Course Description Form/ Soil Morphology

1. Course Name:
Soil morphology
2. Course Code:
SMOR354
3. Semester / Year:
Spring second semester/ 2023-2024
4. Description Preparation Date:
1/2/2024
5. Available Attendance Forms:
Life in person
6. Number of Credit Hours (Total) / Number of Units (Total)
2 + 3 / 3.5
7. Course administrator's name (mention all, if more than one name)
Name: Dr. khaled Anwer khaled Email: Khalid.anwar31@uomosul.edu.iq
8. Course Objectives
Course Objectives - Enable the student to understand and comprehend what is related to soil morphology and its relationship to soil science and water resources - Enable the student to know the most important features of the stove - Enable the student to become familiar with the most important factors affecting the development of horizons - Empowering the student with the ability to detect diagnostic horizons - The student can explain the development of horizons and address the differences in results for the future over time - Enabling the student to become familiar with the most important laboratory methods in studying macro- and micro-morphological characteristics and the important chemical and physical analyzes distinguishing and studying soil horizons.
9. Teaching and Learning Strategies
- Interactive lecture - Brainstorming - Dialogue and discussion - Assigning tasks and reporting - Presentations of examples of sites degraded by erosion
10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 virtual	A1: The student explains and learns about the concept of soil morphology B1: Possesses practical and mental knowledge and	The concept of soil morphology and its	Interactive lecture, brainstormin g, dialogue and	Semester exam 1, exam

		concepts that help him in soil morphology	relationship to other sciences	discussion, self-learning	
	3 Laboratory	C6: The student discovers any means of distinguishing horizons. Able to use laboratory equipment	Definition of morphology, its types, and methods for studying the pedon	Interactive lecture, brainstormin g, dialogue and discussion, self-learning	Semester exam 1, final exam
2	2 virtual	A2: The student explains the most important soil formation processes. B1: Possesses practical and mental knowledge and concepts that help him in soil morphology A2: The student explains the most important soil formation processes. B1: Possesses practical and mental knowledge and concepts that help him in soil morphology	Terminology used in soil morphology	Interactive lecture, brainstormin g, dialogue and discussion, self-learning	Semester exam 1, final exam
	3 Laboratory	C6: The student discovers any means of distinguishing horizons. Able to use laboratory equipment	distinguishing between soil pedon, soil profile, soil, and soil pedon		Direct drawing
3	2 virtual	A2: The student explains the most important soil formation processes.	The main horizons in soil pedon		Semester exam 1, final exam
	3 Laboratory	C6: The student discovers any means of distinguishing horizons. Able to use laboratory equipment D3: The student should be able to communicate his information with the community.	Physography of the region and pedons		Field evaluation
4	2 virtual	A2: The student is familiar with the most important factors affecting the formation and development of the hearth E3: The student should be able to deal efficiently and effectively in the field of work to transfer knowledge	Secondary horizons and their diagnosis		Semester exam 1, final exam

		and skills to farmers and the general public			
	3 Laboratory	A2: The student is familiar with the most important factors affecting the formation and development of the hearth C6: The student discovers any means of distinguishing horizons. Able to use laboratory equipment	Describing the characteristics of the appearance of the Earth's surface	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Practical quiz 2, direct drawing
5	2 virtual	E3: The student should be able to deal efficiently and effectively in the field of work to transfer knowledge and skills to farmers and the general public	In one area poly pedon	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Semester exam 1, final exam
	3 Laboratory	C6: The student examines the tools used to examine soil piles D1: Acquiring the communication skills necessary to deal with confidence and certainty at the individual and group levels D3: The student should be able to communicate his information with the community	spatial and environmental description of the area surrounding the hearth	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Semester exam 1, final exam
6	2 virtual	A2: The student is familiar with the most important factors affecting the formation and development of the hearth D1: Acquiring the communication skills necessary to deal with confidence and certainty at the individual and group levels D3: The student should be able to communicate his information with the community.	Diagnostic characteristics of genetic horizons in soil pedon	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Semester exam 1, final exam
	3 Laboratory	C6: The student discovers any means of distinguishing horizons. Able to use laboratory equipment	large and small morphological characteristics	Interactive lecture, brainstorming, dialogue and	Direct drawing and homework

				discussion, self-learning	
7	2 virtual	A2: The student is familiar with the most important factors affecting the formation and development of the hearth D1: Acquiring the communication skills necessary to deal with confidence and certainty at the individual and group levels D3: The student should be able to communicate his information with the community.	Distinctive external diagnostic horizons, their types and characteristics	Interactive lecture, brainstormin g, dialogue and discussion, self-learning	Semester exam 2, final exam
	3 Laboratory	C6: The student discovers any means of distinguishing horizons. Able to use laboratory equipment	Special formations in the soil pedon	Interactive lecture, brainstormin g, dialogue and discussion, self-learning	Field project
8	2 virtual	A2: The student is familiar with the most important factors affecting the formation and development of the hearth B1: Possesses practical and mental knowledge and concepts that help him in soil morphology	Distinctive internal diagnostic horizons, their types and characteristics	Interactive lecture, brainstormin g, dialogue and discussion, self-learning	Semester exam 2, final exam
	3 Laboratory	C3: The student should be able to prepare scientific research and studies in his field of specialization	Epipedon diagnostic horizons	Interactive lecture, brainstormin g, dialogue and discussion, self-learning	Direct drawing and homework
9	2 virtual	B9: The student is familiar with the most important features that appear on surface and subsurface horizons and interprets them using applied programs to solve agricultural problems. C3: The student should be able to prepare scientific research and studies in his field of specialization	The relationship of the distinctive diagnostic horizons to the main and secondary horizons in soil beds and the conditions of their formation		Semester exam 2, final exam

	3 Laboratory	C3: The student should be able to prepare scientific research and studies in his field of specialization C6: The student discovers any means of distinguishing horizons. Able to use laboratory equipment.	Micro morphological characteristics	Interactive lecture, brainstormin g, dialogue and discussion, self-learning	Direct drawing and homework
10	2 virtual	A1: The student explains and learns about the concept of soil morphology A2: The student is familiar with the most important factors affecting the formation and development of the hearth B1: Possesses practical and mental knowledge and concepts that help him in soil morphology	Micromorpholo gy, its concepts and components	Interactive lecture, brainstormin g, dialogue and discussion, self-learning	Semester test2
	3 Laboratory	C6: The student discovers any means of distinguishing horizons. Able to use laboratory equipment. E3: The student should be able to deal efficiently and effectively in the field of work to transfer knowledge and skills to farmers and the general public	Micromorpholo gy, its concepts and components	Interactive lecture, brainstormin g, dialogue and discussion, self-learning	Direct drawing and homework
11	2 virtual	A2: The student is familiar with the most important factors affecting the formation and development of the hearth A21: The student should be able to describe practical developments in the field of land sciences and related sciences	Micromorpholo gy, its concepts and components	Interactive lecture, brainstormin g, dialogue and discussion, self-learning	Final test
	3 Laboratory	C6: The student discovers any means of distinguishing horizons. Able to use laboratory equipment. C25: Tests soil types in the laboratory of different slopes	Micromorpholo gy, its concepts and components	Interactive lecture, brainstormin g, dialogue and discussion, self-learning	Direct drawing and homework
12	2 virtual	A2: The student is familiar with the most important factors affecting the	Micromorpholo gy, its concepts and components	Interactive lecture, brainstormin	Final Test

		formation and development of the hearth A22: The student should be able to interpret the secondary symbols that show the nature of each horizon		g, dialogue and discussion, self-learning	
	3 Laboratory	C6: The student discovers any means of distinguishing horizons. Able to use laboratory equipment. C25: Tests soil types in the laboratory of different slopes	Micromorphology, its concepts and components	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Direct drawing and homework
13	2 virtual	A2: The student is familiar with the most important factors affecting the formation and development of the hearth C3: The student should be able to prepare scientific research and studies in his field of specialization.	Micromorphology, its concepts and components	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Final Exam
	3 Laboratory	C3: The student should be able to prepare scientific research and studies in his field of specialization C6: The student discovers any means of distinguishing horizons. Able to use laboratory equipment.	Different soil tests at different horizons and climatic conditions	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Direct drawing and homework
14	2 virtual	.B1: Possesses practical and mental knowledge and concepts that help him in soil morphology C3: The student should be able to prepare scientific research and studies in his field of specialization C6: The student discovers any means of distinguishing horizons. Able to use laboratory equipment	Types of fine morphological characters, such as cutaneous ones, and their classes according to location, components, and internal composition(s) of the mutant characters, Fabric, and their dividing boundaries.	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Short test, final test
	3 Laboratory	C3: The student should be able to prepare scientific	Field visits to different soils and	Interactive lecture,	Short practical test3

		research and studies in his field of specialization C25: Tests soil types in the laboratory of different slopes D3: The student should be able to communicate his information with the community.	distinguishing them from each other	brainsto rming, dialogue and discussi on, self-learning	
15	2 virtual	C3: The student should be able to prepare scientific research and studies in his field of specialization C6: The student discovers any means of distinguishing horizons. Able to use laboratory equipment.	Presentation of slides on large and small morphological characters	Interacti ve lecture, brainsto rming, dialogue and discussi on, self-learning	Short test, final test
	3 Laborator y	C3: The student should be able to prepare scientific research and studies in his field of specialization C6: The student discovers any means of distinguishing horizons. Able to use laboratory equipment. C25: Tests soil types in the laboratory of different slopes D3: The student should be able to communicate his information with the community. E3: The student should be able to deal efficiently and effectively in the field of work to transfer knowledge and skills to farmers and the general public.	A scientific trip for the purpose of collecting soil samples from different sites	Interacti ve lecture, brainsto rming, dialogue and discussi on, self-learning	Field project

Course Evaluation

No	Evaluation methods	Evaluation date	Grade	Relative weight
1	Report 1	fourth week	2.5	2.5
2	Report 2	The fifth week	2.5	2.5
3	Short test (1) Quiz	the sixth week	2	2
4	Short test (2) Quiz	The fourteenth week	2	2
5	Short test (3) Quiz	The fifteenth week	1	1
6	Semester test (1)	the sixth week	7.5	7.5
7	Semester test (2)	The eleventh week is difficult	7.5	7.5
8	Final theoretical test	Final semester exams	40	40

9	Practical field project	The fifteenth week	5	5
10	Field evaluation	The third and fifth week	2	2
11	Practical short test (1) Quiz	The first week	1	1
12	Short practical test (2) Quiz	fourth week	0.5	0.5
13	Short practical test (3) Quiz	The fourteenth week	1	1
14	Live drawings and homework	Weeks 6, 8, 9, 10, 11, 12 and 13	5.5	5.5
15	Final practical test	Final semester exams	20	20
	Total	100	100%	%100

Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Soil management and conservation
Main references (sources)	USDA
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

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