



Universidad de Jaén

FACULTY OF EXPERIMENTAL SCIENCES

Soil Science

2024-2025

Grado en Ciencias Ambientales



GRUEA



Acceso Mayores 40

Guías docentes UJA

Horarios de tutorías

Llamamientos PEvAU

Movilidad (Coordinador)

P.O.D.

Solicitud bilingüismo

Syllabus 2024-25 - 10412019 - Soil Science (Edafología)

Caption

- Level 1: Tutorial support sessions, materials and exams in this language
- Level 2: Tutorial support sessions, materials, exams and seminars in this language
- Level 3: Tutorial support sessions, materials, exams, seminars and regular lectures in this language

Back

Full version (Spanish)

English

DEGREE:

Grado en Ciencias Ambientales

FACULTY:

FACULTY OF EXPERIMENTAL SCIENCES

ACADEMIC YEAR:

2024-25

COURSE:

Soil Science

SYLLABUS

1. COURSE BASIC INFORMATION

NAME: Soil Science

CODE: 10412019

ACADEMIC YEAR: 2024-25

LANGUAGE: English

LEVEL: 1

ECTS CREDITS: 6.0

YEAR: 2

SEMESTER: SC

2. LECTURER BASIC INFORMATION

NAME: ARANDA SANJUAN, VICTOR

DEPARTMENT: U117 - GEOLOGÍA

FIELD OF STUDY: 240 - EDAFOLOGÍA Y QUÍMICA AGRÍCOLA

OFFICE NO.: B3 - B3-323

E-MAIL: varanda@ujaen.es

P: 212773

WEBSITE: <http://geologia.ujaen.es/index.html>ORCID: <https://orcid.org/0000-0002-4323-7978>

LANGUAGE: -

LEVEL: 1

3. CONTENT DESCRIPTION

THEORY PROGRAM:

SECTION 1. CONCEPT AND GENERAL ASPECTS

Chapter 1. Introduction. General aspects of Soil Science.

SECTION 2: SOIL COMPONENTS

Chapter 2. Inorganic soil fraction. Chapter 3. Organic fraction of the soil.

SECTION 3: PHYSICAL PROPERTIES

Chapter 4. Soil Physical Properties I. Chapter 5. Soil Physical Properties II.

SECTION 4: PHYSICO-CHEMICAL AND CHEMICAL PROPERTIES OF SOIL

Chapter 6. Physico-chemical and chemical properties of soil I. Chapter 7. Physico-chemical and chemical properties of soil II.

SECTION 5: GENESIS AND SOIL MORPHOLOGY

Chapter 8. Soil Morphology. Chapter 9. Edaphogenetic Processes. Chapter 10. Factors of soil forming.

SECTION 6: SOIL CLASSIFICATION

Chapter 11. Soil Classification.

SECTION 7: MAPPING, LAND EVALUATION AND SOIL DEGRADATION

Chapter 13. Soil Mapping. Chapter 14. Land Evaluation. Chapter 14. Soil Degradation.

DIRECTED ACADEMIC ACTIVITIES (AAD):

AAD 1. Sampling of agricultural soils in the field.

AAD 2. Interpretation of morphological properties and physical properties of the soil.

AAD 3. Interpretation of analysis of chemical and physicochemical properties of the soil.

AAD 4. Soil evaluation. FAO-Field Assessment Scheme.

AAD 5. Exhibition of student works. Organization and preparation of the Scientific-Technical Report of Soils.

PRACTICAL PROGRAM (LABORATORY):

PRACTICE 1. Preparation of samples for laboratory analysis. PRACTICE 2. Soil Granulometry and Textural Analysis. PRACTICE 3. Determination of pH and Salinity. Presence of gypsum. PRACTICE 4. Determination of Calcium Carbonate and Active Limestone. PRACTICE 5. Determination of Soil Organic Matter and C/N ratio. PRACTICE 6. Cation Exchange Capacity, Exchange Bases and Bases Saturation Degree. ESP.

PRACTICAL PROGRAM (FIELD PRACTICE): A profile description of a natural soil.

4. COURSE DESCRIPTION AND TEACHING METHODOLOGY

Type of Teaching	Training activity	Credits
Theory		3.0
Big group	Masterclass	3.0
Small group	AAD	1.8
	Seminar/Workshop	1.2
	Seminar/ICTCs*	0.2
	Seminar/Problems	0.4
Practices		1.0
Small group	Laboratory	0.6
	Field	0.4
TUTORING		0.2
TOTAL CREDITS		6.0

Students with special educational needs should contact the Student Attention Service (Servicio de Atención y Ayudas al Estudiante) in order to receive the appropriate academic support

5. ASSESSMENT METHODOLOGY

ASPECT: Concepts of the subject to be treated. It means a 70% of the final weight of note, given the importance of their domain. Competencies evaluated: CB-5, CT-2 and CE-33.

ASPECT: Conducting workshops and seminars. The instrument will be a continuous assessment of the development of practices and seminars. It will constitute 20% of the final weight of the note. Competencies evaluated: CE-4, CB-3, CB-4, CB-5, CT-2 and CE-33.

ASPECT: Preparation of written reports on specific topics. Exhibitions and reporting will be the assessment tool. It also constitutes a 10% of the final weight of the note. Competencies evaluated: CB-5, CT-2, CT-3, CE-33, CE-4, CB-3 and CB-4.

6. BOOKLIST ([Access the bibliography in the Library catalog](#))

MAIN BOOKLIST:

- The nature and properties of soils. Edition: 14th ed, Pearson new international ed. Author: Brady, Nyle C. Publisher: Harlow : Pearson Education Limited, cop. 2014 ([Library](#))

7. SUSTAINABLE DEVELOPMENT GOALS

Fin de la pobreza
Hambre cero
Salud y bienestar
Educación de calidad
Igualdad de género
Agua limpia y saneamiento
Producción y consumo responsables
Vida de ecosistemas terrestres

DETAILED INFORMATION

In terms of the environment, the essential objective is to alleviate the serious problems caused by climate change and desertification. Among the actions that must be carried out in this field, we can highlight those to combat inorganic waste by promoting recycling, raising awareness about the management of natural resources, training in techniques for recovering degraded land (improving soil fertilization) and fight against erosion), as well as raising awareness in the fight against deforestation. Mitigating and alleviating the negative effects of climate change and desertification involves supporting productive development through increasing the income of agricultural producers (SDG 1, SDG 2 and SDG 5). This result will be

achieved through: i) improving the capacity for sustainable agricultural and livestock production, ii) improving the conservation capacities of agricultural products, and iii) supporting the transformation of agricultural products and access to markets.

Strengthening the resilience of the most vulnerable populations, especially women and children, through access to food, health services and drinking water and sanitation (SDG 2, SDG 3, SDG 4, SDG 5 and SDG 6).

Other objectives would be related to ending hunger, achieving food security and sovereignty, improving nutrition, as well as promoting sustainable agriculture and resilient productive and agricultural processes (SDG 2). Other objectives would be: SDG 12, by seeking sustainable management of agriculture and the efficient use of natural resources; providing information and knowledge for sustainable development and lifestyles in harmony with the natural environment; contributing to the strengthening of its scientific and technological capacity in order to advance towards more sustainable consumption and production patterns. SDG 15, by ensuring the conservation, restoration and sustainable use of terrestrial ecosystems; promote the sustainable management of natural vegetation, stop deforestation, recover degraded forests and increase reforestation; fight desertification, rehabilitate degraded lands and soils; ensure the conservation of biological diversity; and promote sustainable livelihood opportunities.

8. VIRTUAL / CLASSROOM TEACHING SCENARIO

Multimodal or mixed scenario.

1- TEACHING METHODOLOGY AND TRAINING ACTIVITIES

Training activities	Format	Teaching description methodology,
30 Theory Sessions on Program Contents	To the extent possible in face-to-face format.	30 sessions of master classes, one hour each, to the Great Group.
3 Practical sessions in specialized laboratories	To the extent possible in face-to-face format.	Development of 3 practical sessions, two hours each in the laboratory.
1 Field practice session	To the extent possible in face-to-face format.	1 field practice (4 hours) Outdoor practice that ensures the necessary social estrangement.
9 Directed Academic Activities Sessions	To the extent possible in face-to-face format.	They will consist of 9 presence sessions, two hours each.
Tutoring	To the extent possible in face-to-face format. This activity could be on-line.	Tutoring sessions (two hours).

2- EVALUATION SYSTEM

OPTION C. CONTINUOUS EVALUATION AND FINAL EXAM

Continuous evaluation and a presential final examination are combined.

Ordinary call

Assessment test	Format	Description	Percentage
Written theoretical examination	To the extent possible in face-to-face format.	Concepts of the subject matter to be treated, the criterion of which is the mastery of the theoretical and practical contents of the subject.	50%
Conducting internships and seminars	To the extent possible in face-to-face format.	Continuous evaluation of the development of practices and seminars, with assessment of assistance and competencies related to manipulative capabilities.	25%

Writing reports on specific topics	Asynchronous on-line.	Evaluation of a scientific-technical soil report by small groups of students on a mandatory basis. In addition, individual presentation of different written papers (3 reports) on specific topics covered in the theory part.	25%
------------------------------------	-----------------------	--	-----

Extraordinary call

Assessment test	Format	Description	Percentage
Written exam	To the extent possible in face-to-face format.	Examination on concepts and theoretical contents of the subject matter to be treated.	50%
Written exam	To the extent possible in face-to-face format.	Review on the practical part and the academic activities directed.	25%
Written exam	To the extent possible in face-to-face format.	Review on the specific subject matter subject to written work.	25%

3. RESOURCES

The resources of the mixed scenario are summarized as follows:

- Theory classes will be held on-line using Google-Meet for 100% virtual, and the necessary tools if you need to relay from the classroom.
- AADs and laboratory practices, indicate that they will participate in person in the laboratory the number of students that allow the capacity and that the rest will work in a non-in-person manner.
- Written reports on specific topics will be carried out through the Virtual Teaching platform.
- Students will be informed in advance of GSuite-Calendar and e-mail from the Virtual Teaching platform, both in the manner and date of the different tests and exams.
- The tutoring and review of exams will be carried out by telematics at the time indicated in advance, preferably by videoconference (Google Meet), or by e-mail of the Virtual Teaching platform.

9. VIRTUAL TEACHING SCENARIO

No presential scenario.

1- TEACHING METHODOLOGY AND TRAINING ACTIVITIES

Training Activities	Format	Teaching Description	Methodology,
30 Theory Sessions on Program Contents	No presential	30 participatory master class sessions, one hour each, held by videoconference.	
3 Practical sessions in specialized laboratories	No presential	Substitution of the 3 practical sessions with online training activities. These activities are replaced by video tutorials specific to each type of practice.	
1 Field practice session	No presential	1 4-hour field practice that will be replaced by an online AAD related to soil description, according to FAO guidance, as well as on training factors and soil processes specific to the Mediterranean area.	

9 Directed Academic Activities Sessions	No presential	They will consist of 9 online sessions synchronously, two hours each.
Tutoring	No presential	All tutoring sessions will be conducted online (synchronous and asynchronous).

2- EVALUATION SYSTEM

OPTION C. CONTINUOUS EVALUATION AND FINAL ON-LINE EXAM

Continuous evaluation and a no presence final examination are combined.

Ordinary call

Evaluation test	Format	Description	Percentage
Written theoretical examination	Synchronous no presential	Concepts of the subject matter to be treated, the criterion of which is the mastery of the theoretical and practical contents of the subject.	50%
Follow-up of practices and seminars	Synchronous no presential	Continuous evaluation of the development of practices and seminars, with evaluation of assistance and competencies related to manipulative capabilities. The evaluation will be done by presenting summaries of the different practices and seminars.	25%
Writing reports on specific topics	Asynchronous on-line	Evaluation of a scientific-technical soil report by small groups of students on a mandatory basis. In addition, individual presentation of different written papers (3 reports) on specific topics covered in the theory part.	25%

Extraordinary call

Evaluation test	Format	Description	Percentage
Written exam	No presential synchronous	Examination on concepts and theoretical contents of the subject matter to be treated.	50%
Written exam	No presential synchronous	Review on the practical part and the academic activities directed.	25%
Written exam	No presential synchronous	Review on the specific subject matter subject to written work.	25%

3. RESOURCES

The presential scenario resources are summarized as follows:

- Theory classes will be held online using Google-Meet for 100% virtual.
- AADs and laboratory and field practices will be done online using Google-Meet and different video tutorials present on tv-ujaen and on the network (YouTube, Vimeo, etc.).
- Written reports on specific topics will be carried out through the Virtual Teaching platform.
- Students will be informed in advance of GSuite-Calendar and e-mail from the Virtual Teaching platform, both in the manner and date of the different tests and exams.

- The tutoring and review of exams will be carried out by telematics at the time indicated in advance, preferably by videoconference (Google Meet), or by e-mail of the Virtual Teaching platform.

- In general, the resources include the technical means provided by the University of Jaén, as well as other resources such as electronic bibliographic resources that do not require physical presence in the library.

DATA PROTECTION CLAUSE (on line exams)

Institution in charge of data processing: Universidad de Jaén, Campus Las Lagunillas, s/n, 23071 Jaén

Data Protection Delegate: dpo@ujaen.es

Purpose: In accordance with the Universities Law and other national and regional regulations in force, carrying out exams and assessment tests corresponding to the courses students are registered in. In order to avoid frauds while sitting the exam, the exam will be answered using a videoconference system, being able the academic staff of the University of Jaén to compare and contrast the image of the person who is answering the exam with the student's photographic files. Likewise, in order to provide the exam with evidential content for revisions or claims, in accordance with current regulation frameworks, the exam will be recorded and stored.

Legitimacy: compliance with legal obligations (Universities Law) and other national and regional regulations currently in force.

Addressees: service providers who are the owners of the platforms where the exams are carried out and with whom the University of Jaén has signed the corresponding data access contracts.

Storage periods: those established in current in force regulations. In the specific case of exam videoconference recordings, not before the examination records and transcripts are closed or the exam can still be reviewed or challenged.

Rights: you can exercise your right of access, amendment, cancellation, opposition, suppression, limitation and portability by sending a letter to the postal or electronic address indicated above. In the event that you consider that your rights have been violated, you may submit a complaint to the Andalusian Council for Transparency and Data Protection www.ctpdandalucia.es

CLASS RECORDING CLAUSE PERSONAL DATA PROTECTION

Person in charge: Universidad de Jaén, Paraje Las Lagunillas, s/n; Tel.953 212121; www.ujaen.es

Data protection delegate (DPO): TELEFÓNICA, S.A.U. ; Email: dpo@ujaen.es

Procedure aim: To manage proper recordings of teaching sessions with the aim of facilitating learning process under a multimodal and/or online teaching

Period for record storage: Images will be kept during legal term according to regulations in force

Legitimacy: Data will be managed according to legal regulations (Organic Law 6/2001, December 21, on Universities) and given consent provided by selecting corresponding box in legal admission documents

Data recipients (transfers or assignments): Any person allowed to get access to every teaching modality

Rights: You may exercise your rights of access, rectification, cancellation, portability, limitation of processing, deletion or, where appropriate, opposition. To exercise these rights, you must submit a written request to the Information, Registration and Electronic Administration Service of the University of Jaen at the address above, or by e-mail to the address above. You must specify which of these rights you are requesting to be satisfied and, at the same time, you must attach a photocopy of your ID card or equivalent identification document. In case you act through a representative, legal or voluntary, you must also provide a document that proves this representation and identification. Likewise, if you consider that your right to personal data protection has been violated, you may file a complaint with the Andalusian Data Protection and Transparency Council www.ctpdandalucia.es