**The University of Jordan**

**Faculty of Agriculture Department of Land, Water, and Environment**

**Program: 2015-2016/First Semester**

**Soil Survey and Land Use (0654323)**

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| **Credit hours** | **3** | **Level** | **Bsc** | **Pre-requisite** | **Soil Chemistry** **Soil physics** |
| **Coordinator/ Lecturer** | **Prof. Awni Taimeh** | **Office number** | **114** | **Office phone** | **22445** |
| **Course website** | **On UJ E Learning portal** | **E-mail** | **ataimeh@ju.edu.jo** | **Place** | **LWE Seminar Room** |

|  |
| --- |
| **Office hours** |
| **Day/Time** | **Sunday** | **Monday** | **Tuesday** | **Wednesday** | **Thursday** |
| **Day** | **\*** |  | **\*** |  | **\*** |
| **Time** | **9-10** |  | **9-10** |  | **9-10** |

**Course Description**

Objectives of surveys, types and scale of surveys.Soil classification systems. Design of and execution of surveys, surveys quality control.Land evaluation Systems, Land use for Agricultural Purposes, Land use for non- Agricultural Purposes.

**Learning Objectives**

Students will:

**Course Objectives:** Students will:

* Understand Soil Survey Methods and Preliminary Preparations
* Understand the base maps, identification and soil interpretation.
* Be able to understand current trends in land use planning
* Be able to conduct soil survey and land use planning.

**Intended Learning Outcomes (ILOs):**

Successful completion of the course should lead to the following outcomes:

**A. Knowledge and Understanding:** Student is expected to

A1- Soil variation and their impacts on land use

A2- The significance of soil mapping and interpretation on protection of land resources

A3: The relationship between various environmental aspects of land and soil as an important component

**B. Intellectual Analytical and Cognitive Skills:** Student is expected to

B1- Incorporate various types of data to achieves different objectives

B2- Use multilayer data in the for specific and general objectives

B3- Improve capacity to correlate between different land components

**C. Subject- Specific Skills:** Students is expected to

C1- Produce soil map for different objectives

C2- Participate in land use planning

C3- Master Soil data interpretation

C4- Integrate different ecological data with soil information

**D. Transferable Key Skills:** Students is expected to

D1- Be able to carry soil mapping at different scale

D2- Be able to interpret soil reports for different utilizations

D3- Be able to incorporate soil interpretation with land use planning

ILOs: Learning and Evaluation Methods

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| --- | --- | --- |
| **ILO/s** | **Learning Methods** | **Evaluation methods** |
| **A. Knowledge and Understanding** | Lectures and Discussions | Exam |
| **B. Intellectual Analytical and Cognitive Skills** | Lectures ,Discussions, and Home works | Exam |
| **C. Subject- Specific Skills** | Lectures, and Discussions  | Exam |
| **D. Transferable Key Skills** | Homework and Assignments | Evaluation |

**Course Contents**

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| **Content** | **Reference**  | **Week** | **ILO/s** |
| **Introduction­ Purpose of the surveys*** Soil Forming Factors
* Pedon an polypedon, Soil individual
* Role of soil maps.
* Data needed for soil surveys.
* Objectives of land use planning
 | Soil Survey Manual Chapter 1 | 1-2th weeks |  |
| **Soil Survey Methods and Preliminary Preparations:**­ Soil survey Methods ­Tools ­Legend establishment ­Office investigation­Boundary delineation office and field­ Planning for soil surveys ­ Selection of base maps, scale etc.-Production of base maps.­ Kinds of surveys­ Preliminary studies ­ Field records­ Data sheets | Soil Survey Manual Chapte 2, 3r | 2-4th weeks |  |
| **Base Maps**- Types of base maps­ Air-photo Interpretation­Aerial surveys, stereoscopy -Soil interpretation-Identification -Photo mosaics | Soil Survey Manual Chapter | 4-6th weeks |  |
| **Production of Soil Maps**­Source of information­Character of soil maps­Plotting of field data­Quality of soil map quality, soil variability­Soil survey quality control­Intensity of observations and sampling­Standardization­Map correlation­Final maps ­ Map scale, field, publication | Soil Survey Manual Chapter 3-4 | 6-7th weeks |  |
| **Mapping units: MU**­ Kinds of mapping units.­ Rules for nomenclature­ Soil legend­ Soil boundaries­ Soil grouping­ Soil Taxonomy | Soil Survey Manual Chapter3,4 | 8-9th weeks |  |
| **Soil Correlation**- Data correlation­ Related soil data­ Information and display systems­ Maps­ Reports­ Worksheets­ Geographic information system | Soil Survey Manual Chapter 6 | 9-10th weeks |  |
| **Interpretation of Soil Maps**­ Kinds of soil data­ Soil properties and associated land features ­ Predicting performance of soil­ Soil interpretation at the family level­ Soil information system­ Soil survey interpretation­ Agricultural utilizations | Soil Survey Manual Chapter 6 | 10-11th weeks |  |
| **Soil Information Database**­ Soil information system­ Field data­ Laboratory data­ Procedures- Role of soil information system- Modern soil information system­ Benchmark Soil (BMS)­ Criteria for BMS­ Management of BMS data | Soil Survey Manual Chapter 5 | 11-12th weeks |  |
| **Land Use**­ Land use planning­ What do we plan. - Methods of land use planning­ Source of information­ Land Evaluation ­ Land capability classification­ Soil capability classification­ Soil classification/Irrigation ­ Engineering interpretation- Role of database - Current trends in land use planning | Soil Survey Manual Chapter 6 | 12-15th week |  |
| Soil mapping: field mapping of soils,, soil interpretation | :Soil Survey Manual Chapter  | 15-16th week  |  |

**Learning Methodology**

## The course will be structures mainly in lectures; and discussions, homework, drop quizzes, and applications.

# Evaluation

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| --- | --- | --- |
| **Evaluation** | **Point %** | **Date** |
| **Midterm Exam**  | 15 | 11 / 11 / 2015 |
| **2nd Exam** | 15 | 9 / 12 /2015 |
| **Homework an Quizzes**  | 20 |  |
| **Final Exam** | 50 | 6 / 1 / 2016 |

# References:

1­ Soil Survey Manual Handbook No.1¸ SCS USDA.

2­ National Soil Handbook No.436 SCS, USDA.

3­ Soil Survey and Land Use Planning, L.Ê Bartelli, ASA.

4­ Aerial­ Photo Interpretation in Classifying and Mapping Soils Handbook No.294, USDA.

5­ Interpretation of Aerial Photographs, T.E. Avery

**Intended Grading Scale (Optional)**

0-35 **F**

36-39 **D**-

40-47 **D**

48-51 **D+**

52-55 **C**-

56-63 **C**

64-67 **C+**

68-71 **B**-

72-79 **B**

80-83 **B+**

84-87 **A**-

88-100 **A**

**Notes:**