SPEAKER: Clifford M. Les, DVM, PhD  
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TOPIC: WOLFF'S PRETTY GOOD GUESS: IS STIFFNESS  
THE DESIGN OBJECTIVE? ANATOMIC VARIATION  
IN BONE MATERIAL VISCOELASTIC PROPERTIES,  
PRE-STRESS, AND COLLAGEN-I D-SPACING  
WITH ESTROGEN DEPLETION

DATE: Tuesday, September 6, 2011
TIME: 3:30 p.m.
PLACE: 138 DeBartolo Hall

ABSTRACT
For well over a century, the general interpretation of Julius Wolff's Law, that bone models and remodels in response to the existing mechanical milieu to produce the stiffest possible structure at the lowest feasible mass, has been of great use in both clinical and basic orthopaedic research. Recent evidence, including analysis of the geometric structure of long bones as well as of the patterns of material heterogeneity within the bone, suggest a more complex situation, in which the predictability of bending patterns under a variety of loading conditions may also play a role in the development and maintenance of the structure. The loss of bone responsiveness to load with estrogen depletion, with concomitant non-Haversian changes in bone Collagen I D-spacing, pre-stress, and viscoelastic properties, may lend intriguing insights into the mechanisms behind these patterns.

NOTE: If you are interested in meeting individually with Dr. Les, please contact Evelyn at 631-5431