

Research assistant position number 29

Job description: The position requires specific knowledge corresponding to a doctoral student in geology or environmental science and the ability to work in the interdisciplinary field of biogeochemistry. Skills and competencies are required for field trips in mining areas, meadows and floodplains driving a 4x4 auto laboratory, for sampling to the standards of current methodologies, coordinating a field team, performing chemical analyses of water, soil and plant samples according to existing work protocols in the Laboratory of Biogeochemistry and Bioremediation of the University of Bucharest, data processing and interpretation, writing scientific articles.

Conditions for participation in the competition for the position of research assistant in frame of the Research Centre for Ecological Services – CESEC

- Higher education in environmental sciences or geology
- Doctoral student status in the field of environmental sciences or geology
- Results from previous work that have been scientifically communicated at least at the level of oral presentation. Co-authoring scientific publications is an advantage.
- No seniority required.

Topic :

- Biogeochemical and hydrological processes, theoretical and practical aspects.

References for the written test

- Iordache V., 2021, Note de curs și lucrări practice în domeniile Ecologie generală, Practică de specialitate în ecologie, Deteriorarea sistemelor ecologice, Monitoring ecologic și Managementul diversității biologice, disponibile [aici](#)
- Jianu D., Iordache V., Soare B., Petrescu L., Neagoe A., Iacob C., Orza R., 2012, The Role of Mineralogy and Geochemistry in Hazard Potential Assessment of Mining Areas. In Kothe E., Varma A. (eds.), Biogeochemical interactions in contaminated soils, pp. 35-79. Springer, pp. 35-79, ISBN 978-3-642-23326-5
- Neagoe A., Iordache V., Fărcașanu I., 2011, Remedierea zonelor poluate, Ed. Universității din București, disponibilă [aici](#).
- Neagoe A., Iordache V., Fărcașanu I., 2012, The Role of Organic Matter in the Mobility of Metals in Contaminated Sites. In Kothe E., Varma A. (eds.), Biogeochemical interactions in contaminated soils. Springer, pp. 297-325, ISBN 978-3-642-23326-5

References for the interview based on previously read articles

Bordoloi, Sanandam, and Charles Wang Wai Ng. 2020. "The Effects of Vegetation Traits and Their Stability Functions in Bio-Engineered Slopes: A Perspective Review." *Engineering Geology*. Elsevier B.V. <https://doi.org/10.1016/j.enggeo.2020.105742>.

Fata, Yulia Amirul, Hendrayanto, Kuku Murti Laksono, and Erizal. 2021. "The Role of Hydro-Mechanical Vegetation in Slope Stability: A Review." In IOP Conference Series: Earth and Environmental Science. Vol. 794. IOP Publishing Ltd. <https://doi.org/10.1088/1755-1315/794/1/012041>.

Guswa, Andrew J., Doerthe Tetzlaff, John S. Selker, Darryl E. Carlyle-Moses, Elizabeth W. Boyer, Michael Bruen, Carles Cayuela, et al. 2020. "Advancing Ecohydrology in the 21st Century: A Convergence of Opportunities." Ecohydrology. John Wiley and Sons Ltd. <https://doi.org/10.1002/eco.2208>.

Kervroedan, Léa, Romain Armand, Freddy Rey, and Michel Pierre Faucon. 2021. "Trait-Based Sediment Retention and Runoff Control by Herbaceous Vegetation in Agricultural Catchments: A Review." Land Degradation and Development. John Wiley and Sons Ltd. <https://doi.org/10.1002/ldr.3812>.

How to run the contest

The knowledge check consist of:

- Written test based on bibliography (two hours)
- Interview (one hour)
- Practical test: Designing the spatial organization of measurements around a source of pollution to prove that the statistical differences between the concentrations of heavy metals at 100 m and 1 km away from the source and between the surface and 20 cm depth, are significant. Field travel with the 4x4 auto laboratory driven by the candidate, field measurements with the XRF field device, setting the coordinates of sampling points with GPS navigation, processing and interpreting data using the ANOVA test, representing sampling points in Google Earth, preparing a report two-page summary with structure, graphs and tables, at academic writing standards (six hours, the day after the written test and interview)

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Research assistant position number 26

Job description: The position requires specific knowledge corresponding to a doctoral student in biology, or environmental science and the ability to work in the fields of plant ecology and ecophysiology. Skills and competencies are needed to characterize the structure of the cover plant in the field, implement experiments with plants on a laboratory and field scale, measure the chemical and functional traits of plants, measure chemical and physical soil variables, data processing and interpretation, writing scientific articles.

Conditions for participation in the competition for the position of research assistant in frame of the Research Centre for Ecological Services – CESEC

- Higher education in biology or environmental sciences.
- Doctoral student status in the field of biology or environmental sciences.
- Results from previous work that have been scientifically communicated at least at the level of oral presentation. Co-authoring scientific publications is an advantage.
- No seniority required.

Topic :

- Approaches in research and management of ecological processes
- Functional and stoichiometric traits of plants
- Ecotoxicology of heavy metals and remediation of areas contaminated with metals.

References for the written test

- Agren, Göran I. 2008. “Stoichiometry and Nutrition of Plant Growth in Natural Communities.” Annual Review of Ecology, Evolution, and Systematics. <https://doi.org/10.1146/annurev.ecolsys.39.110707.173515>.
- Carnicer, Jofre, Jordi Sardans, Constantí Stefanescu, Andreu Ubach, Mireia Bartrons, Dolores Asensio, and Josep Peñuelas. 2015. “Global Biodiversity, Stoichiometry and Ecosystem Function Responses to Human-Induced C-N-P Imbalances.” Journal of Plant Physiology. Urban und Fischer Verlag GmbH und Co. KG. <https://doi.org/10.1016/j.jplph.2014.07.022>.
- Freschet, Grégoire T., Loïc Pagès, Colleen M. Iversen, Louise H. Comas, Boris Rewald, Catherine Roumet, Jitka Klimešová, et al. 2021. “A Starting Guide to Root Ecology: Strengthening Ecological Concepts and Standardising Root Classification, Sampling, Processing and Trait Measurements.” New Phytologist. John Wiley and Sons Inc. <https://doi.org/10.1111/nph.17572>.
- Iordache V., 2021, Note de curs și lucrări practice în domeniile Ecologie generală, Practică de specialitate în ecologie, Deteriorarea sistemelor ecologice, Monitoring ecologic și Managementul diversității biologice, disponibile [aici](#)
- Neagoie A., Iordache V., Fărcășanu I., 2011, Remedierea zonelor poluate, Ed. Universității din București, disponibilă [aici](#).

References for the interview based on previously read articles

- Lavorel, Sandra. 2019. “Climate Change Effects on Grassland Ecosystem Services.” In Grasslands and Climate Change, 131–46. Cambridge University Press. <https://doi.org/10.1017/9781108163941.010>.
- Liu, Kehui, Xiaojin Guan, Chunming Li, Keyi Zhao, Xiaohua Yang, Rongxin Fu, Yi Li, and Fangming Yu. 2022a. “Global Perspectives and Future Research Directions for the Phytoremediation of Heavy Metal-Contaminated Soil: A Knowledge Mapping Analysis from

2001 to 2020.” Frontiers of Environmental Science and Engineering. Higher Education Press Limited Company. <https://doi.org/10.1007/s11783-021-1507-2>.

- Sardans, J., Ivan A. Janssens, Philippe Ciais, Michael Obersteiner, and J. Penuelas. 2021. “Recent Advances and Future Research in Ecological Stoichiometry.” *Perspectives in Plant Ecology, Evolution and Systematics* 50 (June). <https://doi.org/10.1016/j.ppees.2021.125611>.
- Westerband, A. C., J. L. Funk, and K. E. Barton. 2021. “Intraspecific Trait Variation in Plants: A Renewed Focus on Its Role in Ecological Processes.” *Annals of Botany*. NLM (Medline). <https://doi.org/10.1093/aob/mcab011>.

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The knowledge check consist of:

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