

The Islamia University of Bahawalpur

University College of Agriculture and Environmental Sciences

SS-301

Introduction to Soil Science

3(2-1)

Class:

**B.Sc. (Hons.) Agriculture,
1st Semester**

Instructor:

Dr. Ghulam Hassan Abbasi

Class Room:

New Building UCA & ES

Class days and timings:

As per time table

Contact No.

0300-6724172

Course Objective: This course is designed to introduce the concept and importance of soil science for agriculture students at under-graduate level.

Teaching Methodology: The class will be conducted in a lecture & discussion environment about different laboratory techniques, where the class Instructor will demonstrate and lead discussions, students will be encouraged to participate and ask question at the end of each class session. Students will be expected to read assignments in advance. This will be tested through a quiz which may proceed each class session.

BOOKS RECOMMENDED:

1. Bashir, E. and R. Bantel. 1996. Soil Science. NBF. Islamabad, Pakistan.
2. Brady, N.C. and R.R. Weil. 2002. The Nature and Properties of Soils. (13th ed.). Prentice-Hall, Inc. Upper Saddle River, NJ, USA.
3. Singer, M.J. and D.N. Munns. 2002. Soils: An introduction. (5th Ed.). Prentice-Hall, Inc. Upper Saddle River, NJ, USA.
4. Tan, K.H. 2000. Environmental Soil Science. (2nd Ed.). Marcel Dekker, Inc., New York, USA.

COURSE CONTENTS (Theory):

Session 1	Introduction to earth, soil and disciplines of soil sciences
Sessions 2 & 3	Introduction to environment, environmental sciences and its components; lithosphere, hydrosphere, atmosphere and biosphere
Sessions 4 & 5	Soil forming rocks and minerals: types and their formation
Session 6	Weathering: Definition, agents and classification
Session 7	Parent materials: Definition and types
Session 8	Soil formation: Definition, specialized soil development processes and factors
Session 9	Mid Term Exam
Sessions 10 & 11	Soil profile: Definition and description
Session 12	Soil physical properties; soil texture, soil structure and significance of these
Session 13	Soil bulk density, particle density and significance
Session 14	Soil porosity, aeration and significance
Session 15	Soil temperature, consistency and significance
Session 16	Soil water and its types

Session 17	Introduction to soil and land capability classification
Sessions 18 & 19	Final Term Exam

Practical:

Sessions 1 - 3	Method of soil sampling, preparation, labelling and storage
Session 4	Soil water contents
Sessions 5 & 6	Textural analysis of soil
Sessions 7 & 8	Determination of soil bulk and particle density
Session 9	Mid Term Exam
Session 10	Analysis of irrigation water : sampling protocol
Session 11 & 12	Determination of EC and TSS
Sessions 13 & 14	Determination of cations and anions
Session 15	Determination of SAR and RSC
Sessions 16 & 17	Interpretation of results and report writing
Sessions 18 & 19	Final Term Exam

Testing and Grading:

1. Learning will be accomplished through lectures, class exercises, and student participation in classroom discussion and presentations.
2. Grading will tend to focus on your overall performance rather than one or two aspects. A midterm exam and a comprehensive final examination will be given.
3. Another portion of the course grade will include the discussion/attendance grade, quizzes, and/or other assignments.
4. The mid-term examination will be graded for 30% marks and final examination will have a weightage of 50% marks. 20% marks are allocated as sessional both in theory and practical separately. These will be awarded on the basis of attendance, class and practical participation, quizzes, presentations and conduct during the semester etc.
5. Attendance in classes is compulsory as per university rules. Students not meeting the required attendance will not be allowed to take the final examination.
6. Test questions may be taken from textbook readings, additional material discussed in class, questions/ answers covered in the class and practical and/or other assigned readings.

Please Note: In the unlikely event of an unplanned absence by the instructor, the material to have been covered during that class meeting will be shifted to the next meeting. If a test was scheduled for that class meeting, the test will be given during the next class meeting. In the event of any necessary planned absences, information on schedule changes will be provided in advance.

Appointment with Instructor: Instructor will be available for meeting class students immediately after each class, and/ or in the office by appointment made in advance.