

1135-60-2496      **Flavia Sancier\*** ([fsancier@antiochcollege.edu](mailto:fsancier@antiochcollege.edu)), 1 Morgan Place, Yellow Springs, OH 45387.  
*Testing Option Pricing Models with Memory.*

We discuss the derivation and testing of continuous option pricing models that have stochastic volatility with hereditary structure. That is, the stock dynamics follows a nonlinear stochastic functional differential equation. In particular, two models are discussed: one in which the drift and volatility continuously depend only on past stock prices, and one in which the continuous past dependence may include present stock prices. The models are an extension of the well-known Black-Scholes framework. The option pricing formulas are the result of an equivalent (local) martingale measure and therefore are written as conditional expectations that can be simulated via Monte Carlo methods. (Received September 26, 2017)