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Topics for PhD admission colloquium 2026

ISDS-UB

PhD research field:	***Computer Science***
Title:	**Data Driven Fault Detection and Isolation in Water Distribution Networks**
Name of PhD supervisor: Link to CV on website email:	**Paul IROFTI** https://cs.unibuc.ro/~pirofti/resume/paul-irofti-cv-en.pdf paul.irofti@fmi.unibuc.ro
Short description of the topic (150-200 words):	PhD research topic focused on fault detection and isolation in water distribution networks. In the water network problem, the anomalies consist of pipe leaks in water distribution networks (WDN) and the goal is to detect when an anomaly takes place and to identify where in the network it happened. There are multiple tasks that have a direct effect on leak localization performance such as: sensor placement (sensor are expensive and hard to install thus data is sparse), sensor fusion (combining multiple readings such as pressure and demand), interpolation (estimating the behaviour in non-sensorized network nodes), and finally localization based on the above through AI-based anomaly detection techniques.
Special requirements from the student:	The candidate is expected to hold knowledge in Computer Science, Systems Engineering, or equivalent fields.
Selective bibliography (4-6 references):	[1] P. Irofti, L. Romero-Ben, F. Stoican, and V. Puig, "Factor Graph Optimization for Leak Localization in Water Distribution Networks," pp. 1--12, 2025. (https://arxiv.org/abs/2509.10982) [2] L. Romero-Ben, P. Irofti, F. Stoican, and V. Puig, "Dual Unscented Kalman Filter Architecture for Sensor Fusion in Water Networks Leak Localization," IEEE Transactions on Control Systems Technology, pp. 343 - 354, vol. 34, no. 1, 2025. (https://dx.doi.org/10.1109/TCST.2025.3610975) [3] P. Irofti, L. Romero-Ben, F. Stoican, and V. Puig, "Learning Dictionaries from Physical-Based Interpolation for Water Network Leak Localization," IEEE Transactions on Control Systems Technology, vol. 32, no. 3, pp. 755--766, 2023. (https://dx.doi.org/10.1109/TCST.2023.3329696) [4] Charu C. Aggarwal Outlier Analysis, Springer, 2017 (https://doi.org/10.1007/978-3-319-47578-3)

PhD research field:	***Computer Science***
Title:	**CyberAI for investigating BotNets in computer networks**
Name of PhD supervisor: Link to CV on website email:	**Paul IROFTI** https://cs.unibuc.ro/~pirofti/resume/paul-irofti-cv-en.pdf paul.irofti@fmi.unibuc.ro
Short description of the topic (150-200 words):	PhD research topic focused on investigating BotNets in computer networks for the tasks of analyzing and describing the attack network, identify bots and command&control centers.
Special requirements from the student:	The candidate is expected to hold knowledge in Computer Science, Systems Engineering, or equivalent fields.
Selective bibliography (4-6 references):	[1] A. Apostu, S.F Gheorghe, A. Hîji, N. Cleju, A. Pătrașcu, C. Rusu, R.T. Ionescu, and P. Irofti, "Detecting and Mitigating DDoS Attacks with AI: A Survey," pp. 1--58, 2025. (http://arxiv.org/abs/2503.17867) [2] P. Irofti, A. Pătrașcu, and A.I. Hîji, "Unsupervised Abnormal Traffic Detection through Topological Flow Analysis," in 2022 14th International Conference on Communications (COMM). 2022, pp. 1--6, IEEE (https://doi.org/10.1109/COMM54429.2022.9817285) [2] P. Irofti and A. Băltoiu, "Malware Identification with Dictionary Learning," in 27th European Signal Processing Conference, 2019 (https://doi.org/10.23919/EUSIPCO.2019.8903043) [4] Charu C. Aggarwal Outlier Analysis, Springer, 2017 (https://doi.org/10.1007/978-3-319-47578-3)

PhD research field:	***Computer Science***
Title:	**CyberAI for computer networks**
Name of PhD supervisor: Link to CV on website email:	**Paul IROFTI** https://cs.unibuc.ro/~pirofti/resume/paul-irofti-cv-en.pdf paul.irofti@fmi.unibuc.ro
Short description of the topic (150-200 words):	PhD research topic focused on cybersecurity in computer networks. In the computer network anomaly detection problem, the anomalies consist of specific layer 3 or layer 7 behaviour modeling DDoS, scanning, lateral movement, advanced persistent threats and other attacks. The goal is to detect early and mitigate fast.
Special requirements from the student:	The candidate is expected to hold knowledge in Computer Science, Systems Engineering, or equivalent fields.
Selective bibliography (4-6 references):	[1] A. Apostu, S.F Gheorghe, A. Hîji, N. Cleju, A. Pătrașcu, C. Rusu, R.T. Ionescu, and P. Irofti, "Detecting and Mitigating DDoS Attacks with AI: A Survey," pp. 1--58, 2025. (http://arxiv.org/abs/2503.17867) [2] P. Irofti, A. Pătrașcu, and A.I. Hîji, "Unsupervised Abnormal Traffic Detection through Topological Flow Analysis," in 2022 14th International Conference on Communications (COMM). 2022, pp. 1--6, IEEE (https://doi.org/10.1109/COMM54429.2022.9817285) [2] P. Irofti and A. Băltoiu, "Malware Identification with Dictionary Learning," in 27th European Signal Processing Conference, 2019 (https://doi.org/10.23919/EUSIPCO.2019.8903043) [4] Charu C. Aggarwal Outlier Analysis, Springer, 2017 (https://doi.org/10.1007/978-3-319-47578-3)

PhD research field:	***Computer Science***
Title:	**Training attack and defense CyberAI algorithms for computer networks**
Name of PhD supervisor: Link to CV on website email:	**Paul IROFTI** https://cs.unibuc.ro/~pirofti/resume/paul-irofti-cv-en.pdf paul.irofti@fmi.unibuc.ro
Short description of the topic (150-200 words):	PhD research topic focused on cybersecurity in computer networks with the task of creating a digital twin polygon for training attack and defense CyberAI algorithms.
Special requirements from the student:	The candidate is expected to hold knowledge in Computer Science, Systems Engineering, or equivalent fields.
Selective bibliography (4-6 references):	[1] A. Apostu, S.F Gheorghe, A. Hîji, N. Cleju, A. Pătrașcu, C. Rusu, R.T. Ionescu, and P. Irofti, "Detecting and Mitigating DDoS Attacks with AI: A Survey," pp. 1--58, 2025. (http://arxiv.org/abs/2503.17867) [2] P. Irofti, A. Pătrașcu, and A.I. Hîji, "Unsupervised Abnormal Traffic Detection through Topological Flow Analysis," in 2022 14th International Conference on Communications (COMM). 2022, pp. 1--6, IEEE (https://doi.org/10.1109/COMM54429.2022.9817285) [2] P. Irofti and A. Băltoiu, "Malware Identification with Dictionary Learning," in 27th European Signal Processing Conference, 2019 (https://doi.org/10.23919/EUSIPCO.2019.8903043) [4] Charu C. Aggarwal Outlier Analysis, Springer, 2017 (https://doi.org/10.1007/978-3-319-47578-3)

PhD research field:	***Computer Science***
Title:	**Sensor Fusion for Precise Localization with Artificial Intelligence**
Name of PhD supervisor: Link to CV on website email:	**Paul IROFTI** https://cs.unibuc.ro/~pirofti/resume/paul-irofti-cv-en.pdf paul.irofti@fmi.unibuc.ro
Short description of the topic (150-200 words):	PhD research topic focused on precise localization based on Global Navigation Satellite Systems (GNSS), that provide critical positioning, navigation, and timing services across the globe, together with the inputs from different sensors, such as inertial measurement units (IMU). To achieve this one can perform sensor fusion between these different readings to codify constraints (mediated by high frequency IMU measurements) between successive GNSS measurements. For this task recent works have shown that Factor graph optimization (FGO) is a powerful tool, a type of graphical model used in statistics and machine learning, that can also be used to improve the accuracy of GNSS. The thesis objective will be to investigate innovative navigation algorithms exploiting factor graph optimization, both for a standalone GNSS unit and in combination with other sensors (IMU), and for different receiver grades (including high- and low-quality modules) with a focus on the Galileo system provided by the European Space Agency.
Special requirements from the student:	The candidate is expected to hold knowledge in Computer Science, Systems Engineering, Space, Robotics or equivalent fields.
Selective bibliography (4-6 references):	[1] R.A. Cioacă, P. Irofti, C. Rusu, G. Caparra, A.A Marinache, and F. Stoican, "Real-time tightly coupled GNSS and IMU integration via Factor Graph Optimization," in 2026 12th Workshop on Satellite Navigation Technology (NAVITEC), 2026, pp. 1–6 (https://arxiv.org/pdf/2603.03556) [2] R.A. Cioacă, C. Rusu, P. Irofti, G. Caparra, A.A Marinache, and F. Stoican, "Real-time loosely coupled GNSS and IMU integration via Factor Graph Optimization," in the 24th European Control Conference (ECC), 2026, pp. 1–7 (https://arxiv.org/pdf/2603.03546) [3] Dellaert, F., & Kaess, M., Factor graphs for robot perception. Foundations and Trends in Robotics, 6(1-2), 1-139, 2017 (https://doi.org/10.1561/2300000043) [4] P. J. G. Teunissen and O. Montenbruck, Eds., Springer Handbook of Global Navigation Satellite Systems. Cham: Springer International Publishing, 2017 (https://doi.org/10.1007/978-3-319-42928-1) [5] Groves, P. D., Principles of GNSS. Inertial, and Multisensor Integrated Navigation Systems, 521., 2008 (https://ieeexplore.ieee.org/document/9106151)

Interdisciplinary research Training Group:	**Mind, Language and Cognition**
PhD research field:	***Computer Science***
Title:	**Computational Approaches to Stylistic Variation and Linguistic Change**
Name of PhD supervisor: Link to CV on website email:	**Liviu P. DINU** https://nlp.unibuc.ro/papers/CV-LPDinu-Dec2022.pdf ldinu@fmi.unibuc.ro
Short description of the topic (150-200 words):	Stylistic variation and linguistic change are two closely intertwined linguistic phenomena that reflect how language differs across contexts and evolves over time. The aim of the proposed research is to employ and further develop computational methods for assessing multiple dimensions of stylistic variation and linguistic change in written texts. This interdisciplinary project bridges theoretical frameworks from linguistics, cognitive science, and stylistics, integrating them with computational approaches. By combining these perspectives, the study seeks to deepen our understanding of how stylistic choices interact with broader processes of language change. Depending on the research interests and expertise of the candidate, the project can specialise on areas such as language change in social media, linguistic adaptation, authorship attribution, etc.
Special requirements from the student:	The candidate is expected to hold knowledge in Computer Science, NLP Methods, Linguistic Theories.
Selective bibliography (4-6 references):	Savoy, J. (2020). *Machine learning methods for stylometry*. Springer. Tahmasebi, N., et al. (Eds.). (2021). *Computational approaches to semantic change*. BoD–Books on Demand. Nguyen, D., et al. (2016). Computational sociolinguistics: A survey. *Computational Linguistics*, *42*(3), 537–593. Dinu, L. P., et al. (2021). A computational exploration of pejorative language in social media. *Findings of the Association for Computational Linguistics: EMNLP 2021*.

Interdisciplinary research Training Group:	**Mind, Language and Cognition**
PhD research field:	***Computer Science***
Title:	**The influence of population structure, endogamy and founder effects on the genomic diversity of South Asian populations in the context of disease risk**
Name of PhD supervisor: Link to CV on website email:	**Liviu P. DINU** https://nlp.unibuc.ro/papers/CV-LPDinu-Dec2022.pdf ldinu@fmi.unibuc.ro
Short description of the topic (150-200 words):	For details, please contact prof. Liviu DINU.
Special requirements from the student:	
Selective bibliography (4-6 references):	

PhD research field:	***Physics***
Title:	**Climate change impacts on the socio-economic system**
Name of PhD supervisor: Link to CV on website email:	**Mihai DIMA** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ mihai.dima@unibuc.ro
Short description of the topic (150-200 words):	As the human society is embedded in the climatic system, there are significant influences from the later to the former. As the climate change develops, one expects an intensified impact on the socio-economic system. Potential influences of natural factors on economies will be investigated by analyzing climatic indices and Gross Domestic Products (GDP) time series. GDP represents and integral indicator of economic activity and is available for countries worldwide. The focus will not be on correlations between the two types of time series, but on causal links between them. The goal is to identify causal channels through which the climate variations affect the economy. The analyzes could be extended in order to investigate potential climatic impact on the human civilization, linked with significant past historical events.
Special requirements from the student:	The candidate is expected to be motivated and enthusiastic about this research topic**.**
Selective bibliography (4-6 references):	Auffhammer, M. Quantifying economic damages from climate change. J. Econ. Perspect. 32, 33–52 (2018). Burke, M., Hsiang, S. & Miguel, E. Global non-linear effect of temperature on economic production. Nature 527, 235–239 (2015). Carleton, T. A. & Hsiang, S. M. Social and economic impacts of climate. Science 353, aad9837 (2016). Dell, M., Jones, B. F. & Olken, B. A. Temperature shocks and economic growth: evidence from the last half century. Am. Econ. J. Macroecon. 4, 66–95 (2012). Hsiang, S. M., Burke, M. & Miguel, E. Quantifying the influence of climate on human conflict. Science 341, 1235367 (2013). Fernández-Villaverde, J., Guerrón-Quintana, P., Rubio-Ramírez, J. F. & Uribe, M. Risk matters: the real effects of volatility shocks. Am. Econ. Rev. 101, 2530–2561 (2011). Kalkuhl, M. & Wenz, L. The impact of climate conditions on economic production. Evidence from a global panel of regions. J. Environ. Econ. Manage. 103, 102360 (2020). Kotz, M., Wenz, L., Stechemesser, A. *et al.* Day-to-day temperature variability reduces economic growth. *Nat. Clim. Chang.* **11**, 319–325 (2021). Ueckerdt, F. et al. The economically optimal warming limit of the planet. Earth Syst. Dyn. 10, 741 (2019).

PhD research field:	***Physics***
Title:	**Mechanisms of daylight vision: role of non-bonded interactions in cone opsins**
Name of PhD supervisor: Link to CV on website email:	**Ana-Nicoleta BONDAR** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ nbondar@fizica.unibuc.ro
Short description of the topic (150-200 words):	Cone opsins are proteins which use the covalently-bound retinal chromophore to absorb light and initiate a cellular signaling cascade which ultimately leads to the perception of light. The retinal chromophore is a conjugated polyene chain bound to the protein via a protonated Schiff base. The wavelength at which the retinal absorbs is largely governed by its geometry, especially the bond alternation and bond twisting, and the non-bonded interactions between the retinal and the protein environment. The project will establish a computational framework which combines molecular modeling, advanced simulations, and excited state computations of cone opsins. The computational framework will be validated by using variant proteins for which experimental data are available, and then used to study how fluctuations of the non-bonded interactions influence the retinal's absorption maximum.
Special requirements from the student:	The candidate is expected to hold knowledge in at least one of the following: Physics, Chemistry, Biochemistry.
Selective bibliography (4-6 references):	Schichida Y, Matsuyama T (2009). Evolution of opsins and phototransduction. Philosophical Transactions of the Royal Society B 364, 2881-2895 https://www.alliot.fr/BIO/PDF/rstb20090051.pdf Bertalan E, Rodrigues MJ, Walter D, Schertler GFX, Bondar A-N (2026). DNET: A graph-based tool and workflow for dynamic hydrogen-bond networks and applications to visual rhodopsins. Journal of Chemical Theory and Computation https://doi.org/10.1021/acs.jctc.5c01366

PhD research field:	***Physics***
Title:	**Development of a computational framework to study intra- and inter-molecular interactions in cellular signaling pathways**
Name of PhD supervisor: Link to CV on website email:	**Ana-Nicoleta BONDAR** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ nbondar@fizica.unibuc.ro
Short description of the topic (150-200 words):	Membrane-bound receptors are proteins which couple the binding of extracellular ligands with activation of intra-cellular partners, which in turn activate other proteins known as downstream effectors. The activation of such cellular signaling cascades is essential for human physiology and has also been implicated in numerous diseases, including cancer. The project aims to develop and implement an advanced computational framework based on simulation and graph theory to characterize transient protein interactions of cellular signaling pathways that involve opioid receptors.
Special requirements from the student:	The candidate is expected to hold knowledge in at least one of the following: Physics, Chemistry, Biochemistry, Biology, Computer Science
Selective bibliography (4-6 references):	Bertalan E, Rodrigues MJ, Walter D, Schertler GFX, Bondar A-N (2026). DNET: A graph-based tool and workflow for dynamic hydrogen-bond networks and applications to visual rhodopsins. Journal of Chemical Theory and Computation https://doi.org/10.1021/acs.jctc.5c01366 Bertalan E, Rodrigues MJ, Schertler G, Bondar A-N (2024). Graph-based algorithms to dissect long-distance H-bond networks for conformational couplings in GPCRs. *British Journal of Pharmacology* doi: 10.1111/bph.16387 https://bpspubs.onlinelibrary.wiley.com/doi/full/10.1111/bph.16387

PhD research field:	***Physics***
Title:	**UniBuc STEM Alumni in the academic diaspora: creation of a digital platform in which UniBuc history meets its present**
Name of PhD supervisor: Link to CV on website email:	**Ana-Nicoleta BONDAR** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ nbondar@fizica.unibuc.ro
Short description of the topic (150-200 words):	For details, please contact prof. Ana-Nicoleta BONDAR.
Special requirements from the student:	
Selective bibliography (4-6 references):	

PhD research field:	***Chemistry***
Title:	**Catalytic CO2 reduction to added value products**
Name of PhD supervisor: Link to CV on website email:	**Mihaela FLOREA** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ mihaela.florea@infim.ro
Short description of the topic (150-200 words):	It is obvious, at this juncture, that the world's approach to atmospheric change is not working. To reverse this dynamic, we propose to change the economics of CO_2 such that the driving force is simple: to transform I to added value products. Said otherwise, we propose to develop an efficient catalysts that converts CO_2 to value added products such as CH_3OH, CH_4, and /or C_2H_4. Despite significant progress, current catalytic photocatalytic systems for CO_2 reduction remain limited by low efficiency, poor selectivity, insufficient stability and high costs. In this context, the design and development of new 1D catalysts, is noteworthy. [1, 2]
Special requirements from the student:	The candidate is expected to hold knowledge in chemistry, heterogenous catalysis, surface characterization techniques
Selective bibliography (4-6 references):	[1] H. Badr, et al., Bottom-up, Scalable Synthesis of Anatase Nanofilament-based Two-dimensional Titanium Carbo-oxide Flakes, Mater. Today 54 (2022) 8-17. [2] M. Florea et al., Ultra-stable, 1D TiO_2 Lepidocrocite for Photocatalytic Hydrogen Production in Water-Methanol Mixtures, Matter 6 (2023) 2853–2869.

PhD research field:	***Chemistry***
Title:	**NMR methods using different magnetic fields for the characterisation of FLASH radiation effects**
Name of PhD supervisor: Link to CV on website email:	**Paul VASOS** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ paul.vasos@icub.unibuc.ro
Short description of the topic (150-200 words):	The detection of high dose-rate radiation effects in FLASH radiotherapy by NMR (1) holds promise for early imaging of treatment outcomes in oncology. This Ph.D. project is in the framework of EU-funded International Training Network InnovaRTBrain (Eu ID 101226413, period 2026-2030), in collaboration with Univ. Heidelberg (biochemistry, FLASH mechanisms), Univ. Firenze (molecular biology, metabolomics), Univ. Anvers (FLASH radiotherapy) and involves coordination with the Univ. of Oslo for magnetic resonance imaging. Method developments in NMR spectroscopy are proposed to detect response to radiation via high-resolution (high magnetic field) and low-field NMR. Sample irradiation (cells, *ex-vivo* probes from *in-vivo* experiments) will be performed using sources with dose-rates > 40 Gy/s at partner sites and at Gy/ns via high-power laser-driven acceleration (1) at ELI-NP. FLASH effects will be assessed at the metabolic level using NMR. Imaging sequences will be adapted for radiation effects using relaxation time-constants T_1, T_2 (2) and newly-proposed long-lived spin order (3,4,5). The studies will involve following cell metabolism and antioxidant activity (focusing on glutathione) by high-resolution NMR and characterising reactive oxygen species (ROS) in irradiated samples by Earth-field NMR. Radiation-induced metabolic transformations will be characterised via methods adapted for sensitivity-enhancement by Dynamic Nuclear Polarisation (1,4). The aim is to contribute to elucidating the mechanism of FLASH radiation response via new methods for NMR imaging and targeted metabolic investigations.
Special requirements from the student:	The candidate is expected to hold knowledge in Chemistry.
Selective bibliography (4-6 references):	1. Asavei, T. al., and Vasos, PR, Laser-driven radiation: Biomarkers for molecular imaging of high dose-rate effects. *Medical Physics* 2019, 10.1002/mp.13741 2. Topor, A., al., and Vasos, P.R., Earth's field NMR relaxation of pre-polarised water protons for real-time detection of free-radical formation, *Chemical Communications* 2023, 10.1039/D3CC02502K 3. Sarkar, R., Ahuja, P., Vasos, P. R. & Bodenhausen, G. Long-Lived Coherences for Homogeneous Line Narrowing in

	Spectroscopy, *Physical Review Letters* 2010, 10.1103/PhysRevLett.104.053001 4. Sadet, A. al., and Vasos, P.R. Hyperpolarized water enhances two-dimensional proton NMR correlations: a new approach for molecular interactions. *Journal of the American Chemical Society* 2019, doi:10.1021/jacs.9b03651. 5. Sadet, A., al., and Vasos, P.R., *Communications Chemistry* 2026, in press.

Interdisciplinary research Training Group:	**Health**
PhD research field:	***Chemistry***
Title:	**Toward novel proton-driven molecular switches**
Name of PhD supervisor: Link to CV on website email:	**Mihaela MATACHE** https://unibuc.ro/user/mihaela.matache/ mihaela.matache@g.unibuc.ro
Short description of the topic (150-200 words):	Molecules able to switch under physical or chemical triggers are called molecular switches and they represent the first step in achieving molecular motors. The field of molecular machines and molecular switches has significantly advanced during the past two decades aimed at diverse applications from materials chemistry to biomedical area. Design of such molecules aimed to perform switching and unidirectional motions indicate complex structures with challenging multi-step synthetic strategies for their achievement. Proton-driven switching mechanism, which can be triggered by light irradiation, is currently underexplored for motor designs and recently has been reported as very promissing in achieving a new type of motor. The project is based on synthesis of novel molecules able to switch through proton-driven mechanism and investigation of their behaviour through a multidisciplinary approach.
Special requirements from the student:	The candidate is expected to hold knowledge in organic synthesis, be familiarized with purification and separation techniques in organic chemistry lab and structural analysis of organic compounds (*i.e.* UV-Vis, IR, NMR spectroscopy, mass spectrometry).
Selective bibliography (4-6 references):	1. S. Slavova, L. Antonov, Theoretical Understanding of the Long-Range Proton Transfer Mechanism in 7-Hydroxy Quinoline-Based Molecular Switches: Varma's Proton Crane and Its Analogues, J. Phys. Chem. A 128 (2024) 1280–1287. 2. Y. Manolova, H. Marciniak, S. Tschierlei, F. Fennel, F.S. Kamounah, S. Lochbrunner, L. Antonov, Solvent control of intramolecular proton transfer: is 4-hydroxy-3-(piperidin-1-ylmethyl)-1-naphthaldehyde a proton crane?, Physical Chemistry Chemical Physics 19 (2017) 7316–7325. 3. B.C. Enache, A. Hanganu, C. Tablet, C.C. Anghel, C.C. Popescu, A. Paun, N.D. Hădade, A.M. Mădălan, M. Matache, Exploring Arylazo-3,5-Bis(trifluoromethyl)pyrazole Switches, ACS Omega 7 (2022) 39122–39135. 4. A.F. Dobre, A. Hanganu, I. Nicolau, C.C. Popescu, A. Paun, A.M. Mădălan, C. Tablet, A.G. Mirea, M. Matache, A Synthetic Approach for Oxadiazole-Decorated Azobenzene Photoswitches, ChemPlusChem (2023) e202300504.

Interdisciplinary research Training Group:	**Health**
PhD research field:	***Chemistry***
Title:	**Fluorophores for biomedical applications**
Name of PhD supervisor: Link to CV on website email:	**Mihaela MATACHE** https://unibuc.ro/user/mihaela.matache/ mihaela.matache@g.unibuc.ro
Short description of the topic (150-200 words):	Organic light-emitting molecules have attracted significant attention in various fields of research due to their tuneable properties, which can be precisely modulated through structural modification. Different applications often require fluorophores with distinct emission characteristics: for instance, red-emitting compounds are valuable in biological imaging because of their longer emission wavelengths. Therefore, the ability to control emission parameters is critically important for applications such as super-resolution microscopy, for example The project is based on design and multi-step synthesis of novel light-emissive molecules for biomedical applications through an interdisciplinary approach at the border between chemistry and biology.
Special requirements from the student:	The candidate is expected to hold knowledge in organic synthesis, be familiarized with purification and separation techniques in organic chemistry lab and structural analysis of organic compounds (*i.e.* UV-Vis, IR, NMR spectroscopy, mass spectrometry).
Selective bibliography (4-6 references):	1. E Kozma, P. Kele, Fluorogenic probes for super-resolution microscopy, Org. Biomol. Chem., 2019, 17, 215 2. D. Nageswara Rao, X. Ji, S.C. Miller, Silicon functionalization expands the repertoire of Si-rhodamine fluorescent probes, Chem. Sci., 2022, 13, 6081 3. A. Paun, C.C. Paraschivescu, N.D. Hadade, M. Matache, *J. Mater. Chem. C* **2016**, *4*, 8596-8610. 4. C.C. Anghel, C. Bădescu, A.G. Mirea, A.Păun, N.D. Hădade, A.M. Mădălan, M. Matache, C.C. Popescu, Dyes Pigm. 2022, 197, 109927.

Interdisciplinary Research Training Group:	**Natural Resources & Social-Ecological Systems**
PhD research field:	***Biology***
Title:	**Reconceptualizing the systems ecology using autocatalytic cycles as derived from the environ concept of B.C. Patten**
Name of PhD supervisor: Link to CV on website email: ***Name of the scientist who agreed to be a co-supervisor:*** Link to website:	**Virgil IORDACHE** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ virgil.iordache@fulbrightmail.org Peter Groffman, City University of New York https://www.gc.cuny.edu/people/peter-groffman
Short description of the topic (150-200 words):	While systems ecology has advanced in modeling energy flows, there is still an ongoing debate about the "basic organizational principles" that explain the structures of ecosystem interactions. Ecological autocatalysis—self-reinforcing loops—is increasingly recognized as the backbone of ecological processes. B.C. Patten's environ analysis (input/output) provides a mature theoretical framework for analyzing indirect effects and internal partitioning within ecosystems. Linking this to autocatalysis helps explain how ecological processes sustain themselves as coherent systems and can be extended to socio-ecological processes. The topic concerns reconceptualizing systems ecology as formulated in the editorial at https://www.frontiersin.org/journals/plant-science/articles/10.3389/fpls.2025.1756384/full. It seems that autocatalytic cycles through the generalized extended phenotype notion are relevant from eco-physiologic to ecosystem scales. Interestingly, this point can be linked to Patten's notion of environ, which distinguishes between outer and proximate environments. If we close the fluxes from the environs in a feedback loop, this leads structurally to the extended phenotype model. Of course, the relations in the extended phenotype model are not reduced to energy; they are more diverse. The topic benefits from the interest and potential co-supervision of the Fulbright mentor of the PhD supervisor, a high-profile ecologist who developed his work starting from systems ecology.
Special requirements from the student:	The candidate is expected to know theoretical biology, understand mathematical modeling in biology and ecology, and have an interest in disentangling invariances in large-scale bodies of scientific knowledge.
Selective bibliography (4-6 references):	Evans, M. R., Bithell, M., Cornell, S. J., Dall, S. R., Díaz, S., Emmott, S., ... & Benton, T. G. (2013). Predictive

systems ecology. Proceedings of the Royal Society B: Biological Sciences, 280(1771).

Fath, B. D., & Patten, B. C. (1999). Review of the foundations of network environ analysis. Ecosystems, 2(2), 167-179.

Groffman, P. M., Baron, J. S., Blett, T., Gold, A. J., Goodman, I., Gunderson, L. H., ... & Wiens, J. (2006). Ecological thresholds: the key to successful environmental management or an important concept with no practical application?. Ecosystems, 9(1), 1-13.

Grönlund, E. (2025). HT Odum and sustainable development. Ecological Modelling, 510, 111352.

Iordache, V. A., & Kiboi, S. K. (2026). Vegetation resilience in ecological autocatalysis under climate change. Frontiers in Plant Science, 16, 1756384.

Iordache, V., 2024, Contributions to the development of theoretical biology and of interdisciplinary directions at the interface between life sciences and earth system science. Habilitation thesis [Zenodo]. https://doi.org/10.5281/zenodo.13684356

Interdisciplinary Research Training Group:	**Complex Systems**
PhD research field:	***Biology***
Title:	**The concept of time in life and environmental sciences**
Name of PhD supervisor: Link to CV on website email: ***Name of the philosopher of science who agreed to be a co-supervisor::*** Link to website:	**Virgil IORDACHE** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ virgil.iordache@fulbrightmail.org Marcel Weber https://www.unige.ch/lettres/philo/collaborateurs/professeurs/marcel-weber
Short description of the topic (150-200 words):	The program will explore the implicit concept of time across various research strategies from short term organismal scales (experimental biology) to ecological scales (law-based and mechanistic, the structure of explanation and mechanism-centric approach relevant for populations, communities and ecosystems) to evolutionary scale (eco-evo-devo processes with accent on mechanisms). Another line of research relates to the historical development of the evolutionary theory. One could outline a research program by examining how time is conceptualized in scientific disciplines and subdisciplines at different moments in their historical evolution. Paradigmatic works such as On the Origin of Species by C. Darwin are interesting in that the primary source is highly complex, evolves from one edition to another, and adopts an argumentative style that allows the identification of a wider range of conceptual modes involved in the production of scientific knowledge. The occurrences associated with time in such works can be interpreted in light of the current state of the life and earth sciences, in which time is expressed through ordinal and quantitative variables. Such a project also addresses a critical gap between the linear, rapid time scales often assumed in management and the complex, irreversible, and multi-scalar temporalities of ecological and biological systems. Modern human society often imposes linear, fast-paced time on natural processes that exhibit different rhythms, such as seasonal, diurnal, or evolutionary speeds. This often leads to environmental degradation and unsustainable management practices. This line of research supplements the foundational research from the first part.
Special requirements from the student:	The candidate can be either a biologist, an ecologist, or a philosopher with an MSc thesis in the philosophy of science, and an interest in the philosophy of biology and ecology. The successful candidate will need to engage with scientific literature using analytic tools from philosophy, and with philosophic literature for comparative analyses of results and interpretation.

Selective bibliography (4-6 references):	Baedke J., Mc Manus S. (2018), From seconds to eons: Time scales, hierarchies, and processes in evo-devo, Studies in History and Philosophy of Biol and Biomed Sci, 72:38-48. Bouton C., Huneman P. Eds. (2017) Time and Nature and the Nature of time, Philosophical Perspectives of Times in Natural Science, eds. Bouton C., Huneman Ph., Boston Studies in the Philosophy and History of Science 326, Springer, pp. 403. Iordache, V., 2024, Contributions to the development of theoretical biology and of interdisciplinary directions at the interface between life sciences and earth system science. Habilitation thesis [Zenodo]. https://doi.org/10.5281/zenodo.13684356 Post, E. (2019). Time in ecology: a theoretical framework [MPB 61]. Princeton University Press. Weber, M., 1999, The aim and structure of ecological theory. Philosophy of Science, 66(1), 71-93. Weber, M., 2001, Determinism, realism, and probability in evolutionary theory. Philosophy of Science, 68(S3), S213-S224.

Interdisciplinary Research Training Group:	**Complex Systems**
PhD research field:	***Biology***
Title:	**The evolution of scientific schools and the role of major scientific personalities in this process in Eastern European post-communist societies: the case of plant sciences in the University of Bucharest and Nicolae Botnariuc**
Name of PhD supervisor: Link to CV on website email: ***Name of professors involved in the project:***	**Virgil IORDACHE** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ virgil.iordache@fulbrightmail.org Paulina Anastasiu, Faculty of Biology Constantin Stoenescu, Faculty of Philosophy Cooperation with a UB sociologist specialized in the sociology of science (for the macro-level of scientific knowledge selection)
Short description of the topic (150-200 words):	This research project aims to develop in detail an analytical framework for the development of scientific schools and the role of scientific personalities in Eastern European countries, and then to apply it to the case of plant sciences at the University of Bucharest (UB) and Nicolae Botnariuc. A 13-page draft outlining the idea and its expected publication outcomes is available for download here. The subject of the thesis is, by this analytical framework, to couple by the specific variables a large scale cultural process (the development of a sub-discipline) to the variables of a smaller scale cultural process (the development of a scientific personality), at the proper time scales characterizing the country, in our case Romania, and the personality, as given by his active lifetime in science. The thesis: • Provides a complex and realistic identity of the UB by the structure, the role at national and international levels, and the evolution of its scientific subfields and personalities. • Has relevance for SDG objectives and the Sustainability Strategy of UB at the level of cultural diversity, extending the interpretation of this concept to institutional diversity and the diversity of scientific knowledge.
Special requirements from the student:	The candidate can be either a biologist, an ecologist, or a philosopher with an MSc thesis in the philosophy of science, and an interest in the history and philosophy of biology and ecology. The successful candidate will need to engage with scientific and historical literature in Romanian and English, occasionally also in French or German, perform archival research, combine

	qualitative interviews with quantitative data mapping, publication outputs, scientific collaborations, and funding shifts.
Selective bibliography (4-6 references):	Borza A., Boșcaiu N., 1965, Introducere în structura covorului vegetal, Ed. Acad. RPR, disponibilă aici Botnariuc N., 1999, Evoluția sistemelor biologice supraindividuale, Ed. Universitatii din București, link Lekevicius E., 2006, The Russian paradigm in ecology and evolutionary biology: pro et contra, 16: 3-19, link Looijen R. C., 1998, Holism and reductionism in biology and ecology. The mutual dependence of higher and lower level research programmes, PhD theses, Rijksuniversiteit Groningen, link Schizas D., Piakis-Chatzievangelou N., Stamou G., 2025, Holistic Ecology: Dispelling the Myth of Being Romantic, Journal of the History of Biology, Journal of the History of Biology, 58, 591–622 Simionescu M., Popescu O., 2021, Științele biologice din România, Ed. Academiei Române, București, link

Interdisciplinary research Training Group:	**Health**
PhD research field:	***Biology***
Title:	**Exploring Pristine and Polluted Environments as Reservoirs of Antimicrobial Resistance: Genomic Insights, Evolutionary Drivers and Clinical Implications**
Name of PhD supervisor: Link to CV on website email:	**Carmen-Mariana CHIFIRIUC** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ carmen.chifiriuc@bio.unibuc.ro
Short description of the topic (150-200 words):	Antimicrobial resistance (AMR) is an ancient evolutionary phenomenon that has been dramatically amplified by the modern use of antimicrobials. It is currently recognised as one of the most significant global health threats, demanding immediate action to safeguard modern medical interventions such as invasive diagnostic procedures, surgery and transplantation. Molecular epidemiology studies have shown that many clinically important resistance genes originate in environmental strains. The aim of this project is to investigate pristine environments (e.g., water samples from protected areas such as Danube Delta, Romanian caves) in order to better understand the origins and evolutionary trajectories of AMR, and to characterize and compare these resistant isolates with contemporary ones recovered from heavily polluted environments such as wastewater. The PhD candidate will work on samples and isolates prelevated in the frame of Danubius RO-2 project (https://unibuc.ro/danubius-ro-aproape-10-milioane-de-euro-pentru-pozitionarea-romaniei-ca-stat-coordonator-al-unei-infrastructuri-paneuropene/).
Special requirements from the student:	The candidate is expected to hold knowledge in Biology, theoretical and practical background in microbiology (preparation of culture media, isolation and phenotypic characterization of bacterial and fungal strains), molecular biology (nucleic acid extraction, PCR, sequencing) and bioinformatics
Selective bibliography (4-6 references):	https://www.ksd.iser.ro/journal-24/2024/ksdsp24-07.pdf; https://www.ksd.iser.ro/journal-23/2023/KSDSP2023_online.pdf#page=8; https://doi.org/10.1371/journal.pone.0228079; https://doi.org/10.3389/fmicb.2022.965132; https://doi.org/10.3390/ijms21228527; https://doi.org/10.3389/fmicb.2020.610296; https://doi.org/10.1186/s13643-019-1236-9; https://doi.org/10.3390/ijms24097892

Interdisciplinary research Training Group:	**Health**
PhD research field:	***Biology***
Title:	**Psychrophilic Microorganisms as Sources of Novel Antimicrobial Strategies: Genomic Mining, Metabolic Pathway Discovery and Functional Validation**
Name of PhD supervisor: Link to CV on website email:	**Carmen-Mariana CHIFIRIUC** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ carmen.chifiriuc@bio.unibuc.ro
Short description of the topic (150-200 words):	The growing threat of AMR and the global emergence of multidrug-resistant (MDR), extensively drug-resistant (XDR) and pan-drug-resistant (PDR) isolates call for the rapid development of novel antimicrobial strategies. One of the most promising approaches is the functional and genomic exploration of psychrophilic microorganisms recovered from ancient ice, with the aim of identifying potential novel antimicrobials and previously uncharacterised metabolic pathways. This project will investigate the microbial collection established during the ROICE 2026 Antarctic expedition, led by the National Institute for R&D in Biological Sciences (INCDSB). The PhD candidate will thus have the opportunity to work in a collaborative, multi-institutional research environment.
Special requirements from the student:	The candidate is expected to hold knowledge in Biology, theoretical and practical background in microbiology (preparation of culture media, isolation and phenotypic characterisation of bacterial and fungal strains, antimicrobial susceptibility testing), molecular biology (nucleic acid extraction, PCR, sequencing) and bioinformatics.
Selective bibliography (4-6 references):	https://doi.org/10.1038/s41598-020-79754-5; https://doi.org/10.3389/fmicb.2022.960693; https://doi.org/10.3389/fmicb.2025.1713017

Interdisciplinary research Training Group:	**Health**
PhD research field:	***Biology***
Title:	**Decoding the Exposome in Diabetes: Integrative Analysis of Pollution, Lifestyle, Diet, and Biomarkers**
Name of PhD supervisor: Link to CV on website email:	**Grațiela GRĂDIȘTEANU** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ gratiela.gradisteanu@icub.unibuc.ro
Short description of the topic (150-200 words):	The exposome represents the totality of environmental, lifestyle, and biological exposures experienced throughout life and their cumulative impact on human health. In the context of type 2 diabetes, the exposome provides an integrative framework to understand how non-genetic factors contribute to metabolic dysfunction, insulin resistance, and chronic inflammation. This project aims to investigate the role of both external exposures (diet, physical activity, psychosocial stress, environmental pollutants, and socioeconomic factors) and internal biological responses (inflammatory markers, metabolic profiles, and gut microbiota composition) in shaping diabetes risk and progression. Using an observational case-control design, the study will compare individuals with type 2 diabetes, prediabetes, and metabolically healthy controls. By combining clinical, biochemical, and exposome-related data, the project seeks to identify exposure patterns associated with glycemic dysregulation and metabolic imbalance. Particular emphasis will be placed on the interaction between diet, environmental exposures, and the gut microbiome. The results are expected to contribute to a better understanding of diabetes etiology and support the development of personalized and preventive strategies based on exposome profiling.
Special requirements from the student:	The candidate is expected to hold knowledge in: • Basic concepts of human physiology and metabolic diseases, particularly diabetes • Fundamentals of microbiology and/or microbiome science • Principles of biochemistry and molecular biology • Epidemiology and study design (observational studies) • Basic biostatistics (descriptive analysis, hypothesis testing, regression models) • Data handling and interpretation Additional desirable skills include: • Experience with laboratory techniques (e.g., ELISA, PCR, qPCR)

	• Familiarity with microbiome analysis (16S rRNA or similar approaches) • Basic programming skills (R, Python, or equivalent) • Ability to work with interdisciplinary datasets • Scientific writing and critical analysis of literature
Selective bibliography (4-6 references):	1. Beulens JWJ, Pinho MGM, Abreu TC, den Braver NR, Lam TM, Huss A, Vlaanderen J, Sonnenschein T, Siddiqui NZ, Yuan Z, Kerckhoffs J, Zhernakova A, Brandao Gois MF, Vermeulen RCH. Environmental risk factors of type 2 diabetes-an exposome approach. Diabetologia. 2022 Feb;65(2):263-274. doi: 10.1007/s00125-021-05618-w. 2. Münzel T, Sørensen M, Hahad O, Nieuwenhuijsen M, Daiber A. The contribution of the exposome to the burden of cardiovascular disease. Nat Rev Cardiol. 2023 Oct;20(10):651-669. doi: 10.1038/s41569-023-00873-3. 3. Misra BB, Misra A. The chemical exposome of type 2 diabetes mellitus: Opportunities and challenges in the omics era. Diabetes Metab Syndr. 2020 Jan-Feb;14(1):23-38. doi: 10.1016/j.dsx.2019.12.001. 4. Tilg H, Moschen AR. Microbiota and diabetes: an evolving relationship. Gut. 2014 Sep;63(9):1513-21. doi: 10.1136/gutjnl-2014-306928.

Interdisciplinary research Training Group:	**Health**
PhD research field:	***Biology***
Title:	**Functional analysis of genetic determinants regulating post-infarction cardiac remodeling**
Name of PhD supervisor: Link to CV on website email:	**Grațiela GRĂDIȘTEANU** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ gratiela.gradisteanu@icub.unibuc.ro
Short description of the topic (150-200 words):	Myocardial infarction triggers a complex cardiac repair response involving multiple cell types, particularly macrophage and fibroblasts. Although these cells are essential for preservation of cardiac integrity, their persistent activation may promote maladaptive remodeling and progression toward heart failure. Importantly, substantial inter-individual variability exists in post-infarction outcomes, suggesting a significant contribution of genetic factors to these pathological processes. This PhD project aims to investigate how genetic variability in key regulators of inflammation, fibrosis and tissue remodeling influences susceptibility to adverse cardiac remodeling after myocardial infarction. The project will employ advanced human cellular models based on induced pluripotent stem cells (iPSCs), and will integrate CRISPR/Cas9 genome editing, transcriptomic profiling, functional genomics approaches and disease-relevant cellular systems to characterize the molecular pathways associated with maladaptive cardiac remodeling and fibrosis. Functional assays will include inflammatory pathway analyses, transcriptomic profiling, extracellular matrix characterization and phenotypic assessment of cellular responses under stress conditions. The overall objective of the project is to identify novel molecular determinants contributing to post-infarction cardiac remodeling and fibrotic progression, with potential implications for biomarker discovery and precision cardiovascular medicine. The topic is intended for candidates interested in cardiovascular biology, molecular medicine, functional genomics, stem cell-based disease modeling and translational biomedical research.
Special requirements from the student:	The candidate is expected to hold knowledge in cellular and molecular biology, including induced pluripotent stem cell (iPSC) technologies, CRISPR-Cas9 genome editing, and RNA sequencing (RNA-seq). Familiarity with histology,

	immunohistochemistry, and fluorescence microscopy is required. Basic knowledge of transcriptomic data analysis, including differential expression and gene set enrichment analysis, as well as an understanding of the molecular mechanisms underlying tumor fibrosis and the tumor microenvironment, is expected.
Selective bibliography (4-6 references):	1. Hanahan D. Hallmarks of Cancer: New Dimensions. Cancer Discov. 2022 Jan;12(1):31-46. doi: 10.1158/2159-8290.CD-21-1059. 2. Sahai E, Astsaturov I, Cukierman E, DeNardo DG, Egeblad M, Evans RM, Fearon D, Greten FR, Hingorani SR, Hunter T, Hynes RO, Jain RK, Janowitz T, Jorgensen C, Kimmelman AC, Kolonin MG, Maki RG, Powers RS, Puré E, Ramirez DC, Scherz-Shouval R, Sherman MH, Stewart S, Tlsty TD, Tuveson DA, Watt FM, Weaver V, Weeraratna AT, Werb Z. A framework for advancing our understanding of cancer-associated fibroblasts. Nat Rev Cancer. 2020 Mar;20(3):174-186. doi: 10.1038/s41568-019-0238-1. 3. Mantovani A, Marchesi F, Malesci A, Laghi L, Allavena P. Tumour-associated macrophages as treatment targets in oncology. Nat Rev Clin Oncol. 2017 Jul;14(7):399-416. doi: 10.1038/nrclinonc.2016.217. 4. Shi Y, Inoue H, Wu JC, Yamanaka S. Induced pluripotent stem cell technology: a decade of progress. Nat Rev Drug Discov. 2017 Feb;16(2):115-130. doi: 10.1038/nrd.2016.245. 5. Wang JY, Doudna JA. CRISPR technology: A decade of genome editing is only the beginning. Science. 2023 Jan 20;379(6629):eadd8643. doi: 10.1126/science.add8643.

Interdisciplinary research Training Group:	**Health**
PhD research field:	***Biology***
Title:	**Peptide probes for cellular microscopy**
Name of PhD supervisor: Link to CV on website email:	**Adrian ȘALIC** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ adrian.salic@g.unibuc.ro
Short description of the topic (150-200 words):	The project aims to develop and apply phage display libraries of cyclic peptides to identify specific, high-affinity binders for diverse biological targets, including proteins, nucleic acids nd lipids. Cyclic peptides are particularly attractive as molecular recognition agents because their constrained structures often provide enhanced binding affinity, specificity and stability compared to linear peptides. Using genetically encoded phage display systems, large and diverse peptide libraries will be chemically cyclized, to promote structural rigidity and target-selective interactions. The project will involve iterative rounds of biopanning against purified biomolecules or cellular structures, to enrich for peptides with desired binding properties. High-throughput sequencing and bioinformatic analysis will be used to track library evolution and identify enriched peptide motifs. Selected candidates will then be synthesized and characterized using biochemical and biophysical assays to evaluate affinity, specificity, and functional activity. A major goal of this work is to establish a versatile discovery platform capable of generating peptide ligands for applications in cellular imaging, diagnostics, or therapeutics. By combining phage display technology with modern screening and analytical methods, this project seeks to expand the toolkit for targeting biologically important molecules with compact, stable, and highly selective cyclic peptide binders.
Special requirements from the student:	The candidate should hold a MSc degree in a relevant field. He/she should be motivated and capable to work independently or as part of a team.
Selective bibliography (4-6 references):	1. Heinis, C., et al., *Phage-encoded combinatorial chemical libraries based on bicyclic peptides.* Nat Chem Biol, 2009. **5**(7): p. 502-7. 2. Chen, S., et al., *Identification of highly selective covalent inhibitors by phage display.* Nat Biotechnol, 2021. **39**(4): p. 490-498. 3. Ullrich, S., et al., *Biocompatible and Selective Generation of Bicyclic Peptides.* Angew Chem Int Ed Engl, 2022. **61**(43): p. e202208400. 4. Chen, F.J., et al., *A Cysteine-Directed Proximity-Driven Crosslinking Method for Native Peptide Bicyclization.* Angew Chem Int Ed Engl, 2023. **62**(31): p. e202306813. 5. Chen, F.J., N. Pinnette, and J. Gao, *Strategies for the Construction of Multicyclic Phage Display Libraries.* Chembiochem, 2024. **25**(9): p. e202400072.

PhD research field:	***Biology***
Title:	**Sex-Differential Gene Regulatory and Immune Landscapes in Glioblastoma: Mechanisms, Models and Therapeutic Relevance**
Name of PhD supervisor: Link to CV on website email:	**Alexandru BABEȘ** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ alexandrubabes@hotmail.com
Short description of the topic (150-200 words):	Glioblastoma (GBM) is the most aggressive primary brain tumour in adults, with a consistent male predominance in incidence and survival differences between sexes that remain mechanistically unexplained. The thesis' objective will be to investigate the molecular mechanisms underlying sex-specific differences in GBM, both through bioinformatic analysis of genomic data obtained from patient sequencing and in combination with functional experiments in patient-derived models, with a focus on the sex-specific gene regulatory and immune programs that drive GBM progression and therapy response. Through a collaboration with a research group at the Victor Babeș Institute, the student will have access to the biological material and genomic foundation for this project. The project includes bioinformatic analysis of the sequencing data as part of the Genomics Research and Development Institute alongside their collaborators. Together, this approach aims to provide insights into the sexually dimorphic behaviour of GBM, with direct implications for sex-informed therapeutic stratification and biomarker development.
Special requirements from the student:	The candidate is expected to have a background in molecular biology, genomics and neuroscince.
Selective bibliography (4-6 references):	1. Ostrom, Q.T., Patil, N., Cioffi, G., Waite, K., Kruchko, C. and Barnholtz-Sloan, J.S., 2020. CBTRUS statistical report: primary brain and other central nervous system tumors diagnosed in the United States in 2013–2017. *Neuro-oncology*, *22*(Supplement_1), pp.iv1-iv96. 2. Yang, Y., Chen, X., Sun, J., Chen, S., Yang, C., Ma, Q. and Yang, J., 2021. Cell aging related genes can be used to characterize clinical prognoses and further stratify diffuse gliomas. *Scientific Reports*, *11*(1), p.19493.

	3. Ostrom, Q.T., Rubin, J.B., Lathia, J.D., Berens, M.E. and Barnholtz-Sloan, J.S., 2018. Females have the survival advantage in glioblastoma. *Neuro-oncology*, *20*(4), pp.576-577. 4. Sun, S., Han, Y., Li, H., Wang, C., Zhou, S., Zhang, X., Dai, S., Peng, Y. and Wang, Z., 2025. Beyond the genome: epigenetic regulation of immune responses and T cells in brain tumors. *Frontiers in Immunology*, *16*, p.1690552. 5. Jovanovich, N., Habib, A., Chilukuri, A., Hameed, N.F., Deng, H., Shanahan, R., Head, J.R. and Zinn, P.O., 2024. Sex-specific molecular differences in glioblastoma: assessing the clinical significance of genetic variants. *Frontiers in Oncology*, *13*, p.1340386.

PhD research field:	***Biology***
Title:	**Genetic determinants of tumor invasiveness and stress adaptation in glioblastoma**
Name of PhD supervisor: Link to CV on website email:	**Bianca GĂLĂȚEANU** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ **bianca.galateanu@unibuc.ro**
Short description of the topic (150-200 words):	Glioblastoma is among the most aggressive human malignancies, characterized by rapid proliferation, extensive local invasiveness, marked intratumoral heterogeneity and resistance to conventional therapies. Cellular adaptation to hypoxia, inflammatory signaling and metabolic stress plays a critical role in tumor progression and acquisition of aggressive phenotypes. However, the molecular mechanisms regulating these adaptive responses remain incompletely understood. This PhD project aims to investigate the contribution of stress-response pathways associated with the p53 signaling network to tumor aggressiveness, with a particular focus on glioblastoma. Previous in vitro studies demonstrated that RTVP1, a gene associated with poor glioblastoma prognosis and increased tumor invasiveness, modulates key tumor-associated phenotypes including proliferation, migration, extracellular matrix remodeling and adaptation to hypoxic stress conditions. In addition, MDM2, a major regulator of p53 signaling and a potential upstream regulator of RTVP1 activation, harbors genetic variants that have been associated with increased cancer susceptibility in a significant proportion of the population. The project will investigate the role of selected MDM2 variants and other p53 pathway-associated genetic determinants in regulating tumor invasiveness and stress-adaptation mechanisms in glioblastoma and other fibrosis-associated solid tumors, including lung cancer. Particular emphasis will be placed on understanding how these molecular alterations influence cellular plasticity, inflammatory signaling and adaptation to hostile microenvironmental conditions. The research will combine functional genomics approaches with advanced human cellular models to characterize the biological consequences of selected genetic variants. Experimental methodologies will include CRISPR/Cas9 genome editing, transcriptomic profiling, migration and proliferation assays, inflammatory pathway analyses and phenotypic characterization of glioblastoma-associated cellular systems.

	The overall objective of the project is to identify molecular determinants contributing to tumor invasiveness, stress adaptation and biological heterogeneity, with potential relevance for biomarker discovery and future therapeutic strategies.
Special requirements from the student:	The topic is intended for candidates interested in cancer biology, molecular oncology, functional genomics, stem cell-based disease modeling and translational biomedical research.
Selective bibliography (4-6 references):	For details, please contact prof. Bianca GĂLĂȚEANU.

PhD research field:	***Geology***
Title:	**Innovative ion chromatography methods applied to isotopic systems of interest in Geochemistry and Geochronology**
Name of PhD supervisors:	**Răzvan CARACAȘ**
Link to CV on website	https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/
email:	razvan.caracas@icub.unibuc.ro
Short description of the topic (150-200 words):	For details, please contact Prof. Răzvan Caracaș.
Special requirements from the student:	The candidate is expected to hold knowledge in Geology.
Selective bibliography (4-6 references):	

PhD research field:	***Geology***
Title:	**Entrapment of noble gases in primitive organic amorphous matter**
Name of PhD supervisors:	**Răzvan CARACAȘ**
Link to CV on website	https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/
email:	razvan.caracas@icub.unibuc.ro
Short description of the topic (150-200 words):	For details, please contact Prof. Răzvan Caracaș.
Special requirements from the student:	The candidate is expected to hold knowledge in Geology.
Selective bibliography (4-6 references):	

PhD research field:	***Geology***
Title:	**Volatile transport and recycling by arc magmas**
Name of PhD supervisors:	**Răzvan CARACAȘ**
Link to CV on website	https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/
email:	razvan.caracas@icub.unibuc.ro
Short description of the topic (150-200 words):	For details, please contact Prof. Răzvan Caracaș.
Special requirements from the student:	The candidate is expected to hold knowledge in Geology.
Selective bibliography (4-6 references):	

PhD research field:	***Geography***
Title:	**Urban development policies and the efficiency of the administrative system.**
Name of PhD supervisor: Link to CV on website email:	**Daniel PEPTENATU** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ daniel.peptenatu@unibuc.ro
Short description of the topic (150-200 words):	For details, please contact Prof. Daniel Peptenatu.
Special requirements from the student:	The candidate is expected to hold knowledge in Geography.
Selective bibliography (4-6 references):	Peptenatu D, Nedelcu ID, Pop CS, et al. The spatial-temporal dimension of oncological prevalence and mortality in Romania. GeoHealth. 2023;7(10):e2023GH000901. doi:10.1029/2023GH000901 Peptenatu, D.; Andronache, I.; Ahammer, H.; Radulovic, M.; Costanza, J.K.; Jelinek, H.F.; Di Ieva, A.; Koyama, K.; Grecu, A.; Gruia, A.K.; et al. A new fractal index to classify forest fragmentation and disorder. *Landsc. Ecol.* **2023**, *38*, 1373–1393. Peptenatu, D.; Andronache, I.; Marin, M.; Ahammer, H.; Radulovic, M.; Jelinek, H.F.; Gruia, A.K.; Grecu, A.; Constantin, I.; Mihăilă, V.; et al. Using Succolarity as a Measure of Slope Accessibility in Undeveloped Areas. *Land* **2025**, *14*, 2171. https://doi.org/10.3390/land14112171 Ianoș I., Peptenatu D., Pintili R.-D., Drăghici C. (2012). About Sustainable Development of the Territorial Emergent Structures from the Metropolitan Area of Bucharest. *Environmental Engineering and Management Journal*, 11(9): 1535- 1545. Peptenatu, D., Andronache, I., Gruia, A.K., Grecu, A., Dima, C., Dobrea, R.C., & Bodislav, D.A. (2020). Application of fractal-structural methods in the analysis of spatial distribution of the turnover in Romania. *Economic Computation and Economic Cybernetics Studies and Research*, 54(1): 49-64. Peptenatu, D., Draghici, C., & Merciu, C. (2012). Characteristics of entrepreneurial profile in some emergent territorial structures in Romania. *Actual Problems of Economics*, 138(12): 448– 458. Pintili, R.D., Peptenatu, D., Ciobotaru, A.M., Toma, S.G., Grigore, A.M., Drăghici, C.C. , Dobrea, R.C., Simion, A.G., Andronache, I., Teodorescu, C., & Diaconu D.C. (2017). Creative economiEs in Romania – spatial projections and trends, *Bulletin of Geography. Socio–Economic Series*, 37: 95-108. DOI 10.1515/bog-2017-0027. Diaconu, D.C.; Peptenatu, D.; Gruia, A.K.; Grecu, A.; Gruia, A.R.; Gruia, M.F.; Drăghici, C.C.; Băloi, A.M.; Alexandrescu, M.B.; Sibinescu, R.B. The Impact of Urban Expansion on Land Use in Emerging Territorial Systems: Case Study Bucharest-Ilfov, Romania. *Agriculture* **2025**, *15*, 406.

PhD research field:	***Geography***
Title:	**Urban mobility policies and the sustainable development of urban systems**
Name of PhD supervisor: Link to CV on website email:	**Daniel PEPTENATU** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ daniel.peptenatu@unibuc.ro
Short description of the topic (150-200 words):	For details, please contact Prof. Daniel Peptenatu.
Special requirements from the student:	The candidate is expected to hold knowledge in Geography.
Selective bibliography (4-6 references):	Peptenatu D, Nedelcu ID, Pop CS, et al. The spatial-temporal dimension of oncological prevalence and mortality in Romania. GeoHealth. 2023;7(10):e2023GH000901. doi:10.1029/2023GH000901 Peptenatu, D.; Andronache, I.; Ahammer, H.; Radulovic, M.; Costanza, J.K.; Jelinek, H.F.; Di Ieva, A.; Koyama, K.; Grecu, A.; Gruia, A.K.; et al. A new fractal index to classify forest fragmentation and disorder. *Landsc. Ecol.* **2023**, *38*, 1373–1393. Peptenatu, D.; Andronache, I.; Marin, M.; Ahammer, H.; Radulovic, M.; Jelinek, H.F.; Gruia, A.K.; Grecu, A.; Constantin, I.; Mihăilă, V.; et al. Using Succolarity as a Measure of Slope Accessibility in Undeveloped Areas. *Land* **2025**, *14*, 2171. https://doi.org/10.3390/land14112171 Ianoș I., Peptenatu D., Pintili R.-D., Drăghici C. (2012). About Sustainable Development of the Territorial Emergent Structures from the Metropolitan Area of Bucharest. *Environmental Engineering and Management Journal*, 11(9): 1535- 1545. Peptenatu, D., Andronache, I., Gruia, A.K., Grecu, A., Dima, C., Dobrea, R.C., & Bodislav, D.A. (2020). Application of fractal-structural methods in the analysis of spatial distribution of the turnover in Romania. *Economic Computation and Economic Cybernetics Studies and Research*, 54(1): 49-64. Peptenatu, D., Draghici, C., & Merciu, C. (2012). Characteristics of entrepreneurial profile in some emergent territorial structures in Romania. *Actual Problems of Economics*, 138(12): 448– 458. Pintili, R.D., Peptenatu, D., Ciobotaru, A.M., Toma, S.G., Grigore, A.M., Drăghici, C.C. , Dobrea, R.C., Simion, A.G., Andronache, I., Teodorescu, C., & Diaconu D.C. (2017). Creative economiEs in Romania – spatial projections and trends, *Bulletin of Geography. Socio–Economic Series*, 37: 95-108. DOI 10.1515/bog-2017-0027. Diaconu, D.C.; Peptenatu, D.; Gruia, A.K.; Grecu, A.; Gruia, A.R.; Gruia, M.F.; Drăghici, C.C.; Băloi, A.M.; Alexandrescu, M.B.; Sibinescu, R.B. The Impact of Urban Expansion on Land Use in Emerging Territorial Systems: Case Study Bucharest-Ilfov, Romania. *Agriculture* **2025**, *15*, 406.

PhD research field:	***Geography***
Title:	**Public administration and management of natural and anthropogenic risks**
Name of PhD supervisor:	**Daniel PEPTENATU**
Link to CV on website	https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/
email:	daniel.peptenatu@unibuc.ro
Short description of the topic (150-200 words):	For details, please contact Prof. Daniel Peptenatu.
Special requirements from the student:	The candidate is expected to hold knowledge in Geography.
Selective bibliography (4-6 references):	Peptenatu D, Nedelcu ID, Pop CS, et al. The spatial-temporal dimension of oncological prevalence and mortality in Romania. GeoHealth. 2023;7(10):e2023GH000901. doi:10.1029/2023GH000901 Peptenatu, D.; Andronache, I.; Ahammer, H.; Radulovic, M.; Costanza, J.K.; Jelinek, H.F.; Di Ieva, A.; Koyama, K.; Grecu, A.; Gruia, A.K.; et al. A new fractal index to classify forest fragmentation and disorder. *Landsc. Ecol.* **2023**, *38*, 1373–1393. Peptenatu, D.; Andronache, I.; Marin, M.; Ahammer, H.; Radulovic, M.; Jelinek, H.F.; Gruia, A.K.; Grecu, A.; Constantin, I.; Mihăilă, V.; et al. Using Succolarity as a Measure of Slope Accessibility in Undeveloped Areas. *Land* **2025**, *14*, 2171. https://doi.org/10.3390/land14112171 Ianoș I., Peptenatu D., Pintili R.-D., Drăghici C. (2012). About Sustainable Development of the Territorial Emergent Structures from the Metropolitan Area of Bucharest. *Environmental Engineering and Management Journal*, 11(9): 1535- 1545. Peptenatu, D., Andronache, I., Gruia, A.K., Grecu, A., Dima, C., Dobrea, R.C., & Bodislav, D.A. (2020). Application of fractal-structural methods in the analysis of spatial distribution of the turnover in Romania. *Economic Computation and Economic Cybernetics Studies and Research*, 54(1): 49-64. Peptenatu, D., Draghici, C., & Merciu, C. (2012). Characteristics of entrepreneurial profile in some emergent territorial structures in Romania. *Actual Problems of Economics*, 138(12): 448– 458. Pintili, R.D., Peptenatu, D., Ciobotaru, A.M., Toma, S.G., Grigore, A.M., Drăghici, C.C. , Dobrea, R.C., Simion, A.G., Andronache, I., Teodorescu, C., & Diaconu D.C. (2017). Creative economiEs in Romania – spatial projections and trends, *Bulletin of Geography. Socio–Economic Series*, 37: 95-108. DOI 10.1515/bog-2017-0027. Diaconu, D.C.; Peptenatu, D.; Gruia, A.K.; Grecu, A.; Gruia, A.R.; Gruia, M.F.; Drăghici, C.C.; Băloi, A.M.; Alexandrescu, M.B.; Sibinescu, R.B. The Impact of Urban Expansion on Land Use in Emerging Territorial Systems: Case Study Bucharest-Ilfov, Romania. *Agriculture* **2025**, *15*, 406.

PhD research field:	***Geography***
Title:	**Urban regeneration and sustainable development**
Name of PhD supervisor:	**Daniel PEPTENATU**
Link to CV on website	https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/
email:	daniel.peptenatu@unibuc.ro
Short description of the topic (150-200 words):	For details, please contact Prof. Daniel Peptenatu.
Special requirements from the student:	The candidate is expected to hold knowledge in Geography.
Selective bibliography (4-6 references):	Peptenatu D, Nedelcu ID, Pop CS, et al. The spatial-temporal dimension of oncological prevalence and mortality in Romania. GeoHealth. 2023;7(10):e2023GH000901. doi:10.1029/2023GH000901 Peptenatu, D.; Andronache, I.; Ahammer, H.; Radulovic, M.; Costanza, J.K.; Jelinek, H.F.; Di Ieva, A.; Koyama, K.; Grecu, A.; Gruia, A.K.; et al. A new fractal index to classify forest fragmentation and disorder. *Landsc. Ecol.* **2023**, *38*, 1373–1393. Peptenatu, D.; Andronache, I.; Marin, M.; Ahammer, H.; Radulovic, M.; Jelinek, H.F.; Gruia, A.K.; Grecu, A.; Constantin, I.; Mihăilă, V.; et al. Using Succolarity as a Measure of Slope Accessibility in Undeveloped Areas. *Land* **2025**, *14*, 2171. https://doi.org/10.3390/land14112171 Ianoș I., Peptenatu D., Pintili R.-D., Drăghici C. (2012). About Sustainable Development of the Territorial Emergent Structures from the Metropolitan Area of Bucharest. *Environmental Engineering and Management Journal*, 11(9): 1535- 1545. Peptenatu, D., Andronache, I., Gruia, A.K., Grecu, A., Dima, C., Dobrea, R.C., & Bodislav, D.A. (2020). Application of fractal-structural methods in the analysis of spatial distribution of the turnover in Romania. *Economic Computation and Economic Cybernetics Studies and Research*, 54(1): 49-64. Peptenatu, D., Draghici, C., & Merciu, C. (2012). Characteristics of entrepreneurial profile in some emergent territorial structures in Romania. *Actual Problems of Economics*, 138(12): 448– 458. Pintili, R.D., Peptenatu, D., Ciobotaru, A.M., Toma, S.G., Grigore, A.M., Drăghici, C.C. , Dobrea, R.C., Simion, A.G., Andronache, I., Teodorescu, C., & Diaconu D.C. (2017). Creative economiEs in Romania – spatial projections and trends, *Bulletin of Geography. Socio–Economic Series*, 37: 95-108. DOI 10.1515/bog-2017-0027. Diaconu, D.C.; Peptenatu, D.; Gruia, A.K.; Grecu, A.; Gruia, A.R.; Gruia, M.F.; Drăghici, C.C.; Băloi, A.M.; Alexandrescu, M.B.; Sibinescu, R.B. The Impact of Urban Expansion on Land Use in Emerging Territorial Systems: Case Study Bucharest-Ilfov, Romania. *Agriculture* **2025**, *15*, 406.

PhD research field:	***Geography***
Title:	**Digitalization and integrated management of territorial systems**
Name of PhD supervisor: Link to CV on website email:	**Daniel PEPTENATU** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ daniel.peptenatu@unibuc.ro
Short description of the topic (150-200 words):	For details, please contact Prof. Daniel Peptenatu.
Special requirements from the student:	The candidate is expected to hold knowledge in Geography.
Selective bibliography (4-6 references):	Peptenatu D, Nedelcu ID, Pop CS, et al. The spatial-temporal dimension of oncological prevalence and mortality in Romania. GeoHealth. 2023;7(10):e2023GH000901. doi:10.1029/2023GH000901 Peptenatu, D.; Andronache, I.; Ahammer, H.; Radulovic, M.; Costanza, J.K.; Jelinek, H.F.; Di Ieva, A.; Koyama, K.; Grecu, A.; Gruia, A.K.; et al. A new fractal index to classify forest fragmentation and disorder. *Landsc. Ecol.* **2023**, *38*, 1373–1393. Peptenatu, D.; Andronache, I.; Marin, M.; Ahammer, H.; Radulovic, M.; Jelinek, H.F.; Gruia, A.K.; Grecu, A.; Constantin, I.; Mihăilă, V.; et al. Using Succolarity as a Measure of Slope Accessibility in Undeveloped Areas. *Land* **2025**, *14*, 2171. https://doi.org/10.3390/land14112171 Ianoș I., Peptenatu D., Pintili R.-D., Drăghici C. (2012). About Sustainable Development of the Territorial Emergent Structures from the Metropolitan Area of Bucharest. *Environmental Engineering and Management Journal*, 11(9): 1535- 1545. Peptenatu, D., Andronache, I., Gruia, A.K., Grecu, A., Dima, C., Dobrea, R.C., & Bodislav, D.A. (2020). Application of fractal-structural methods in the analysis of spatial distribution of the turnover in Romania. *Economic Computation and Economic Cybernetics Studies and Research*, 54(1): 49-64. Peptenatu, D., Draghici, C., & Merciu, C. (2012). Characteristics of entrepreneurial profile in some emergent territorial structures in Romania. *Actual Problems of Economics*, 138(12): 448– 458. Pintili, R.D., Peptenatu, D., Ciobotaru, A.M., Toma, S.G., Grigore, A.M., Drăghici, C.C. , Dobrea, R.C., Simion, A.G., Andronache, I., Teodorescu, C., & Diaconu D.C. (2017). Creative economiEs in Romania – spatial projections and trends, *Bulletin of Geography. Socio–Economic Series*, 37: 95-108. DOI 10.1515/bog-2017-0027. Diaconu, D.C.; Peptenatu, D.; Gruia, A.K.; Grecu, A.; Gruia, A.R.; Gruia, M.F.; Drăghici, C.C.; Băloi, A.M.; Alexandrescu, M.B.; Sibinescu, R.B. The Impact of Urban Expansion on Land Use in Emerging Territorial Systems: Case Study Bucharest-Ilfov, Romania. *Agriculture* **2025**, *15*, 406.

PhD research field:	***Geography***
Title:	**Data analysis and decision assistance in territorial systems**
Name of PhD supervisor: Link to CV on website email:	**Daniel PEPTENATU** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ daniel.peptenatu@unibuc.ro
Short description of the topic (150-200 words):	For details, please contact Prof. Daniel Peptenatu.
Special requirements from the student:	The candidate is expected to hold knowledge in Geography.
Selective bibliography (4-6 references):	Peptenatu D, Nedelcu ID, Pop CS, et al. The spatial-temporal dimension of oncological prevalence and mortality in Romania. GeoHealth. 2023;7(10):e2023GH000901. doi:10.1029/2023GH000901 Peptenatu, D.; Andronache, I.; Ahammer, H.; Radulovic, M.; Costanza, J.K.; Jelinek, H.F.; Di Ieva, A.; Koyama, K.; Grecu, A.; Gruia, A.K.; et al. A new fractal index to classify forest fragmentation and disorder. *Landsc. Ecol.* **2023**, *38*, 1373–1393. Peptenatu, D.; Andronache, I.; Marin, M.; Ahammer, H.; Radulovic, M.; Jelinek, H.F.; Gruia, A.K.; Grecu, A.; Constantin, I.; Mihăilă, V.; et al. Using Succolarity as a Measure of Slope Accessibility in Undeveloped Areas. *Land* **2025**, *14*, 2171. https://doi.org/10.3390/land14112171 Ianoș I., Peptenatu D., Pintili R.-D., Drăghici C. (2012). About Sustainable Development of the Territorial Emergent Structures from the Metropolitan Area of Bucharest. *Environmental Engineering and Management Journal*, 11(9): 1535- 1545. Peptenatu, D., Andronache, I., Gruia, A.K., Grecu, A., Dima, C., Dobrea, R.C., & Bodislav, D.A. (2020). Application of fractal-structural methods in the analysis of spatial distribution of the turnover in Romania. *Economic Computation and Economic Cybernetics Studies and Research*, 54(1): 49-64. Peptenatu, D., Draghici, C., & Merciu, C. (2012). Characteristics of entrepreneurial profile in some emergent territorial structures in Romania. *Actual Problems of Economics*, 138(12): 448– 458. Pintili, R.D., Peptenatu, D., Ciobotaru, A.M., Toma, S.G., Grigore, A.M., Drăghici, C.C. , Dobrea, R.C., Simion, A.G., Andronache, I., Teodorescu, C., & Diaconu D.C. (2017). Creative economiEs in Romania – spatial projections and trends, *Bulletin of Geography. Socio–Economic Series*, 37: 95-108. DOI 10.1515/bog-2017-0027. Diaconu, D.C.; Peptenatu, D.; Gruia, A.K.; Grecu, A.; Gruia, A.R.; Gruia, M.F.; Drăghici, C.C.; Băloi, A.M.; Alexandrescu, M.B.; Sibinescu, R.B. The Impact of Urban Expansion on Land Use in Emerging Territorial Systems: Case Study Bucharest-Ilfov, Romania. *Agriculture* **2025**, *15*, 406.

Interdisciplinary research Training Group:	**NR-SES**
PhD research field:	***Geography***
Title:	**River Hydraulics and Their Impact on Fish Habitats**
Name of PhD supervisor: Link to CV on website email:	**Daniel Constantin DIACONU** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ daniel.diaconu@unibuc.ro
Short description of the topic (150-200 words):	River hydraulics play a fundamental role in shaping aquatic ecosystems and directly influence the distribution, behavior and survival of fish populations. Hydraulic parameters – such as flow velocity, discharge, turbulence and sediment transport – directly influence the characteristics of fish habitats. Changes in natural flow regimes, often caused by human interventions such as dam construction, channelization of watercourses and water abstraction, chemical and thermal wastewater discharge can significantly alter the availability and connectivity of habitats, thus affecting the migration, reproduction and feeding patterns of fish. The need to study the principles of hydraulics and aquatic ecology to highlight the importance of maintaining ecological flow conditions is more than necessary. Special attention is paid to habitat suitability models, including the Incremental Stream Flow Methodology, which are used to assess the impact of variable flow conditions on fish species. Implementing ecological flow strategies and restoring natural hydraulic variability are essential steps for conserving biodiversity and ensuring the long-term health of riparian ecosystems..
Special requirements from the student:	The candidate is expected to hold knowledge in Geography.
Selective bibliography (4-6 references):	Ecohydraulics: An Integrated Approach Editor(s): Ian Maddock, Atle Harby, Paul Kemp, Paul Wood First published: 30 June 2013 Print ISBN:9780470976005 |Online ISBN:9781118526576 |DOI:10.1002/9781118526576 Stream Ecology, Structure and function of running waters, Springer 2007 Poff, N. L. et al. (1997). Natural flow regime. *BioScience*.

Interdisciplinary research Training Group:	**NR-SES**
PhD research field:	***Geography***
Title:	**The Role of Inland Waterways in the Economic Integration of Eastern Europe: A Cost-Benefit Analysis of the Danube-Bucharest Canal in the New Logistical Context**
Name of PhD supervisor: Link to CV on website email:	**Daniel Constantin DIACONU** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ daniel.diaconu@unibuc.ro
Short description of the topic (150-200 words):	Inland waterway transport is one of the most efficient and sustainable modes of freight transport in Europe, playing an essential role in reducing logistics costs and environmental impact. In this context, the Danube River constitutes a major strategic corridor, integrated into the Trans-European Transport Network (TEN-T), facilitating the connection between Central Europe and the Black Sea. In Eastern Europe, the development of transport infrastructure is crucial for reducing economic gaps and increasing regional competitiveness. The Danube–Bucharest Canal project is part of this direction, aiming to directly connect the Romanian capital to the European river transport network. Initially conceived during the communist period and subsequently abandoned, the project is being brought back into discussion in the context of new logistics priorities, marked by the need to diversify transport routes and transition to more environmentally friendly solutions. However, the implementation of such a project raises fundamental questions regarding economic viability, environmental impact and the efficient use of public resources. In this sense, cost-benefit analysis becomes an essential tool for assessing the investment opportunity.
Special requirements from the student:	The candidate is expected to hold knowledge in Geography.
Selective bibliography (4-6 references):	Inland Waterways Transport in Europe: Status and Prospects https://transport.ec.europa.eu/document/download/7de3b87f-dbd6-4abf-be90-47f82db5fb07_en?filename=2004_pine_report_summary_en.pdf The Role of Inland Navigation in the European Transport System https://transport.ec.europa.eu/transport-modes/inland-waterways_en Danube Corridor and Regional Economic Integration https://danube-region.eu/content/uploads/2024/12/Wiiw-Rosinak-2024-Regional-and-territorial-trends-in-the-Danube-Region-and-implications-for-cooperative-approaches.pdf

Interdisciplinary research Training Group:	**NR-SES**
PhD research field:	***Geography***
Title:	**Coal Exploitations in the Banat in the Current Energy Context**
Name of PhD supervisor: Link to CV on website email:	**Daniel Constantin DIACONU** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ daniel.diaconu@unibuc.ro
Short description of the topic (150-200 words):	Coal has long been an essential resource for the production of electricity and heat in Romania. Coal-fired power plants have ensured: stability in the national energy system, relative energy independence and jobs. However, coal is one of the most polluting energy sources, contributing significantly to CO_2 emissions. Currently, coal mining is in an accelerated decline due to the implementation of the European Policies adopted by the European Union to promote the energy transition to renewable sources (European Green Deal), which aims for continental climate neutrality by 2050. The economic pressure generated by high operating costs, the decrease in competitiveness compared to renewable energy and the need for technological modernization, but also the impact on the environment, has led to the gradual closure of production units and, implicitly, coal mining. In the long term, Banat has development potential by diversifying the economy and attracting green investments.
Special requirements from the student:	The candidate is expected to hold knowledge in Geography.
Selective bibliography (4-6 references):	Industria carboniferă din România – repere strategice de ieri și de mâine" Sorin Mihai Radu | Nicolae Ilias | Iulian Offenberg | Dumitru Fodor | Iosif Andras (AGIR) 2023 https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_ro Exploatarea zăcămintelor de cărbuni (Editura Tehnică) https://research-and-innovation.ec.europa.eu/strategy/strategy-research-and-innovation/environment-and-climate/european-green-deal_en

Interdisciplinary research Training Group:	**NR-SES**
PhD research field:	***Geography***
Title:	**Integrated Development of Local Economies based on Valorization of Natural Resources. Case Study**
Name of PhD supervisor: Link to CV on website email:	**Radu Daniel PINTILII** https://doctorat.unibuc.ro/wp-content/uploads/2021/05/CV-Pintilii-RD_2021.pdf radu.pintilii@geo.unibuc.ro
Short description of the topic (150-200 words):	Natural resources represent one of the main pillars of the territorial development. They provide the base for the economic activity, settlement, and local livelihoods. They also could shape a territory's specialisation: fertile soils support agriculture, forests support forestry and related industries, water resources support irrigation and hydropower, and minerals can drive mining and industrial growth. When managed well, these natural resources can generate jobs, infrastructure, and public revenue, strengthening local development. Their role and impact are not always positive, however. The poor governance, the overexploitation, and the unequal access of these resources can deepen and increase poverty, inequality, and environmental degradation. In this case, the territorial development depends on institutions that regulate use, share benefits fairly, and keep extraction within ecological limits. In short, natural resources have a major influence on territorial development both as an economic asset and as a sustainability challenge.
Special requirements from the student:	The candidate is expected to hold knowledge in Geography.
Selective bibliography (4-6 references):	1. Menshutkin, V. V., & Minina, T. R. "Economic development of the region and natural resources." In *Regional Economy and Territorial Development* (2023). This is a useful regional-development reference, especially if you are focusing on territorial analysis. 2. Yang, F., Yuan, H., & Yi, N. "Natural resources, environment and the sustainable development." *Urban Climate* 42

	(2022): 101111. A recent article connecting resources, environment, and sustainability. 3. Auty, R. M. *Natural Resources, Development Models and Sustainable Development*. London: IIED, 1993. 4. Bebbington, A., Dharmawan, L., Fahmi, E., and Guggenheim, S. "Local capacity, village governance, and the political economy of rural development in Indonesia." *World Development* 36, no. 11 (2008): 1958–1976. 5. Aragón, F. M., and Rud, J. P. "Natural Resources and Local Communities: Evidence from a Peruvian Gold Mine." *American Economic Journal: Economic Policy* 5, no. 2 (2013): 1–25. 6. Torquebiau, E., and Taylor, R. *Natural Resource Management and Local Development*. Heidelberg: Springer, 2010. 7. IDRC. *Communities, Livelihoods, and Natural Resources: Action Research for Local Development*. Ottawa: International Development Research Centre, 2006. 8. Bonfiglioli, A. *Local Environmental Governance and the Decentralized Management of Natural Resources*. United Nations Capital Development Fund, n.d.. 9. World Bank. *Where Is the Wealth of Nations? Measuring Capital for the 21st Century*. Washington, DC: World Bank, 2006. 10. Freeman, R. E., and others, eds. *Natural Resources and Economic Development*. Cambridge: Cambridge University Press, 2005.

Interdisciplinary research Training Group:	**Natural Resources & Social-Ecological Systems**
PhD research field:	***Geography***
Title:	**Tourism and the Adaptive Capacity of Territorial Systems: An Integrated Territorial Analysis.**
Name of PhD supervisor: Link to CV on website email:	**Cristian Constantin DRĂGHICI** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ cristian.draghici@geo.unibuc.ro
Short description of the topic (150-200 words):	This research topic examines the relationship between tourism and the adaptive capacity of territorial systems, understood as the ability of regions to respond, adjust and transform in the context of economic, social and environmental change. Within this framework, tourism is approached as a driver of territorial dynamics, influencing economic structures, spatial organization and the overall functioning of local and regional systems. The topic provides a conceptual basis for analysing how tourism development generates processes of territorial adaptation, such as economic restructuring, functional diversification and spatial reconfiguration. It allows for the exploration of these processes across different types of territories and development contexts, without limiting the analysis to a specific case. The approach is integrative, linking economic, spatial and institutional dimensions in order to better understand the complexity of tourism–territory interactions. As a general research topic, it supports the development of multiple doctoral directions focused on territorial resilience, governance, spatial change and local development dynamics.
Special requirements from the student:	The candidate is expected to hold knowledge in geography and economy
Selective bibliography (4-6 references):	Hartman, S. (2016). Towards adaptive tourism areas? A complexity perspective to examine the conditions for adaptive capacity. Journal of Sustainable Tourism, 24, 299 - 314. https://doi.org/10.1080/09669582.2015.1062017. Romão, J. (2020). Tourism, smart specialisation, growth, and resilience. Annals of Tourism Research, 84, pp. 102995 - 102995. doi: 10.1016/j.annals.2020.102995. Vasvári, M., Gergely, L. and Dávid, L. (2025). Tourism as a catalyst for resilience: Insights from a literature review on crisis adaptation and regional development. Ecocycles. doi: 10.19040/ecocycles.v11i1.479. Cheer, J., Milano, C. and Novelli, M. (2019). Tourism and community resilience in the Anthropocene: accentuating

	temporal overtourism. Journal of Sustainable Tourism, 27, pp. 554 - 572. doi: 10.1080/09669582.2019.1578363. Wu, J., Guo, D., Zuo, J., Yang, J. and Liu, S. (2025). Evolution characteristics and obstacle factors of rural resilience in Chinese minority areas in the background of rural tourism and COVID-19. Scientific Reports, 15. doi: 10.1038/s41598-025-94186-9.

Interdisciplinary research Training Group:	**HES**
PhD research field:	***Law***
Title:	**Identity of citizen in the European Union**
Name of PhD supervisor: Link to CV on website email:	**Elena Simina TĂNĂSESCU** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ simina-elena.tanasescu@drept.unibuc.ro
Short description of the topic (150-200 words):	For details, please contact Prof. Simina Tănăsescu.
Special requirements from the student:	The candidate is expected to hold knowledge in Law.
Selective bibliography (4-6 references):	

Interdisciplinary research Training Group:	**Mind, Language and Cognition**
PhD research field:	***Communication Studies***
Title:	**Regulation and self-regulation for public communication**
Name of PhD supervisor: Link to CV on website email:	**Raluca RADU** https://unibuc.ro/user/raluca.radu/?lang=en raluca.radu@fjsc.ro / raluca.radu@unibuc.ro
Short description of the topic (150-200 words):	My teaching and research interests follow three main lines: media economics, cultural industries and regulation and self-regulation. I approach these fields from the point of view of neo-institutionalism and sociology of culture (including the sociology of journalism), trying to understand how institutions evolve, grow, and disappear and how values, norms and rules are negotiated and validated by social actors, in a never-ending fight for access and control of material and symbolic resources. I am working in international research teams interested in the production and reception of journalism, disinformation and propaganda/ conpsiracy theories. I started as a qualitative researcher, but recently I got more and more interested in quantitative methods, in part due to my participation in Digital News Report, the largest, multiannual international research on news consumption, in part due to the increased availability of big data, that allow us to understand better the social world we live in. Any research themes in these areas are more than welcome.
Special requirements from the student:	The candidate is expected to hold knowledge in topic related to communication studies, pertinent to his or her research project (key concepts; main theories)
Selective bibliography (4-6 references):	Hesmondhalgh, D. (2026). *The Cultural Industries*. 5th ed. Sage publications. McQuail, D. (2010). *McQuail's mass communication theory*. Sage publications. Moore, R. L., Murray, M. D., & Youm, K. H. (2022). Media law and ethics. Routledge. Scott, W. R. (2013). *Institutions and organizations: Ideas, interests, and identities*. Sage publications.

PhD research field:	***Communication Studies***
Title:	**Rolul de pionierat al Universității București în crearea și instituționalizarea unui nou câmp academic (învățământul de jurnalism și comunicare)/ The pioneering role of the University of Bucharest in the creation and institutionalization of a new academic field (journalism and communication education)**
Name of PhD supervisor: Link to CV on website email:	**Mihai COMAN** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ mihai.coman@unibuc.ro
Short description of the topic (150-200 words):	This is the period 1990-1998 when this field was built without any previous tradition in our country (obviously what was taught at the Stefan Gheorghiu Party Academy cannot be considered journalism!), this meant the curricular construction, the implementation of specific pedagogical techniques, the production of specialized bibliography, the building of a competent teaching staff and, last but not least, the creation and imposition of NATIONAL STANDARDS for authorization and accreditation in this field.
Special requirements from the student:	For details, please contact prof. Mihai COMAN.
Selective bibliography (4-6 references):	

Interdisciplinary research Training Group:	**Complex Systems**
PhD research field:	***Sociology***
Title:	**The Technological Transformation of Affect: Shifting Structures of Emotion Work and Labor**
Name of PhD supervisor: Link to CV on website email:	**Cosima RUGHINIȘ** https://doctorat.unibuc.ro/wp-content/uploads/2026/02/CV_Cosima-Rughinis.pdf cosima.rughinis@unibuc.ro
Short description of the topic (150-200 words):	**The Technological Transformation of Affect: Shifting Structures of Emotion Work and Labor** This research investigates the sociological evolution of human emotionality as mediated by diverse technologies, from traditional journalism and the telephone to psychotherapy and generative AI. Grounded in Arlie Hochschild's framework, we ask how the emotion structure and culture of society are reshaped when our internal "feeling rules" are filtered through technological systems. The project explores how emotion ontologies and vocabularies are shifting; for instance, how journalistic narratives or psychotherapeutic techniques provide the templates through which we learn to identify and speak of our feelings. A central focus is the transition of agency in emotion work. We are no longer sole managers of our affects; instead, we engage in a distributed form of labor, working alongside algorithms and automated systems to "produce" the correct emotional states. By analyzing the tools used for emotion labor, from the commodified empathy in service industries to the collaborative emotional management found in human-AI interaction,this research seeks to map how our internal lives are being restructured. It asks how the fundamental ways we feel, and the rules governing those feelings, are redefined by a technologically saturated social landscape.
Special requirements from the student:	No prerequisites
Selective bibliography (4-6 references):	Madsen, Ole Jacob. "Therapeutic cultures: Historical perspectives." In *The Routledge international handbook of global therapeutic cultures*, pp. 14-24. Routledge, 2020. Hochschild, Arlie Russell. "Emotion Work, Feeling Rules, and Social Structure." *American Journal of Sociology* 85, no. 3 (1979): 551–75. Pantti, Mervi, and Karin Wahl-Jorgensen. "Journalism and emotional work." *Journalism studies* 22, no. 12 (2021): 1567-1573.

	Das Swain, Vedant, Qiuyue" Joy Zhong, Jash Rajesh Parekh, Yechan Jeon, Roy Zimmermann, Mary P. Czerwinski, Jina Suh, Varun Mishra, Koustuv Saha, and Javier Hernandez. "AI on my shoulder: Supporting emotional labor in front-office roles with an llm-based empathetic coworker." In *Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems*, pp. 1-29. 2025. Oder, Noah, and Daniel Béland. "Artificial intelligence, emotional labor, and the quest for sociological and political imagination among low-skilled workers." *Policy and Society* 44, no. 1 (2025): 116-128. Morton, Jorge Luis. "From meaning to emotions: LLMs as artificial communication partners." *AI & Society* 41, no. 1 (2026): 171-184.

Interdisciplinary research Training Group:	**Complex Systems**
PhD research field:	***Sociology***
***Title*:**	**Generative AI and the Transformation of Social Life**
***Name of PhD supervisor*:** Link to CV on website email:	**Cosima RUGHINIȘ** https://doctorat.unibuc.ro/wp-content/uploads/2026/02/CV_Cosima-Rughinis.pdf cosima.rughinis@unibuc.ro
***Short description of the topic (150-200 words)*:**	**Generative AI and the Transformation of Social Life** This research explores the sociological shifts precipitated by the integration of Generative AI (GenAI) into everyday life. Rather than viewing GenAI as a tool, this project conceptualizes it as a transformative social force that reconfigures the dimensions of human experience: temporality, expertise, agency, and emotion. The study investigates how GenAI alters social temporality, accelerating production cycles while blurring the boundaries between human and machine-generated time. It examines the erosion and transformation of expertise, as algorithmic authority challenges traditional professional hierarchies and democratic knowledge production. Central to this inquiry is the emergence of new social actors, autonomous and semi-autonomous AI agents, that demand a rethinking of agency. This "distributed agency" sees humans and AI working in a hybrid capacity, changing the nature of emotion work. As GenAI systems mediate, simulate, and assist in emotional management, the project explores how the "feeling rules" of society are rewritten. By synthesizing perspectives from the sociology of technology, labor, and knowledge, this research aims to map how human and machine interaction creates a new social ontology.
***Special requirements from the student*:**	No prerequisites
Selective bibliography (4-6 references):	Flaherty, Michael G., Cosima Rughiniș, Ștefania Matei, and Andra Mijaiche. "Time Work in the Age of AI: New Actors, Techniques, and Settings for Temporal Agency." In *2025 24th RoEduNet Conference: Networking in Education and Research (RoEduNet)*, pp. 1-6. IEEE, 2025. Rughiniș, Răzvan, Cosima Rughiniș, and Emanuela Bran. "Generative AI and social engines of hate." In *Regulating hate speech created by generative AI*, pp. 1-18. Auerbach Publications, 2024. Flaherty, Michael G., Cosima Rughiniș, and Maria Valentina Stoicescu. "Generative content analysis: five AI models interpret the time work of love at first sight." In *2025 25th International Conference on Control Systems and Computer Science (CSCS)*, pp. 580-587. IEEE, 2025.

	Rughiniș, Cosima, Mihai Dascălu, and Susantha Rasnayake. "GenAI reliability in content analysis: Assessing agreement between LLMs in measuring discursive violence." In *2025 25th International Conference on Control Systems and Computer Science (CSCS)*, pp. 604-611. IEEE, 2025.

PhD research field:	***Sociology***
Title:	**Democratic governance of the military in Eastern Europe**
Name of PhD supervisor: Link to CV on website email:	**Marian ZULEAN** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ marian.zulean@faa.unibuc.ro
Short description of the topic (150-200 words):	The main goal of this research is to evaluate the mechanisms of democratic control of the military in Eastern Europe after two decades since they were implemented. The issue of democratic governance of the military in modern societies dates back to the classics of sociology or political science (i.e. Max Weber or Harold Lasswell). They asked: how can one control an organization who has the monopoly of violence in a democratic state and can -eventually-cast a military coup? Samuel P. Huntington and Morris Janowitz conceived -in the 1960s-proper models of democratic control of the military in democracies. Huntington model was imposed in the 1990s as a conditionality to the reforms of all East European countries willing to join NATO. About 10 East European countries were assessed -by 2004-as a functioning democracy and were admitted into NATO. However, after the admission in NATO there were no public evaluation regarding the democratic control of the military in practice.
Special requirements from the student:	The candidate is expected to hold knowledge in Sociology and Public Policy.
Selective bibliography (4-6 references):	Huntington, Samuel P. 1957. The Soldier and the State: The Theory and Politics of Civil-Military Relations. Cambridge: Belknap Press. Dimond, Larry and Plattner, Marc, Civil-Military Relations and Democracy, Johns Hopkins University Press, 1996. Kuehn, D. and A. Croissant. 2023. Routes to Reform: Civil-Military Relations and Democracy in the Third Wave. Oxford: Oxford University Press. Marius Ghincea, Marian Zulean, "Protracted Transition: The Civilian Control over the Military and Intelligence" in Post-Communist Progress and Stagnation at 35: the case of Romania, Lavinia Stan and Diane Vancea (eds), Springer, 2024. Zulean, Marian, 2020, "Romania: Civil-Military Relations in the Modern Age", in Oxford Research Encyclopedia, Oxford University Press.

PhD research field:	***Sociology***
Title:	**The weaponization of information in 21st century**
Name of PhD supervisor: Link to CV on website email:	**Marian ZULEAN** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ marian.zulean@faa.unibuc.ro
Short description of the topic (150-200 words):	The main goal of this research is to investigate what kind of institutions a resilient democracy can set up to counter propaganda, disinformation or psy-ops, avoiding dictatorship? The role of information in a war dates back to the ancient strategists, such as Sun Tsu, but its role increased exponentially in 21st century, when hybrid wars rely on different methods of influence (propaganda, misinformation, disinformation, fake news, psy-ops) and revolutionary technology. Globalization of IT networks and development of technology-such as AI-are the diving forces that contribute to the weaponization of information. Cognitive wars are fought not only against the nations but also against multilateral alliances or institutions of regional or global governance while the fighters could be state, non-state or individuals. Despite the fact that it was an explosion of studies on hybrid wars they were mostly focused on foreign malign influence and less on internal vulnerabilities in terms of infrastructure and narratives.
Special requirements from the student:	The candidate is expected to hold knowledge in Sociology and Security Studies.
Selective bibliography (4-6 references):	Babbie, Earl. The Practice of Social Research, Wadsworth, 2013. Cialdini, Robert. Influence. The Psychology of Persuasion, Harper Collins, New York, 2009. Zubboff, Shoshana. The Age of Surveillance Capitalism, Profile Publisher, 2019. Pamment, James. A Capability Definition and Assessment Framework for Countering Disinformation, Information Influence, and Foreign Interference, Riga: NATO Strategic Communications Centre of Excellence, available at: https://stratcomcoe.org/publications/a-capability-definition-and-assessment-framework-for-countering-disinformation-information-influence-and-foreign-interference/255.

PhD research field:	***Sociology***
Title:	**Sociological School of Bucharest within the Global Intellectual History: the case of Michael Cernea", domeniul sociologie**
Name of PhD supervisor: Link to CV on website email:	**Marian ZULEAN** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ marian.zulean@faa.unibuc.ro
Short description of the topic (150-200 words):	The main goal of this project is to better understand the experience of the Sociological School of Bucharest within the Global Intellectual History and to inform the international academia about the merits of the Sociological School of Bucharest by the end of the Second World War, the drama brought about by Sovietization and the continuity of some ideas at the global level through the work of Michael M. Cernea. Michael Cernea succeeded to be employed in 1974 at the World Bank as the first rural sociologist and succeeded to develop his system of thinking based on ideas from the Romanian School of Sociology, to build up an institution of about 500 sociologists in the World Bank and to change the WB paradigm.
Special requirements from the student:	For details, please contact prof. Marian ZULEAN.
Selective bibliography (4-6 references):	Babbie, Earl. *The Practice of Social Research*, Wadsworth, 2013. Michael M. Cernea. *Putting People First: Sociological Variables in Rural Development*, Oxford University Press, 1991. Michael M. Cernea and Zoltan Rostas. *Viețile Sociologului*, Corint, 2024.

Interdisciplinary research Training Group:	**Natural Resources & Social-Ecological Systems**
PhD research field:	***Political Science***
Title:	**Governance and Socio-Ecological Systems: Structure, Functioning and Resilience**
Name of PhD supervisor: Link to CV on website email:	**Dragoș Paul ALIGICĂ** www.aligica.com dragos.aligica@faa.unibuc.ro
Short description of the topic (150-200 words):	The SES framework emphasizes that resource systems are complex, adaptive, and shaped by the interaction between ecological processes and human decision-making. At its core are heterogeneous agents whose behavior evolves over time, interacts within institutional settings, and generates system-level outcomes that cannot be understood in isolation. This makes governance—rules, norms, and institutional arrangements—the central lens through which these systems must be analyzed. By focusing on institutions and governance, the SES perspective enables a more integrated understanding of how natural, social, and organizational factors co-evolve and shape resource outcomes. Examples aligned with that focus: 1. Resilience and Institutional Governance in Social-Ecological Systems. Examining how different governance arrangements shape the resilience and adaptability of communities managing natural resources. 2. Bridging Evolutionary Theory and Institutional Analysis in Resource Governance. Exploring how evolutionary perspectives (variation, selection, adaptation) intersect with institutional dynamics in shaping long-term governance outcomes. Institutional Diversity and Performance in Natural Resource Management. Investigating how diverse institutional arrangements influence efficiency, sustainability, and collective action across different ecological and social contexts.
Special requirements from the student:	The candidate is expected to hold knowledge in any combination of *Economics, History, Sociology, Geology, Geography, History, Political Science, Mathematics, Biology.*

Selective bibliography (4-6 references):	Ostrom, E. (2009). A general framework for analyzing sustainability of social-ecological systems. *Science*, *325*(5939), 419-422. Ostrom, E. (2007). A diagnostic approach for going beyond panaceas. *Proceedings of the national Academy of sciences*, *104*(39), 15181-15187. Aligica, Paul Dragos and Peter J. Boettke. *Challenging Institutional Analysis and Development: the Bloomington School*. London: Routledge, 2009. Part I, Chapter 1, "Political Economy, Polycentricity and the Metropolitan Reform Debate" (pages 7–29). Part III, Chapter 6, "Public Policy Analysis, Public Choice, and the Old 'New Science of Politics'" (pages 116–136), "Conclusions" (pages 137–141), and "PostScript: Rethinking institutional analysis and development. Dialogues with Vincent and Elinor Ostrom" (pages 142-159). Anderies, J. M., Janssen, M. A., & Ostrom, E. (2004). A framework to analyze the robustness of social-ecological systems from an institutional perspective. *Ecology and society*, *9*(1). Thorén, H., & Olsson, L. (2018). Is resilience a normative concept?. *Resilience*, *6*(2), 112-128.

PhD research field:	***Political Science***
Title:	**Social media at the junction of media and political engagements**
Name of PhD supervisor: Link to CV on website email:	**Radu CARP** https://doctorat.unibuc.ro/wp-content/uploads/2019/12/l.-CV-Radu-Carp.pdf radu.carp@fspub.unibuc.ro
Short description of the topic (150-200 words):	For details, please contact prof. Radu CARP.
Special requirements from the student:	The candidate is expected to hold knowledge in media, international relations and cultural diplomacy.
Selective bibliography (4-6 references):	Benkler, Y. (2006). The wealth of networks: How social production transforms markets and freedom. Yale University Press. Chadwick, A. (2017). The hybrid media system: Politics and power (2nd ed.). Oxford University Press. https://doi.org/10.1093/oxfordhb/9780199935307.013.6 Eady, G., Nagler, J., Guess, A., Zilinsky, J., & Tucker, J. A. (2025). How many people live in political bubbles on social media? Evidence from linked survey and Twitter data. Political Analysis. https://doi.org/10.1017/pan.2024.XX Gilardi, F., Gessler, T., Kubli, M., & Müller, S. (2022). Social media and political agenda setting. Political Communication, 39(6), 717–740. https://doi.org/10.1080/10584609.2021.1910390

Interdisciplinary research Training Group:	**Diaspora Studies**
PhD research field:	***Political Science***
Title:	**Identity politics and diaspora issues in countries neighboring Romania - political and cultural aspects**
Name of PhD supervisor: Link to CV on website email:	**Radu CARP** https://doctorat.unibuc.ro/wp-content/uploads/2019/12/l.-CV-Radu-Carp.pdf radu.carp@fspub.unibuc.ro
Short description of the topic (150-200 words):	For details, please contact prof. Radu CARP.
Special requirements from the student:	
Selective bibliography (4-6 references):	

PhD research field:	***Psychology***
Title:	**Physician- and Patient-related factors implicated in the Experience of Pain**
Name of PhD supervisor: Link to CV on website email:	**Cezar GIOSAN** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ cezar.giosan@fpse.unibuc.ro
Short description of the topic (150-200 words):	This research area focuses on understanding pain as a multidimensional phenomenon shaped by both individual patient characteristics and broader clinical and healthcare system factors. On the patient side, this includes examining behavioral, cognitive, emotional, and biopsychosocial variables that contribute to variability in pain perception, coping, and functional outcomes. Approaches may integrate contemporary psychological frameworks - including cognitive-behavioral and emerging theoretically informed models - to better characterize individual differences in adaptation to pain. On the provider side, this topic encompasses the roles of different medical and mental health specialties in the assessment and management of pain, as well as the dynamics of interdisciplinary care. Areas of interest include physician perspectives on treatment responsibility, coordination across specialties, and structural or attitudinal barriers that may influence care delivery and patient outcomes. Taken together, this line of research aims to bridge patient-level and provider-level determinants of pain, with the goal of informing more integrated, effective, and personalized approaches to pain management.
Special requirements from the student:	The candidate is expected to hold knowledge in Psychology.
Selective bibliography (4-6 references):	1. Giosan, C., Cobeanu, O., Wyka, K., Muresan, V., Mogoase, C., Szentagotai, A., ... & Moldovan, R. (2020). Cognitive evolutionary therapy versus standard cognitive therapy for depression: A single-blinded randomized clinical trial. Journal of Clinical Psychology, 76(10), 1818-1831. 2. Giosan, C., Cobeanu, O., Wyka, K., Mureşan, V., Mogoaşe, C., Szentagotai, A., Malta, L.S., & Moldovan, R. (2020). Cognitive evolutionary therapy versus standard cognitive therapy for depression: A randomized clinical trial. Journal of Clinical Psychology 76, 1818-1831. DOI:10.1002/jclp.22991.

	3. Giosan, C., Muresan, V., & Moldovan, R. (2014). Cognitive evolutionary therapy for depression: a case study. Clinical case reports, 2(5), 228. 4. Cezar Giosan (2020). Cognitive Evolutionary Therapy for Depression. Springer International Publishing. https://doi.org/10.1007/978-3-030-38874-4. 5. Tan, G., Jensen, M. P., Thornby, J. I., & Shanti, B. F. (2004). Validation of the Brief Pain Inventory for chronic nonmalignant pain. The journal of pain, 5(2), 133-137. 6. Rogers, A. H., & Farris, S. G. (2022). A meta-analysis of the associations of elements of the fear-avoidance model of chronic pain with negative affect, depression, anxiety, pain-related disability and pain intensity. European Journal of Pain, 26(8), 1611-1635. 7. de C Williams, A. C., Fisher, E., Hearn, L., & Eccleston, C. (2020). Psychological therapies for the management of chronic pain (excluding headache) in adults. Cochrane database of systematic reviews, (8). 8. Goesling, J., Lin, L. A., & Clauw, D. J. (2018). Psychiatry and pain management: at the intersection of chronic pain and mental health. Current psychiatry reports, 20(2), 12.

Interdisciplinary research Training Group:	**HES**
PhD research field:	***Educational science***
Title:	**Innovative pedagogies in higher education: new (digitally-enhanced) learning ecosystems and flexible learning pathways**
Name of PhD supervisor: Link to CV on website email:	**Lucian-Ion CIOLAN** https://unibuc.ro/wp-content/uploads/2023/01/CV-Lucian-Ion-Ciolan-2022-1.pdf lucian.ciolan@unibuc.ro
Short description of the topic (150-200 words):	**The topic** examines how universities are redesigning teaching and learning to respond to changing student needs, digital transformation, and lifelong learning demands. The main focus is on pedagogical approaches that move beyond traditional lecture-based models toward more active, student-centred, collaborative, experiential, inclusive, and technology-supported forms of learning. Digitally enhanced learning ecosystems combine online platforms, blended learning, learning analytics, open educational resources, immersive tools, and flexible assessment methods to create more personalized and connected learning experiences. At the same time, flexible learning pathways support students through modular curricula, micro-credentials, alternative access routes, recognition of prior learning, and adaptable study formats. Together, these developments challenge universities to rethink curriculum design, teacher roles, student agency, quality assurance, and institutional strategy.
Special requirements from the student:	The candidate is expected to hold knowledge in Educational Sciences, Psychology, Cognitive Sciences or other field, but holding a teaching certification / teacher education degree.
Selective bibliography (4-6 references):	**Gaebel, M., & Morrisroe, A. (2023).** *The future of digitally enhanced learning and teaching in European higher education institutions: Final report.* European University Association. **Martin, M., & Furiv, U. (2022).** *SDG-4: Flexible learning pathways in higher education – from policy to practice: An international comparative analysis.* UNESCO International Institute for Educational Planning. **Ciolan, L., Iucu, R., Nedelcu, A., Mironov, C., & Carțiș, A. (2021).** *Innovative pedagogies: Ways into the process of learning transformation.* CIVIS European University. **Ciolan, L., & Manasia, L. (2026).** *Picturing innovation in higher education: A photovoice study of innovative pedagogies.* **Active Learning in Higher Education, 27**(1), 167–197. https://doi.org/10.1177/14697874241245350

Interdisciplinary research Training Group:	**HES**
PhD research field:	***Educational science***
Title:	**Policy-making futures in higher education: transformation and challenges**
Name of PhD supervisor: Link to CV on website email:	**Lucian-Ion CIOLAN** https://unibuc.ro/wp-content/uploads/2023/01/CV-Lucian-Ion-Ciolan-2022-1.pdf lucian.ciolan@unibuc.ro
Short description of the topic (150-200 words):	**The topic** addresses the need for future-oriented policies that support more inclusive, flexible, digitally enabled, and sustainable universities. It explores how institutions and governments can redesign governance, funding, curricula, quality assurance, international cooperation, and student pathways in response to new expectations from learners, labour markets, and society. Key transformations include the rise of micro-credentials, lifelong learning, digital education, flexible study programmes, and new forms of collaboration across universities and regions. At the same time, policy-makers face major challenges: inequality of access, financial instability, demographic change, technological disruption, geopolitical uncertainty, and the need to preserve the public value of higher education. Overall, the topic invites reflection on how higher education policy can move from reactive reform toward strategic, anticipatory transformation.
Special requirements from the student:	The candidate is expected to hold knowledge in Education / Educational Sciences / Higher Education.
Selective bibliography (4-6 references):	**UNESCO. (2022).** *Beyond limits: New ways to reinvent higher education.* UNESCO. **Gaebel, M., Zhang, T., & Stoeber, H. (2024).** *Trends 2024: European higher education institutions in times of transition.* European University Association. **OECD. (2024).** *Education at a glance 2024: OECD indicators.* OECD Publishing. doi:10.1787/c00cad36-en **Iucu, R. B., Ciolan, L., Nedelcu, A., & Carțiș, A. (2021).** *Why micro-credentials should become educational "macro-policies" for defining the future European study programmes.* University of Bucharest / CIVIS European University. https://doi.org/10.5281/zenodo.6088135

Interdisciplinary research Training Group:	**HES**
PhD research field:	***Educational science***
Title:	**European academic diplomacy: a new approach to reflexivity in higher education**
Name of PhD supervisor: Link to CV on website email:	**Romiță IUCU** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ romita.iucu@unibuc.ro
Short description of the topic (150-200 words):	For details, please contact prof. Romiță Iucu
Special requirements from the student:	The candidate is expected to hold knowledge in Educational science.
Selective bibliography (4-6 references):	

Interdisciplinary research Training Group:	**HES**
PhD research field:	***Educational science***
Title:	**New European Degree: a co-creative, transformative, and flexible approach to Europeanisation in higher education**
Name of PhD supervisor: Link to CV on website email:	**Romiță IUCU** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ romita.iucu@unibuc.ro
Short description of the topic (150-200 words):	For details, please contact prof. Romiță Iucu
Special requirements from the student:	The candidate is expected to hold knowledge in Educational science.
Selective bibliography (4-6 references):	

Interdisciplinary research Training Group:	**HES**
PhD research field:	***Educational Sciences***
Title:	**Model analysis in higher education policy**
Name of PhD supervisor: Link to CV on website email:	**Liviu MATEI** https://www.kcl.ac.uk/people/dr-liviu-matei liviu.matei@kcl.ac.uk
Short description of the topic (150-200 words):	The concept of "model" is employed frequently and in a variety of ways in higher education studies. There are a few well-reputed, almost universally known "models" which have been used for several decades, such as Clark's triangle model of coordination or the Triple Helix model of innovation. A systematic mapping of the uses of models and model analysis in higher education is not currently available. The concept of "model" is usually employed as a heuristic lens, or lenses, within diverse theoretical perspectives and methodological approaches, in a myriad of studies focusing on a plethora of phenomena at different levels (from micro to macro) and of different magnitudes. Furthermore, it is applied to different forms of activity and organisation in higher education. Is a "model" a singular type of lens, or is the overall picture rather one of compound lenses of different epistemic natures and statuses? This innovative topic proposes a systematic study of the diverse uses of models in higher education studies, brought together under the unifying umbrella of the concept of *model analysis*, which can be discussed and redefined separately for this purpose, addressing questions such as: 1. What is model analysis in higher education? 2. Is it possible to draw a comprehensive map of model analysis in higher education? 3. How can this map be used to promote new research and move the frontier of knowledge in higher education further?
Special requirements from the student:	No special requirements
Selective bibliography (4-6 references):	1. Tight, M . (2012). Researching Higher Education 2. Morgan, M. S. and Morrison, M. (Eds.). (1999). Models as Mediators: Perspectives on Natural and Social Science 3. Clark, B.R. (1983). The Higher Education System: Academic Organization in Cross-National Perspective 4. Gornitzka, A. and Maassen, P. (2000). Hybrid steering approaches with respect to European higher education. 5. Marginson, S. (2018). The UK in the global student market: Second place for how much longer?

Interdisciplinary research Training Group:	**HES**
PhD research field:	***Educational Sciences***
Title:	**Can universities help to address the crisis in democracy?**
Name of PhD supervisor: Link to CV on website email:	**Liviu MATEI** https://www.kcl.ac.uk/people/dr-liviu-matei liviu.matei@kcl.ac.uk
Short description of the topic (150-200 words):	The contemporary crisis in democracy has been extensively studied. This topic invites the particular question whether universities can help to address the crisis in democracy, not just study it, and, if yes, how. Research on this topic could involve putting together a critical inventory of methods, techniques and types of action in universities that can be recognised, where available, as directly meant to contribute to addressing the crisis in democracy. This inventory includes, potentially, dedicated educational strategies and initiatives (some quite traditional, like civic education, others more recent and innovative, including digital components), research initiatives, advocacy, and public engagement models. Second, one could investigate into and, develop a framework for, assessing the appropriateness and potential impact of varying methods, techniques and types of institutional action, taken individually and in their combinations in various concrete settings. A thesis on this subject could discuss further whether new modalities of engagement by universities in addressing the crisis of democracy are necessary and possible, considering both immediate and longer-term challenges in this area.
Special requirements from the student:	No special requirements
Selective bibliography (4-6 references):	Biesta, G. J. J. (2018). Obstructing democracy or opening up the democratic space? The public role of the university in a new key. Journal of Philosophy of Education, 52(3), 444-456. Parker, W. C. (2017). Educating for Democratic Citizenship: A Guide to the Theory and Practice of Democratic Education. Teachers College Press Fitzgerald, H. E., Bruns, D. A., Sonka, S. T., & Furco, A. (2016). The engaged university: Defining a different academic social contract. Higher Education in Review, 1(1), 1-17. Dzur, A. W. (2016). Democracy as Public Work: How to Create a Citizens' Professional Ethic. Kansas University Press. Matei, L. (2023). 'The Iron Veil: universities and democracy at the beginning of the 21st century'. In Sjur, B., Harkavy, I. & Munk, R. (eds.). Higher Education Leadership for democracy, sustainability and social justice. Strasbourg: Council of Europe, Higher Education Series No. 26. pp. 57-66

Interdisciplinary research Training Group:	**HES**
PhD research field:	***Educational Sciences***
Title:	**Fundamental values of higher education - conceptualization, codification, monitoring, and practice**
Name of PhD supervisor: Link to CV on website email:	**Liviu MATEI** https://www.kcl.ac.uk/people/dr-liviu-matei liviu.matei@kcl.ac.uk
Short description of the topic (150-200 words):	The contemporary crisis in democracy has been extensively studied. This topic invites the particular question whether universities can help to address the crisis in democracy, not just study it, and, if yes, how. Research on this topic could involve putting together a critical inventory of methods, techniques and types of action in universities that can be recognised, where available, as directly meant to contribute to addressing the crisis in democracy. This inventory includes, potentially, dedicated educational strategies and initiatives (some quite traditional, like civic education, others more recent and innovative, including digital components), research initiatives, advocacy, and public engagement models. Second, one could investigate into and, develop a framework for, assessing the appropriateness and potential impact of varying methods, techniques and types of institutional action, taken individually and in their combinations in various concrete settings. A thesis on this subject could discuss further whether new modalities of engagement by universities in addressing the crisis of democracy are necessary and possible, considering both immediate and longer-term challenges in this area.
Special requirements from the student:	No special requirements
Selective bibliography (4-6 references):	Biesta, G. J. J. (2018). Obstructing democracy or opening up the democratic space? The public role of the university in a new key. Journal of Philosophy of Education, 52(3), 444-456. Parker, W. C. (2017). Educating for Democratic Citizenship: A Guide to the Theory and Practice of Democratic Education. Teachers College Press Fitzgerald, H. E., Bruns, D. A., Sonka, S. T., & Furco, A. (2016). The engaged university: Defining a different academic social contract. Higher Education in Review, 1(1), 1-17. Dzur, A. W. (2016). Democracy as Public Work: How to Create a Citizens' Professional Ethic. Kansas University Press. Matei, L. (2023). 'The Iron Veil: universities and democracy at the beginning of the 21st century'. In Sjur, B., Harkavy, I. & Munk, R. (eds.). Higher Education Leadership for democracy, sustainability and social justice. Strasbourg: Council of Europe, Higher Education Series No. 26. pp. 57-66

Interdisciplinary research Training Group:	**Diaspora Studies**
PhD research field:	***Philology***
Title:	**Representations of diaspora in ancient and modern literature**
Name of PhD supervisor: Link to CV on website email:	**Liviu PAPADIMA** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ liviu.papadima@unibuc.ro
Short description of the topic (150-200 words):	For details, please contact prof. Liviu PAPADIMA.
Special requirements from the student:	
Selective bibliography (4-6 references):	

Interdisciplinary research Training Group:	**Diaspora Studies**
PhD research field:	***Philology***
Title:	**Diaspora and exile experienced by artist and humanistic academics**
Name of PhD supervisor: Link to CV on website email:	**Liviu PAPADIMA** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ liviu.papadima@unibuc.ro
Short description of the topic (150-200 words):	For details, please contact prof. Liviu PAPADIMA.
Special requirements from the student:	
Selective bibliography (4-6 references):	

Interdisciplinary research Training Group:	**Diaspora Studies**
PhD research field:	***Philology***
Title:	**Immigration traumas and survival strategies in modern world literature**
Name of PhD supervisor: Link to CV on website email:	**Liviu PAPADIMA** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ liviu.papadima@unibuc.ro
Short description of the topic (150-200 words):	For details, please contact prof. Liviu PAPADIMA.
Special requirements from the student:	
Selective bibliography (4-6 references):	

PhD research field:	***Philology***
Title:	**Structuralism: from Saussure's linguistics to social sciences**
Name of PhD supervisor: Link to CV on website email:	**Emil IONESCU** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ emil.ionescu@litere.unibuc.ro
Short description of the topic (150-200 words):	The fields targeted are structural anthropology (Levi-Strauss), structuralist Marxism (Louis Althusser) and structural sociology of literature (Lucien Goldmann). The aim of this proposal (a conceptual archaeology proposal) is to establish whether there was a line or lines of filiation from Ferdinand De Saussure's framework of thought in linguistics towards fields that explicitly showed their attachment to structuralism**.**
Special requirements from the student:	For details, please contact prof. Emil IONESCU.
Selective bibliography (4-6 references):	

Interdisciplinary research Training Group:	**Diaspora Studies**
PhD research field:	***Sociology***
Title:	**Communities and regions in the origin country as roots of specific diaspora from the same country**
Name of PhD supervisor: Link to CV on website email:	**Dumitru SADU** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ dumitru.sandu@gmail.com
Short description of the topic (150-200 words):	For details, please contact prof. Dumitru SANDU.
Special requirements from the student:	
Selective bibliography (4-6 references):	

Interdisciplinary research Training Group:	**Diaspora Studies**
PhD research field:	***Sociology***
Title:	**Intra-European transnational social spaces of diaspora: quantitative approaches**
Name of PhD supervisor: Link to CV on website email:	**Dumitru SADU** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ dumitru.sandu@gmail.com
Short description of the topic (150-200 words):	For details, please contact prof. Dumitru SANDU.
Special requirements from the student:	
Selective bibliography (4-6 references):	

Interdisciplinary research Training Group:	**Diaspora Studies**
PhD research field:	***Philology***
Title:	**Le roumain comme langue de migration et langue d'héritage: étude des registres et des genres discursifs**
Name of PhD supervisor: Link to CV on website email:	**Rodica ZAFIU** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ rodica.zafiu@litere.unibuc.ro
Short description of the topic (150-200 words):	For details, please contact prof. Rodica ZAFIU.
Special requirements from the student:	
Selective bibliography (4-6 references):	

Interdisciplinary research Training Group:	**Diaspora Studies**
PhD research field:	***Philology***
Title:	**Le roumain comme langue d'héritage dans la littérature contemporaine**
Name of PhD supervisor: Link to CV on website email:	**Rodica ZAFIU** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ rodica.zafiu@litere.unibuc.ro
Short description of the topic (150-200 words):	For details, please contact prof. Rodica ZAFIU.
Special requirements from the student:	
Selective bibliography (4-6 references):	

PhD research field:	***Philosophy***
Title:	**Philosophical Concepts and Digital Transformations**
Name of PhD supervisor: Link to CV on website email:	**Mihnea DOBRE** https://unibuc.ro/user/mihnea.dobre/?profiletab=documents mihnea.dobre@unibuc.ro
Short description of the topic (150-200 words):	Digital tools and workflows are nowadays reshaping traditional understanding of key concepts that were framed during the early modern period. Founded at the intersection of the birth of the modern science and the emergence of a new philosophy, such concepts were instrumental in the history of philosophy (and science). A thesis on this topic can explore conceptual change – with focus on one or more philosophical concepts, starting from the historical setting – in light of current digital transformations.
Special requirements from the student:	The candidate is expected to hold knowledge in philosophy and have an interest in either digital transformations or digital humanities approaches.
Selective bibliography (4-6 references):	David Bates, *An Artificial History of Natural Intelligence. Thinking with Machines from Descartes to the Digital Age*, University of Chicago Press, 2024. Jo Guldi, *The Dangerous Art of Text Mining: A Methodology for Digital History*, Cambridge University Press, 2023. Justin Smith, *The Internet Is Not What You Think It Is. A History a Philosophy a Warning*, Princeton University Press, 2022. Bolla, Peter de, ed. *Explorations in the Digital History of Ideas: New Methods and Computational Approaches*, Cambridge University Press, 2024.

Interdisciplinary research Training Group:	**HES**
PhD research field:	***History***
Title:	**Patterns of academic careers**
Name of PhD supervisor: Link to CV on website email:	**Bogdan MURGESCU** https://unibuc.ro/wp-content/uploads/2026/04/Murgescu-Bogdan-CV-europass-EN-2025-11.pdf bogdan.murgescu@istorie.unibuc.ro
Short description of the topic:	Globalization, digitalization and post-modern institutional arrangements impact significantly higher education, both at institutional level and at the level of teaching & learning processes. Distance learning, Massive Open Online Courses and AI put into question the role of classical teachers, and demand from faculty major adjustments. Academic careers also change significantly. The thesis should combine empirical research with systemic reflection on the different patterns of academic careers in various institutions and higher education systems. Comparative approaches are particularly welcome.
Special requirements from the student:	Interest in social history and in the institutional arrangements of higher education.
Selective bibliography (4-6 references):	https://education.ec.europa.eu/education-levels/higher-education/european-universities-initiative Tony Becher and Paul Trowler, *Academic Tribes And Territories: Intellectual Enquiry and the Culture of Disciplines*, Philadelphia, Open University Press, 2001. Pierre Bourdieu, *Homo academicus*, Paris, Les Éditions de minuit, 1984. English version available online at https://monoskop.org/images/4/4f/Pierre_Bourdieu_Homo_Academicus_1988.pdf European Education and Culture Executive Agency, Eurydice, *The European higher education area in 2024 – Bologna process implementation report*, Publications Office of the European Union, 2024, https://data.europa.eu/doi/10.2797/483185 Andrew Gunn, *Public Policy and Universities. The Interplay of Knowledge and Power*, Cambridge: Cambridge University Press, 2022.

Interdisciplinary research Training Group:	**NR-SES**
PhD research field:	***History***
Title:	**Sharing Revenues from the Extraction of Natural Resources. Case Study**
Name of PhD supervisor: Link to CV on website email:	**Bogdan MURGESCU** https://unibuc.ro/wp-content/uploads/2026/04/Murgescu-Bogdan-CV-europass-EN-2025-11.pdf bogdan.murgescu@istorie.unibuc.ro
Short description of the topic:	Natural resources are an element which massively shapes economic and social development. A significant line of analysis outlines „the curse of natural resources", while other scholars insist on the possibility to build up inclusive institutions and to turn the endowment in natural resources into an economic and social asset. The thesis should analyse the institutional arrangements regarding revenue sharing between economic operators, nation-states and local communities in a concrete setting to the choice of the doctoral candidate.
Special requirements from the student:	Interest in economic history
Selective bibliography (4-6 references):	Richard Auty, *Sustaining Development in Mineral Economies. The Resource Curse Thesis*, London and New York, Routledge, 1993. Marc Badia-Miró, Vicente Pinilla and Henry Willebald (eds.), *Natural resources and economic growth : learning from history*, London and New York, Routledge, 2015. Matthew Fairs, "Oil income and the personalization of autocratic policies". *Political Science Research and Methods*. 2020, 8 (1): 772–779. doi:10.1017/psrm.2019.14. S2CID 159372031. Macartan Humphreys, Jeffrey D. Sachs and Joseph E. Stiglitz (eds.), *Escaping the Resource Curse*, New York: Columbia University Press, 2007. Andreas R. Dugstad Sanders, Pål Thonstad Sandvik and Espen Storli, *The Political Economy of Resource Regulation: An International and Comparative History, 1850-2015*, University of British Columbia Press, 2019.

Interdisciplinary research Training Group:	**NR-SES**
PhD research field:	***History***
Title:	**History of the Crivina Power Station**
Name of PhD supervisor: Link to CV on website email:	**Bogdan MURGESCU** https://unibuc.ro/wp-content/uploads/2026/04/Murgescu-Bogdan-CV-europass-EN-2025-11.pdf bogdan.murgescu@istorie.unibuc.ro
Short description of the topic (150-200 words):	The Crivina (Anina) power station, located in the Anina Mountains, Caraș-Severin County, represented one of the most important industrial objectives of Communist Romania, with three generating units of 330 MW each. Based on Early Jurassic bituminous shales extracted in situ from Anina as its sole energy source, the powerplant was short lived in spite of the major investments, due to the poor quality of the fuel, difficult planning and ignored research and development.
Special requirements from the student:	Interest in economic history and the management of natural resources.
Selective bibliography (4-6 references):	Constantinescu, E., Anastasiu, N., 2019. *Resursele minerale ale României. Vol. III. Resurse energetice*. Bucureşti: Editura Academiei Române, 647. Feneşan, C., Graf, R., Zaberca, V.M., Popa, I., 1991. *Din istoria cărbunelui*. Anina 200. Reşiţa: Muzeul de istorie al Judeţului Caraş-Severin. Freese, B., 2006. *Coal. A human history*. London: Arrow Books. Grasu, C., Miclăuş, C., Florea, F., Şaramet, M., 2007. Geologia şi valorificarea economică a rocilor bituminoase din România. Iaşi: Editura Universităţii "Al. I. Cuza". Mosoroceanu, C.-L., Steierdorf-Anina. *Minerul, într-al sorţii joc!* Timişoara: Trustul de presă "Magazin". Popa, M.E., Predeanu, G., 2018. Coals of Romania: Geology, petrology and use. *International Journal of Coal Geology* 200, 103-122.

Interdisciplinary research Training Group:	**Diaspora Studies**
PhD research field:	***Theology***
Title:	**Transnational religion vs. secularization: Comparative analysis of "multiple secularities" (Europe/North America) against religious vitality/adaptation (Africa/Asia/Global South diasporas); digital hybridity and "relocations of religion"**
Name of PhD supervisor: Link to CV on website email:	**Otniel BUNACIU** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ otniel.bunaciu@g.unibuc.ro
Short description of the topic (150-200 words):	For details, please contact prof. Otniel BUNACIU.
Special requirements from the student:	
Selective bibliography (4-6 references):	

Interdisciplinary research Training Group:	**Diaspora Studies**
PhD research field:	***Theology***
Title:	**Religious diasporas as agents of change: Role in development, integration, and contestations (e.g., Muslim/Christian/Pentecostal networks; ATR reclamation; policy impacts on religious freedom)**
Name of PhD supervisor: Link to CV on website email:	**Otniel BUNACIU** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ otniel.bunaciu@g.unibuc.ro
Short description of the topic (150-200 words):	For details, please contact prof. Otniel BUNACIU.
Special requirements from the student:	
Selective bibliography (4-6 references):	

Interdisciplinary research Training Group:	**Diaspora Studies**
PhD research field:	***Theology***
Title:	**Policy and public life intersections: Secular state challenges, multiculturalism, and diaspora engagement strategies (voting, remittances via faith institutions)**
Name of PhD supervisor: Link to CV on website email:	**Otniel BUNACIU** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ otniel.bunaciu@g.unibuc.ro
Short description of the topic (150-200 words):	For details, please contact prof. Otniel BUNACIU.
Special requirements from the student:	
Selective bibliography (4-6 references):	

Interdisciplinary research Training Group:	**Diaspora Studies**
PhD research field:	***Theology***
Title:	**Identity, hybridity, and generational shifts: Youth diasporas, spirituality beyond affiliation, and responses to host-country secularism (e.g., P-I-B model applied transnationally)**
Name of PhD supervisor: Link to CV on website email:	**Otniel BUNACIU** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ otniel.bunaciu@g.unibuc.ro
Short description of the topic (150-200 words):	For details, please contact prof. Otniel BUNACIU.
Special requirements from the student:	
Selective bibliography (4-6 references):	

Interdisciplinary research Training Group:	**Diaspora Studies**
PhD research field:	***Theology***
Title:	**Diaspora types: Athens, Jerusalem, Alexandria**
Name of PhD supervisor: Link to CV on website email:	**Otniel BUNACIU** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ otniel.bunaciu@g.unibuc.ro
Short description of the topic (150-200 words):	For details, please contact prof. Otniel BUNACIU.
Special requirements from the student:	
Selective bibliography (4-6 references):	

Interdisciplinary research Training Group:	**Diaspora Studies**
PhD research field:	***Theology***
Title:	**Diaspora and the porosity of national literatures**
Name of PhD supervisor: Link to CV on website email:	**Otniel BUNACIU** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ otniel.bunaciu@g.unibuc.ro
Short description of the topic (150-200 words):	For details, please contact prof. Otniel BUNACIU.
Special requirements from the student:	
Selective bibliography (4-6 references):	

Interdisciplinary research Training Group:	**Diaspora Studies**
PhD research field:	***Theology***
Title:	**Writing from afar in more languages than one**
Name of PhD supervisor: Link to CV on website email:	**Otniel BUNACIU** https://isds.unibuc.ro/interdisciplinary-research-training-groups/organization/ otniel.bunaciu@g.unibuc.ro
Short description of the topic (150-200 words):	For details, please contact prof. Otniel BUNACIU.
Special requirements from the student:	
Selective bibliography (4-6 references):	