



# Center for Curriculum Redesign

## Professional Development in

# Algorithms & Graph Theory

### Module Content

#### Unit 1: Introduction to Algorithms

- 1.1 - What Are Algorithms?
- 1.2 - Euclid & Historical Algorithms
- 1.3 - Using Algorithms

Project Connection 1: Navigating Mazes

#### Unit 2: Machine Learning & Artificial Intelligence

- 2.1 - What Is Machine Learning?
- 2.2 - Compression & LLMs
- 2.3 - Fairness & Machine Learning

Project Connection 2: Navigating with Google Apps & AI

#### Unit 3: Networks & Graph Theory

- 3.1 - What is Graph Theory
- 3.2 - Networks & Maps

Project Connection 3: Navigating Through a Network

**Module Time:** 20 hours\*

**Module Project:** Wisdom of the Crowds

### Core Concepts in this Module

- Solving Classes of Problems
- Unambiguous Description
- Algorithmic Simplicity
- Accurate Enough?
- Exploring Algorithmic Bounds

### Competencies in this Module

- Critical Thinking
- Metacognition
- Ethics

\*Total module time of 20 hours includes both independent learning/asynchronous (~85%) and synchronous (~15%)