Hoisington

Friday, January 20th in Surge 284:

"Applying for Summer Programs in Mathematics"

&

Monday, January 23rd in Surge 284
Speaker: Barbara Herzog
"Calculus on a Doughnut: An Illustration of Morse Theory"

Abstract for the 23rd:

In calculus, we can determine the "shape" of a smooth function by using derivatives. By "shape," we mean relative minimums and maximums as well as inflection points. Morse Theory uses derivatives of a smooth function to determine the "shape" of a space, such as a doughnut. By "shape," we mean minimum, maximums, and a concept called homotopy type. This talk will explain how Morse Theory works in general and specifically as it relates to a doughnut, i.e. a torus.

Food & Drinks will
be provided at the events

http://mathdept.ucr.edu/ugrad/ugrad-mathclub.html

Event 4 Organizer: Dr. Julie Bergner

UC Riverside Mathematics Department

Math ℂlub ∑veℕt

Grad Student Volunteers:

- Nishu Lal
- Andrew Monnot
- Matthew Arvanitis

Undergrad Student Volunteers:

- Emad Totari
- Amanda Hoisington

Monday, January 30th, 4:10—5 pm in Surge 284:

Movie:

"Fermat's Last Theorem" — A Documentary on Andrew Wiles

We invite you all to watch the journey of Andrew Wiles on his proof of Fermat's Last Theorem.
Snacks will be provided. We hope to see you all there!

http://mathdept.ucr.edu/ugrad/ugrad-mathclub.html

Event 5 Organizer: Dr. Julie Bergner

UC Riverside Mathematics Department

Math ℂlub ∑veℕt

Monday, February 6th, 4:10—5 pm in Surge 284:

Grad Student Volunteers:

- Nishu Lal
- Andrew Monnot
- Matthew Arvanitis

Undergrad Student Volunteers:

- Emad Totari
- Amanda Hoisington

Speaker: Nishu Lal, UCR

"Introduction to Fractional Dimensions"

Abstract:
In this talk, we will discuss the notion of fractional dimension. It is fascinating to know that there exists geometric objects with a dimension which is not a whole number. Most fractals enjoy this property! As an illustration, we will analyze some of the interesting self-similar fractals such as the Sierpinski gasket and the Koch curve.

We hope to see you there!

Drinks & Snacks will be provided

http://mathdept.ucr.edu/ugrad/ugrad-mathclub.html

Event 6 Organizer: Dr. Julie Bergner

UC Riverside Mathematics Department

Math ℂlub ∑veℕt

Grad Student Volunteers:

- Nishu Lal
- Andrew Monnot
- Matthew Arvanitis

Undergrad Student Volunteers:

- Emad Totari
- Amanda Hoisington

Monday, February 13th, 4:10—5 pm in Surge 284:

Mathematics Facts & Trivia

Abstract:

Can you name these four famous mathematicians? See how much you know about your favorite mathematicians and win prizes!

Hope to see you there.

Drinks & Snacks will be provided

http://mathdept.ucr.edu/ugrad/ugrad-mathclub.html

Event 7 Organizer: Dr. Julie Bergner

UC Riverside Mathematics Department

Math ℂlub ∑veℕt

Friday, February 24th, 4:10—5 pm in Surge 284:

Grad Student Volunteers:

- Nishu Lal
- Andrew Monnot
- Matthew Arvanitis

Undergrad Student Volunteers:

- Emad Totari
- Amanda Hoisington

Franciscus Rebro, UCR
“Weird Fun with Many Dimensions”

Abstract:

Multidimensional geometry was founded over 150 years ago. Following a fifty year lag period in which much technical machinery was developed, the subject's first truly profound application was found by Einstein: time can be thought of as a "fourth dimension" united with space. More recently, string theorists have put forth models of reality in which there are many more dimensions - 11 or even 26. But truly strange things go on way higher up! In this informal talk I'll describe reasons people are thinking about million-dimensional spaces, and offer a brochure of exotic phenomena related to hypervolume measurement.

Drinks & Snacks will be provided

http://mathdept.ucr.edu/ugrad/ugrad-mathclub.html

Event 8 Organizer: Dr. Julie Bergner

UC Riverside Mathematics Department

Math ℂlub ∑veℕt

Grad Student Volunteers:

- Nishu Lal
- Andrew Monnot
- Matthew Arvanitis

Undergrad Student Volunteers:

- Emad Totari
- Amanda Hoisington

Monday, February 27th, 4:10—5 pm in Surge 284:

Futurama: Prisoner of Benda

An episode which makes use of mathematics.

Drinks & Snacks served.

http://mathdept.ucr.edu/ugrad/ugrad-mathclub.html

Event 9 Organizer: Dr. Julie Bergner

UC Riverside Mathematics Department

Math ℂlub ∑veℕt

Grad Student Volunteers:

- Nishu Lal
- Andrew Monnot
- Matthew Arvanitis

Undergrad Student Volunteers:

- Emad Totari
- Amanda Hoisington

Monday, March 5th, 4:10—5 pm in Surge 284:

Tu Pham, UCR
"Proving Pick's Theorem Using Erhart Theory"

Abstract:

Given an integral polytope P in the plane, Pick's Theorem provides a simple formula to compute the area A of of this polytope, A = i + (b/2) -1 where i is the number of lattice points in the interior of P and b is the number of lattice points on the boundary of P. Ehrhart theory states that the function for counting the number of lattice points in an integral polytope of d-dimensions is a polynomial of degree d, and we call this polynomial the Ehrhart polynomial. We will introduce Ehrhart theory and a reciprocity theorem which will help us prove Pick's Theorem. If time permits, we will show examples of how to compute the Ehrhart polynomial of certain polytopes by using generating function.

Drinks & Snacks will be provided

http://mathdept.ucr.edu/ugrad/ugrad-mathclub.html

Event 10 Organizer: Dr. Julie Bergner

UC Riverside Mathematics Department

Math ℂlub ∑veℕt

Monday, March 12th, 4:10—5 pm in Surge 284:

Grad Student Volunteers:

- Nishu Lal
- Andrew Monnot
- Matthew Arvanitis

Undergrad Student Volunteers:

- Emad Totari
- Amanda Hoisington

Sean Tilson, Ph.D student from Wayne State University

"Simple Moduli Spaces"

Abstract:

In precalculus, one learns about conic sections and their standard forms. These standard forms are really part of a bigger idea, the theory of moduli spaces. When mathematicians study geometric objects they often find it helpful view them in families. The geometric analysis of these families is done by investigating the moduli space for the class of objects of interest. We will focus on examples coming from precalculus and try to get an idea of what these moduli spaces and their compactifications look like.

Pizza and drinks will be served!

http://mathdept.ucr.edu/ugrad/ugrad-mathclub.html