



# UNIVERSITY OF CALIFORNIA RIVERSIDE

## DEPARTMENT OF MATHEMATICS COLLOQUIUM

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### "AREA BETWEEN CURVES"

In this presentation, I will introduce classical result that allows us to calculate the area of the region formed by two continuous functions on the region of interest. I will introduce a step by step method to apply this result to particular problem set. Few examples will be discussed to demonstrate how given method can be used to solve particular problem.

### "DYNAMIC CONTACT PROBLEM"

In this presentation, I will describe a computational framework to study the influence of a normal crack on the dynamics of a cantilever beam; i.e., changes in its natural frequency, amplitude and period of vibration, etc. Due to the opening and closing of the crack during beam vibrations, unilateral contact boundary conditions are assumed at the crack location. In the numerical implementation the unilateral contact boundary conditions lead to the consideration of a corresponding linear complementarity problem. An effective solution strategy for this problem using a modification of the simplex method is presented. Numerical results will be presented.

FRIDAY, MAY 13<sup>TH</sup>, 2016  
SURGE 284  
TEA TIME 4:10 P.M.  
TALK BEGINS 5:20 P.M.