

Spring 2024

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