

**UNLV ME 425/625 – Robotics 1 – Spring 2019 (last updated 01/22/18)**

Week	Topic	
Week 1 01/28/19	Lecture	Introduction
Week 2 02/04/19	Lecture Lab Programming	Simple Machines I: Levers, Shafts and Cranks LEGO levers, shafts and cranks LEGO NXC: hello world, motors and touch sensor
Week 3 02/11/19	Lecture Lab Programming	Simple Machines II: Cams, Springs and Linkages LEGO cams, springs and linkages LEGO NXC: ultrasonic and infrared sensors
Week 4 02/18/19	<b>President's Day</b>	
Week 5 02/25/19	Lecture Lab	Simple Machines III: Ratchets, Drives and Gearing LEGO ratchets, drives and gearing ML-CAD (or Solidworks)
Week 6 03/04/19	Lecture/Lab Programming Project	Putting it all together: Automata Examples (The Gymnast) Email: Team's proposed Project LEGO NXC: File handling <b>Teams Work on Automata Project</b>
Week 7 03/11/19	Due: Lecture Programming	<b>Automata Presentation; Hardcopy Report Due</b> Motor Theory LEGO NXC: Timers; Data Acquisition (Motor OL Step Response)
Week 8 03/18/19	<b>Spring Break</b>	
Week 9 03/25/19	<b>Midterm</b>  Part 1 Closed-book (60-min): Fill-in-the-blanks, essays, etc Part 2 Open-book (90-min): Hands-on LEGO construction	
Week 10 04/01/19	Lecture Lab	<b>Robot Sensing:</b> ADC: binary, voltage dividers LEGO touch sensor; ohmmeter; potentiometer, voltmeter
Week 11 04/08/19	Lecture Lab	<b>Robot Actuation:</b> ADC: operational amplifiers LEGO temperature sensing; DAC power supply; aliasing
Week 12 04/15/19	Lecture Lab	<b>Robot Communications:</b> I2C LEGO PCF8574 LEDs, DIPs

Week 13 04/22/19	Lecture Lab	<b>Robot Interfacing: H-Bridges</b> Relays and Transistors
Week 14 04/29/19	Project:	<b>Teams Work on NXT H-Bridge Project</b>
Week 15 05/06/18		<b>Study Week Begins</b>
Week 16 05/13/19		<b>Finals Begin</b>