

MATH 480
SENIOR SEMINAR
SPRING 2009

Date: March 25th, 2009

Speaker: Phillip Johnston, UNC Asheville

Title: *Numerical methods for approximating differential equations*

Abstract: The history of Differential Equations is filled with attempts to find approximations for unsolvable equations. Even today new and varied methods are being developed that take advantage of advances in computer science coupled with past research. Many of these methods are based on earlier mathematical theories of approximation. In this talk, we will explore the connection between these earlier methods and the more complex algorithms of today by considering the logical structure behind these methods. Specifically we will look at the connections between Euler's method and the Taylor series to try and derive how and why more advanced methods such as Runge-Kutta, Accelerated Runge-Kutta and Predictor-correction models developed in hopes of gaining a deeper understanding of numerical methods.