

Caroline C. Yang

1212 Clarendon Street
Durham, NC 27705
email: yangcc@live.unc.edu
phone: 970-217-9094

University of North Carolina at Chapel Hill
Mathematics Department
120 East Cameron Avenue, CB #3250
329 Phillips Hall
Chapel Hill, NC 27599

EDUCATION

- Ph.D., Mathematics, University of North Carolina at Chapel Hill** **Expected May 2018**
Advisor: Professor Nancy Rodriguez
Thesis: Analysis of Monotone and Non-monotone Traveling Waves in a System for Social Outbursts
- M.A.T., Teaching, Duke University** **June 2007**
Certification in Secondary Education, Mathematics
- B.S., Mathematics, Duke University** **May 2006**
Minor in English

TEACHING EXPERIENCE

University of North Carolina at Chapel Hill, Chapel Hill, NC

Instructor of Record

Developed lecture notes for all classes as well as review materials, quizzes, and tests for Precalculus and Multivariable Calculus. Used Webassign and ALEKS for homework assignments and graded quizzes and tests. Class sizes ranged from 24 to 70 students.

College Algebra	Fall 2014, 2015, 2016, 2017
Multivariable Calculus	Spring 2017, Summer 2017
Precalculus	Summer 2015

Teaching Assistant

Graded homework assignments, and for some classes, proctored midterms and held office hours or answered student questions over email. For Calculus I, led weekly recitation sections as well.

Methods of Applied Mathematics I Professor Katie Newhall, graduate course	Fall 2017
Scientific Computation I Professor Sorin Mitran, graduate course	Fall 2016
Calculus I Professor Chris Jones, undergraduate course	Fall 2015
Differential Equations Professor Hans Christianson, undergraduate course	Spring 2014
Mathematical Methods I Professor Derya Sahin, undergraduate course	Fall 2014

Private Tutor

2009 - Present

Tutored over 50 students one-on-one at the middle school, high school, and college levels in 7th and 8th grade math, Algebra I/II, Geometry, Precalculus, Calculus, Multivariable Calculus, Differential Equations, and Real Analysis.

Northern High School, Durham, NC

Mathematics Teacher

Utilized group-based learning with a combination of hands-on activities, investigations, and guided notes. Prepared students in Geometry, Honors Geometry, and Algebra II for North Carolina End of Course tests.

Geometry

Spring 2008 and 2009, Fall 2008

Honors Geometry

Fall 2007, Spring 2009

Honors Precalculus

Spring 2008 and 2009, Fall 2008

Algebra II

Fall 2007

RESEARCH EXPERIENCE

Research Assistant, University of North Carolina at Chapel Hill

Summer 2016, Spring 2015

Investigating numerical approximations of solutions to a reaction diffusion system modeling the spread of rioting behavior. Investigating stability and existence of observed traveling wave solutions. Supervisor: Professor Nancy Rodriguez

Research Assistant, University of North Carolina at Chapel Hill

Summer 2014, Fall 2013

Research on behavior of non-Newtonian fluid flow about a rotating rod. Ran experiments tracking microparticles through the fluid. Supervisors: Professor Roberto Camassa and Professor Richard McLaughlin

ACADEMIC HONORS AND FELLOWSHIPS

Durham Teaching Fellowship, Duke University

2006

Research Experience for Undergraduates (REU),
Grand Valley State University

2005

Supervisor: Professor Edward Aboufadel

CONFERENCES

Reaction Diffusion, Propagation, and Modeling, Institut Henri
Poincaré, Paris, France, November 20-24

2017

Mathfest, Albuquerque, NM, August 4-6

2005

Detecting Forged Handwriting with Wavelets and Statistics

TALKS

**Graduate Mathematics Association Visions Seminar,
University of North Carolina at Chapel Hill, October 9**
Stability Analysis of Traveling Wave Solutions for a System for
Social Outbursts

2017

SERVICE

**Mentor for Undergraduate Mathematics Students, University of
North Carolina at Chapel Hill**

Spring 2017 - Present

Mentoring two undergraduate mathematics majors as part of UNC's
AWM chapter mentoring initiative.

Girls Talk Math, University of North Carolina at Chapel Hill

Summer 2017, Summer 2016

Developed instructional material for several scientific computing topics
for Girls Talk Math (a 2-week summer math camp for local high school
girls). Developed materials for investigating recurrence relations, Monte
Carlo simulations, number systems/computer arithmetic, and
programming in Mathematica. Gave an introductory presentation to
dynamical systems.

Science Expo, University of North Carolina at Chapel Hill

Spring 2017

Worked as a volunteer and ran a booth with an experiment demonstrating
standing wave patterns.

RELATED WORK EXPERIENCE

Measurement Incorporated, Durham, NC

2009 - 2013

Research Associate

Created equating reports, used SAS 9.1 and Microsoft Excel to perform
statistical analyses for test items, wrote SAS programs to perform
statistical analyses and to create first draft test blueprints.

Math Content Specialist

Wrote and edited mathematics open-ended and multiple choice items
for 1st, 2nd, 3rd, and 8th grade and Algebra I, Geometry, and Algebra
II courses. Coordinated and reviewed assignments sent to item writers
through email correspondence. Created a Microsoft PowerPoint
presentation for a mathematics item writer training webinar and led a
series of three onsite mathematics item writer training sessions with two
colleagues.

Northern High School, Durham, NC

2007 - 2009

See Teaching Experience for classes taught and description of
responsibilities.

PAST PUBLICATIONS

- [1] Lytle, Beverly and Yang, Caroline. [Detecting Forged Handwriting with Wavelets and Statistics](#). *Rose-Hulman Institute of Technology Undergraduate Math Journal*. Volume 7, Issue 1, 2006.
- [2] Yang, Caroline (work with Levy, Rachel, Olufsen, Mette, and Witelski, Thomas). Modeling Effects of Aging on Blood Flow and Pressure in the Arterial System. *Vertices: Duke University Journal of Science and Technology*. 23: 6-15, 2006.

SKILLS

LaTeX, MATLAB, Mathematica, SAS, AUTO-07P, R, Microsoft Office, SQL, Webassign, ALEKS

MEMBERSHIPS

American Mathematical Society	2015
Association for Women in Mathematics	2013