CALIFORNIA STATE UNIVERSITY, LONG BEACH

THE MATHEMATICS COLLOQUIUM

presents

Dr. Ron Buckmire

Occidental College

speaking on

Different Differences

Friday, October 29, 2004 **12:00PM-1:00PM**

LA5-267

Abstract: From calculus we know that a derivative of a function can be approximated using a difference quotient. There are different forms of the difference quotient, such as the forward difference (most common), backward difference and centered difference. I will introduce and discuss "Mickens differences," which are decidedly different differences for approximating the derivatives in differential equations. Professor Ronald Mickens is a Physics Professor at Clark Atlanta University who has written nearly 150 journal articles on this and related topics. These nonstandard finite differences can be used to produce discrete solutions to a wide variety of differential equations with improved accuracy over standard numerical approximation techniques. Applications drawn from first-semester Calculus to theoretical fluid dynamics will be given. Students are very welcome to attend. Knowledge of some elementary derivatives and Taylor approximation will be assumed.