

# Kelly Buch

---

101 South College  
University of Tennessee  
Knoxville, TN 37996  
kbuch at vols.utk.edu

## EDUCATION

**Doctor of Philosophy, Mathematics**  
University of Tennessee, Knoxville, TN  
*Concentration:* Mathematical Ecology  
*Advisor:* Dr. Nina Fefferman

Anticipated May 2022

**Master of Science, Mathematics**  
University of Tennessee, Knoxville, TN

December 2019

**The EDGE Program**  
Mills College, Oakland, CA

Summer 2017

*A preparatory program for women entering Ph.D programs in mathematics*

**Bachelor of Science, Mathematical Studies**  
**Bachelor of Arts, Foreign Language and Literature**  
Southern Illinois University Edwardsville (SIUE), Edwardsville, IL  
*Honors:* Summa Cum Laude  
*B.S. Major:* Applied Mathematics  
*B.S. Minor:* Biological Sciences  
*B.A. Major:* Spanish

May 2017

## TEACHING EXPERIENCE

- Graduate Teaching Associate Fall 2017-Present  
*Department of Mathematics, University of Tennessee, Knoxville*
  - Instructor of Record:
    - \* Math 119: College Algebra (Summer 2019)
    - \* Math 125: Basic Calculus (Fall 2018, Spring 2019, Fall 2019, Spring 2020)
  - REACT (Reaching Excellence through Active Coordinated Teaching) Leader:
    - \* Math 119: College Algebra (Fall 2017)
    - \* Math 125: Basic Calculus (Spring 2018)
- Mathematics Tutor Spring 2016-Spring 2017  
*Math Resource Center, SIUE*
  - Tutor undergraduate students in math up to Calculus
  - Assist with homework for physics, statistics, and quantitative reasoning courses
- Undergraduate Teaching Assistant Spring 2016  
*Department of Mathematics and Statistics, SIUE*
  - Lead homework help sessions and answer questions
  - Review for and proctor quizzes

- Assistant in Bilingual Mathematics Classroom Spring 2015  
*El Colegio Diocesano Internacional Virgen de Gracia, Granada, Spain*
  - Reviewed and corrected homework in English with 6th grade Spanish students
  - Conversed with students to allow them to practice listening to mathematics English
- Supplemental Instruction Leader for Calculus II Fall 2014, Fall 2015  
*Department of Mathematics and Statistics, SIUE*
  - Prepared for and lead several small-group review sessions weekly
  - Attended class and assisted professor with review sessions

## PUBLICATIONS

Buch, K., N.H. Fefferman. (In progress.) The Affect of Habitat Discoverability on Establishment of the Redbay Ambrosia Beetle.

Buch, K. N.H. Fefferman, M. Romero. (In progress.) A Mathematical Model for Reactive Scope as a Theory of Stress Physiology.

## CONTRIBUTED TALKS

NIMBioS Undergraduate Research Conference October 2016  
 Knoxville, TN  
 Title: Mathematical Model of Swimmer's Itch with Praziquantel Treatment

Joint Math Meetings January 2016  
 Seattle, Washington  
 Title: Female Centered Mate Selections as an Explanatory Mechanism for Dimorphic Solution in a Rock-Paper-Scissors Game

## POSTER PRESENTATIONS

Symposium on Biomathematics and Ecology Education and Research October 2016  
 Charleston, South Carolina  
 Title: Mathematical Model of Swimmer's Itch with Praziquantel Treatment

Joint Math Meetings January 2016  
 Seattle, Washington  
 Title: Female Centered Mate Selections as an Explanatory Mechanism for Dimorphic Solution in a Rock-Paper-Scissors Game

SACNAS National Conference October 2015  
 Washington D.C.  
 Title: Female Centered Mate Selections as an Explanatory Mechanism for Dimorphic Solution in a Rock-Paper-Scissors Game

Symposium on Biomathematics and Ecology Education and Research October 2015  
 Normal, Illinois  
 Title: Female Centered Mate Selections as an Explanatory Mechanism for Dimorphic Solution in a Rock-Paper-Scissors Game

## **SERVICE TO THE PROFESSION**

UTK AWM Chapter Secretary

March 2019-Present

## **PROFESSIONAL AFFILIATIONS**

- Association for Women in Mathematics (AWM)
- American Mathematical Society (AMS)
- Intercollegiate Biomathematics Alliance (IBA)
- Society of Industrial and Applied Mathematics (SIAM)

## **HONORS, AWARDS, & FELLOWSHIPS**

- Tennessee Fellowship for Graduate Excellence August 2017
- Gordon T. Chamness Memorial Award for Excellence in Mathematics April 2017
- Clellie Curtis Oursler Senior Scholarship in Mathematics April 2016
- Gordon T. Chamness Memorial Award for Excellence in Mathematics April 2015
- College of Arts and Sciences Stellar Student January 2015
- Cultural Experiences Abroad Academic Excellence Scholarship January 2015
- Meridian Scholar Full Ride Scholarship Fall 2013

## **OUTREACH & COMMUNICATION**

- Video: *Social Selection: The Game Theory of Animal Reproductive Social Behavior* December 2019