

Colby Long

Mathematical Biosciences Institute
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Homepage



Education

- Current **Postdoctoral Research Fellow**, *Mathematical Biosciences Institute*.
- 2016 **Ph.D., Mathematics**, *North Carolina State University*, Advisor: Seth Sullivant, **Winton Rose Award** for thesis: *Algebraic Geometry of Phylogenetic Models*.
- 2013 **M.S., Mathematics**, *North Carolina State University*.
- 2008 **B.A., Mathematics**, *St. Mary's College of Maryland*, Summa Cum Laude.

Publications and Preprints

- 2016 **Identifiability and Reconstructibility of a Modified Coalescent**, with Laura Kubatko, in preparation.
- 2016 **PhylogeneticTrees: A Macaulay2 package for Phylogenetics**, with Hector Baños, Nathaniel Bushek, Ruth Davidson, Elizabeth Gross, Pamela Harris, Robert Krone, AJ Stewart, Robert Walker, arxiv:1611.05805, submitted.
- 2016 **Initial Ideals of Pfaffian Ideals**, arXiv:1610.06524, submitted.
- 2016 **L-infinity Optimization in Tropical Geometry and Phylogenetics**, with Daniel Irving Bernstein, arXiv:1606.03702, submitted.
- 2015 **Bounds on the Expected Size of the Maximum Agreement Subtree**, with Daniel Irving Bernstein, Lam Si Tung Ho, Mike Steel, Katherine St. John, Seth Sullivant. *SIAM J. of Discrete Math.* **29** (2015), no. 4, 2065-2074.
- 2015 **Tying up Loose Strands: The Defining Equations of the Strand Symmetric Model**, with Seth Sullivant. *Journal of Algebraic Statistics.* **6(1)**, (2015), no. 1, 17-23.
- 2015 **Identifiability of 3-Class Jukes-Cantor Mixtures**, with Seth Sullivant. *Adv. In Appl. Math.* **64** (2015), 89-110.

Presentations and Professional Activities

- Oct 2016 **International Symposium on Biomathematics and Ecology Education and Research**, *Charleston, SC*, Invited talk.
- 2016 **SIAM Journal on Applied Algebra and Geometry**, Referee.
- Jun 2016 **Mathematical Research Communities: Algebraic Statistics**, *Snowbird, Utah*, Phylogenetics Group Assistant.
- 2016 **SIAM Journal on Discrete Mathematics**, Referee.
- Jan 2016 **Joint Mathematics Meeting 2016**, *Seattle, WA*, Contributed talk.
- Oct 2015 **Algebraic Geometry and Number Theory Seminar**, *Clemson University, Clemson, SC*, Invited Talk.

- Oct 2015 **NCSU Graduate Student Algebra Seminar**, NCSU, Raleigh, NC, Talk.
- Oct 2015 **AMS Fall 2015 Sectional**, Loyola University, Chicago, IL, Invited talk.
- Jun 2015 **Algebraic Statistics 2015**, Genoa University, Genoa, Italy, Talk.
- Apr 2015 **OFD Teaching and Learning Symposium**, NCSU, Raleigh, NC, **Poster: IBL in the Mathematics Classroom**.
- Mar 2015 **Triangle Area Graduate Mathematics Conference**, NCSU, Raleigh, NC, Talk.
- Nov 2014 **NCSU Graduate Student Algebra Seminar**, NCSU, Raleigh, NC, Talk.
- Oct 2014 **AMS Fall 2014 Western Sectional**, San Francisco State University, San Francisco, CA, Invited talk.
- May 2014 **Algebraic Statistics 2014**, Illinois Institute of Technology, Chicago, IL, Poster.

Teaching and Mentoring

For more details please visit my online teaching portfolio <https://colbyelong.wordpress.com>.

North Carolina State University

- Mar 2016 **Recognition for Excellence in Classroom Teaching**, Recognizes graduate students exemplifying their program's highest degree of teaching achievement in the classroom environment.
- 2013–2016 **Instructor of Record**, MA225: *Foundations of Advanced Mathematics* (twice), MA231: *Calculus II for Life Sciences*, MA141: *Calculus I* (twice), MA103: *Topics in Contemporary Mathematics*, Full teaching responsibilities including preparing all course materials, delivering lectures, holding office hours, supervising teaching assistants, and assigning grades.
- 2015 **Graduate Student Mentor**, *Undergrads Under Grads*, Mentoring program to prepare undergraduates from underrepresented groups (women and minorities) for careers in mathematics.
- 2014 **REU Graduate Student Mentor**, *Mathematical Phylogenetics and the Space of Trees*, Met daily with undergraduate research group to lecture, answer questions, direct research, and establish goals. **Award: Best Poster, MAA-SE Sectional 2015.**
- 2012 **Graduate Teaching Assistant**, MA141: *Calculus I*, MA131: *Calculus I for Life Sciences*, Responsibilities: Leading recitation sessions, holding office hours, grading tests.
- 2011 **Lecture Assistant**, MA341: *Applied Differential Equations*, MA231: *Calculus II for Life Sciences*, Responsibilities: Holding office hours, grading homework and tests.

Professional Development

- 2014–2015 **Preparing the Professoriate**, A selective yearlong future faculty preparation program, Observed and then independently taught an advanced proof-writing course. Completed teaching workshops, conducted peer and faculty observations, presented a professional development project, and created a teaching portfolio.
- 2013–2015 **Certificate of Accomplishment in Teaching Program**, A teaching development program for graduate students at North Carolina State University, Completed teaching workshops, faculty observations, two semesters of teaching, and created a teaching portfolio.

Teaching Workshops

- Jan 2015 **Active Learning: The Learner-Centered Classroom**, *Facilitators: Maxine P. Atkinson and Scott Grether.*
- Oct 2014 **Course Design: From Assessment to Zombies**, *Facilitator: Beth Overman.*
- Oct 2014 **Leading With Care: Recognizing and Responding to Emotional Distress in Others**, *Facilitators: Pete Adams and Jenny Policari.*
- Sep 2014 **Effective Teaching With Technology**, *Facilitator: Beth Overman.*
- Aug 2013 **Introduction to Teaching**, *Facilitator: Susanna Klingenberg.*
- May 2012, **NCSU Mathematics Teaching Assistant Workshops**, *Facilitators: Molly Fenn and*
Aug 2011 *Brenda Burns Williams.*

Other Conferences

- 2011–2015 **Triangle Lectures in Combinatorics**, *University of North Carolina, North Carolina State University, Duke University.*
- 2014 **Teaching and Learning Conference 2014**, *Elon University.*
- 2014 **NSF/CBMS Conference: Mathematical Phylogeny**, *Winthrop University.*
- 2011 **Joint Mathematics Meeting**, *Boston, MA.*

Affiliations

American Mathematical Society.
Society for Industrial and Applied Mathematics.