*TENTATIVE SCHEDULE FOR Robot Planning CLASS*

*Spring 2025*

| Date | Day | Topic | HW out | HW due |
|---|---|---|---|---|
| 13-Jan | Mon | Introduction; What is Planning? | | |
| 15-Jan | Wed | planning representations: explicit vs. implicit graphs, skeletonization-, grid- and lattice-based graphs | | |
| 20-Jan | Mon | NO CLASS | | |
| 22-Jan | Wed | planning representations: explicit vs. implicit graphs, skeletonization-, grid- and lattice-based graphs (cont'd) | | |
| 27-Jan | Mon | search algorithms: Uninformed A* | HW1 | |
| 29-Jan | Wed | search algorithms: A*, Multi-goal A* | | |
| 3-Feb | Mon | heuristics, weighted A*, Backward A* | | |
| 5-Feb | Wed | interleaving planning and execution: Anytime heuristic search | | |
| 10-Feb | Mon | interleaving planing and execution: Freespace assumption, Incremental heuristic search | | |
| 12-Feb | Wed | interleaving planning and execution: Limited Horizon search, LRTA* | | HW1 |
| 17-Feb | Mon | case study: planning for autonomous driving | | |
| 19-Feb | Wed | planning representations: PRM for continuous spaces | HW2 | |
| 24-Feb | Mon | planning representations/search algorithms: RRT, RRT-Connect, RRT* | | |
| 26-Feb | Wed | planning representations/search algorithms: RRT, RRT-Connect, RRT* (cont'd) | | |
| 3-Mar | Mon | SPRING BREAK; NO CLASS | | |
| 5-Mar | Wed | SPRING BREAK; NO CLASS | | |
| 10-Mar | Mon | case study: planning for mobile manipulation and articulated robots | | |
| 12-Mar | Wed | search algorithms: Markov Property, dependent vs. independent variables | | HW2 |
| 17-Mar | Mon | case study: planning for exploration and surveillance tasks | | |
| 19-Mar | Wed | final project proposal presentations | | |
| 24-Mar | Mon | planning representations: state-space vs. symbolic representation for task planning | HW3 | |
| 26-Mar | Wed | search algorithms: symbolic task planning algorithms | | |
| 31-Mar | Mon | planning under uncertainty: Minimax formulation | | |
| 2-Apr | Wed | planning under uncertainty: Expected Cost Minimization formulation | | HW3 |
| 7-Apr | Mon | planning under uncertainty: Solving Markov Decision Processes | | |
| 9-Apr | Wed | exam | | |
| 14-Apr | Mon | multi-robot planning | | |
| 16-Apr | Wed | multi-robot planning | | |
| 21-Apr | Mon | TBD | | |
| 23-Apr | Wed | final project presentations | | |