

# Interactive Robo Learn

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**Course prefix:** CS

**Course number:** 7648

**Section:** A

**CRN**

94105

**Instructor first name:** Matthew

**Instructor last name:** Gombolay

**Semester:** Fall

**Academic year:** 2026

**Course description:**

Humans can easily learn a new task by observing a demonstrator, asking a few questions, and gaining experience from a brief period of trial, error, and refinement. The field of Learning from Demonstration (LfD) has sought to endow robots with this human-like ability to learn through observation and interaction. In this course, we will cover challenges such as how to 1) learn from novice users (i.e., noisy, sparse demonstrations), 2) intelligently query the demonstrator for additional information (i.e., active learning), 3) compose hierarchical models to learn both high-level tasks and low-level motion primitives, and 4) evaluate the design of LfD systems via human-subject experimentation. The course culminates in a final research project in which students develop and demonstrate their own LfD technique, which will enable them to contribute to the deployment robotic technology in society.

**Academic honesty/integrity statement:**

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