Career & College Panelists

Clarissa Chavez - **Auburn Montgomery**
Assistant Professor, Department of Psychology

Ali Dougherty - **University of Alabama**
Junior, Chemical Engineering Major

Allison Garrett - **SABIC Innovative Plastics**
Chemical Engineer

Michelle Parks - **Warren Averett**
CPA/ABV, CVA

Ashley Paulk - **University of Alabama Birmingham**
Graduate student, Doctor of Physical Therapy

Michelle Taliaferro - **Auburn Montgomery**
Lecturer, Department of Biology

Workshop Leaders

Dr. Mosisa Aga, Associate Professor, Dept. of Mathematics, AUM
Dr. Scott Brown, Associate Professor, Dept. of Mathematics, AUM
Ms. Marty Dougherty, Instructor, Dept. of Mathematics, AUM
Dr. Bryce Duncan, Instructor, Dept. of Mathematics, AUM
Dr. Rhodes Peele, Associate Professor, Dept. of Mathematics, AUM
Dr. Furman Smith, Associate Professor, Dept. of Mathematics, AUM
Dr. Luke Smith, Director, Instructional Support Lab, AUM
Dr. Yi Wang, Associate Professor, Dept. of Mathematics, AUM

Technical Coordinator

Dr. Yi Wang, Associate Professor, Dept. of Mathematics, AUM

Additional Help Provided by

Debra Mangus – Administrative Assistant, Dept. of Mathematics, AUM
Math Club – Department of Mathematics, AUM
Engineering Club – Department of Mathematics, AUM

History of Sonia Kovalevsky Day at AUM

AUM's **Sonia Kovalevsky (SK) Day** is a one day program for young women who are enrolled in Algebra I or higher. The Department of Mathematics here at AUM hosted its first SK Day back in February 2004. Since that time, AUM has hosted a total of seven SK Day events. Similar events have been presented across the country with partial funding through grants from the Association for Women in Mathematics (AWM), the National Security Agency (NSA), and various universities. This program has always been strongly supported by AUM administration and has opened up opportunities for young women by having them actively learn about various mathematics topics, hear from a respected female mathematician, and learn about numerous math related careers through a career panel. Sonia Kovalevsky is credited as the first female to be awarded a doctorate in mathematics.

Program Organizers

Scott Brown
Marty Dougherty
Jerome Goddard II
Enoch Lee
Rachel Paulk
Mathew Ragland

Sponsored By

AUM Office of the Provost
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NOVEMBER 16, 2013
SONIA KOVALEVSKY MATHEMATICS DAY

"..Many who have never had the occasion to discover more about mathematics confuse it with arithmetic and consider it a dry and arid science. In reality however, it is a science which demands the greatest imagination." *~Sonia Kovalevsky*

Workshops

Dr. Mosisa Aga (1): ***Alphametic Puzzles***, An alphametic puzzle (also sometimes known as a cryptarithm) is a type of puzzle where words are put together into an arithmetic formula such that digits can be substituted for the letters to make the formula true. In this presentation we will first introduce the definition and the Guiding Rules of the puzzle and then have fun with some (selected) easier such puzzles.

Dr. Scott Brown (1): ***Biography of Sonia Kovalevsky***

Dr. Scott Brown (2): ***Creating polyhedrons with Polydrons***, Using regular triangles, squares, and pentagons we will create the five Platonic solids.

Ms. Marty Dougherty (2 & 3): ***Tessellmania,*** We will briefly explore the life of M.C. Escher, a man who created unique and beautiful works of art that portray a wide range of mathematical ideas. He is most famous for his fascinating tessellations, which are arrangements of repeating geometric patterns without any gaps. Then we will learn how to make a basic tessellation using paper, scissors, and drawing utensils. Be ready to create your own work of art.

Dr. Bryce Duncan (3): ***Vertex Colorings in Graphs***, We will explore ideas related to partitioning sets using visual representations.

Dr. Rhodes Peele (3): ***Probability and Poker***, We will show how to calculate the probability of getting various kinds of hands (flushes, full houses, straights, etc.) on the deal in the game of draw poker. After developing and applying the relevant mathematics, we will see how accurate our answers are in practice by conducting a hands-on probability experiment.

Dr. Furman Smith (2): ***Programming a Simple Video Game in LOGO,*** With use of the computer lab, this talk illustrates how to program a video game with the classic programing language Logo.

Dr. Luke Smith (1): ***Living Without Debt***, In this workshop, you will learn a major component to a financially secure lifestyle: how to create and use a budget. Expect a hands-on, interactive session.

Dr. Yi Wang (2): ***Investment and Betting***, In this workshop, we will discuss how Kelly's Criterion is at work when making a long-term investment strategy or a betting strategy.

(indicates workshop session number)

SCHEDULE

ALL EVENTS WILL BE HELD IN GOODWYN HALL

Time:	Description:	Location:
8:00am - 8:55am	**Registration & Refreshments**	**Lobby**
9:00 am - 9:15am	**Welcome & Introductions**	**109**
9:15am - 10:15am	**Keynote Address:** Dr. Katie Johnson *Finding the Best Path*	**109**
10:25am - 11:15am	**Parallel Workshop Session #1**	**Various (see ticket)**
11:15am - 12:10pm	**Lunch**	**Lobby**
12:10pm - 1:00pm	**Parallel Workshop Session #2**	**Various (see ticket)**
1:10pm - 2:00pm	**Parallel Workshop Session #3**	**Various (see ticket)**
2:10pm - 3:10pm	**Career Panel Discussion**	**109**
3:10pm - 3:30pm	**Closing Remarks & Evaluations**	**109**

Key Note Speaker
Dr. Katie Johnson

Florida Gulf Coast University
Assistant Professor of Mathematics
Department of Chemistry and Mathematics

Dr. Johnson grew up in Tampa, FL, where she graduated three years early, and then proceeded to the College of William and Mary in Virginia to major in mathematics with a minor in computer science. From there, she attended graduate school at the University of Nebraska-Lincoln, earning a master's degree in 2009 and a PhD in 2012. Dr. Johnson was the recipient of a national scholarship from the Jack Kent Cooke Foundation and has also participated in many research programs, including the Clay Math Institute's Research Academy (high school), the National Security Agency's Director's Summer Program (college), and the Seminaire de Mathematiques Superieures in Montreal (graduate school). She is currently teaching at Florida Gulf Coast University in sunny Fort Myers (AKA Dunk City) and is enjoying fixing up a 1920 craftsmen bungalow with her husband Brian (also a mathematician) and pointer dog Maggie.

Finding the Best Path Suppose you want to take a trip where you visit a lot of different cities, but you want to do it in a way that is efficient. For example, you want to spend as little time as possible traveling between cities, or you want to spend as little money as possible on gas or train tickets. How do you determine what route you should take? Can you determine the best route in a reasonable amount of time, without having to check every possible option? This is known as the Traveling Salesperson Problem, and it has been one of the most widely studied unsolved math problems of the last century. We will learn about this great problem and how it relates to our own journeys in life, and we will also have a chance to try out some techniques planning a trip!