

# **MUSA and USA present...**



# Board Game Night

Thursday, November 3, 2016 1015 Evans, 5:30pm

This Thursday, the Mathematics Undergraduate Student Association and the Undergraduate Statistics Association will be hosting Board Game Night. There will be trains to build, pandemics to cure, volatile felines to admire... Pick a game, and enjoy your time. Snacks will be provided!

#### **Putnam Review**

On Wednesday, November 2 at 6pm in 939 Evans, MUSA will be hosting a Putnam Review! Come and see sample Putnam problems worked out. Work on questions while being able to ask for hints and questions. Learn tricks to do well on the Putnam. Good luck!

### Mathematics Undergraduate Student Association

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## Math Monday Series

Monday, October 31 from 5 to 6pm in 740 Evans

Speaker: Maciej Zworski

Title: Classical & Quantum Chaos. Abstract: Classical chaos was

famously described by Edward Lorenz (of the "butterfly effect" fame) as the

situation "when the present determines

the future, but the approximate present does not approximately determine the future". I will illustrate that by some example and also, for contrast, show completely integrable systems (that is "predictable" systems). How does chaos manifest itself in quantum mechanics? So far, mathematical studies have mostly focused on consequences of the underlying classical chaos in quantized systems. These consequences can be seen for both closed and open quantum systems and range from equidistribution of high energy quantum states (closed systems) to fractal statistics of decaying states (open systems). I will also try to address Lorenz's description of chaos in the quantum setting. The talk will be mostly given using pictures and movies so no knowledge of dynamical systems or quantum will be needed.



















