

Core Exam Guide

Artificial Intelligence Policy

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Overall Guidelines

- The exam will be in class, paper and pen (no pencils, please - they smudge!). No computers will be used or needed. Write legibly.¹
- The exam will have two sections - IDs and short answer.
 - An “ID”, or identification, question, simply gives you a term and asks you to define it and identify its relevance for the study of AI and AI Policy.
 - A short answer is like a short essay - nothing terribly long, but should be structured, potentially with short paragraphs. You could also be given a news article or data graphic about AI and be asked to interpret and situate it, saying why it is important to the broader discussion of AI.
- I do not imagine the exam will take the entire class period, but you will have the entire class period to complete it.

Definitions and Key Concepts

Philosophy of AI

1. Foundations

- Intelligence
- Consciousness
- Sentience
- “Common Sense”
- Autonomous Systems
- Simulation
- Emergence

¹I'll try to decipher everything, but ultimately, if I can't read it, it can't earn points.

- Game of Life

2. AI Design & Assessment

- Strong AI
- Weak AI
- Turing Test
- Chinese Room Argument
- Embodiment
- Agency
- Responsibility
- Role of Language in Thought & Intelligence

Technology of AI

1. Hardware

- Turing Machine
- Basic parts of a computer (processor, memory, etc)
- Serial vs. Parallel Processing
- CPUs vs GPUs (and other, more specialized processing)
- Moore's Law
- Silicon - design vs. fabrication
- "Die shrinks"
- Chip fabrication requirements

2. Software

- Low vs. High Level programming languages
- Modeling
- Machine Learning
- Large Language Models
- Tokens
- Transformers
- Omitted Data/Algorithmic Bias
- Out of Sample Predictions/Long-Tail Problems
- Overfitting

Business of AI

1. Building AI Systems

- Infrastructure
- Bubbles

- Products
- B2B vs Consumer
- Disruption
- Moats
- Startup tradeoffs: Profit vs Market Share
- Revenue streams
- AI product possibilities
- Market positions of current major tech & AI companies
- “Hyperscalers”

2. Implications

- Data Access
- Energy
- Labor Replacement
- Materials & supply chains

Example Short Answer

- Given what we know about AI, how would you advise a firm looking to adopt an AI system to support its employees? What kinds of concerns should the firm have, and how might it ameliorate them?
- What is the difference between “Weak AI” and “Strong AI”?
- What is the Turing Test, and is it a sufficient “test” of AI?
- What would be an example of algorithmic bias in the world, why might it have arisen, and what is a proposal for managing it?