

TENTATIVE SCHEDULE FOR Robot Planning CLASS
Spring 2020

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