

TENTATIVE SCHEDULE FOR Planning and Decision-making in Robotics CLASS				
Fall 2025				
Date	Day	Topic	HW out	HW due
25-Aug	Mon	Introduction; What is Planning?		
27-Aug	Wed	planning representations: explicit vs. implicit graphs, skeletonization, cell decomposition & lattice-based graphs		
1-Sep	Mon	LABOR DAY - NO CLASS		
3-Sep	Wed	search algorithms: A*, Multi-goal A*, Weighted A*, Backward A*	HW1	
8-Sep	Mon	search algorithms: Heuristic functions, Multi-Heuristic A*		
10-Sep	Wed	interleaving planning and execution: Anytime heuristic search, Incremental heuristic search		
15-Sep	Mon	interleaving planning and execution: Real-time heuristic Search		
17-Sep	Wed	case study: planning for autonomous driving		
22-Sep	Mon	planning representations: PRM for continuous spaces		HW1
24-Sep	Wed	planning representations/search algorithms: RRT, RRT-Connect, RRT*	HW2	
29-Sep	Mon	case study: planning for mobile manipulators and legged robots		
1-Oct	Wed	search algorithms: Markov Property, dependent vs. independent variables, Dominance		
6-Oct	Mon	case study: planning for coverage, mapping and surveillance tasks		
8-Oct	Wed	planning representations: state-space vs. symbolic representation for task planning		HW2
13-Oct	Mon	FALL BREAK - NO CLASS		
15-Oct	Wed	FALL BREAK - NO CLASS		
20-Oct	Mon	search algorithms: planning on symbolic representations	HW3	
22-Oct	Wed	planning under uncertainty: Minimax formulation, Minimax Backward A*		
27-Oct	Mon	planning under uncertainty: Markov Decision Processes, Value Iteration, RTDP		
29-Oct	Wed	final project proposal presentations		
3-Nov	Mon	planning under uncertainty: Markov Decision Processes, Value Iteration, RTDP (cont'd)		HW3
5-Nov	Wed	planning under uncertainty: Partially-Observable Markov Decision Processes		
10-Nov	Mon	planning under uncertainty: Partially-Observable Markov Decision Processes (cont'd)		
12-Nov	Wed	multi-robot planning		
17-Nov	Mon	multi-robot planning (cont'd)		
19-Nov	Wed	TBD		
24-Nov	Mon	exam		
26-Nov	Wed	THANKSGIVING - NO CLASS		
1-Dec	Mon	learning in planning		
3-Dec	Wed	final project presentations		