Probabilistic Models in Artificial Intelligence – 67800

Spring 2017/18

Time and Place

Lecture: Thursday 12:00 - 13:45 – Rothberg B220
Recitation: Sunday 14:00 - 15:45 – Levin Auditorium (Physics – across from Rothberg A3 exit)

Teaching Staff

Lecturer:
Gal Elidan `galel@huji.ac.il`
Reception hours: before class, by appointment.

Teaching Assistant:
Eitan Richardson `eitan.richardson@gmail.com`, Rothberg B433
Reception hours – by appointment.

Assignments and Grades

There will be $N \sim 8$ home exercises, mixing theoretical questions (e.g. proofs) with programming tasks in Python. Randomly selected questions in each exercise will be checked.
There will also be a final exam covering all the material taught both in the lectures and in the recitation meetings.

The final grade will consist of 50% final exam and 50% home exercises, but only if you have a passing grade in the exam. The $N-1$ home exercises with the highest grades will be considered for the final grade. Problem set 0 is not for grade.

Exercises should be submitted on time. Late submission will incur a point loss (10 points/day).

Course Web Site

Lecture and recitation notes will be published in advance. Note that these approximately cover the material and cannot replace the in class experience.

List of Topics

- Graphical model representation: directed (Bayesian) and undirected (Markov) networks
- Algorithms for exact and approxiate inference
- Parameter and structure learning
- Reinforcement learning: Markov decision processes, value and policy iteration, q-learning

Bibliography

Probabilistic Graphical Models: Principles and Techniques, by D. Koller and N. Friedman
(electronic copy should be available via the Math & CS library)

Reinforcement Learning: An Introduction, by Richard S. Sutton and Andrew G. Barto