MSCS MESS

	Today's Seminar
Title:	Elliptic Curves Over Function Fields
Speaker:	Prof. Tyler Billingsley
Date:	**Friday, December 3**
Time:	3:30pm
Location:	RNS 204

About the talk: Elliptic curves over function fields (and their generic fibers, elliptic surfaces) play a surprising role in the arithmetic of elliptic curves. Studying these objects, which initially seem more complicated, can lead to insights about elliptic curves over the rational numbers or number fields. The primary method of obtaining these insights is called specialization. In this talk, after an accessible overview of some essential facts and problems regarding elliptic curves, we will discuss how the concept of specialization gives us a way to approach these problems via the theories of algebraic surfaces and function fields. In particular, we will discuss a recent algorithm that one can use to check when specific specialization maps are injective. Students registered for Math 382: Elliptic Curves are especially encouraged to attend to see some big picture ideas that we will discuss in detail next semester.

About the speaker: Tyler Billingsley received his BS in Mathematics with a minor in Computer Science from Purdue University Calumet in May 2013. He continued on to Purdue University's main campus for graduate school and earned his PhD in mathematics in August 2020. His primary research area is number theory, more specifically the arithmetic aspects of the theory of elliptic curves and surfaces such as finding rational solutions to cubic equations. In his free time, he enjoys biking around the trails near Bloomington and playing video games, particularly platformers and RPGs.

	Next Week's Seminar
Title:	Brauer Graph Algebras and Voltages
Speaker:	Prof. Adam Wood '16
Date:	**Friday, December 10**
Time:	3:30pm
Location:	RNS 204

About the talk: This talk will introduce the notion of a Brauer graph and a certain algebra arising from a Brauer graph, called a Brauer graph algebra. This type of algebra appears in the representation theory of finite groups over fields of prime characteristic and has been the object of much study. After an overview of Brauer graph algebras, we connect Brauer graph algebras with voltage graphs, and describe a family of maps involving Brauer graph algebras using this connection. We also discuss current work on enumerating the number of isomorphism types of certain Brauer graphs.

About the speaker: Adam is currently in his second year as a visiting assistant professor at St. Olaf. He earned his Ph.D. from the University of Iowa in 2020. His main research area is in the representation theory of finite groups, where one uses the power of linear algebra to study objects related to finite groups.