

Introduction to Pedology (A003309)

Course size *(nominal values; actual values may depend on programme)*

Credits 5.0

Study time 135 h

Course offerings and teaching methods in academic year 2024-2025

A (semester 1)

Dutch

Gent

independent work
lecture

Lecturers in academic year 2024-2025

Bauters, Marijn

LA20

lecturer-in-charge

De Smedt, Philippe

LA20

co-lecturer

Offered in the following programmes in 2024-2025

[Bachelor of Arts in Archaeology](#)

crdts

offering

5

A

[Preparatory Course Master of Arts in Archaeology](#)

5

A

Teaching languages

Dutch

Keywords

Soils, lithosphere, atmosphere, biosphere, hydrosphere, environment, soil map of Belgium

Position of the course

This basic course wants to give students knowledge about the content of soil science, the various orientations in this profession and the most important characteristics and associated terminology. The course gives general information about the reactions and processes that occur in soils, with particular attention for the link with the environment and aspects important for the earth science approach. An overview is given of the most important soil types of Belgium and the explanation of this soil landscape. Finally, basic knowledge is delivered on some interfaces between soil science and archaeology:

- The role of the soil in the history of agriculture in Western Europe.
- Land evaluation as an instrument in the study of sites.
- The conservation and decay of archaeological artefacts and traces in the soil.

Contents

1. Introduction

What is "soil" here, soil profile, soil horizons, soil landscape, soil system, soil system dynamics.

The agricultural heritage in soil science. New orientations.

2. Basic soil components

Solid mineral, solid organic, pores, air, water.

3. Important reactions, processes and properties in soils

Swelling and shrinking, pressure, dissolution, precipitation, crystallisation, cementation, hydration, hydrolysis, acid attack, oxido-reduction, ion exchange, organo-metal complexes, dispersion/flocculation, structure, colour, temperature, water repellence.

4. Most important pedogenetic processes

Weathering, migration-accumulation, structuring, freeze/thaw, cycle of organic material and minerals, turbation, erosion/sedimentation, horizonation.

5. Soil description and analytical data

6. Soil classification and the soil map of Belgium

7. The soils of Belgium

8. Soil exploitation through the ages in Western Europe
9. Contributions of soil science to archaeology
Recognition of lithological and pedogenetical expressions, the factor time, the soil archive, environmental analysis and environmental reconstruction.
10. Some archaeopedological case studies
Demonstration of archaeopedological cases, using published cases, software and GIS-databases. Students will be enabled to re-play these cases themselves.

Initial competences

To have elementary knowledge of physics, chemistry, climatology and geography.

Final competences

- 1 To recognise the contributions of soil science in archaeological research.
- 2 To be able to consult basic soil documents such as soil maps and soil survey reports.
- 3 To have knowledge of the restrictions that have to be taken into account when interpreting laboratory data.
- 4 To be able to explain the Belgian soil landscape and the different soil types.
- 5 To recognise the common grounds of archaeology and soil science.

Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract

Access to this course unit via an exam contract is unrestricted

Teaching methods

Lecture, Independent work

Extra information on the teaching methods

Lectures, with continuous illustrations. A number of the exercises is explained in the lectures.

Study material

Type: Syllabus

Name: Introduction to pedology

Indicative price: € 10

Optional: no

Language : Dutch

References

Course content-related study coaching

- Continuous possibility to ask questions (during lectures, on appointment).
- Case studies in order to observe and illustrate a set of items discussed in the course.
- Sample questions and exercises on Ufora

Assessment moments

end-of-term assessment

Examination methods in case of periodic assessment during the first examination period

Written assessment with multiple-choice questions, Written assessment with open-ended questions

Examination methods in case of periodic assessment during the second examination period

Written assessment with multiple-choice questions, Written assessment with open-ended questions

Examination methods in case of permanent assessment

Possibilities of retake in case of permanent assessment

not applicable

Extra information on the examination methods

Assessment moment

Periodical (100%)

Assessment form

One written examination with about 20 multiple choice questions (evaluated according to *standard setting*) and 5 open questions. The contents of the case

studies can be examined.

Calculation of the examination mark

100% of final mark determined by written exam. This exam consists of a multiple choice part and a part with open questions.

Facilities for Working Students

1. Possible exemption from educational activities requiring student attendance.
2. Possible rescheduling of the examination to a different time in the same academic year
3. Alternative time for feedback is possible

For more information concerning flexible learning: contact the monitoring service of the faculty of Arts and philosophy