

COURSE TITLE:

ENVIRONMENTAL BIOCHEMISTRY

COURSE DESCRIPTION:

- Participation of the members of the biota in the environmental changes: general introduction, characteristics of eukaryotes, bacteria, and archaea, differences among the effects of microscopic and macroscopic organisms.
- The effect of the anabolism on the environment. Synthesis of the most common natural polymers. Basics of the decomposition of natural organic compounds and xenobiotics.
- Biochemistry and microbiology in deep-subsurface environments.
- Introduction to soil enzymology. Biochemical and microbiological aspects of the soil – plant interaction. Biochemistry of plant-soil-soil animal-microbe interactions.
- Interaction of the aquatic environment with the atmosphere. Biochemical processes with global effect.
- The effects of the catabolic processes on the environment. Basics of co-oxidation (co-metabolism) and bioaccumulation.
- The effect of secondary metabolites on the environment. Environmental biochemistry of antibiotics and compounds with hormone effect. Toxin production and fate of toxins in the environment.
- Fate of pathogens in the environment.

The students will get acquainted with the biochemical processes proceeding in their environment, and they will be able to understand the concerted effect of these processes on a local microscale, up to the ecosystem level and global scale.

LITERATURE:

Konhauser, K., 2009: Introduction to Geomicrobiology. Blackwell, pp. 425.

Madigan, M.T., Martinko, J.M., Stahl, D.A., Clark, D.P. (2011): Brock Biology of Microorganisms. Benjamin Cummings, pp. 1100.

Tóth, E., Márialigeti, K. (2013): Practical microbiology. Eötvös University, pp. 223.

TEACHER:

Károly Márialigeti

professor