

# Artificial Intelligence: Principle and Practice

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**Free 8-day workshop bringing you to the cutting-edge artificial intelligence theory and technique!**

**Lecture** (1:00 - 1:50pm): interactive undergraduate-style lecture

**Lab** (2:00 - 2:50pm): hands-on engineering experience

**Deep Dive** (3:00 - 3:50pm): graduate-style paper and peer-focused discussion

Times may be adjusted per general student availability.

Day 1: **Oct. 4 / Oct. 5, 2021**

[Home page](#) - [Syllabus](#) - [Schedule](#)

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We will study:

- Symbolic approaches
  - Machine learning
  - Neural networks and deep learning
  - Computer vision
  - Sequence modeling
  - Natural language processing
  - Reinforcement learning (including multi-agent RL)
  - Human-level artificial intelligence
  - AI safety and ethics
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We will use:

- Python
- SciPy suite
- Jax

- PyTorch
  - TensorFlow (python, tflite and tf.js)
  - Huggingface
  - OpenAI Gym
  - PettingZoo
  - TDW
  - Docker
  - Cloud Compute
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#### Student expectations:

- calculate the derivative of a function
- apply probability & statistics to toy problems
- write simple Python programs
- read 12 pages per class (for student attending the “Deep Dive”)

If many students already have deeper roots in math, statistics, information theory, physics, biology, neuroscience, or psychology, we will discuss advanced principles of artificial intelligence engineering from those perspectives.

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#### Course expectations:

- ✗ no homework
  - ✗ no tests
  - ✗ no costs (this course is free)
  - ⚠ **This course is not accredited by UTA**
  - ✓ individualized activities
  - ✓ machine learning
  - ✓ (most importantly) human learning
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If your neurons have accumulated sufficient presynaptic evidence and your reward estimator feels like it's ready to explode, please [join me](#) on this exciting journey!

ps: (Much of this document was drafted [using artificial intelligence.](#))