COURSE TITLE:

ENVIRONMENTAL MINERALOGY

COURSE DESCRIPTION:

Information content: Mineral phases (solid crystalline compounds) participating or forming in environmental processes – their properties and environmental role.

Topics covered:

Typical size range of environmental mineralogy: the nanometer-to-micrometer range. Special properties related to the size range (as opposed to the micro- and macroscopic size range). Overview of the applicable analytical methods.

Minerals of the most important natural environments: soils, aerosols, non-consolidated freshwater and sea sediments. Biomineralisation: bacterial precipitates. Mineralogical aspects of waste management and deposition. Remediation of sites contaminated by mining activities. Monument and building conservation, protection of mineral- and rock-based cultural heritage. Minerals of the human body. Health risk related to minerals (asbestos, erionite, cristobalite etc.)

LITERATURE:

Papp, G., Weiszburg, T.G. (ser.ed. 2000): EMU Notes in Mineralogy Vol. 2: D.J. Vaughan, R.A. Wogelius (ed.): Environmental Mineralogy. Eötvös Univ. Press, Budapest, pp. 1–434. (university textbook)

G.D. Guthrie, B.T. Mossman (1993) Health effects of mineral dusts, Reviews in Mineralogy, MSA Washington DC. Vol. 28.

J.F. Banfield, A. Navrotsky (2001) Nanoparticles and the environment, Reviews in Mineralogy, MSAWashington DC. Vol. 44.

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