

Lire, écrire, compter : la longue histoire des technologies de l'information **Reading, writing, counting: the deep history of information technologies**

Note: This document is a sketch of a syllabus for a class that will be start to be given on the second year of the CPES “Sciences des données, arts et culture” (which will be in September 2024 for the L2 year of the first promotion). The full syllabus will be communicated 6 months before the start of the course.

Responsable du cours :

Olivier Morin (Chargé de Recherches CNRS)

<https://www.oliviermorin.net/>

Descriptif du cours : This class looks at the things we learn in primary school — reading, writing, counting, basic geometry —, from the point of view of cognitive science and anthropology. Cognitive scientists, who study how the human mind manipulates symbols, have made several important discoveries about the ways we can (or cannot) process written letters, numbers, or shapes. We know now that the human brain uses not one but two number systems, or that Euclid’s axioms were not just a Greek invention but correspond to deep intuitions about shapes shared by many cultures. These discoveries cast new light on the deep history of information technologies — that is, all the techniques we use to store and represent information: number representations, writing systems, maps, coins, brands, and many other cognitive tools. This course focuses on the prehistory of information technologies, before the computer age, applying principles of cognitive science and cultural evolution to data from global history, archaeology, prehistory, and anthropology.

Objectifs pédagogiques et compétences développées :

This course provides an initiation to cognitive science through the study of computational tools and their history; it will introduce concepts such as computation, the number sense, neural specialisation, neural recycling, as well as elements of information theory.

Contenu détaillé du cours :

- Counting with words: Number systems across cultures
- Counting with symbols: Numerical notations
- Counting with machines: From the abacus to the computer
- Writing before writing: Tallies, tokens, calendars, pictographs
- The birth of writing: The slow revolution
- Reading in the brain: How our brains shape the letters we learn
- Ideographic writing from mathematics to emojis
- The origins of geometry: The cognitive roots of Euclid’s axioms
- What’s in a map? 2D spatial representations across cultures and periods
- Money as a cognitive tools: From coinage and debt tallies to Bitcoin
- Brands and emblems: Symbols of identity
- Data visualisation before computers

Langue d’enseignement : Anglais

Type de cours : Cours magistral

Modalités d’évaluation : Un exposé en cours sur un article au programme, un devoir surveillé.

Année : L2

Semestre : Semestre 2

Lectures obligatoires :

Chrisomalis, Stephen. *Reckonings: Numerals, Cognition, and History*. The MIT Press, 2020.

Lectures facultatives :

Dehaene, Stanislas. *Reading in the Brain: The New Science of How We Read*. 1st edition. Penguin Books, 2009.

Ferrara, Silvia. *The Greatest Invention: A History of the World in Nine Mysterious Scripts*. Translated by Todd Portnowitz. Farrar, Straus and Giroux, 2022.