



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Advanced Soil Chemistry,							
Course Code		ZTO611		Course Level		Third Cycle (Doctorate Degree)			
ECTS Credit	8	Workload	195 (<i>Hours</i>)	Theory	2	Practice	2	Laboratory	0
Objectives of the Course		The aim of this course is to examine the effects of chemical events in the soil on the other physical and biological properties of soil in detail. Equilibrium reactions between soil solid and soil liquid phase; The base physico chemical relationships; organo-metallic compounds; the dynamics of artificial kleyts in the soil solution; and alkalinity and salinity; analyses of chemical efficiency of soil and discussions on special problems							
Course Content		Soil colloids soil reactions and artificial fertilizers in the soil used in the reactions it will cause determination, determination of the application forms							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Experiment, Demonstration, Discussion, Case Study, Individual Study, Problem Solving					
Name of Lecturer(s)		Assoc. Prof. Saime SEFEROĞLU							

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	40
Final Examination	1	60

Recommended or Required Reading

1	Usta, S., 1995 Toprak Kimyası AÜ. Ziraat Fak. Yayın No: 1387/401
2	Sezen Y. (1991). Toprak kimyası. Atatürk Üniversitesi Ziraat Fak. Yayınları No 127, Erzurum
3	Donald L. Sparks 2004. Environmental soil chemistry ISBN: 978-0-19-514965-4 ISBN-10: 0-19-514965-
4	Michael E. Essington 1994. Soil and water chemistry : an integrative approach Oxrot University ISBN: 978-0-19-507011-8 - ISBN-10: 0-19-507011-9 -

Week	Weekly Detailed Course Contents	
1	Theoretical	A balance between solid and liquid phases of soil reaction
	Preparation Work	Determination of pH with three different methods in soil
2	Theoretical	Colloids in soil and change
3	Theoretical	Clay colloids
	Preparation Work	Determination of soil EC
4	Theoretical	Organic colloids
	Preparation Work	Determination of phosphorus in soil (Olsen)
5	Theoretical	Relations of basic physicochemical in Soil
	Preparation Work	Determination of phosphorus in soil (Bingham)
6	Theoretical	Buffering of soil
	Preparation Work	Determination of phosphorus in soil (Bry- Kurtz)
7	Theoretical	Keeping of anion in soil
	Preparation Work	Phosphorus fixation determination
8	Intermediate Exam	Midterm Exam
9	Theoretical	Hold in soil molecular
10	Theoretical	Formation in soil organic matter and kleyt
11	Theoretical	Salinity and alkalinity
	Preparation Work	Determination in soil organic matter
12	Theoretical	Artificial soil solution kleyt the dynamics,
	Preparation Work	Determination in KDK
13	Theoretical	Soil chemical efficiency and the special problems discussions on examined
	Preparation Work	Determination in KDK
14	Theoretical	Fermentation Glycolysis event
	Preparation Work	Evaluation of homework



15	Theoretical	DNA and RNA molecules
	Preparation Work	Evaluation of homework
16	Final Exam	Final Exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	0	2	28
Lecture - Practice	14	0	2	28
Term Project	1	0	30	30
Laboratory	8	1	2	24
Midterm Examination	1	0	35	35
Final Examination	1	0	50	50
Total Workload (Hours)				195
[Total Workload (Hours) / 25*] = ECTS				8

*25 hour workload is accepted as 1 ECTS

Learning Outcomes

1	On completion of this course students will be able to classify types of soil colloids.
2	Able to determine general properties of colloidal solutions
3	Able to determine relationships between soil colloids and soil properties
4	Able to determine relationships between soil colloids and soil fertility
5	Able to learn the new researches about Soil Chemistry

Programme Outcomes (Soil Doctorate)

1	To be able to apply the theoretical information achieved during the graduate study
2	To be able to collect data by scientific means, to evaluate and interpret
3	To be able to update himself continuously
4	To be able to assess the convenient analytical methods during the process of the scientific study
5	To be able to put forth solutions to soil use and plant development

Contribution of Learning Outcomes to Programme Outcomes 1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High

	L1	L2	L3	L4	L5
P1	5	5	5	5	5
P2	2	3	4	4	2
P3	3	4	4	4	2
P4	2	2	5	5	2
P5	2	2	2	4	2

