Amy Peterson

University of Connecticut
Department of Mathematics
Monteith Hall 322
Storrs, CT 06269

Email: amy.peterson@uconn.edu
Homepage: https://amy-peterson.grad.uconn.edu/

Research Interests

Probability, Data Science, Infinite Dimensional Analysis and Abstract Wiener Spaces, Spherical Harmonics.

Education

- Ph.D. Mathematics. University of Connecticut, Storrs, Connecticut. May 2019 (Expected).
  Advisor: Dr. Ambar Sengupta.

    · Dissertation: Gaussian Limits and Polynomials on High Dimensional Spheres. Advisor: Dr. Ambar Sengupta.

    · (Transferred to University of Connecticut) Ph.D. Student Mathematics. Louisiana State University, Baton Rouge, Louisiana. August 2014-May 2017.

- M.S. Mathematics (Probability). Auburn University, Auburn, Alabama. May 2014.

- B.S. Mathematics. Auburn University, Auburn, Alabama. May 2011.

Publications

1. Peterson, Amy and Sengupta, Ambar. *The Gaussian Limit for High Dimensional Spherical Means.* Journal of Functional Analysis **276** (2018), no. 3, 815-866. DOI: 10.1016/j.jfa.2018.06.020

2. Peterson, Amy and Sengupta, Ambar. *Limiting Means of Spherical Slices* Communications on Stochastic Analysis **12** (2019) no. 3. Article 4. DOI: 10.31390/cosa.12.3.04

3. Peterson, Amy and Sengupta, Ambar. *Polynomials and High-Dimensional Spheres* (submitted).

Research Project and Other Activities

Data Science Research Project

I am currently working with the UCONN Health Center for Quantitative Medicine on a project looking at medical data analysis utilizing topological data analysis techniques with R programming language.

Graduate Student Organizations

- Vice President and founding member of UCONN SIAM (Society for Industrial and Applied Math.) chapter Fall 2017. (www.siam.math.uconn.edu)

    · helped apply for membership as a graduate student chapter of SIAM

    · organized computer software (Python and R) workshops for graduate students.

· currently working on interdisciplinary research expo for all UCONN STEM departments.

- Secretary of LSU SIAM chapter elected Jan. 2017.

   · helped organize interactive meetings with speakers
   · helped organize meeting with recent graduates on job search process

- Member of the Student Colloquium Committee Fall 2016-May 2017 (LSU).

   · helped organize two speakers per semester

Awards

- Awarded Predoctoral Dissertation fellowship for Spring 2019

- Awarded Doctoral Disseration fellowship for Spring 2019

Workshop and Other

- MSRI summer school *Representations of High Dimensional Data*. July 2018. covering the topics of compressed sensing and machine learning.

- MSRI workshop Fall 2017 *Geometric functional analysis and its applications*.

- Graduate Student Panel Women in Mathematics (WIM) conference, Smith College Sept 2017

- planned attendance at Women in Data Science Central Massachusetts Conference, Worcester Polytechnic Institute, March 2019

Talks

Joint Mathematical Meeting, Baltimore Maryland, Jan. 2019, *"The Gaussian Limit of High Dimensional Spherical Means."* invited speaker.

Northeast Analysis Network, University at Albany, SUNY, Sept. 2018. *"The Gaussian Limit of High Dimensional Spherical Means."*

Sigma Seminar, University of Connecticut, Sept. 2018,*"Gaussian Measures and the Gaussian Limit of High Dimensional Spherical Means."* invited speaker

Graduate Colloquium, University of Denver, Nov. 2018, *"The Limit of Integrals over Slices of High Dimensional Spheres."* invited speaker.

Analysis Learning Seminar, University of Connecticut, April 2019.

Teaching

Primary Instructor

(All class sizes were 30-40 undergraduate students.)

- Fall 2012 Pre-Calculus (two sections). Auburn University

- Spring 2013 Calculus III (one section). Auburn University

- Fall 2013 Calculus I (two sections). Auburn University

- Spring 2014 Calculus I (two sections). Auburn University

- Fall 2016 Calculus I (one section). Louisiana State University

- Spring 2017 Calculus II (one section). Louisiana State University

- Spring 2018 Problem Solving (two sections). University of Connecticut

- Fall 2018 Business Calculus I (one section). University of Connecticut

Teaching Assistant

Assistant to Business Calculus Coordinator Fall 2015 and Spring 2016 Louisiana State University

Teaching Assistant and Grader for Calculus I, Ordinary Differential Equations, Business Calculus, Discrete Mathematics, Probability (multiple semesters)

REU assistant

I assisted with the Markov Chain REU at the University of Connecticut run by Dr. Iddo Ben-Ari. My duties included organization and academic assistance to Dr. Ben-Ari advising eight undergraduate students in different projects involving discrete time Markov Chains. All projects included computer simulations using computer software including Matlab and Python

<div align="center">Last updated: February 27, 2019</div>