

MATHEMATICS SEMINAR

$$\mathcal{N}(\theta, a\Sigma + b)$$

$$x(t) = \int_{-\infty}^{\infty} y(\tau)h(\tau - t)d\tau$$

DYNAMIC MODELS OF THE ORAL GLUCOSE TOLERANCE TEST

The Oral Glucose Tolerance Test is used as a diagnostic tool to determine if a patient is normal or a type I or II diabetic. After testing, some patients are found to exhibit malabsorption of glucose or effects from prescription drugs. In the course of developing this dynamic model that shows the interaction of glucose, insulin, and other hormones in the patient several areas of mathematics are utilized. These include: differential equations, statistical hypothesis testing, numerical methods of solving differential equations, curve-fitting, and optimization techniques. Dynamic models are developed and then compared with respect to fit and statistical significance of the parameters used. The quality of the models was verified using real data from over 100 patients.

Prof. Richard B. Goldstein
Mathematics and Computer Science, Providence College



Thursday, October 27th, 2016

3:30 pm – 4:30 pm, Seidler Room 220

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