Schedule (tentative)

WEEK	TOPIC
Th 8/25	Syllabus / Background / Introductions / Project Teaming
Week 8/30	Intro Autonomous Systems, Socio Cognitive Modeling of Human Activity
Week 9/6	Unconstrained and constrained optimization, 1st and 2nd Order Solvers, Lagrangian Multipliers, Optimal Control, Model Predictive Control (MPC)
Week 9/13	Socio-Cognitive Behavior Intervention via MPC, Mixed Integer Programming
Week 9/20	Case Study: Behavior Interventions on Exercising Activity
Week 9/27	Introduction to Sequential Composition, LQR-Trees Theory
Week 10/4	LQR-based Linearization along Trajectories, Regions of Attraction via SOS Tools, Case Study: Nonlinear Underactuated System Stabilization
Week 10/11	Intro to Motion Planning with LTL Specifications, Lifted Graphs, Admissible Paths, Intro to Linear Temporal Logic
Week 10/18	Transition Systems Incorporating Geometric and Temporal States, Mission Compliant Paths, Intro Automata Theory
Week 10/25	Nonlinear Controller Synthesis and Automatic Workspace Partitioning for Reactive High-Level Behaviors
Week 11/1	Intelligent Collision Management in Human-Centered Robots
Week 11/8	Provably Safe Obstacle Avoidance for Autonomous Robotic Ground Vehicles
Week 11/15	Stabilizing Series-Elastic Point-Foot Bipeds Using Whole-Body Operational Space Control, Integrated Task and Motion Planning
Week 11/22	Details ONR MURI Autonomous Systems, Thanksgiving Holiday
Week 11/29	**Final Project Presentations**