Minds and Machines

SYMSYS 1 / CS 24 / LING 35 / PHIL 99 / PSYCH 35 / SYMSYS 200
Stanford University
Winter 2026

If you have questions about the course, please contact Bonnie at bkrejci@stanford.edu

Module 1: What is a mind?

- Course introduction video (Krejci) **watch**
- Module 1 overview (Goodman) **watch**

Week 1: Meaning of mind

Bodies, minds, and machines

- Minds and bodies (Flanagan) **read**
- Bodies, minds, and machines (Lassiter) **watch**
- For fun: They're made out of meat! (Bisson) **read**

From embodied to abstract machines

- Pattern on the stone (Hillis), Ch. 1-2 **read**
- From embodied to abstract machines (Lassiter) **watch**

	Wednesday 1/7	Friday 1/9
	Course introduction (M,N) **lecture**	The meaning of a mind (M,N) **discussion** Weekly Response 1* Week 1 Problem Set*

* Can be turned in until 1/13 for students joining the course late

Week 2: The computational theory of mind

Automata and computation

- Automata and computation, Part 1 (Schwarz) **watch**
- Automata and computation, Part 2 (Schwarz) **watch**

Minds as automatic formal systems

- Minds as automatic formal systems (Lassiter) **watch**

Levels of analysis

- Can neuroscience understand Donkey Kong? (Yong) **read**
- Levels of analysis (Cooper & Peebles) **read**
- Levels of analysis (Lassiter) **watch**

Tuesday 1/13	Wednesday 1/14	Friday 1/16
Weekly Response 2	Levels of analysis (N) **lecture**	Prof. Thomas Icard **guest** Week 2 Problem Set

Week 3: Thinking machines and their detractors

Machines for natural language grammar

- How language works (Pinker) **read**
- Machines for natural language grammar (Lassiter) **watch**

Simulation of a mind

- Chinese room argument (Searle) **read**
- Simulation of a mind (Lassiter) **watch**
- Optional: Computing machinery and intelligence (Turing) **read**

Tuesday 1/20	Wednesday 1/21	Friday 1/23
Weekly Response 3	Imitation games (N, M) **chat**	Prof. Rosa Cao **guest** Week 3 Problem Set

Module 2: Synthetic minds

- Module 2 overview (Goodman) **watch**

Week 4: Artificial intelligence and neural networks

Introduction to artificial intelligence, machine learning, and deep learning

- A short history of AI (AI100) **read**
- Large language models (Mitchell) **read**

Introduction to (machine) learning

- Introduction to machine learning (Sahami) **watch**
- How we learn (Dehaene) Ch 1 **read**
- The nature of code (Shiffman), Ch 10, sections 1-3 **read**

Tuesday 1/27	Wednesday 1/28	Friday 1/30
Weekly Response 4	Introduction to large language models (N) **lecture**	Prof. Dan Yamins **guest** Module 1 Project

Week 5: Learning and bias

Neural networks

- Neural networks - Part I (Piech) **watch**
- Neural networks - Part II (Piech) **watch**

Neural networks in practice

- Understanding neural networks with TensorFlow Playground (Sato) **read**
- Hands-on in the playground (Kane) **watch**

Algorithmic bias and ethics in artificial intelligence

- An overview of catastrophic AI risks (Center for AI Safety) **read**
- AI's fairness problem (Wang et al.) **read**
- Algorithmic bias (Birhane) **read**
- Optional: Coded bias **watch**

Tuesday 2/3	Wednesday 2/4	Friday 2/6
Weekly Response 5	Ethics and artificial intelligence (M,N) **discussion**	Dr. Jen King **guest** Week 5 Problem Set

Module 3: Organic minds

- Module 3 overview (Goodman) **watch**

Week 6: Reasoning and rationality

Learning, reason, and action

- Background video: A visual guide to Bayesian thinking (Galef) **watch**
- Bayesian models of perception and action (Ma et al.), Ch. 1 **read**
- Perception (Gardner) **watch**

Optimality versus heuristics

- Background video: Decision theory (Briggs), Sections 1-3 **watch**
- Judgment and decision-making (Jhangiani) **read**
- Optional: Judgment under uncertainty (Tversky and Kahneman) **read**

Tuesday 2/10	Wednesday 2/11	Friday 2/13
Weekly Response 6	How rational are we? (M) **lecture**	Prof. Justin Gardner **guest** Module 2 Project

Week 7: Learning and development

How babies think

- How babies think (Gopnik) **read**
- Cognitive development (Gelman) **read**
- How we learn (Dehaene), Ch. 2 **read**
- Cognitive development: How we (learn to) think and learn (Gweon) **watch**
- Optional: What do babies think? (Gopnik) **watch**
- Optional: How to grow a mind (Tenenbaum et al.) **read**

Tuesday 2/17	Wednesday 2/18	Friday 2/20
Weekly Response 7	How to build a baby (M) **lecture**	Prof. Cameron Ellis **guest** Week 7 Problem Set

Module 4: Interacting minds

- Module 4 overview (Goodman) **watch**

Week 8: Social reasoning

How we think others think

- Social learning (Gweon) **read**
- The Naive Utility Calculus (Jara-Ettinger et al.) **read**

Pragmatics

- Grice's theory of implicature (Kroeger) **read**

Tuesday 2/24	Wednesday 2/25	Friday 2/27
Weekly Response 8	Let's talk about it (M) **lecture**	Prof. Hyowon Gweon **guest** Module 3 Project

Week 9: Culture, society, and evolution

Game theory

- Playing for real (Binmore), Sections 1.1-1.4; 1.6 **read**
- Game theory (Lassiter) **watch**

Cultural evolution

- Social minds (Lassiter) **watch**
- Cultural Evolution (Mesoudi) **read**
- Cultural Attractors (Claudiere and Sperber) **read**

Tuesday 3/3	Wednesday 3/4	Friday 3/6
Weekly Response 9	Peoplebolic systems? (M) **lecture**	Prof. Robert Hawkins **guest** Week 9 Problem Set

Week 10: Applications of Symbolic Systems

Applications of Symbolic Systems

- Choose any three articles from the Open Encyclopedia of Cognitive Science
- In your weekly response, you will summarize them and justify the relationship between the three articles with respect to course themes

Tuesday 3/10	Wednesday 3/11	Friday 3/13
Weekly Response 10	TA panel **guest**	AMA CogSci edition (M,N) **discussion** Module 4 Project