

# CS 438/638 Applied Machine Learning

## Examination II Review

Spring 2016

**Wei Ding**

### □ **Schedule**

The examination is close-book and close-note. However, you can prepare a cheat sheet using ONE piece of paper (size 8.50" \* 11.00", double side, no less than 11-font size and single line space).

There are **65 minutes** for the Examination.

Class Time	Exam Time
4:00 PM	4:05 PM – 5:10 PM Thursday May 12
Must be at class room at 4:00 PM sharp	Assume it takes 5 minutes to distribute the examination papers

### □ **Preparation Materials**

Lecture notes, in-classes exercise, and homework assignments.

### □ **Topics**

1. Everything you have practiced in homework after Exam I
2. All the questions we have practiced in the class
3. Neural Networks (Henry Lo)
  - Explain what is Alexnet (up to 5 sentences)
  - Explain what is Inception (up to 5 sentences)
  - Neural Network Basic Concepts: Slides 25 - 33
  - Neural Network Learning: Slide 55
4. Convolutional Neural Networks (Joseph Cohen)
  - Convolution Layer: Slide 60
5. SVM
  - Linear SVM: Slides 8-11
6. Uncertainty
  - Inference by enumeration: Slides 21 – 23
  - Bayes' Rule: Slide 25
  - Naïve Bayes: Slides 30 – 34
7. Clustering
  - Cluster Analysis: Slide 4

- What is the Curse of Dimensionality: Slide 9
  - K-means clustering: Slide 10
  - Evaluation K-Means Clusters: Slide 15
  - Problems with selecting initial points: Slide 18
  - Limitations of K-Means: Slide 23
  - NMF example: Slides 35-37
  - Purity: Slide 43
8. Imbalanced Learning
- Sampling methods: Slide 14