

James Madison University  
Mathematics Colloquium

**The Envelope Approach to the Ladder Problem**

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7:00 pm

Room 031, Burruss Hall

**Abstract**

The ladder problem is to find the longest segment that can fit around a corner in a corridor. The couch problem is similar, but you have to move a rectangle instead of a segment. The first is a standard max/min problem in calculus books, and the traditional solution begins with a reversal: instead of looking for the longest segment that WILL go around the corner, we seek the shortest segment that WON'T. But there is a direct approach that is both much simpler and gives much better understanding. This direct approach uses envelopes of families of curves, a topic that was once a standard part of the undergraduate math curriculum, but which (sadly) seems to have disappeared.

This talk is sponsored by the JMU chapter of IIME