**CS1571  
Fall 2019  
12/2 In-Class Worksheet**

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Where were you sitting in class today: Center right

1. **Pre-Reflection**

On a scale of 1-5, with 5 being most confident, how well do you think you could execute these learning objectives:

* 21.3 Execute a Naïve Bayes classification \_\_\_\_\_
* 22.1 Describe the components of Q-learning \_\_\_\_\_

1. **Q-Learning**
2. Explain the different components of the following equation.

Qsample(s,a) = r + ɣ maxa’Qold(s’,a’)

The q value of taking action a in state s = Qsample(s, a) ==

The reward r you get from taking action a in state s (new information you get from taking that action in that state) + discount factor of future rewards \* max future utility of taking an action in state s’ (the state you arrived in)

Gamma – value between 0 and 1 that discounts the future rewards

Qold – represents previously computed value of Q that is computed using dynamic programming – iterating over all the a’

1. Explain the different components of the following equation. What do you think is going on?

Qnew(s,a) ← Qold(s,a) + α\*(Qsample(s,a) - Qold(s,a))

Creates weighted average that balances new info with the old

A\* -- learning rate

1. **Post-Reflection**

On a scale of 1-5, with 5 being most confident, how well do you think you could execute these learning objectives:

* 21.3 Execute a Naïve Bayes classification \_\_\_\_\_
* 22.1 Describe the components of Q-learning \_\_\_\_\_