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**Department of …Soil and water department...**

**College of ……….…....Agriculture……….…….**

**University of ….…..…Salahaddin….………….**

**Subject: ..… Soil Science …..**

**Course Book – (Year )**

**Lecturer's name: MScDunia Hussen Wali and MScChra Othman**

**Academic Year: 2021**

**Course Book**

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| **1. Course name** | **Soil Science** |
| **2. Lecturer in charge** | **Dunia Hussen Wali and Chra Othman** |
| **3. Department/ College** | **Soil and Water science , College of Agriculture**  |
| **4. Contact** | **e-mail: dunyahussainwally@yahoo.com****Tel: 07503300502** |
| **5. Time (in hours) per week**  | **Practical: 3**  |
| **6. Office hours** | **12 hours** |
| **7. Course code** |  |
| **8. Teacher's academic profile**  | **BSc in soil science (Soil and Water Science department/ College of Agriculture) Science 2004.Working as Demonstrator a t soil and water science department for 6 years. MSc in soil science (Soil Fertility).** |
| **9. Keywords** |  |
| **10. Course overview:** This course is designed to introduce to the students our current knowledge and understanding as well as the fundamental concepts and principles of soil science. Through this course, the students will build chemical, physical, and biological views of the soil and its processes and behaviors, both in natural and perturbed states. The core concepts of soil are centered on soil profile, soil formation factors and processes, texture, density, temperature color, soil solution, cation and anion exchange capacity, soil acidity and alkality, plant elements in soil, soil microorganisms, soil mineralogy, and soil classification, and Studies the physical and chemical properties of soil; soil formation and classification. Also studies the essential plant nutrients and their availability in soil. Balances theoretical and practical aspects of soil fertility and includes soil testing and fertilizer products**.**  |
| **11. Course objective:**1. **To learn how to conserve and utilize soils properly. Poorly managed soils lose up to 30 tons/acre/year to erosion.**
2. **To understand how soil chemical and physical properties affect various uses of soils.**
3. **To understand soil variability.**
4. **To understand how soil properties can be modified to improve their quality for a particular use.**
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| **12. Student's obligation**. **In this course the student at every lecture should ready to quick test (quiz) of previous lectures. Whereas they asked about what we talked and studied in previous lecture.** |
| **13. Forms of teaching****Data Show****Presentation****Write in white board**  |
| **14. Assessment scheme****examination** **Sum of daily quick tests (quiz) with reports** **Final assessment**  |
| **15. Student learning outcome:** **Studding soil science course both section theoretical and practical is extremely important especially in agriculture. As well as Science was very important to increase the yield and production to plants. This refers to the ability of the soil to supply essential plant nutrients and soil water in adequate amounts and proportions for plant growth and reproduction in the absence of toxic substances which may inhibit plant growth**  |
| **16. Course Reading List and References‌:**1. **Havlin, J. L., J. D. Beaton; Tisdale S. L., and W. L. Nelson. 2005. Soil fertility and fertilizers.7thED. Pearson Education Inc., New Jersey...**
2. **Nyle C. Brady and Ray R. Weil. 2002. The Nature and Properties of Soils, 14th Edition. Prentice Hall, Publisher.**
3. **Mark S. Coyne and James A. Thompson. 2006. Fundamental Soil Science, 1st Edition, Thomson Delmar Learning.**

 **The internet researches**[**http://steenbock.library.wisc.edu/subjectguide/soilsci.htm**](http://steenbock.library.wisc.edu/subjectguide/soilsci.htm)[**http://www.rdg.ac.uk/library/colls/policies/soilscience.html**](http://www.rdg.ac.uk/library/colls/policies/soilscience.html)[www.soil.gsfc.nasa.goy](http://www.soil.gsfc.nasa.goy) |
| **17. The Topics:** | **Dr. Raad Gorge** |
| **18. Practical Topics**  | **Lecture s name** |
| ***Soil sampling***  | **Dunia Hussen Wali****Chra Othman** **(3 hrs)** |
| ***Soil Profile description in the field*** | **Dunia Hussen Wali****Chra Othman** **(3 hrs)** |
| ***Soil Saturation paste*** | **Dunia Hussen Wali** **Chra Othman** **(3 hrs)** |
| ***Particle density*** | **Dunia Hussen Wali** **Chra Othman** **(3 hrs)** |
| **1 st Examination** | **Dunia Hussen Wali****Chra Othman** |
| *Particle size distributionto determine soil texture* | **Dunia Hussen Wali****Chra Othman** **(3 hrs)** |
| ***Soil Reaction (pH)*** | **Duni Chra Othman** **a Hussen Wali** **(3 hrs)** |
| *Soil Electrical Conductivity (EC)* | **Dunia Hussen Wali** **Chra Othman** **(3 hrs)** |
| ***Determination of total Lime CaCO3 (Calcium* *Carbonate )sample***  | **Dunia Hussen Wali****Chra Othman** **(3 hrs)** |
| ***Bulk density*** | **Dunia Hussen Wali****Chra Othman** **(3 hrs)** |
|  **Going to the center of the agriculture researches.** | **Dunia Hussen Wali****Chra Othman** **(3 hrs)** |
| **2 st Examination** | **Dunia Hussen Wali****Chra Othman** |
| **19. Examinations:**In regard to this subject the type of exam will be as follows: - **Qustion1/full the following sentences**  **1-variation in slop, -------------, ------------- should be taken into account.** **2-** **3-** **4-****Solution/****1-textuer, color****Qustion2/ What is a soil sampling? What are the objectives of soil sampling?** **Soil sampling can be defined as amount of soil that represents all or most properties of the soil in which field has been taken**.**the objectives**1. **To collect a soil sample that is representative of a field or portion of a field**
2. **Determine the minerals and organic matter status of the soil.**
3. **Classify the soil.**
4. **Determine the effect of (eco system) factors on soil development.**
5. **To obtain information about a field and use that information to make management decisions**
	* 1. **Nutrient management**
		2. **Herbicides**
		3. **How to irrigated**
6. **Studying the soil fertility status.**
7. **Evaluate the soil fertility by analyzing soil samples (chemical , physical and biological)**
8. **Studying the soil chemical properties (pH , EC , cat ions , anions ,… etc)**

**Q3/ what is The Objective of soil saturation paste?****ANSWER** **The Objective of soil saturation paste****To determine the chemical properties like PH, Ec, Cation and Anion** |
| **20. Extra notes:** |
| **21. Peer review پێداچوونه‌وه‌ی هاوه‌ڵ** .‌  |