Course Description Form of Soil fertility

1. Course Name:	
Soil fertility	
2. Course Code:	
SOIF314	
3. Semester / Year:	
first semester/ 2024-2025	
4. Description Preparation Date:	
15/1/2025	
5. Available Attendance Forms:	
Full time (theoretical lecture and practical lecture) weekly	
6. Number of Credit Hours (Total) / Number of Units (Total)	
5 hours (2 hours theoretical and 3 hours practical per week) for 14 weeks, number of units 3.5 units	
7. Course Administrator's Name (Mention All, If More Than One Name)	
Name: dr.Luay Dawood Farhan Email: luayfarha@uodiyalay.edu.iq	
8. Course Objectives	
Course Objectives: Graduating students who are able to:	-Learn about the concept of soil fertility and its relationship to productivity -Studying the interactions of nutrients in the soil and the factors affecting its readiness -Identify mineral and organic fertilizers and their interactions in the soil
9. Teaching and Learning Strategies	

Strategy	In-person lectures for 14 weeks, including two monthly exams, daily exams, and scientific reports

10. Course Structure

Theoretical part

Week	Hours	Required learning outcomes	Unit or Subject	Learning Method	Evaluation Method
1	**2**	A brief history of soil fertility science	Soil fertility	**Lecture Dialogue & discussion Brainstorming**	Daily, monthly and final exams and daily reports
2	**2**	Growth and factors affecting it	Soil fertility	**Lecture Dialogue & discussion Brainstorming**	Daily, monthly and final exams and daily reports
3	**2**	The basics of the relationship between soil and plants	Soil fertility	**Lecture Dialogue & discussion Brainstorming**	Daily, monthly and final exams and daily reports
4	**2**	Soil fertility and biological readiness	Soil fertility	**Lecture Dialogue & discussion Brainstorming**	Daily, monthly and final exams and daily reports
5	**2**	The elements necessary for plant growth, their classification and the foundations on which they depend	Soil fertility	**Lecture Dialogue & discussion Brainstorming**	Daily, monthly and final exams and daily reports
6	**2**	Nitrogen	Soil fertility	**Lecture Dialogue & discussion Brainstorming**	Daily, monthly and final exams and daily reports
7	**2**	Phosphorus	Soil fertility	**Lecture Dialogue & discussion Brainstorming**	Daily, monthly and final exams and daily reports
8	**2**	Potassium	Soil fertility	**Lecture Dialogue & discussion Brainstorming**	Daily, monthly and final exams and daily reports
9	**2**	Calcium, magnesium, sulfur	Soil fertility	**Lecture Dialogue & discussion Brainstorming**	Daily, monthly and final exams and daily reports
10	**2**	Factors affecting the readiness of microelements	Soil fertility	**Lecture Dialogue & discussion Brainstorming**	Daily, monthly and final exams and daily reports
11	**2**	Iron, manganese, zinc, copper	Soil fertility	**Lecture Dialogue & discussion Brainstorming**	Daily, monthly and final exams and daily reports
12	**2**	Boron, molybdenum, chlorine, nickel	Soil fertility	**Lecture Dialogue & discussion Brainstorming**	Daily, monthly and final exams and daily reports

13	**2**	Beneficial elements	Soil fertility	**Lecture Dialogue & discussion Brainstorming**	Daily, monthly and final exams and daily reports
14	**2**	Organic matter in soil and its importance in terms of fertility	Soil fertility	**Lecture Dialogue & discussion Brainstorming**	Daily, monthly and final exams and daily reports
15	**2**	Soil fertility assessment	Soil fertility	**Lecture Dialogue & discussion Brainstorming**	Daily, monthly and final exams and daily reports

Practical part

Week	Hours	Required learning outcomes	Unit or Subject Name	Learning Method	Evaluation Method
1	**3**	Methods used for fertility assessment	Soil fertility	**Observation Dialogue & discussion**	Daily, monthly and final exams and daily reports
2	**3**	Conducting a pot experiment to evaluate soil fertility	Soil fertility	**Observation Dialogue & discussion**	Daily, monthly and final exams and daily reports
3	**3**	Calculate the amount of fertilizer	Soil fertility	**Observation Dialogue & discussion**	Daily, monthly and final exams and daily reports
4	**3**	Learn about the types of biological experiments	Soil fertility	**Observation Dialogue & discussion**	Daily, monthly and final exams and daily reports
5	**3**	Steps for taking soil samples	Soil fertility	**Observation Dialogue & discussion**	Daily, monthly and final exams and daily reports
6	**3**	Estimation of available nitrogen	Soil fertility	**Observation Dialogue & discussion**	Daily, monthly and final exams and daily reports
7	**3**	Estimation of available phosphorus	Soil fertility	**Observation Dialogue & discussion**	Daily, monthly and final exams and daily reports
8	**3**	Estimation of available potassium	Soil fertility	**Observation Dialogue & discussion**	Daily, monthly and final exams and daily reports
9	**3**	available of Calcium and magnesium estimate	Soil fertility	**Observation Dialogue & discussion**	Daily, monthly and final exams and daily reports
10	**3**	Estimation of available sulfur	Soil fertility	**Observation Dialogue & discussion**	Daily, monthly and final exams and daily reports
11	**3**	Boron Estimation	Soil fertility	**Observation Dialogue & discussion**	Daily, monthly and final exams and daily reports
12	**3**	Iron Estimation	Soil fertility	**Observation Dialogue & discussion**	Daily, monthly and final exams and daily reports
13	**3**	Zinc Estimation	Soil fertility	**Observation Dialogue & discussion**	Daily, monthly and final exams and daily reports
14	**3**	Organic matter estimation	Soil fertility	**Observation Dialogue & discussion**	Daily, monthly and final exams and daily reports

15	**3**	Factors affecting fertility assessment	Soil fertility	**Observation Dialogue & discussion**	Daily, monthly and final exams and daily reports

11. Course Evaluation
Examination Monthly & daily exams with discussion questions inside the lecture. The degree of participation in the questions related to the subject.

12. Learning and Teaching Sources	
Required Textbooks (Curricular Books, If Any)	1- Awad, Kazem Mashhout (1987) Fertilization and Soil Fertility, Ministry of Higher Education and Scientific Research, University of Basra. 2- Al-Naimi, Saadallah (1999) Fertilizers and soil fertility. Ministry of Higher Education and Scientific Research, University of Mosul.
Main References (Sources)	1- Awad, Kazem Mashhout (1987) Fertilization and Soil Fertility, Ministry of Higher Education and Scientific Research, University of Basra. 2- Al-Naimi, Saadallah (1999) Fertilizers and soil fertility. Ministry of Higher Education and Scientific Research, University of Mosul.
Recommended Books and References (Scientific Journals, Reports...)	Iraqi academic scientific journals
Electronic References, Websites	Soil Science Society of America Library Genesis