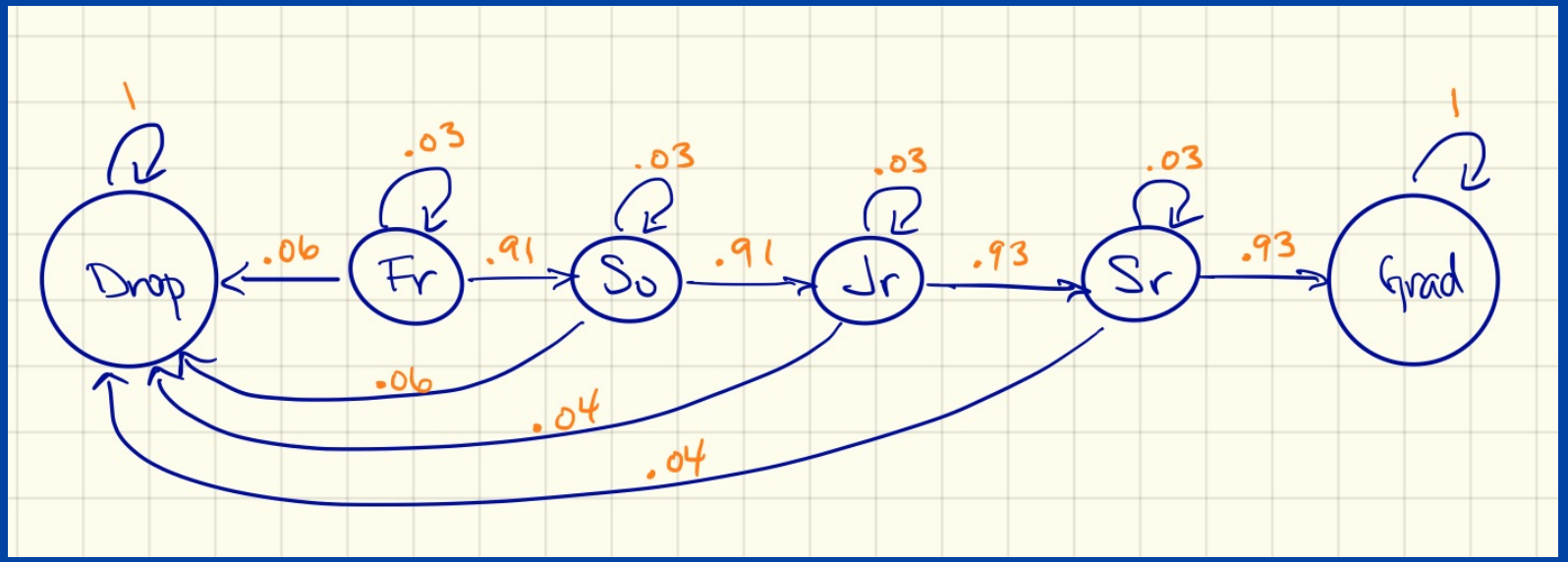
Introduction to Markov Chains

Stat 340: Bayesian Statistics

Your turn



1. What's the probability that a student who drops out will re-enroll?

2. What's the probability that a senior will graduate?

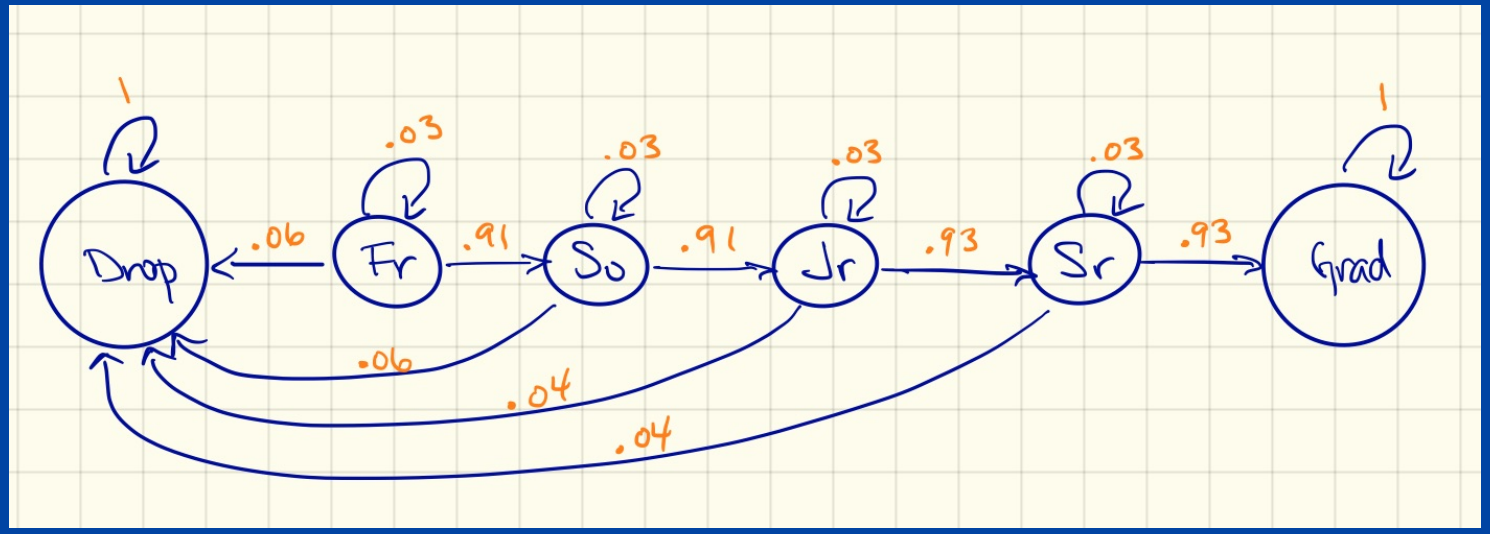
3. Does that probability depend on how many years it took them to achieve senior class standing?

Concepts

1. Markov chains

2. Transition matrices

Your turn



Write down the 6×6 transition matrix for the university graduation rate Markov chain model.

1. Should the probabilities within each **row** sum to 1?

2. Should the probabilities within each **column** sum to 1?

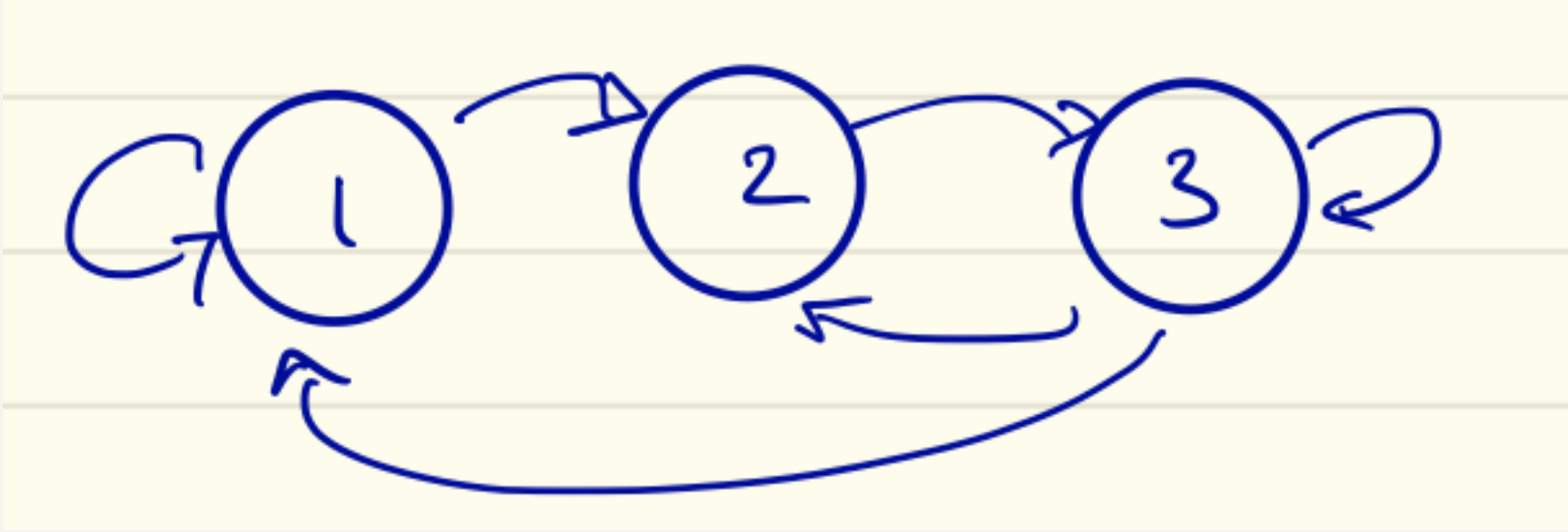
Concepts

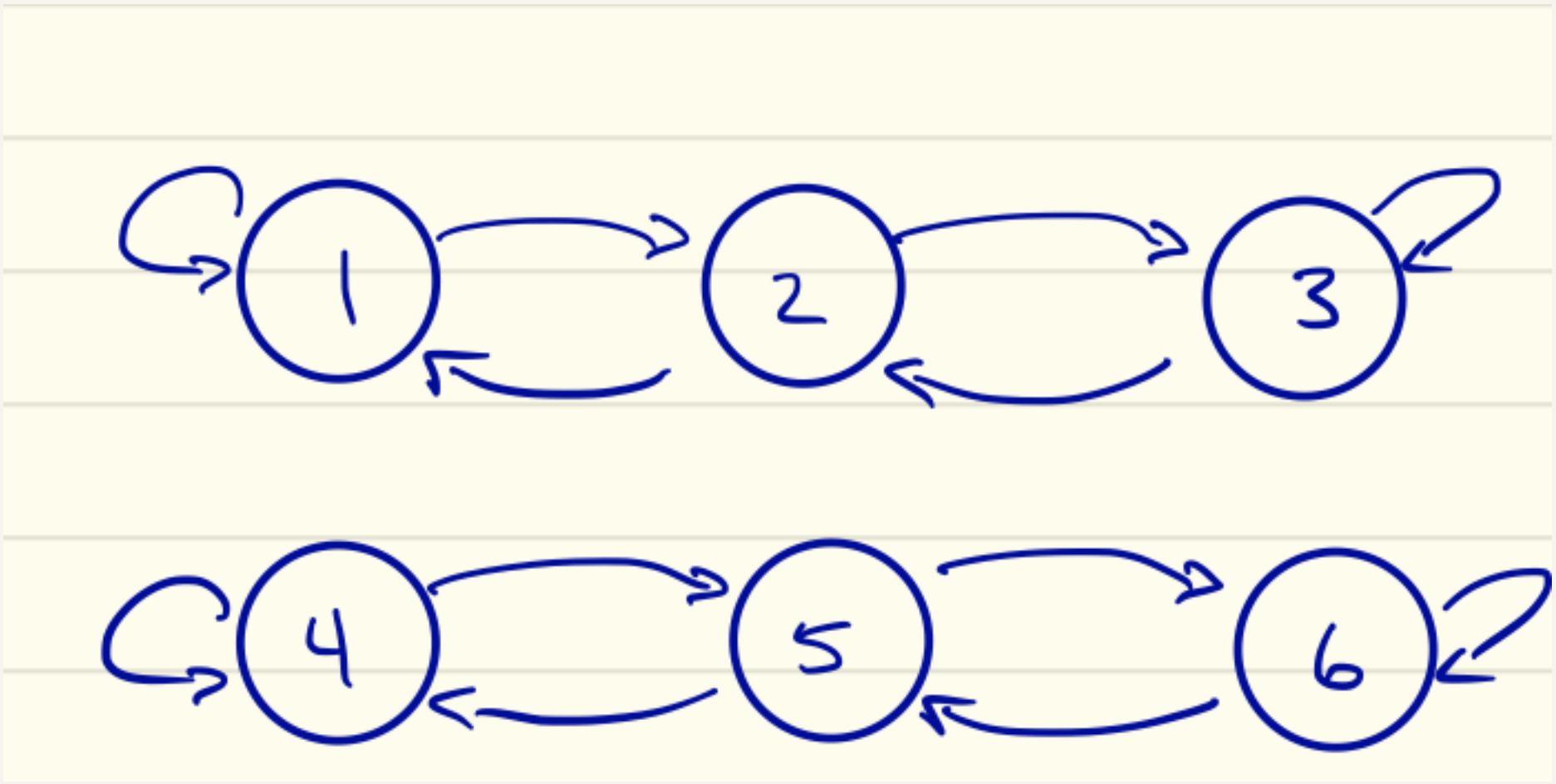
3. Calculating probabilities using the transition matrix

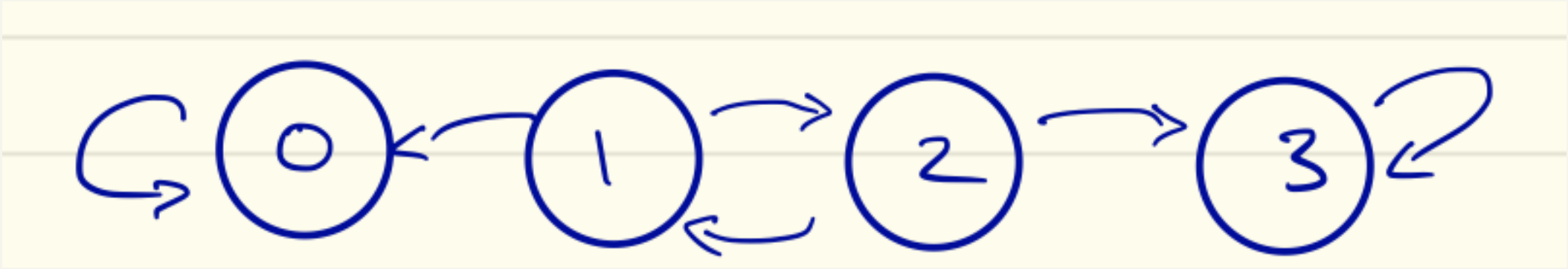
4. Marginal distribution of $\mathbf{X_n}$

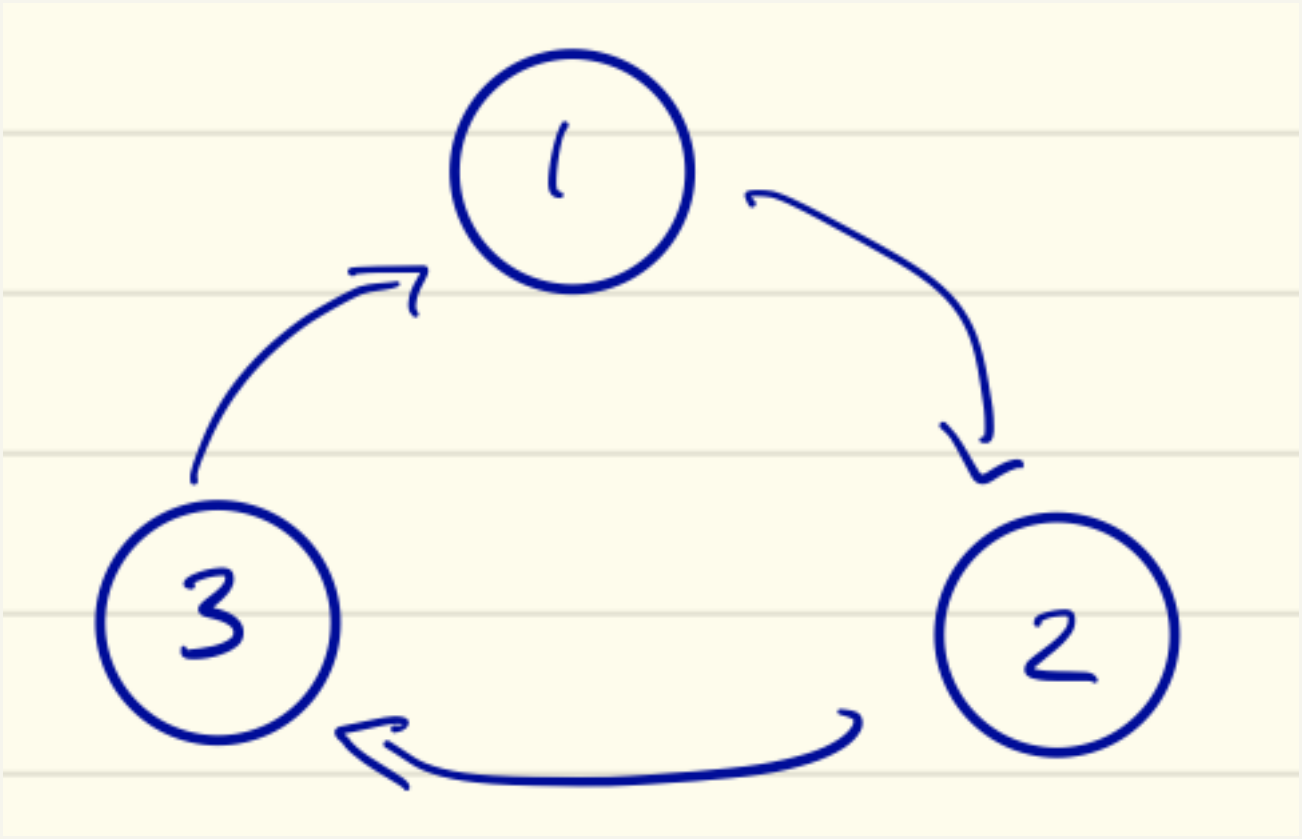
Your turn

Read over state/chain classifications and apply these labels to the following Markov chains:


1
2
3


1
2
3
4
5
6


0
1
2
3


1
2
3

Concepts

5. Long-run behavior

6. Ergodic Markov chains