

Institute for Mathematics and its Applications
2012 Seminar Series
University of Wollongong

Title: Valuation of American options with general payoff functions

Speaker: Marianito Rodrigo (University of Wollongong)

Time and Date: 3:00pm, Wednesday 12 September 2012

Location: Room 40.123

Abstract: In this talk we consider the pricing of American-style derivatives for two general classes of payoff functions. These two classes include the put and call payoffs as special cases. We provide analytical valuation formulas, i.e., exact formulas for the option prices and exact first-order ordinary differential equations for the optimal exercise boundaries. Although they are analytically intractable, the ordinary differential equations can be easily solved numerically. Numerical simulations yield excellent agreement with the results via the binomial method. Our approach is based on a combination of the Mellin and Laplace transforms. No knowledge of option pricing is needed and only a basic understanding of linear partial differential equations is sufficient to follow the talk. This is joint work with R Mamon (University of Western Ontario).