1135-62-553　　　　　**Edmund E Ameyaw*** (`edmund.ameyaw@bison.howard.edu`), 5800 Timber Creek Ter, Apt 202, Hyattsville, MD 20782, and **Paul Bezandry**, **Victor Apprey** and **John Kwagyan**. *Evaluation of Integrals of the Form* $\int_{-\infty}^{\infty} \int_{-\infty}^{\infty} f(s,t) \exp\left\{ -\frac{1}{2(1-\rho^2)} \left[s^2 + t^2 - 2\rho st \right] \right\} ds\, dt$:.

The Logistic-Gaussian distribution is used in statistical applications to account for clustering among binary outcomes. However, its extension and applicability to bivariate outcomes are limited. We developed a model for correlated bivariate binary data that incorporated the Logistic-Gaussian distribution. Bivariate response probabilities in terms of random effects models are formulated, and maximum marginal likelihood estimation procedures based on Gauss-Hermite quadrature. Application to the analysis of vision loss in diabetic retinopathy are is discussed. keywords: Correlated Data; Logistic -Gaussian Distribution; Maximum Marginal Likelihood; Bivariate Binary Outcomes; Gauss-Hermite quadrature; Simulation. (Received September 08, 2017)