



Thursday, April 4<sup>th</sup>, 4:10 - 5:00 p.m.  
in Surge 284:

Undergrad  
Student  
Volunteers:

“Complex Series at the Radius of Convergence”

- Ashley Gregory

John Simanyi, UC Riverside

**Abstract:**

In complex analysis, as in the real case, we can find a radius of convergence for a given series, dividing the complex plane into separate regions of certain convergence and divergence. What happens at the border, on the circle of precisely that radius? We consider a few examples to investigate

There will be snacks and refreshments



Thursday, April 11<sup>th</sup>, 4:10 - 5:00 p.m.  
in Surge 284:

Undergrad  
Student  
Volunteers:

### “Math Videos by Vi Hart”

- Ashley Gregory

#### Abstract:

Victoria Hart, commonly known as Vi Hart, is a "Recreational Mathemusician", and is most known for her mathematical videos on YouTube. With 25 million video views on her primary YouTube channel, as well as over 300,000 subscribers, her videos have something for everyone. Join us for a showing of a collection of these fun and interesting math videos.

There will be snacks and refreshments.



Thursday, April 18<sup>th</sup>, 4:10 - 5:00 p.m.  
in Surge 284:

Undergrad  
Student  
Volunteers:

Reeve Garrett and Amanda Hoisington

- Ashley Gregory

“The Path of the Math Major”

### Abstract:

Are you a freshman or sophomore math major and not sure what math after calculus is like? Are you not sure what courses you should take next? Are you starting or are about to start upper division math coursework but don't have a clear idea of how it all fits together or in what sequence you should take your courses in? If you answered yes to any of these questions or you are just curious about what upper division math major coursework is like, then this talk is for you! Reeve Garrett and Amanda Hoisington, two Ph.D. program bound graduating seniors who are finishing the Pure Math undergraduate curriculum, will give a rough idea of what various upper division courses are about, briefly outline the interrelation of courses and what they consider to be the best order in which to take courses, and lay out the courses they consider most important for preparation for graduate school.

All are welcome to join us for this presentation, and snacks will be provided.

[mathdept.ucr.edu/mathclub.html](http://mathdept.ucr.edu/mathclub.html)



Thursday, April 25<sup>th</sup>, 4:10 - 5:00 p.m.  
in Surge 284:

Undergrad  
Student  
Volunteers:

Amanda Hoisington

- Ashley Gregory

“P-Adics and the Real Numbers”

### Abstract:

The real numbers can be constructed from the rationals, and is a completion of the rationals in that every Cauchy sequence converges to a point in the reals. There is, however, one other way to complete the rationals by using the p-adic metric rather than the usual absolute value. The world of p-adics is the counterpart to real numbers. It's very counter-intuitive, where numbers that are usually far apart with the usual distance on the reals can be very close together. In this presentation, a brief introduction to the usual completion of the rationals will be followed by a survey of this unusual field of numbers, its properties, and uses.

All are welcome to join us for this presentation, and snacks will be provided.

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Thursday, May 2<sup>nd</sup>, 4:10 - 5:00 p.m.  
in Surge 284:

Undergrad  
Student  
Volunteers:

Dr. John Baez, UCR

- Ashley Gregory

**“5”**

**Abstract:**

Different numbers have different personalities. The number 5 is quirky and intriguing, thanks in large part to its relation with the golden ratio, the "most irrational" of irrational numbers. It is impossible to tile the plane with regular pentagons, or form a crystal with perfect 5-fold symmetry... but trying leads to some beautiful things.

There will be snacks and refreshments.



Thursday, May 16<sup>th</sup>, 4:10 - 5:00 p.m.  
in Surge 284:

Undergrad  
Student  
Volunteers:

Jacob West, UCR

- Ashley Gregory

“Category theory (A Gentle Introduction)”

### Abstract:

Category theory began in the early 1940's in the work of Samuel Eilenberg and Saunders Mac Lane on algebraic topology. They introduced the notions of category, functor, and natural transformation with the goal of understanding natural transformations. In a sense, category theory is a continuation of the work of Emmy Noether in formalizing and studying abstract processes in terms of the structures they preserve. Since its inception, category theory has rapidly become ubiquitous throughout mathematics. In this talk, I will give a (hopefully) gentle introduction to category theory and indicate the general flavor of categorical mathematics.

There will be snacks and refreshments.

[mathdept.ucr.edu/mathclub.html](http://mathdept.ucr.edu/mathclub.html)



Friday, May 24<sup>th</sup>, 4:10 - 5:00 p.m.  
in Surge 268:

Undergrad  
Student  
Volunteers:

Edward Burkard, University of Notre Dame

- Ashley Gregory

“An Introduction to the Gauss-Bonnet Theorem”

### Abstract:

The Gauss-Bonnet theorem is an amazing theorem that draws a, perhaps unexpected, connection between a purely geometric object: the Gaussian curvature, and a purely (combinatorial) topological object: the Euler characteristic. We will define the Euler characteristic and Gaussian curvature of a (2-dimensional) surface and give a proof of the Gauss-Bonnet theorem which should be widely accessible, and easily understood by anyone who has taken Math 10B. Time permitting, we will look at the consequences of the Gauss-Bonnet theorem on the Gaussian curvature on all closed surfaces (up to "homeomorphism").

There will be snacks and refreshments.

[mathdept.ucr.edu/mathclub.html](http://mathdept.ucr.edu/mathclub.html)



Friday, May 31<sup>st</sup>, 4:10 - 5:00 p.m.  
in Surge 268:

Undergrad  
Student  
Volunteers:

Dr. Kuei-Nuan Lin, UC Riverside

- Ashley Gregory

“Blowups”

**Abstract:**

I will start with the definition of a blowup and why mathematician care about blowups. Then I will give some definitions relative to graph theory. Finally I will talk about how do we find the blowups by using graph theory. This is joint work with Louiza Fouli.

Knowing the definition of a polynomial is what you need to understand this talk.

There will be snacks and refreshments.



Friday, June 7<sup>th</sup>, 4:10 - 5:00 p.m.  
in Surge 268:

Undergrad  
Student  
Volunteers:

Reeve Garrett and Amanda Hoisington, University of  
California, Riverside

- Ashley Gregory

“Information Session on the Graduate School Application  
Process, Senior Retrospective, and Feedback Session”

### Abstract:

In this week's math club, two graduating seniors Reeve Garrett and Amanda Hoisington who have been admitted to top 50 Ph.D. programs will discuss the graduate school application process in math (both Masters and Ph.D. programs), 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. In addition, they will discuss the application process and selection criteria for National Science Foundation Graduate Research Fellowships and impart their opinions on what they did right and what they would have done differently during their time at UCR had they known then what they know now. Finally, the meeting will conclude with a feedback session and recruitment of volunteers for the 2013-2014 school year.

There will be snacks and refreshments.

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