COURSE OF DOCTORAL STUDIES

Course title	Field of science (branch) code	University / Faculty	Institute / Department
Environmental hydrogeology	Natural Sciences (Geology) N 005	Vilnius University / Faculty of Chemistry and Geosciences	Institute of Geosciences /

Study methods	Number of credits allocated	Study methods	Number of credits allocated
Lectures		Seminars	
Individual work		Consultations	

Course annotation

Purpose, object and tasks of environmental hydrogeological research, ecological and hydrogeological systems.
Hydrodynamic, hydrochemical, hydrothermal, isotopic changes in the underground hydrosphere that negatively affect the functioning of ecosystems and people wellness.
Environmental factors causing changes in the underground hydrosphere.
Geological assessment of environmental sustainability to anthropogenic impact and groundwater conditions setting.
The effects of concentrated and diffuse pollution and created by polluting substances research and evaluation of processes and phenomena.
Geological elements of the environment and its properties elucidation of patterns of change and their impact on terrestrial and aquatic ecosystems evaluation.
Determining the need to restore the geological environment and cleaning methods and technology rationale.

Required readings

Philip E. Lamoreaux, Mostafa M. Soliman, Bashir A. Memon, James W. Lamoreaux, Fakhry A. Assaad. Environmental Hydrogeology. 2008. IWA Publishing.

Juodkazis V., Marcinonis A. Aplinkos hidrogeologija. 2008. Vilnius. VUL.

Deutsch, W.J. Groundwater geochemistry: fundamentals and applications to contamination. Lewis Publishers, Boca Raton, New York, 1997.

Groundwater Vulnerability and Pollution Risk Assessment. IAH - Selected Papers, Vol. 24, 2020.

Consulting lecturers Name, surname	Degree	The most important works in the field of science (branch) have been published during the last 5 years
Jurga Arustienė	Dr.	Slavinskienė G., Jurevičius A., Arustienė J. Evolution of inorganic pollutants from landfills in shallow aquifers of different hydrogeological systems in Lithuania // Environmental Science and Pollution Research. - 2018. - Volume 25, Issue 33. - P. 33709 33723. Arustienė J. Augalų apsaugos produktų veikliųjų medžiagų tiriamasis monitoringas gruntiniame vandenyje // Geologijos akiračiai. - 2018. - Nr. 3. - P. 12–19 : iliustr. - Santr. angl. Bibliogr.: P. 18–19. Højberg, A. L., Hansen A. L., Wachniew P., Żurek, A. J., Virtanen S., Arustiene J., Strömqviste J., Rankinen K, Refsgaard JC. Review and

		assessment of nitrate reduction in groundwater in the Baltic Sea Basin. Journal of Hydrology: Regional Studies 12 (2017). – P. 50–68. Arustienė J., Kadūnas K., Pūtys P., Gregorauskienė V. Žemės ūkis ir požeminis vanduo / Lietuvos geologijos tarnyba. - Vilnius: Vilniaus universiteto leidykla, 2015. Bibliogr: p. 68-69. - 556.3.

Kęstutis Jokšas	Dr.	Živilė Jurgelėnė, Milda Stankevičiūtė, Nijole Kazlauskiene, Janina Baršienė, Kęstutis Jokšas, Arvydas Markuckas. 2019. Toxicological Potential of Cadmium Impact on Rainbow Trout (Oncorhynchus mykiss) in Early Development. August 2019. Bulletin of Environmental Contamination and Toxicology 103(5). DOI: 10.1007/s00128-019-02694-y. Rimutė Stakėnienė, Kęstutis Jokšas, Arūnas Galkus, Eva, Raudonytė-Svirbutavičienė. 2019. Polycyclic aromatic hydrocarbons in surface sediments from the Curonian Lagoon and the Nemunas River Delta (Lithuania, Baltic Sea): distribution, origin, and suggestions for the monitoring program. 2019 April. Environmental Monitoring and Assessment 191(4). DOI: 10.1007/s10661-019-7367-6. Laura Andreikėnaitė, Milda Stankevičiūtė, Virginija Kalcienė, Kęstutis Jokšas, Janina Barsiene. 2019. Genotoxic, cytotoxic and neurotoxic responses in Anodonta cygnea after complex metal mixture treatment. January 2019. Environmental Science and Pollution Research. DOI:10.1007/s11356-019-04206- 1. Živilė Jurgelėnė; Nijolė Kazlauskienė; Danguolė Montvydienė; Vytautas Kulvietis; Ričardas Rotomskis; Kęstutis Jokšas. 2018. Embryotoxicity of Quantum Dots in Rainbow Trout Oncorhynchus mykiss During the Hatching Period. Bulletin of environmental contamination and toxicology, 101, 2, 191-196.
Approved by the doctoral committee of Geology (N 005) on 1st of December 2022 (No. (7.17 E) 15600-KT-467).		
Committee Chairman prof. dr. Sigitas Radzevičius		