TENTATIVE SCHEDULE FOR Planning and Decision-making in Robotics CLASS
Fall 2017

Date	Day	Topic	HW out	HW due
28-Aug	Mon	Introduction; What is Planning?		
30-Aug	Wed	planning representations: explicit vs. implicit graphs, skeletonization, cell decomposition & lattice-based graphs		
4-Sep	Mon	LABOR DAY - NO CLASS		
6-Sep	Wed	search algorithms: A*, Backward A*, Weighted A*		
11-Sep	Mon	search algorithms: Heuristic functions, Multi-Heuristic A*	HW1	
13-Sep	Wed	interleaving planning and execution: Anytime heuristic search, Incremental heuristic search		
18-Sep	Mon	interleaving planning and execution: Freespace assumption, Limited Horizon search, LRTA*		
20-Sep	Wed	case study: planning for autonomous driving		
25-Sep	Mon	planning representations: PRM for continuous spaces		
27-Sep	Wed	planning representations/search algorithms: RRT, RRT-Connect		HW1
2-Oct	Mon	planning representations/search algorithms: RRT*	HW2	
4-Oct	Wed	case study: planning for mobile manipulation and articulated robots		
9-Oct	Mon	search algorithms: IDA*, Multi-goal A*		
11-Oct	Wed	case study: planning for exploration and surveillance tasks		
16-Oct	Mon	search algorithms: Markov Property, dependent vs. independent variables, Dominant Relationship		
18-Oct	Wed	planning representations: state-space vs. symbolic representation for task planning	HW3	HW2
23-Oct	Mon	search algorithms: symbolic task planning algorithms		
25-Oct	Wed	dealing with uncertainty: Planning sequence of behaviors, Planning with position uncertainty estimate		
30-Oct	Mon	planning under uncertainty: Minimax formulation, Minimax Backward A*		
1-Nov	Wed	planning under uncertainty: Markov Decision Processes, Value Iteration, RTDP		
6-Nov	Mon	planning under uncertainty: Partially-Observable Markov Decision Processes		HW3
8-Nov	Wed	planning under uncertainty: Partially-Observable Markov Decision Processes (cont'd)		
13-Nov	Mon	final project proposal presentations		
15-Nov	Wed	multi-robot planning		
20-Nov	Mon	multi-robot planning (cont'd)		
22-Nov	Wed	THANKSGIVING - NO CLASS		
27-Nov	Mon	exam review		
29-Nov	Wed	exam		
4-Dec	Mon	TBD		
6-Dec	Wed	final project presentations		