



## Mathematical Markov Chains, Jazz Music, and Curious Circles in North Carolina.

A Mathematical Jazz Morning  
by Nadav Nazarathy and Yoni Nazarathy

[Natural Math](#) -- [One on Epsilon](#) -- [Nadav Nazarathy Piano](#)

Tuesday, July 18, 9:30am – 11:30am

You don't need to be a *musician* to enjoy jazz and you don't need to be a *mathematician* to explore Markov chains. Join brothers Nadav and Yoni for an exploratory musical math morning in Chapel Hill, NC.

The basic idea of a Markov chain is the concept of *state*. The state describes where the world is and the Markov chain makes it move. As the clock ticks, the universe flips coins to determine the next *state* according to predefined rules. It is as simple as that. Give a Markov chain enough states and it can do anything – even create a bit of music. But what are the rules?

Does a jazz tune follow such rules as well? Or maybe it is different? The applied mathematician brother, Yoni will in no way try to model his jazz musician brother with a Markov chain. The state space required to do so would be too big to handle. However, in an informal discussion we can explore music, jazz, Markov chains and mathematical education.

Join us and listen, learn, play, explore, laugh, and most importantly, learn from each other. We are certainly looking forward to learn from you.

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