

*Department of Mathematics and Statistics*  
*Colloquium Lecture Series*

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*UAF*

**WHAT IS ... A VARIATIONAL INEQUALITY?**

Some applied problems include equations which are only solved where they can be solved! Problems like this include the shape of a membrane obstructed by an object (want to solve the minimal surface equation but can't on the obstacle) or the temperature of a freezing ice/water mixture (want to solve the classical heat equation but can't in the solid part). A variational inequality generalizes the weak-formulation concept for such equations, and it also generalizes the constrained-optimization concept. The payoff:

- clearly-posed free boundary problems
- graceful finite element approximations

This talk is an introduction to a topic in applied math. It will have lots of pictures and be at the first-year graduate level. There will be new results, specifically about glacier free boundary problems, but only in the last slide or two.

*Thursday, January 30, 2014*

*Chapman 104*

*1:05 – 1:55 pm*

*Refreshments after the talk in Chapman 101A*