

The Fullerton College Mathematics Colloquium  
presents

**Evan Amoranto**  
Fullerton College

**“Generalizations of Fibonacci Sequences and the Question of Whether  
Infinitely Many Fibonacci Numbers are Prime”**

ABSTRACT:

Evan Amoranto is entering Math 250A this semester at Fullerton College and has spoken at the Math Colloquium and the Pacific Summer Unsolved Mathematics Seminar. Amoranto has a particular talent for giving extremely clear presentations. His talk will certainly be understandable to anyone who knows what a variable is.

Mr. Amoranto will explain what Fibonacci sequences are, and he will discuss the several ways to generalize them. He then will discuss the open problem of whether or not any of these sequences have infinitely many prime numbers in them, as well as point out some surprising occurrences of these sequences in the universe.

(Dr. Dana Clahane, mentor)

**Dr. Dana Clahane**  
Fullerton College

**“Is a sigma-field in a set  $X$  always, ever, or never closed under a quandle  
operation on the power set of  $X$ ?”**

ABSTRACT:

Every knot induces an abstract mathematical object called a quandle (induced by the given knot). One can formulate many new, basic questions about possible connections between a quandle on the power set of a set  $X$ . Recently, FC student Justin Gottula, who is an ENGAGE in STEM Summer Research Intern with Dr. Clahane, independently found an algorithm that generates all quandle multiplication tables for sets up to size 5, with 6 on the verge of being computationally complex. A Georgia Tech research group recently did the same for sets up to size 9. Using these quandles as examples, one can copy their multiplication tables into an identical quandle structure on the power set of a set  $X$ . It is then natural to ask whether or not sigma-fields, which Dr. Clahane will define, in  $X$ , are closed under any, all, or no reasonable quandle operations. He will discuss joint work with Khoi Vo on these questions. Participants will learn about congruence modulo  $n$  and cyclic quandles of order  $n$ , as examples. No mathematical background past second-year high school algebra is needed in order to completely understand this talk.

**Thursday, September 6, 2012**  
**12:45-2:50pm**  
**North Science Building, Room 623**  
**Fullerton College**  
**321 E. Chapman, Fullerton CA 92832-2095**

Pizza and punch provided by ENGAGE in STEM, administered by the Fullerton College Office of Special Programs.