Course guide
290802 - APARQ1 - Architectural Design Ecology I

Last modified: 08/07/2025

Unit in charge:	Vallès School of Architecture
Teaching unit:	735 - PA - Department of Architectural Design.

Degree:	MASTER'S DEGREE IN ARCHITECTURAL DESIGN ECOLOGY IN THE DIGITAL AGE (Syllabus 2025). (Compulsory subject).

Academic year: 2025   **ECTS Credits:** 5.0   **Languages:** English

LECTURER

Coordinating lecturer:	Academic Coordination: Lluís Ortega
Others:	Academic Coordination: Lluís Ortega Teaching faculty: Course 1: Data Thinking: Science and Analysis: Sergi Garriga Course 2: Infrastructural matter(s): Blanca Pujals

PRIOR SKILLS

No previous skills required.

REQUIREMENTS

No previous skills required.

TEACHING METHODOLOGY

Course 1: Data Thinking: Science and Analysis
Classes will combine lecture format with project-based learning.
Course 2: Infrastructural matter(s)
Classes will combine lecture format with project-based learning.

LEARNING OBJECTIVES OF THE SUBJECT

K6.1 Identify key works and theories relevant to project hypotheses framed in ecological and systemic terms.
K6.2 Boldly address the ecological challenges of the architectural project.
K7.1 Relate the main components and variables of a project to the systems that inform it.
K7.2 Determine relational logics that organize an architectural project in relation to the city and the landscape.
S7.1 Analyze the compositional aspects of reference projects identified as such.
S7.2 Diagrammatically organize the architectural components of reference projects to integrate them with existing systems.
C5.2 Collaborate with other students in the development of a unified and coherent project.
*k (knowledge); S(Skills); C (Competences)

CONTENTS

ARCHITECTURAL DESIGN ECOLOGY I

Description:
Course 1: Data Thinking: Science and Analysis
• Introduction to Data Science
• Data types: variables and aggregation
• Building models: training and validating
• Models I: stats and inference
• Models II: machine learning
• Models III: neural networks
• Conclusion and presentations

Course 2: Infrastructural matter(s)
• Geopolitics of materials: Materials are active actors in planetary geopolitics not only at the time of their use or disposal, but throughout all their production chain, on territories, communities, and ecosystems, often involving distant places and remote temporalities.
• Synthetic territories: on technofossiles, geoengineering and terraforming Earth.
• Anthropobiometric tools used and embedded in architectural design, their origins and their introduction into contemporary digital and AI technologies.
• Contemporary technoinfrastructures: when the infra- and non-visible become visible (e.g. scientific labs, logistics centers, internet infrastructure, data centers, etc.)

Full-or-part-time: 125h
Practical classes: 45h
Self study : 80h

GRADING SYSTEM

The subject is organized based on two courses. Each as an independent grade. The final grade will be calculated based on the following percentages.
Course 1: Data Thinking: Science and Analysis (50%)
Course 2: Infrastructural matter(s) (50%)

EXAMINATION RULES.

Course 1: Data Thinking: Science and Analysis
Students will choose a project to develop within a common topic provided by the instructor. Each group will design its own goals, approach and outcome, developing a strategic plan to structure their analysis and drive their project forward. Students will be encouraged to generate new data, and develop an analysis to uncover insights. The project includes a final presentation.
- Strategy: 10%
- Research: 50%
- Presentation: 30%
- Participation: 10%
Course 2: Infrastructural matter(s)
The final grade will be determined by the evaluation of the following criteria:
- Observation of participation: Reading and comprehension of the compulsory bibliography and active participation and involvement in the debates of the sessions: 10.0.
- Follow-up of the work done: 10.0.
- Elaboration of the critical text in the format of a memory project: 25.0
- Oral presentation of the final project: 25.0
- Elaboration of a critical design device: 30.0

The course is based on continuous work in the classroom and at home (group and individual). All the deliveries are prescriptive in the foreseen programming. Class attendance is mandatory, with a minimum of 80% attendance required to pass the course. Continuous evaluation entails compliance with deadlines.

BIBLIOGRAPHY

Basic:
- Pujals, Blanca. "Synthetic Territories'". Pujals, Blanca. Posthuman Bodies. Spain: Bartlebooth, 2021.
- Bratton, Benjamin. The Terraforming. Strelka Press, 2019. ISBN 9785907163027.
- Gabrys, Jennifer. Digital Rubbish . A natural history of electronics. University of Michigan Press, 2011. ISBN 9780472117611.
- Haraway, Donna Jeanne. Staying with the trouble : making kin in the Chthulucene. Durham: Duke University Press, 2016. ISBN 9780822362241.
- Nixon, Rob. Slow violence and the environmentalism of the poor [on line]. Cambridge: Harvard University Press, 2011 [Consultation: 09/10/2025]. Available on: https://discovery.upc.edu/view/action/uresolver.do?operation=resolveService&package_service_id=15154121360006711&institutionId=6711&customerId=6705&VE=true. ISBN 9780674072343.
- Pujals, Blanca. "Bodily Cartographies'". The Funambulist Magazine. Politics of Space and Bodies Nº7. 22-27.
- Schuppli, Susan. Material witness: media, forensics, evidence. Cambridge, Massachusetts: The MIT Press, 2020. ISBN 9780262043571.

RESOURCES

Other resources:
-Data Communication: Trina Chiasson et al. – Data + Design (https://trinachi.github.io/data-design-builds/titlepage01.html) />-Ethics & Inclusion: The Data Science for Social Good Fellowship (DSSG) (https://dssgfellowship.org) />-Social Impact: Lauren Klein & Catherine D'Ignazio – Data Feminism (https://data-feminism.mitpress.mit.edu)
-Complex Systems: Albert-László Barabási – Network Science (https://networksciencebook.com) />