Sample Lecture Notes: Introduction to Artificial Intelligence

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Introduction to AI

Artificial Intelligence (AI) is the field that aims to create systems capable of performing tasks that would normally require human intelligence. These include learning, reasoning, problem-solving, perception, and language understanding.

Machine Learning Basics

Machine Learning is a subset of AI focused on algorithms that improve automatically through experience. The main types are:
• Supervised Learning: Learning from labeled examples
• Unsupervised Learning: Finding patterns in unlabeled data
• Reinforcement Learning: Learning through interactions with an environment

Natural Language Processing

Natural Language Processing (NLP) is the ability of computers to understand, interpret, and generate human language. Key concepts include:
• Tokenization: Breaking text into meaningful units
• Word Embeddings: Representing words as vectors in a continuous space
• Language Models: Systems that predict the likelihood of sequences of words