The
Senior Conference Presentation Q&A Sessions
for
The Class of 2021

Part I: Tuesday, November 17, 2020
3:45 p.m. – 4:45 p.m.

And

Part II: Friday, November 20, 2020
9:00 a.m. – 10:00 a.m.

The Department of Mathematics & Statistics
Swarthmore College

Instructions:

1. Join the Math 97 Presentations Slack Channel:
   https://bit.ly/2UgEAkK
   Slides and video presentations will be available by Mon, Nov 16, Noon EST.
   Each student will have a channel:
   #TuesOrFri-LastName-Firstname
   (An up-to-date copy of this program will be available in the #program channel.)

2. Join the Zoom meeting to hear from and/or ask questions of the presenters:
   https://swarthmore.zoom.us/j/82462250490
   Attendees will be given co-host privileges to move between breakout rooms.

3. You are encouraged to leave comments and questions in the individual presenters’ slack channels (before, during, and after the Q&A sessions).

4. Thank you for supporting the Class of 2021!
Part I:
Tues Nov 17, 3:45 p.m. – 4:15 p.m.

Talbot Child (Room 1):
Any Way You Want It: Various Approaches to Understanding and Proving the Fundamental Theorem of Algebra

Lucy Decker (Room 1):
Crystallographic Group Theory

Kevin Choi (Room 2):
Arrow Impossibility Theorem

Luke Wang (Room 2):
Mathematical Underpinnings of Musical Ratios

Arjun Madan (Room 3):
Betting Strategy in Two-Person, Unif(0,1) Poker Models

Eddie Wu (Room 3):
Nash equilibrium existence theorem

Juliette Narame (Room 4):
Dempster-Shaffer theory

Danielle Rossetti Dos Santos (Room 4):
VNM utility theorem and expected utility theory

Part IB:
Tues Nov 17, 4:15 p.m. – 4:45 p.m.

Dominic Woodward (Room 1):
Modeling Tumor Growth

Keegan McKenna (Room 1):
Agent-Based Model of Disease Spread

JJ Balisanyuka-Smith (Room 2):
Stochastic and Deterministic neuronal models

Jung Ji Ju (Room 2):
Brownian Motion and its Applications in Finance

Thomas Blakelock (Room 3):
Long Year, Short Season: Modeling MLB Divisional Standings

Josh Geselowitz (Room 3):
Mathematics of Cities

William Han (Room 4):
The Naive Bayes Classifier, and applications to NBA predictive modeling

Austin Kim (Room 4):
Ridge Regression in NBA Advanced Statistics

Part II:
Fri Nov 20, 9:00 a.m. – 9:30 a.m.

Francesco Massari (Room 1):
Optimality of Huffman Coding

Maria Fernanda Sampaio Ferreira (Room 1):
Elliptic Curve Cryptography

Sam Rothstein (Room 2):
Compressive sensing Theory and Applications

Claudia Xu (Room 2):
Metropolis-Hastings algorithm: An implementation of MCMC

Sumi Onoe (Room 3):
Greibach Normal Form

Genji Kawakita (Room 3):
Contrastive Divergence for Restricted Boltzmann Machine

Part IIb:
Fri Nov 20, 9:30 a.m. – 10:00 a.m.

Alexander Flowers (Room 1):
Measuring Spatial Autocorrelation: Moran’s I and friends

Madeleine Ward (Room 1):
Spatial Disaggregation

Jihye Yoon (Room 2):
Gompertz-Makeham Law of Mortality in Survival Analysis

Julia Dalrymple (Room 2):
Where There’s Smoke: Logit Models for Wildfire Occurrence

Jessica Yang (Room 2):
Optimal Stopping of a Markov Chain

Keonwoo Oh (Room 3):
Relational Completeness

Lizhi Guo (Room 3):
No Regret Dynamics