

Lecture on July 31st, 2018
Birth and Death Process II

1 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.

2 Linear Growth with Immigration Model (See Chap 6.3)

- Using Forward Kolmogorov equations to find mean population.
- Explain the result for long time behavior when $\lambda \geq \mu$ and $\lambda < \mu$.

3 Limiting Behavior of Birth and Death Process (See Chap 6.4)

- Theorem on existence of limiting distribution for birth and death process.
- Using Forward Kolmogorov equations to find limiting distributions.
- Example: Logistic Model.