
Fall, 2004

Professors Brian Williams and Nicholas Roy

9/8: Introduction to Autonomy (BW/NR)

**Part I: Foundations: Problem Solving as State Space Search**

9/13: Introduction to Scheme (NR)
9/15: Problem Solving and Uninformed Search (BW)
9/20: Implementing Uninformed Search with Scheme (NR)
9/22: Analysis of Uninformed Search (BW)

**Part II: Mobile Systems**

Global Path Planning
9/27: Creating Roadmaps (NR)
9/29: Informed Search of Roadmaps (NR)

Dynamic Trajectory Planning
10/4: Linear Programs and Receding Horizon Control (NR)
10/6: Solving Linear Programs Through Simplex (NR)
10/11: Holiday

Visual Interpretation
10/13: Constraint Programming and Arc Consistency (BW)
10/18: Solving Constraint Programs via Inference and Search (BW)

**Part III: Autonomous Operations**

Activity Planning
10/20: Planning Problems and Plan Graphs (BW)
10/25: Planning and Execution with Plan Graphs (BW)

Scheduling
10/27: Scheduling and Simple Temporal Networks (BW)
11/1: Midterm

**Part IV: Interpreting Observations (for Mobility and Operations)**

Robot Localization
11/3: Probability and Statistics (NR)
11/8: Probabilistic State Estimation (NR)

**Diagnosis**
11/10: Modeling and Propositional Logic (BW)
11/15: Model-based Diagnosis as Conflict-directed Search (BW)
11/17: Rule-based Diagnosis and First Order Logic (BW)

**Part V: Agents that Act Optimally**
11/22: Integer Programming and Branch and Bound (BW)
11/24: Utility-based Agents and Markov Processes (BW/NR)
11/25: Thanksgiving Holiday

**Part VI: Agents that Learn and Adapt**
11/29: Learning Theory, Decision Trees (NR)
       Neural Networks
12/2: Bayesian Classification, SVMs (NR)
12/6: 16.413 Project Presentations (joint 16.410/13 lectures 9-12pm)
12/8: Final Exam Review (NR)
12/13-17: Final Exam (Date To Be Assigned)