

## Spring 2023

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