TOPICS IN COGNITIVE SCIENCE
Syllabus 2023/24

Thursdays from 10.50 am to 12.30 pm, in Room C503, Quellenstrasse 51, Vienna

Course coordinator: Günther Knoblich
TA: Thomas Ganzetti

For questions, please contact ganzetti_thomas@phd.ceu.edu , knoblichg@ceu.edu

Course description:

The course will provide an overview of some key topics and research methods in Cognitive Science. This will include important debates in the field as well as an overview of key research topics in Cognitive Science. The sessions will consist of answering open questions about the readings and discussing controversial topics/accounts. Members of the Cognitive Science department will cover fields in which they are expert. The format and assignments for different sessions may vary.

Assignments Evaluation:

Students are required to attend the sessions and to participate actively in this course. There will be different kinds of assignments to prepare for each session.

1) For regular sessions the assignments will be to submit a short (200 - 300 words) informed opinion on a topic, question or debate on the online CEULearning Forum. You will need to include references to research articles (3+) to back your informed opinion. The deadline for submitting the assignments is Wed noon. All course participants are asked to read each other's opinions before the Thursday session and reflect on what they like or don't like about these opinions. This will provide the basis for our debates/discussions.

2) Different lecturers may choose to provide different kinds of assignments such as watching videos of lectures in advance, assigning readings etc. Assignments will be announced one week in advance.

Grading will be based on the informed opinions submitted for regular sessions and active participation in discussions/debates in all sessions. No final essay will be required for this course.

SCHEDULE

September 14th: Introduction

We will go through the syllabus, explain the course format, and the topics of individual sessions. There will be a possibility for students to propose topics for course sessions based on their interests.

September 21st: Theoretical frameworks in Cognitive Science (I)

In the first half of the lecture, we will provide an overview of key concepts in three theoretical frameworks for cognitive science that have focused on symbol processing, the brain and neural networks, and Bayesian inferences/probabilistic networks. In the second half we will debate what are strengths and weaknesses of the three approaches based on the informed opinions submitted by students.

September 28th: Computational models of learning

Guest Lecturer: Máté Lengyel

Neural networks and models of learning.

October 5th: Theoretical frameworks in Cognitive Science (II)

In the first half of the lecture, we will provide an overview of theoretical frameworks for Cognitive Science which assume that it is not possible to understand the mind without taking the context within the mind operates into account. We will discuss 1) dynamical systems theory highlighting the close coupling between the mind and the environment, 2) theories highlighting the role of humans' evolutionary history, and 3) approaches that focus on social interaction as an important contextual factor affecting how the mind works.

In the second half we will debate how important it is to contextualise cognition and how convincing different frameworks are in achieving this. The debate will be based on the informed opinions submitted by students.

October 12th: Research methods in cognitive science

The first half of the session will provide an overview of different kinds of research methods that Cognitive Scientists use to study the mind. In the second half we will discuss which methods are most useful and which theoretical commitments they may imply based on the informed opinions submitted by students.

October 19th: Perception

Lecturer: József Fiser

This lecture will provide an overview of Cognitive Science research in the area of perception.

October 26th: Public holiday, no class

November 2nd: Causal cognition

Lecturer: Jonathan Kominsky

The ability to identify, represent, and reason about cause and effect is so foundational to our experience of the world that we seldom notice it for the complex, sophisticated process that it is. Without it, we would experience the world as a series of unrelated events that just happen, with no connection, low predictability, and leading to enormous difficulties interacting with our environment. What exactly is the nature of human causal thought? As adults we understand many different kinds of causal relations, but how does this ability emerge in development? And even as adults, do we have one generalized concept of 'CAUSE' that applies to everything from counterfactual dependence to simple billiard-ball collisions, or do we have a fractured understanding of many different kinds of cause that we happen to mask with a single term?

November 9th: Social cognition

Lecturer: Natalie Sebanz

November 26th: Language

Lecturer: Eva Wittenberg

November 23rd: Cognition, culture, and evolution

Lecturer: Christophe Heintz

The lecturer will review work in human behavioral ecology, which make use of the theory of rational decision making. We will discuss why and when hypothesizing that behavior optimizes benefits.

November 30th: Emotions

Lecturer for this session: Thomas Ganzetti

This session addresses different aspects of human emotions.

December 7th: Good practices in Cognitive Science

How do Cognitive Scientists ensure that their research complies with ethics rules? How can they ensure that their work is replicable? How can they avoid producing unreliable results? What is pre-registration good for? The tension between good scientific practice and the need to demonstrate innovation (e.g., in grant proposals).