

# Carolyn Yarnall

University of Kentucky  
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## Education

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Ph.D. in Mathematics, University of Virginia	May 2013
M.S. in Mathematics, University of Virginia	May 2010
B.A. in Mathematics, University of San Diego	May 2008

## Employment

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Postdoctoral Scholar, University of Kentucky	Fall 2015 - present
Visiting Assistant Professor, Wabash College	Fall 2013 - Spring 2015

## Research Interests

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### Algebraic Topology

Equivariant & Stable Homotopy Theory

### Applications of Combinatorial Topology to Social Science

Voting Theory, Fair Division Algorithms

## Publications

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*The User's Guide Project: Giving Experiential Context to Research Papers*, with Cary Malkiewich, Mona Merling, Frank Lucas Wolcott, and David White. *Journal of Humanistic Mathematics*, 5 (2015), no. 2, 186 - 188.

*A model structure on  $GCat$* , with Anna Marie Bohmann, Kristen Mazur, Angelica M. Osorno, Viktoriya Ozornova, and Kate Ponto, *AMS Contemporary Mathematics Series, Women in Topology: Collaborations in Homotopy Theory*, 123 - 134.

*The Slices of  $S^n \wedge H\mathbb{Z}$  for Cyclic  $p$ -Groups*. Accepted to *Homotopy, Homology, and Applications*. Available as arXiv:1510.02077

*Endomorphisms of Exotic Models*, with Eugenia Ellis, Constanze Roitzheim, and Laura Scull. Submitted. Available as arXiv:1609.06219.

*Approval Voting in Product Societies*, with Kristen Mazur, Tia Sondjaja, and Matthew Wright. Submitted.

## Teaching Experience

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### University of Kentucky

Calculus III	<i>Fall 2015</i>
Introduction to Number Theory <i>Taught in the Inquiry Based Learning Style.</i>	<i>Fall 2016, Spring 2016, Fall 2015</i>
Elementary Topology I	<i>Fall 2016</i>
Elementary Topology II	<i>Spring 2017</i>
Independent Research Project	<i>Spring 2017</i>

### Wabash College

Topics in Contemporary Mathematics <i>A course for non-math majors.</i>	<i>Spring 2015</i>
Calculus I	<i>Fall 2014, Spring 2014, Fall 2013</i>
Calculus II	<i>Fall 2014, Spring 2014</i>
Linear Algebra	<i>Fall 2014, Fall 2013</i>
Abstract Algebra	<i>Spring 2015, Spring 2014</i>
Independent Study in Rings & Fields	<i>Spring 2015</i>
Independent Study in Algebraic Topology	<i>Fall 2014</i>

### University of Virginia

Applied Calculus I	<i>Fall 2009, Spring 2010, Spring 2013</i>
Applied Calculus II	<i>Spring 2011</i>
Calculus I	<i>Fall 2010, Fall 2011</i>
Calculus II	<i>Spring 2012</i>
Calculus III	<i>Summer 2013</i>

## Awards and Honors

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<b>Project NExT Fellow</b>	<i>Summer 2014 - Summer 2015</i>
<b>University of Virginia, Dissertation Fellowship</b>	<i>Fall 2012</i>
<b>University of Virginia, Graduate Teaching Award</b> One of two honorable mentions given by the Mathematics Department.	<i>May 2013, May 2012</i>

## Colloquia, Seminars, and Conference Presentations

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- University of Virginia Topology Seminar** *October 2016*  
Title: Slices, Suspensions, and Connectivity
- University of Kentucky Topology Seminar** *October 2016*  
Title: Towers and Filtrations
- West Coast Algebraic Topology Summer School, University of Oregon** *August 2016*  
Title: Modular Forms
- University of Chicago Topology Seminar** *May 2016*  
Title: Slices and Suspensions
- University of Rochester Topology Seminar** *April 2016*  
Title: Slices and Suspensions
- Midwest Topology Seminar, Northwestern University** *February 2016*  
Title: Slices and Suspensions
- University of Kentucky Seminar** *September 2015*  
Title: An Introduction to Mackey Functors
- Indiana MAA Section Meeting** *March 2015*  
Title: Product Societies: Voting Orthogonally
- Butler University Math Colloquium** *February 2015*  
Title: Cake Cutting and Rent Division.
- Purdue University Topology Seminar** *October 2014*  
Title: Equivariant Stable Homotopy Theory and the Slice Filtration.
- Huntington University Senior Seminar** *September 2014*  
Title: What you can do with a degree in mathematics.
- Wabash College Math Colloquium** *September 2014*  
Title: Cake Cutting and Rent Division.
- JMM Special Session in Homotopy Theory** *January 2014*  
Title: The Slice Tower and Suspensions
- IUPUI Modern Analysis & Geometry Seminar** *November 2013*  
Title: The Slice Tower of Suspensions of HZ
- Univeristy of Kentucky Topology Seminar** *October 2013*  
Title: The Slice Tower of Suspensions of HZ
- University of Kentucky Math Club** *October 2013*  
Title: Linear Algebra and Error-Correcting Codes

## Professional Development

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**West Coast Algebraic Topology Summer School** *August 2016*  
Accepted to participate in a program on connections between homotopy theory and number theory.

**Inquiry Based Learning Workshop** *June 2016*  
Accepted to participate in a four day workshop on creating and managing IBL math courses.

**Equivariant Derived Algebraic Geometry Workshop** *June 2016*  
Accepted to participate in an AIM workshop. Problem list moderator.

**Equivariant Derived Algebraic Geometry Workshop** *February 2016*  
Invited to participate in workshop at the Banff International Research Station.

**Women in Topology II** *July 2015 - April 2016*  
Accepted to the program as a part of the Differential Graded Algebras team. Ongoing collaboration culminating in a workshop at the Banff International Research Station in April 2016.

**Project NExT** *Summer 2014 - present*  
Accepted to the MAA affiliated program in New Experiences in Teaching. Participated in a workshop on teaching and academic related professional development topics.

**Mathematical Research Communities** *June 2014*  
Accepted to the AMS sponsored MRC in Algebraic and Geometric Methods in Applied Discrete Mathematics as a part of the Combinatorial Topology in the Social Sciences group.

**Women in Topology Workshop** *August 2013*  
Invited to participate in a research collaboration and attend a workshop at BIRS as a part of the model categories group.

**Teaching and Learning in Higher Education** *Fall 2012*  
Participated in a a semester-long advanced pedagogy seminar at the University of Virginia.

## Service

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### University of Kentucky

Math Club, Coadvisor *Fall 2016 - present*

Topology Seminar, Organizer *Fall 2016 - present*

Math Circle, Session Leader *September 2016*

Moderator for AWM Panel *Septemeber 2016*

High School Mathematics Day  
*Lead a session on prime numbers.* *October 2016*

*Lead an interactive session on the game of Set.* *November 2015*

## Wabash College

Community Service Committee	<i>Fall 2014 - Spring 2015</i>
Math Club, Coadvisor	<i>Fall 2013 - Spring 2015</i>
Basic Skills Exam Coordinator	<i>Fall 2013 - Spring 2015</i>

## General

Referee for the Rose Hulman Undergraduate Mathematics Journal	<i>Fall 2015 - present</i>
Co-organized Panel for Mathfest <i>Panel: Teaching to Students of Mixed Abilities</i>	<i>August 2015</i>
Judge for JMM Undergraduate Poster Session	<i>January 2015</i>
Crawfordsville Middle School <i>Careers in STEM presentation to a group of middle school girls.</i>	<i>November 2014</i>

## Professional Memberships

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Association for Women in Mathematics	<i>Fall 2014 - present</i>
Mathematical Association of America	<i>Fall 2013 - present</i>

## References

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**Assistant Professor Bertrand Guillou**  
Department of Mathematics  
University of Kentucky  
bertguillou@uky.edu

**Professor Francis Su**  
Department of Mathematics  
Harvey Mudd College  
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**Professor Michael Hill** (Thesis Advisor)  
Department of Mathematics  
UCLA  
mikehill@ucla.edu

**Professor William Turner** (Teaching)  
Department of Mathematics & CS  
Wabash College  
turnerw@wabash.edu

**Professor David Royster** (Teaching)  
Department of Mathematics  
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