

UC Riverside Mathematics Department

Math Club Σ Event**Thursday, April 5th, 4:10 - 5:00 p.m. in Surge 284:****Grad Student
Volunteers:**

- Nishu Lal
- Andrew Monnot
- Matthew Arvanitis

**Undergrad Student
Volunteers:**

- Emad Totari
- Amanda Hoisington

Michael Menke, UCR**“Invariant Variational Problems in sub-Riemannian
Geometry”****Abstract:**

Sub-Riemannian Geometry is a generalization of Riemannian Geometry. We describe how this geometry can arise from contact structures on 3-dimensional Euclidean space and a special space known as the Roto-Translation Group. A large part of current research focuses on finding analogous definitions for quantities such as curvature and minimal surface. We will try and adapt familiar techniques from Riemannian Geometry to accomplish some of these goals.

Snacks and drinks will be served

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

UC Riverside Mathematics Department

Math Club Σ Event**Thursday, April 12th, 4:10 - 5:00 p.m. in Surge 284:****Grad Student
Volunteers:**

- Nishu Lal

Emad Totari, UCR**Undergrad Student
Volunteers:**

- Emad Totari
- Amanda Hoisington

GRE Information Session**Abstract:**

Interested in going to Graduate School for a Masters or Doctorate degree? Confused about how to prepare for the Graduate Record Examination (GRE)? Come join us to learn everything you need to help you prepare for the GRE.

Snacks and drinks will be served

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UC Riverside Mathematics Department

Math Club Σ vent**Thursday, April 19th, 4:10 - 5:00 p.m. in Surge 284:****Grad Student
Volunteers:**

- Nishu Lal

Dr. Jim Kelliher, UCR**Undergrad Student
Volunteers:**

- Emad Totari
- Amanda Hoisington

“Math in the Real World”**Abstract:**

Back in the day when I was in the business world and made a lot of money I wore several hats: software designer, consultant, manager, and amateur mathematician. I will speak of a few of the kinds of problems I faced that required mathematical thinking or techniques and how I went about solving them.

Snacks and drinks will be served

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UC Riverside Mathematics Department

Math Club Σ Event**Thursday, April 26th, 4:10 - 5:00 p.m. in Surge 284:****Grad Student
Volunteers:**

- Nishu Lal

**Undergrad Student
Volunteers:**

- Emad Totari
- Amanda Hoisington

Parker Williams, UCR**“A few immediate results about graphs results via spectra”****Abstract:**

Algebraic graph theory can roughly be thought of as using algebraic techniques to obtain information about graphs. We will work the translation of algebraic properties into properties about graphs. We will look largely at results that involve understanding the spectrum of a linear transformation and if time permits some surprising asymmetric results in the sense some techniques work on some families of graphs and not others.

Snacks and drinks will be served

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UC Riverside Mathematics Department

Math Club Σ vent

Thursday, May 3rd, 4:10 - 5:00 p.m. in Surge 284:

**Grad Student
Volunteers:**

- Nishu Lal

**Undergrad Student
Volunteers:**

- Emad Totari
- Amanda Hoisington

Movie Night:

“The Colors of Infinity”

Come watch an interesting documentary on fractals!

Snacks and refreshments will be provided! We hope to see you all there!

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Math Club Σ Event**Thursday, May 10th, 4:10 - 5:00 p.m. in Surge 284:****Grad Student
Volunteers:**

- Nishu Lal

**Undergrad Student
Volunteers:**

- Emad Totari
- Amanda Hoisington

Brett Bolla, UCR**“Knotted Cobordisms”**

Cobordisms can be thought of as manifolds between manifolds. We will look into some interesting topics of knotted cobordisms, knotted manifolds, and manifolds with knotted boundaries. We will discuss the category of cobordisms with embeddings in 3 dimensional Euclidean space.

Snacks and refreshments will be provided!

We hope to see you all there!

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Math Club Σ VENT**Thursday, May 17th, 4:10 - 5:00 p.m. in Surge 284:****Grad Student
Volunteers:**

- Nishu Lal

Dennis Gumaer, UCR**Undergrad Student
Volunteers:**

- Emad Totari
- Amanda Hoisington

“LaTeX Information Session”

This talk will cover the very basics of LaTeX usage. We will start with a download site of the necessary files. By the end of the talk you should be ready to type your homework in Latex for a cleaner and more professional display of your work.

Snacks and refreshments will be provided! We hope to see you all there!

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UC Riverside Mathematics Department

Math Club Σ VENT

Thursday, May 24th, 4:10 - 5:00 p.m. in Surge 284:

Grad Student Volunteers:

- Nishu Lal

Undergrad Student Volunteers:

- Emad Totari
- Amanda Hoisington

Feedback Session

We want your input! If you've been a participant in the Math Club this year, we'd like to know what you liked and didn't like. If you haven't been involved so far, we'd like to know what might make the math club more interesting to you. At this week's meeting, you'll have a chance to share your opinions and ideas so that we can begin to plan for next year. If you want to be a student leader for the club next year, we want to know that too.

PIZZA AND DRINKS SERVED

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UC Riverside Mathematics Department

Math Club Σ VENT**Thursday, May 31st, 4:10 - 5:00 p.m. in Surge 284:****Grad Student
Volunteers:**

- Nishu Lal

**Undergrad Student
Volunteers:**

- Emad Totari
- Amanda Hoisington

Dr. Alethea Barbaro, UCLA**“From flocking to phase transitions: the mathematics of social dynamics”**

Agent-based models are an increasingly important tool for mathematicians working in interdisciplinary mathematics, since they are highly flexible and accessible to researchers in fields as diverse as physics, biology, criminology, and computer science. This technique has been used to model organisms as diverse as fish, insects, birds, and even people, and the models often exhibit interesting behaviors such as flocking and phase transitions. Recently, these models have spawned an active area of research in mathematics by the derivation and analysis of associated kinetic and hydrodynamic PDEs. Studying these models at a kinetic level opens new mathematical perspectives into the dynamics of such systems, raising new and interesting mathematical questions. Here, we will present some agent-based models for social systems, and examine the PDEs arising from these models.

Drinks and snacks will be served!

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