Title: An Anisotropic Cahn-Hilliard Equation with Variable Mobility and a Gravity Potential

Abstract: The Cahn-Hilliard equation with variable mobility is a fourth order, semi-linear, parabolic PDE. In this talk, I will introduce this equation, explain in general terms some key properties of this equation as well as the effect that various functions/parameters have on solutions of the PDE. Then I will show the key steps in proving the existence of a weak solution by first using Galerkin approximation and elliptic regularity. The general portion of my talk should be easily accessible to anyone familiar with the heat equation.