

COURSE TITLE:

THE CHEMISTRY OF SOILS: FUNDAMENTALS AND CASE STUDIES

COURSE DESCRIPTION:

The objective of this course is to establish of knowledge on soil chemistry for master of science (MSc) students, as well as intensification of this knowledge by analyzing and discussing case studies involved soil chemical processes.

Lecture 1: The solid phase of soils – mineral constituents

Lecture 2: The solid phase of soils – organic matters

Lecture 3: Liquid and gaseous phases of soils

Lecture 4: Solubility equilibria

Lecture 5: Redox reactions

Lecture 6: Soil colloids – charge characteristics of soil constituents

Lecture 7: Adsorption and ion exchange phenomena

Lecture 8: pH of soils

Lecture 9: Kinetics of soil processes

Lecture 10: Case study 1

Lecture 11: Case study 2

Lecture 12: Case study 3

LITERATURE:

Filep, Gy. 1999. Soil chemistry. Akadémiai Kiadó, Budapest. ISBN 963 05 7455 1

Manahan, SE. 2009. Environmental chemistry. CRC Press LCC, Boca Raton. ISBN 9781420059205.

Sposito, G. 2008. The chemistry of soils. Oxford University Press, New York. ISBN 978-0-19-531369-7.

Sparks, D.L. 2003. Environmental Soil Chemistry. Academic Press, London. ISBN 0-12-656446-9.

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