

DH-405

**Foundations of digital humanities**

Kaplan Frédéric

Cursus	Sem.	Type
Digital Humanities	MA1, MA3	Obl.
Digital Humanities		Opt.
Learning Sciences		Opt.
Managmt, tech et entr.	MA1, MA3	Opt.
Minor in digital humanities, media and society	H	Opt.

Language of teaching	English
Credits	6
Session	Winter
Semester	Fall
Exam	During the semester
Workload	180h
Weeks	14
<b>Hours</b>	<b>6 weekly</b>
Courses	4 weekly
TP	2 weekly
<b>Number of positions</b>	

**Summary**

This course gives an introduction to the fundamental concepts and methods of the Digital Humanities, both from a theoretical and applied point of view. The course introduces the Digital Humanities circle of processing and interpretation, from data acquisition to new understandings.

**Content**

This course gives an introduction to the fundamental concepts and methods of the Digital Humanities, both from a theoretical and applied point of view. The course introduces the Digital Humanities circle of processing and interpretation, from data acquisition to new understandings. The first part of the course presents the technical pipelines for digitising, analysing and modelling written documents (printed and handwritten), maps, photographs and 3d objects and environments. The second part of the course details the principles of the most important algorithms for document processing (layout analysis, deep learning methods), knowledge modelling (semantic web, ontologies, graph databases) generative models and simulation (rule-based inference, deep learning based generation). The third part of the course focuses on platform management from the points of view of data, users and bots. In each part, ethical and societal issues are discussed. Students practice the skills they learn directly analysing and interpreting Cultural Datasets from ongoing large-scale research projects conducted at EPFL.

**Week 1**

Introduction to the course and Digital Humanities, structure of the course

**Week 2**

Introduction to the DH circle of processing and interpretation (acquisition, processing, analysis, visualisation, UX, interpretation). From data acquisition to new understandings.

**Part I : Pipelines****Week 3**

Pipeline for Written documents (Printed and Handwritten). Transcription, Named Entities, Semantic modelling, Topic and Document modelling.

**Week 4**

Pipeline for Maps. Vectorization. Alignment. Homologous Points.

**Week 5**

Pipeline for Artworks photographs. Segmentation. Features detection. Detail search.

**Week 6**

Pipeline for 3D spaces. Photogrammetry. Diachronic realignment.

**Part II : Algorithms****Week 7**

Algorithms for Document processing : Document analysis and Deep learning methods

**Week 8**

Algorithms for Knowledge modelling : Semantic web, ontologies, graph database, homologous points, disambiguation.

**Week 9**

Algorithms for Generative models and simulation : Rule-based inference, Deep learning based generation

**Part III : Platform management****Week 10**

Data Management : Computing infrastructure, Data Management models, Sustainability. Apps. Example of Wikipedia and Europeana.

Week 11

User Management : Representation, Rights, Traceability, Vandalism, Motivation, Negotiation spaces

Week 12

Bot Management : Versioning. Open source repositories.

## Learning Prerequisites

### Required courses

Basic math

One programming course

### Recommended courses

Bachelor Course in Digital Humanities (SHS, HUM-369)

## Learning Outcomes

By the end of the course, the student must be able to:

- Explain the great transformations of Human and Social sciences
- Synthesize the contents of several articles
- Compare different types of research
- Identify the main trends of the domain

## Transversal skills

- Take account of the social and human dimensions of the engineering profession.
- Summarize an article or a technical report.
- Demonstrate the capacity for critical thinking

## Teaching methods

Lectures, exercises

## Assessment methods

Collective project

2 oral presentations (30%)

Written deliverables (Wiki writing) (40%)

Quality of the project (30%)

Details on [fdh.epfl.ch](http://fdh.epfl.ch)

## Resources

### Websites

- <http://fdh.epfl.ch>

### Moodle Link

- <https://go.epfl.ch/DH-405>