

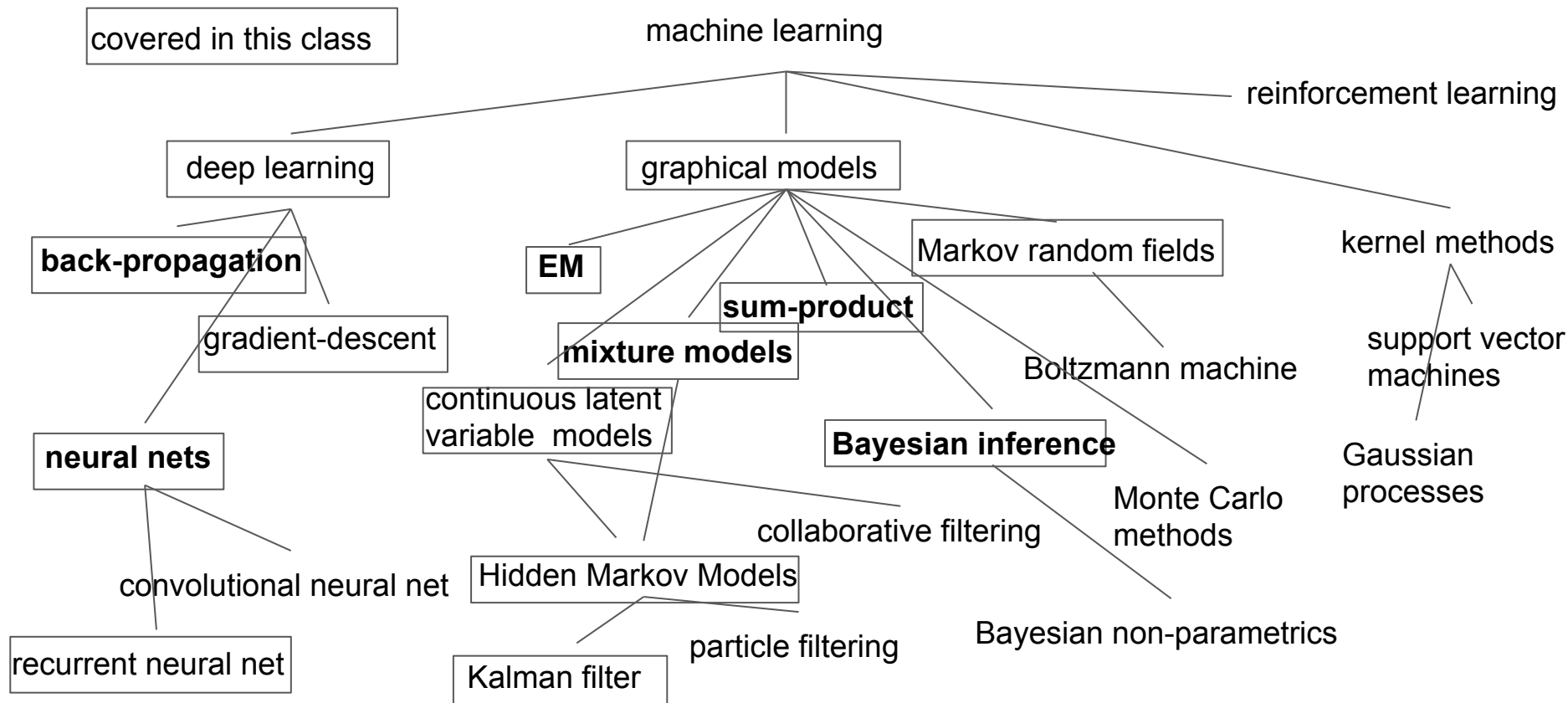
ECE521

Exam Reviews



UNIVERSITY OF
TORONTO

What is this course all about again?



Algorithms

- Inference algorithms
 - Bayes rules
 - The sum-product algorithm
- Learning algorithms
 - Gradient descent
 - Back-propagation
- EM framework
 - Inference algorithm (E-step)
 - learning algorithm (M-step)

Models

- Supervised learning models

- K-NN
- Linear models: Linear regression, logistic regression v.s. Naive Bayes
- Neural networks

- Unsupervised learning models

- K-means
- Mixtures-of-Gaussians, PCA
- Some acyclical graphs, e.g. Hidden Markov Models

Bridge the gap between supervised and unsupervised learning:

complete data vs incomplete data

Learning
conditional dist.
(Discriminative)

Learning
joint dist.
(Generative)

Learning
marginal dist.

Final exam

- T/F and multiple choice (10 questions in total)
 - Cover topics from the entire course
- Plotting questions
 - k-NNs classification, linear classifiers, k-means, mixture of Gaussians
- Derivations
 - EM algorithms (e.g. complete data Naive Bayes, incomplete data Mixture models and Tutorial 7 slides)
- Mechanical questions
 - Check conditional independence
 - Carry out algorithms on particular models and data