

Structures in the Mind

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Schedule of topics:

Week 1

Theories of cognition and information processing

The mind is what the brain does. But how exactly do neurons create our mind? In this lecture we will explore leading theories of cognition and information processing. We will cover what science can say about how the brain works, and what science can't say about the brain. Ultimately, we will take a philosophical approach to understanding what can bridge the gap in our knowledge.

Week 2

Memory

Memory is critically important for all living creatures, not just humans, for survival and adaptation to our environment. Thankfully, one of the primary functions of any brain is to encode and retrieve experiences. This allows us to learn from the past and, most importantly, predict the future. This lecture will describe different types of memory, how the brain controls memory, and, hopefully, dispel a number of popular myths.

Week 3

Perception

Another fundamental role of our brain is perception, which allows us to navigate the world. At their core, all sensory organs physically interact with the environment and then send signals to our brains, where the information is processed. In this lecture we will describe the 5 senses and how they interact with our more complex cognitive systems.

Week 4

Intelligence

Intuitively, we know that some people are "smarter" than others. But it is quite difficult to explain how and why this may be. This lecture will demystify what we colloquially know as "intelligence", and provide several theories for how this phenomenon comes about, as well as explain why they are most certainly wrong.

Did you know? Your registration in the LinR program allows you to borrow materials from Carleton University's MacOdrum Library. To receive a temporary borrowing card, visit the circulation desk and identify yourself as a participant of LinR.

Week 5

Emotion

How many emotions do we have? Well, basically, 6 emotions: anger, fear, sadness, happiness, surprise, and disgust. These emotions are a vital element of personal evaluation as well as social evolution. In this lecture will focus on explaining the fundamental emotions that are present across all cultures, and appear to be hardwired into our biology. Beyond that, we will tie the basic emotions with more complex cognitive processes, such as Theory of Mind.

Week 6

Social cognition

All the previous facets of the mind we have learnt about clearly provide us with an advantage in dealing with our environment. However, much of our environment throughout evolution has been social. In this lecture we will discuss the field of Social Cognition, which attempts to explain the co-evolution of our mind and our society. Specifically, we will touch upon topics such as: heuristics, biases, and decision making.

Recommended readings for continued learning (by topic):

Theories of Cognition – *Mind, Body, World: Foundations of Cognitive Science* by Michael Dawson

Memory – *The Memory Advantage* by Thomas Cook

Perception – *The Man Who Mistook His Wife for a Hat* by Oliver Sacks

Intelligence – *What Intelligence Tests Miss: The Psychology of Rational Thought* by Keith Stanovich

Emotion – *Emotions Revealed* by Paul Ekman

Social Cognition – *Mistakes Were Made (but not by me)* – by Carol Tavris and Elliot Aronson