

# ***Bi-State Math Colloquium***

**Who:** Fernando Miranda-Mendoza

**When:** Thursday, November 14, 4:00 pm

**Where:** Ottensman 122, UW-Platteville

## The Pricing of Options and the Black-Scholes Model

An option is a financial contract whose value depends on more basic underlying variables. Very often these variables are the prices of traded assets. A stock option, for instance, is a contract whose value depends on the random price of a stock. Nevertheless, options can be dependent on almost any variable, from the price of corn to the amount of rainfall at a certain theme park. An option pricing model attempts to answer the question: How much would one pay for an option?

In the early 1970s three economist, Fischer Black, Myron Scholes, and Robert Merton made a major breakthrough in the pricing of options and developed what later became to be known as the Black-Scholes model. This model has had a tremendous influence on the financial community and has also been pivotal to the growth and success of financial engineering in the 1980s and 1990s. In large part due to the financial crisis of 2008, the Black-Scholes model has recently been subjected to repeated criticism for its shortcomings. However, it is still considered the standard model for option pricing and remains in widespread use.

In this talk we briefly introduce some of the features of option pricing, present the basic modeling framework, and introduce a summary of the Black-Scholes model. This presentation attempts to illustrate the intricate and interdisciplinary nature of mathematical finance and should be accessible to anyone with a basic understanding of differential calculus and elementary statistics.

**Fernando Miranda-Mendoza** graduated from Iowa State University with a doctoral degree in Applied Mathematics. He has been a faculty member in the UW-Platteville Mathematics Department since 2010.