Abstracts of the Colloquium Talks: Summer 2012
Department of Mathematics

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| Thursday, Jul 11 | Mashael Alammari, University of Dayton  
Asymptotically Stable Solutions of a Nonlinear Volterra Integral Equation | 2:30 PM, SC 323 |
| Thursday, Jul 11 | Amani Sayed, University of Dayton  
Classification of Solutions of Systems of Integrodifferential Equations | 3:00 PM, SC 323 |
| Monday, Jul 16   | Murat Adivar, Izmir University of Economics  
Is convexity possible without connectedness? | 2:30 PM, SC 216 |
| Thursday, Jul 26  | Natalia Medynets, University of Dayton  
Hedge Fund Performance and Strategies under Different Market Regimes | 2:30 PM, SC 320 |
| Tuesday, Jul 31   | Asma Alhazmi, University of Dayton  
Analysis and Comparison of Accuracy and Profitability of Japanese Candlestick Signals in Trading High Volatility versus Low Volatility Stocks | 2:30 PM, SC 320 |
| Tuesday, Jul 31   | Xin Yu, University of Dayton  
Comparative Analysis between Contrarian and Momentum Strategies in the American Stock Market | 3:00 PM, SC 320 |
| Tuesday, Jul 31   | Tao Tian, University of Dayton  
Option Pricing Based Regime-Switching Recombining Tree | 3:30 PM, SC 320 |
| Thursday, Aug 2    | Shaina Palda, University of Dayton | 12:30 PM, SC 323 |

Asymptotically Stable Solutions of a Nonlinear Volterra Integral Equation
Mashael Alammari

**Abstract:** In this paper we obtained the existence of asymptotically stable solutions of the nonlinear Volterra integral equation. We employed Schauder’s Fixed Point Theorem as the primary mathematical tool.

Classification of Solutions of Systems of Integrodifferential Equations
Amani Sayed

**Abstract:** We give asymptotic classification of the positive solutions of a class of twodimensional nonlinear Volterra integro-differential equations. Also, we furnish necessary and sufficient conditions for the existence of such positive solutions.

Is convexity possible without connectedness?
Murat Adivar

**Abstract:** In this talk, a general convexity notion for the disconnected sets and functions on disconnected sets will be introduced. Moreover, a general duality notion for the convex cones and convex functions over disconnected domains will be established by means of the new convexity notion.
Hedge Fund Performance and Strategies under Different Market Regimes
Natalia Medynets
Abstract: In this thesis we study hedge fund performance under different market regimes. The purposes of our study are to determine whether hedge funds are exposed to market risk; whether hedge funds exposed to market risk perform better or worse; what risk factors distinguish good or bad performers; and to find the strategy difference between good and bad performers during different market cycles.

Analysis and Comparison of Accuracy and Profitability of Japanese Candlestick Signals in Trading High Volatility versus Low Volatility Stocks
Asma Alhazmi
Abstract: We determine the accuracy and profitability of Japanese candlestick signals in trading high volatility versus low volatility stocks. We introduce the important reversal patterns of the Japanese Candlestick and use it to determine whether the Japanese Candlestick gives a better or worse performance under different range of volatilities.

Comparative Analysis between Contrarian and Momentum Strategies in the American Stock Market
Xin Yu
Abstract: There is extensive international evidence that the momentum strategy yields positive abnormal returns when short-term periods are considered, whereas the contrarian strategy is effective for long-term periods. This thesis focuses on the comparative analysis between these two strategies. We investigate in which time horizon the momentum and contrarian strategies are most profitable, and examine the sources of such profitability. Subsequently, we compare the abnormal returns of the momentum and contrarian strategies in each of their most profitable time horizons under different conditions to find out which strategy yields higher significant abnormal returns in the American stock market.

Option Pricing Based Regime-Switching Recombining Tree
Tao Tian
Abstract: Our goal is to design an efficient Regime-Switching recombining tree (RS-tree) to calculate the option price based on the condition that the underlying stock price fits the regime-switching model. The RS-tree is efficient if it grows linearly as the time steps increase; as a result, we can use many more time steps to calculate the option price. Both European and American options will be calculated in this Regime-Switching model. Furthermore, we will test the sensitivity of the option prices and analyze the result. Then we will extend the RS-tree to m regime (m=4).