Lecture on August 1st, 2019
Birth and Death Process and Introduction to Brownian Motion

1 Birth and Death Process with absorption (See Chap 6.5)

- Example: Linear Birth and Death Process.
- Introduce embedded Markov chain.

2 Finite State Continuous Time Markov Chains (See Chap 6.6)

- Definition of transition matrix and infinitesimal generator.
- Chapman-Kolmogorov Equation.
- Backward Kolmogorov Equation and Forward Kolmogorov Equation.

3 Introduction to Brownian Motion (See Chap 8.1)

- History of Brownian Motion.
- Diffusion equation and transition density function.
- Definition of Brownian Motion.
- Mean, Variance, Covariance, Transition probability density of Brownian Motion.