

Course Annotation

Course Title: **Chemistry with Basics of Biogeochemistry (Part of Basics of Biogeochemistry)**

Credits: 2 (108 h.)

Course objective

Theoretical knowledge and practical skills acquisition in the biogeochemical study of the forms of existence and migration of chemical elements in soils and mine rocks that are used for solving environmental problems of geosphere and biosphere, as well as for development of the concept of environmental monitoring.

Course tasks

Consideration and understanding of the principles of biogeochemical processes and possible reasons of geochemical anomalies for selection of the environmental protection measures.

Course main chapters

Introduction to the science "biogeochemistry". Subject, object, topicality of the biogeochemistry. Connection of the biogeochemistry with other sciences. V.I. Vernadsky scientific contribution to the biogeochemistry development. Chemical elements forms existence and their geochemical classification in biological systems. The main biogeochemical laws. Migration properties of chemical elements. Types of migration. Internal and external factors influence of the of chemical elements migration activity. The indicators of geochemical mobility of the elements. The geochemical barriers, their classification, causes of occurrence and environmental assessment. Small and large biogeochemical circulation of chemical elements in the biosphere. Indicator role of living material in biogeochemical analysis during the minerals search. Geochemical heterogeneity of the biosphere. Biogeochemical provinces and endemic, their environmental effect. Biogeochemistry of the pedosphere. Ecological role of organic substance in pedosphere.

Learning outcomes

After completing the course students will be able to choose the rational measures for solving environmental problems in the industrial conditions and using the principles and patterns of biogeochemistry.

Teaching methods used:

- lectures and practical studies.

Final **assessment** of student's knowledge and practical skills is **examination**.

**Head of the Ecology Department,
Professor**

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