

Class Evaluations

Please complete your teaching evaluations for
IOE512

The evaluation period closes tomorrow

Final Exam

Where: Room 2150, DOW

When: Tuesday, Dec 19, 10:30-12:30

Closed book exam. You may bring 1 sheet of handwritten notes and a calculator.

Office hours before the exam:

Thursday 2-3pm

Monday 2-3pm

- Lowest homework and in-class assignment grades will be dropped from calculation of the final grade
- Grades will be up on Canvas soon

Course Objectives (From the syllabus):

To build a thorough understanding of dynamic programming and become familiar with the theory and methodologies identified with it

To apply the theory and methods of dynamic programming (DP) to applications including (a) **deterministic DP** problems such as knapsack problems, traveling salesman problems, shortest path problems and (b) **stochastic DP** problems such as stochastic shortest path problems, stopping time problems, machine maintenance, medical decision making, and others

To set a foundation for future research in dynamic programming and related fields

Course Topics (Covered on the Exam: Lectures 1-18):

Formulation, analysis and solution of deterministic dynamic programming models

Formulation, analysis and solution of Markov Decision Processes (MDPs)

Finite horizon MDPs

Infinite horizon MDPs

Partially observable MDPs

Approximate dynamic programming and reinforcement learning will not be covered on the exam.

- 4-5 Questions, no coding, emphasis on shorter problems that can be solved by hand
- Areas of Focus:
 - Deterministic and Stochastic DPs
 - Finite and infinite horizon model formulations
 - Algorithms for solving finite and infinite horizon MDPS: Backwards Induction, Value Iteration, Policy Iteration, Linear programming
 - Partially observable MDPs
- Use lecture notes, in-class assignments, homework assignments as a guide for studying