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Class Standing: Graduate

Department: Mathematics

College: Science

Faculty Mentor: Dr. Alan Krinik

Presentation Type: Oral presentation

Project Title: Transition Probabilities of a Markov Process

Synopsis: Transition probabilities of a Markov Process with transition rates that go up and down by 1 and 2 step increments

Abstract: Given a Markov Process with transition rates that go up and down by 1 and 2 step increments, we would like to solve for this processes transition probabilities going from some state-i to a state-j in some time t. My research seeks to find these solutions in an analytic manner and a numerical manner. Building off of previous research, I have found the transition probabilities of a modified Markov Process with uniform transition rates and have verified them numerically by implementing a MatLab program I have designed with assistance from Dr. Ryan Szypowski. I further extended these results using the program to solve the Markov Process with different specified Transition rates.