

EECS 598: Reinforcement Learning Theory

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Topics: This course covers fundamental theories and principles of reinforcement learning. Topics to be covered include:

1. Dynamic programming and the principle of optimality
2. Multi-armed bandit: epsilon-greedy, Upper Confidence Bound (UCB) algorithm, Thompson Sampling
3. Markov chains and Markov Decision Process (MDP)
4. Value iteration, policy iteration, and LP formulation
5. Q-Learning: Model-based and model-free
6. Linear function approximation and deep reinforcement learning
7. Temporal-difference learning
8. SARSA
9. Policy gradient algorithm and variance reduction
10. The ODE methods and convergence analysis