

COURSE NAME

Geology for Designers

COURSE TERM

9–13 January 2023 (5 days)

1:00 pm – 3:00 pm

INSTRUCTORS

Mélanie Louterbach (MLA I '24) & Hana Cohn (MLA I '24)

Mélanie Louterbach, Ph.D., received her doctoral degree in Andean Geology from the Université de Toulouse, France. Her dissertation focused on sedimentation in the Amazonian foreland basin and its structural formation since Cretaceous times. Prior to starting at the GSD, Melanie worked internationally as a structural and exploration geologist, as well as a lecturer in Earth Sciences at UniLaSalle, France.

Prior to arriving at the GSD, Hana Cohn worked as a producer and studio manager for several Los Angeles-based artists. Recent work has included producing large-scale installation works shown at the Biennale di Venezia, Italy; Serpentine Sackler Galleries, London; Kunsthalle Basel, Switzerland; and the Dallas Museum of Art, Texas.

COURSE DESCRIPTION

“Geology for Designers” is a five-day J-Term course that aims to provide design students with basic principles of geology to improve student’s abilities to identify, represent, and work with geological media within the built environment. This course is mainly designed to provide landscape architecture students with basic understanding of geology that will support work in their studio classes. However, we welcome all students interested in understanding better the mineral world and how natural rocks and landforms can be used in the built environment.

COURSE PROGRESSION

The course begins with an introductory overview of the concept of geologic time and the basic principles of geodynamics, geological processes, and geomorphology, followed by basics of petrology and mineralogy. The first two days’ lessons will enable students to understand the fundamentals of differentiating between various types of rocks and interpret basic geological structures.

Building upon these lessons, students will be invited to observe, draw, and analyze some rock and mineralogical samples from Harvard Museums’ collections. The following day will focus on some geological features of Massachusetts to provide students with further context on why certain landforms and configurations appear in the landscape that surrounds us.

The final day will aim to furnish students with a series of references and design precedents that relate to, or utilize, elements of geology—ranging from the usage of natural rocks to the evocation or integration of geomorphological processes as a part of the project itself, mostly in the realm of land art and landscape architecture.

Methodology

Each day will be organized into 1 hour of theory + 1 hour of discussion/lab around specific geological tools or knowledge useful for designers (geological map, geological section, paleo-depositional models, stratigraphic column, representation tools).

Assignment

At the beginning of the course, each student will be assigned a type of rock or a specific depositional environment (ex.: aeolian sandstone or sabkha) and will be asked by the end of the course to gather:

- Visual representation of its materiality
- Examples of geological sections and maps in similar environments
- Pictures of the assigned rock or environment, including but not limited to 3D diagram of the paleo-depositional environment, micro-facies, etc.

Students are encouraged to draw, but is not mandatory.

Each student will submit their collection to collectively generate a shared resource and reference for all participating students.

SCHEDULE

Day 1

Theory: Introducing Geologic Time

Basics Principles of Geodynamics (plate tectonics), Geological Processes & Geomorphology (fluvial, eolian, coastal, marine, and glacial processes)

Lab: Geological maps and sections

Introduction to the Assignment

Day 2

Basics of Petrology & Minerology

How to recognize a sedimentary / metamorphic / volcanic / plutonic rock? What is the difference between a mineral and a rock?

Lab: Stratigraphic column / 3D diagram for the reconstruction of paleo-depositional processes and paleo-landscapes

Day 3

Workshop / Pedagogical Collection with Raquel Alonso Perez (Harvard Science Center)

Guided visit to the Peabody Natural History Museum Mineral Collection

Petrological and mineralogical observations / drawing

Day 4

Geology of Massachusetts / Geology in the Built Environment

Lab: 3D diagram for the reconstruction of paleo-depositional processes and paleo-landscapes

Day 5

References & Precedents in design

Resources for designer (assignment deliverables)