Quarter: Spring 2014 Organizer: Dr. Kevin Costello

MATH CLUB

Tuesday, April 8th, 4:10 - 5:00 p.m.

In Surge 284

Grad School Information Session

Kenneth Flagg & Scott Manifold, UC Riverside

Undergrad Student Volunteers:

- Kenneth Flagg

In this week's math club, two grad-school-bound seniors Kenny Flagg and Scott Manifold will discuss the graduate school application process in Math and related areas, including advice to help you stand out, choosing recommenders, choosing schools and programs to apply to, and the resources available to help you prepare and make these important decisions.

Snacks and drinks served!

mathdept.ucr.edu/mathclub.html

Quarter: Spring 2014 Organizer: Dr. Kevin Costello

MATH CLUB

Tuesday, April 15th, 4:10 - 5:00 p.m.

In Surge 284

"The mathematics underlying the card game of Set"

Undergrad Student Volunteers:

- Kenneth Flagg

This week's topic will be some of the mathematics underlying the card game of Set, including some problems that are still (notoriously) unsolved.

Snacks and drinks served!

mathdept.ucr.edu/mathclub.html

Quarter: Spring 2014 Organizer: Dr. Kevin Costello

MATH CLUB

Tuesday, April 22nd, 4:10 - 5:00 p.m.

In Surge 284

Groups in Music Theory

Kenneth Flagg, UC Riverside

Undergrad Student Volunteers:

- Kenneth Flagg

One of the most satisfying things about studying algebra is using algebraic concepts to understand things that do not initially seem mathematical. As an example, group theory has become a key part of the formal mathematical study of music theory. I will give an introduction to groups and their properties, and then describe some of the groups that appear in mathematical music theory.

Snacks and drinks served!

mathdept.ucr.edu/mathclub.html

Quarter: Spring 2014 Organizer: Dr. Kevin Costello

MAτH
CLμB

Tuesday, April 29th, 4:10 - 5:00 p.m.

In Surge 284

Undergrad Student Volunteers:

- Kenneth Flagg

Markov Chain Monte Carlo and its Applications to Experimental Cosmology

I will explain Markov Chain estimation techniques and discuss both the benefits of these methods as well as the challenges they face. A few general applications will be presented, but the primary motivation will be the applicability of these tools to data analysis in experimental cosmology. The currently-favored paradigm of standard cosmology will be briefly introduced. What we understand about the evolution of the Universe from early to present will be explained, with particular emphasis on analysis of radiation left over from the early Universe - the cosmic microwave background. Two important uses of Markov Chain Monte Carlo tools are to determine a "best fit" map of the microwave background from imperfect observations of the sky, and to extract information about the underlying cosmology once that map has been determined. No prior knowledge of Markov Chain processes, statistics or cosmology will be assumed.

Snacks and drinks served!

mathdept.ucr.edu/mathclub.html

Quarter: Spring 2014 Organizer: Dr. Kevin Costello

MATH CLUB

Tuesday, May 13th, 4:10 - 5:00 p.m.

In Surge 284

Misused Proof Technique Awareness

Nick Lanni, UC Riverside

Undergrad Student Volunteers:

- Kenneth Flagg

Come to Math Club to see the dangers of using the wrong proof technique, as Nick will explore different proof styles on a typical induction exercise.

Snacks and drinks served!

mathdept.ucr.edu/mathclub.html

Quarter: Spring 2014 Organizer: Dr. Kevin Costello

MATH CLUB

Tuesday, May 20th, 4:10 - 5:00 p.m.

In Surge 284

"From Classical Mechanics to Symplectic Geometry"

Edward Burkard, Notre Dame

Undergrad Student Volunteers:

- Kenneth Flagg

We will start with Newton's equation, and from there, generalize to symplectic geometry. This will eventually require some manifold terminology, but I will keep it as basic as the subject will permit me to. From there, I will talk about a few different fundamental results in the area, as time permits.

Snacks and drinks served!

mathdept.ucr.edu/mathclub.html

Quarter: Spring 2014 Organizer: Dr. Kevin Costello

MATH CLUB

Tuesday, June 3rd, 4:10 - 5:00 p.m.

In Surge 284

Undergrad Student Volunteers:

- Kenneth Flagg

"An Introduction to Projective Geometry with Applications"

Reeve Garrett, The Ohio State University

Projective geometry is a beautiful and rich subject, but unfortunately, many math majors don't learn about it, or their coverage of it (even in courses for graduate students) is driven by formal definition and without much context. In this talk, we'll explore some of the history and motivation for developing the subject, what it is, and why it's useful. If time permits, we'll also take a look at some applications, particularly to the notion of "blowing up" varieties in algebraic geometry (we'll discuss what varieties are and what blowing up is in this talk). There are no formal prerequisites beyond a good understanding of high school math necessary to understand this talk.

Snacks and drinks served!

mathdept.ucr.edu/mathclub.html

Quarter: Spring 2014 Organizer: Dr. Kevin Costello

MATH CLUB

Tuesday, June 3rd, 4:10 - 5:00 p.m.

In Surge 284

Undergrad Student Volunteers:

- Kenneth Flagg

"An Introduction to Projective Geometry with Applications"

Reeve Garrett, former UCR undergrad, now at Ohio State for grad school

Projective geometry is a beautiful and rich subject, but unfortunately, many math majors don't learn about it, or their coverage of it (even in courses for graduate students) is driven by formal definition and without much context. In this talk, we'll explore some of the history and motivation for developing the subject, what it is, and why it's useful. If time permits, we'll also take a look at some applications, particularly to the notion of "blowing up" varieties in algebraic geometry (we'll discuss what varieties are and what blowing up is in this talk). There are no formal prerequisites beyond a good understanding of high school math necessary to understand this talk.

Snacks and drinks served!

mathdept.ucr.edu/mathclub.html