

# CS583: Probabilistic Graphical Models

---

## *Objectives*

Successful students will be able to

- Represent various prediction and knowledge discovery tasks using directed, undirected, and factor graphs
- Perform inference to answer various types of probabilistic queries
- Learn a graphical model (parameters and structure) from data

## *Prerequisites*

- None required. CS480 and knowledge of probability and statistics are recommended.

## *Syllabus*

- Introduction
- Bayesian networks
- Markov networks
- Factor graphs
- Variable elimination
- Belief propagation
- Approximate inference
- Parameter estimation
- Structure learning
- Hidden Markov models
- Statistical relational learning