TENTATIVE SCHEDULE FOR Planning and Decision-making in Robotics CLASS
Fall 2020

Date	Day	Topic	HW out	HW due
31-Aug	Mon	Introduction; What is Planning?		
2-Sep	Wed	planning representations: explicit vs. implicit graphs, skeletonization, cell decomposition & lattice-based graphs		
7-Sep	Mon	LABOR DAY - NO CLASS		
9-Sep	Wed	search algorithms: A*, Weighted A*, Backward A*		
14-Sep	Mon	search algorithms: Heuristic functions, Multi-Heuristic A*	HW1	
16-Sep	Wed	interleaving planning and execution: Anytime heuristic search, Incremental heuristic search		
21-Sep	Mon	interleaving planning and execution: Real-time heuristic Search		
23-Sep	Wed	case study: planning for autonomous driving		
28-Sep	Mon	planning representations: PRM for continuous spaces		
30-Sep	Wed	planning representations/search algorithms: RRT, RRT-Connect, RRT*		HW1
5-Oct	Mon	planning representations/search algorithms: BIT*	HW2	
7-Oct	Wed	planning representations/search algorithms: Planning via Trajectory Optimization		
12-Oct	Mon	case study: planning for mobile manipulators and legged robots		
14-Oct	Wed	search algorithms: Multi-goal A*, Markov Property, dependent vs. independent variables, Dominance		
19-Oct	Mon	case study: planning for coverage, mapping and surveillance tasks		
21-Oct	Wed	planning representations: state-space vs. symbolic representation for task planning		HW2
26-Oct	Mon	search algorithms: planning on symbolic representations	HW3	
28-Oct	Wed	planning under uncertainty: Minimax formulation, Minimax Backward A*		
2-Nov	Mon	planning under uncertainty: Markov Decision Processes, Value Iteration, RTDP		
4-Nov	Wed	planning under uncertainty: Markov Decision Processes, Value Iteration, RTDP (cont'd)		
9-Nov	Mon	final project proposal presentations		
11-Nov	Wed	planning under uncertainty: Partially-Observable Markov Decision Processes		HW3
16-Nov	Mon	planning under uncertainty: Partially-Observable Markov Decision Processes (cont'd)		
18-Nov	Wed	learning in planning		
23-Nov	Mon	learning in planning (cont'd)		
25-Nov	Wed	THANKSGIVING - NO CLASS		
30-Nov	Mon	exam		
2-Dec	Wed	multi-robot planning		
7-Dec	Mon	multi-robot planning (cont'd)		
9-Dec	Wed	final project presentations		