



UNIVERSIDAD DE CORDOBA

ESCUELA TÉCNICA SUPERIOR DE INGENIERÍA
AGRONÓMICA Y DE MONTES
**GRADO DE INGENIERÍA
AGROALIMENTARIA Y DEL MEDIO
RURAL**

2024/25 YEAR

EDAFOLOGÍA**Course details**

Course name: EDAFOLOGÍA**Code:** 100951**Degree/Master:** GRADO DE INGENIERÍA AGROALIMENTARIA Y DEL MEDIO
RURAL**Year:** 2**Field:** BASES TECNOLÓGICAS DE LA PRODUCCIÓN VEGETAL**Character:** OBLIGATORIA**Duration:** FIRST TERM**ECTS Credits:** 4.5**Classroom hours:** 45**Face-to-face classroom percentage:** 40.0%**Study hours:** 68**Online platform:** <https://moodle.uco.es/>**Coordinating teacher**

Name: SÁNCHEZ RODRÍGUEZ, ANTONIO RAFAEL**Department:** AGRONOMÍA**Office location:** C4 building - first floor**E-Mail:** antonio.sanchez@uco.es**Phone:** 957212183**Brief description of the contents**

- 1.-To evaluate the composition, physical, chemical and biological properties of soil in terrestrial ecosystems (especially agroforestry and agricultural systems).
- 2.-To study basic principles of soil classification and evaluation.
- 3.-To know the main principles of soil conservation, management and the way to maintain or improve soil health.

Prerequisites

Prerequisites established in the study plan

None

Recommendations

Basic knowledge on Geology and Climatology

Study programme

1. Theory contents

I. Soil components.

1.- INTRODUCTION. History, Soil, profile, horizon. Soil functionality. Soil as the substrate where plants grow.

2.- Primary minerals and weathering.

3.- Secondary minerals.

4.- Soil organic matter.

5.- Soil organisms.

II. Physical properties

6.- Soil texture.

7.- Structure and consistence.

8.- Color and temperature.

9.- Water in soil.

10.- Movement of water in soil.

III. Chemistry

11.- Adsorption.

12.- pH and soil acidity.

13.- Salinity and sodicity.

14.- Soil oxidation-reduction.

15.- Soil fertility.

2. Practical contents

- Soil sampling

- Organic matter

- Soil texture

- Soil pH and EC

- Carbonates

- Available K

- Available P

- Soil Color

- Mineralogy (X-Ray Diffraction)

- Field visits (Campus de Rabanales and field trip-to evaluate different soil profiles in Córdoba province)

Bibliography

BRADY, N.C. and WEIL, R.R. 2017. The nature and properties of soils. 15th Ed. Prentice Hall, New York.

Schaetzl R. J. and Thompson M. L. 2015. Soils: Genesis and Geomorphology. Cambridge University Press, Second Edition

Sumner, M.E., 1999. Handbook of Soil Science. CRC Press LLC

Miller, R. W. and Donahue, R.L. 1990. Soils: An Introduction to Soils and Plant Growth. Ed. Prentice-Hall International

Porta, J., López-Acevedo, M. y Roquero, C., 2003. Edafología para la agricultura y el medio ambiente. Ed. Mundi-Prensa

Navarro, S. y Navarro, G., 2003. Química agrícola: El suelo y los elementos químicos esenciales para la vida vegetal. Ed. Mundi-Prensa.

Thompson, L. M. y Troeh, F., 2004. Los suelos y su fertilidad Ed. Reverté

Wild, A. y Russell, E.J., 2000 Condiciones del suelo y desarrollo de las plantas Ed. Mundi-Prensa

Methodology

General clarifications on the methodology (optional)

None

Methodological adaptations for part-time students and students with disabilities and special educational needs

Lessons, practice sessions and field visits are an important part of the subject.

Resolution of doubts person to person (scheduled by the student).

Each case would be individually considered.

Face-to-face activities

Activity	Large group	Small group	Total
<i>Field trips</i>	4	2	6
<i>Information processing activities</i>	10	-	10
<i>Oral communication activities</i>	-	2	2
<i>Practical experimentation activities</i>	-	10	10
<i>Projects based on the course contents</i>	15	-	15
<i>Written expression activities</i>	2	-	2
Total hours:	31	14	45

Off-site activities

Activity	Total
<i>Exercise and problem solving activities</i>	29
<i>Information processing activities</i>	29
<i>Information search activities</i>	10
Total hours	68

Results of the training and learning process

Knowledge, competencies and skills

- CB1 Understanding fundamental, scientific and technological aspects and developing the ability to learn continuously and adapt to new situations and changing environments.
- CB2 Demonstrating the ability to solve problems by being creative, using initiative, applying methodology and thinking critically
- CEC2 Demonstrating the ability to recognise, understand and use the principles of the foundations of vegetable production, and production, protection and exploitation systems
- CEC9 Demonstrating the ability to recognise, understand and use the principles of making decisions by using available work resources in multidisciplinary groups
- CEC10 Demonstrating the ability to recognise, understand and use the principles of technology transfer, understanding, interpreting, communicating and adopting advances in the field of agriculture

Assessment methods and instruments

Intended learning outcomes	Examination	Group or individual globalizing projects	Means of practical execution	Oral means	Students assignments
CB1	X	X	X	X	X
CB2	X	X	X	X	X
CEC10	X	X	X	X	X
CEC2	X	X	X	X	X
CEC9	X	X	X	X	X
Total (100%)	60%	10%	10%	10%	10%
Minimum grade (*)	5	5	5	5	5

(*)Minimum mark (out of 10) needed for the assessment tool to be weighted in the course final mark. In any case, final mark must be 5,0 or higher to pass the course.

General clarifications on instruments for evaluation:

Written Reports and oral presentation based on laboratory and field work. Project-based learning
Notebooks (practical lessons)
Problems (chemistry and physical properties)
Powerpoint presentations
Videos and extra information (references, reports, scientific manuscripts)

Clarifications on the methodology for part-time students and students with disabilities and special educational needs:

Each case will be evaluated individually according to the university policies

Clarifications on the evaluation of the extraordinary call and extra-ordinary call for completion studies:

An oral exam is contemplated if needed (as different parts have to be passed separately)

Qualifying criteria for obtaining honors:

9 or more

Sustainable development goals

No poverty
Zero hunger
Good health and well-being
Quality education
Gender equality
Clean water and sanitation
Affordable and clean energy
Decent work and economic growth
Reduced inequalities
Sustainable cities and communities
Responsible consumption and production
Climate action
Life on land
Peace, justice and strong institutions
Partnerships for the goals

Other Faculty

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The methodological strategies and the evaluation system contemplated in this Teaching Guide will respond to the principles of equality and non-discrimination and must be adapted according to the needs presented by students with disabilities and special educational needs in the cases that are required. Students must be informed of the risks and measures that affect them, especially those that may have serious or very serious consequences (article 6 of the Safety, Health and Welfare Policy; BOUCO 23-02-23).
