

TENTATIVE SCHEDULE FOR Robot Planning CLASS
Spring 2017

Date	Day	Topic	HW out	HW due
17-Jan	Tue	Introduction; What is Planning?		
19-Jan	Thu	planning representations: grid-based graphs		
24-Jan	Tue	search algorithms: A*		
26-Jan	Thu	heuristics, weighted A*, Backward A*		
31-Jan	Tue	interleaving planning and execution: Anytime heuristic search	HW1	
2-Feb	Thu	interleaving planning and execution: Freespace assumption, Incremental heuristic search		
7-Feb	Tue	interleaving planning and execution: Limited Horizon search, LRTA*		
9-Feb	Thu	planning representations: lattice-based graphs, explicit vs. implicit graphs		
14-Feb	Tue	case study: planning for autonomous driving		
16-Feb	Thu	planning representations: PRM for continuous spaces		HW1
21-Feb	Tue	planning representations/search algorithms: RRT, RRT-Connect	HW2	
23-Feb	Thu	planning representations/search algorithms: RRT*		
28-Feb	Tue	case study: planning for mobile manipulation and articulated robots		
2-Mar	Thu	search algorithms: IDA*, Beam Search, Multi-goal A*		
7-Mar	Tue	case study: planning for exploration and surveillance tasks		
9-Mar	Thu	search algorithms: Markov Property, dependent vs. independent variables, Dominant Relationship	HW3	HW2
14-Mar	Tue	SPRING BREAK - NO CLASS		
16-Mar	Thu	SPRING BREAK - NO CLASS		
21-Mar	Tue	planning representations: state-space vs. symbolic representation for task planning		
23-Mar	Thu	search algorithms: symbolic task planning algorithms		
28-Mar	Tue	planning under uncertainty: Minimax formulation		
30-Mar	Thu	planning under uncertainty: Markov Decision Processes		HW3
4-Apr	Tue	planning under uncertainty: VI, RTDP for solving Markov Decision Processes		
6-Apr	Thu	final project proposals		
11-Apr	Tue	case study: planning for landing under uncertainty		
13-Apr	Thu	planning under uncertainty: Rewards version of Markov Decision Processes		
18-Apr	Tue	exam review		
20-Apr	Thu	SPRING CARNIVAL - NO CLASS		
25-Apr	Tue	exam		
27-Apr	Thu	multi-robot planning: centralized planning		
2-May	Tue	multi-robot planning: decentralized planning		
4-May	Thu	final project presentations		