

CURRENT LIST OF TOPICS IN 2017, DOCTORAL SCHOOL OF EARTH SCIENCES

<i>supervisor</i>	<i>supervisor's e-mail address</i>	<i>topic</i>	<i>description</i>	<i>place of research</i>	<i>knowledge of English required</i>	<i>knowledge of other language appreciated</i>	<i>professional requirements</i>
Eva Izsák	eva.izsak@gmail.com	The natural and social factors of the transformation of urban spaces	Students learn in this course about the definitions of environment, its contents and different interpretations (especially with the definition of social environment). During the practices we examine the relations between the natural and social environment, by demarcation. In this context I represent the natural and social effects of the urban development in case of Budapest	Department of Regional Science, ELTE	fluent; at least B2 level	German level B2	
Henrik Hargitai	hhargitai@gmail.com	Planetary mapping: morphologic characterization and survey of distribution of terrain types on Mars	Students will use the gridded mapping technique to map terrain types on Mars zonally, utilizing HiRISE images at 25 cm/pixel resolution.	ELTE Department of Physical Geography	Reading and writing technical text		
Tamás Egedy	egedy@gmx.net	Current trends and impacts of the urban regeneration in Hungary and Budapest	The topic provides research possibilities on urban regeneration in Hungary. Focus of research should be on regional tendencies and urban processes taking place in Hungary and the major cities, especially in Budapest. First of all researches regarding the built and social environments of renewed neighbourhoods are welcome in this topic.	Hungarian Academy of Sciences, Geographical Institute	at least B2 level		
Tamás Egedy	egedy@gmx.net	Geographical aspects of creative and innovative economies	Researches carried out in this topic focus on geographical aspects of current development tendencies taking place in the creative and innovative sectors (in Hungary). It is also possible to investigate the development tendencies in different regions and major cities of Hungary. Researches focusing on the creative economy of Budapest are welcome in this topic as well.	Hungarian Academy of Sciences, Geographical Institute	at least B2 level		
Tamás Egedy	egedy@gmx.net	Development and challenges of housing estates after the change of regime - Eastern European perspectives	The topic focuses on the current development tendencies taking place in the built and social environments of housing estates. Special emphasis is on the social impacts of the regeneration processes in (high-rise) housing estates. Regional comparative studies can be carried out between similar housing estate generations located in the major cities of Eastern European cities.	Hungarian Academy of Sciences, Geographical Institute	at least B2 level		

Viktória Kovács Kis and Tibor Németh	kis.viktoria@energia.elte.hu	Transmission electron microscopy of mineral nanoparticles in the environment	Transmission electron microscopy (TEM) methods have a paramount role in the investigation of mineral nanoparticles and nanominerals of environmental importance (e.g. clay minerals, poorly crystalline Fe-(oxy) hydroxide, atmospheric nanoparticles). During the research programme the PhD candidate will investigate mineral structures and reactions at the nanometre scale, in close collaboration with the research group of Dr. Péter Sipos at Institute for Geological and Geochemical Research, HAS with the aim of a deeper understanding of their behaviour and environmental impact. His/her task will be to gain experience in the setup and working principles of the TEM, sample requirements and sample preparation methods, to plan and realize experiments independently. The exact research topic will be outlined after personal interview with the candidate.	Centre for Energy Research, Hungarian Academy of Sciences (MTA EK)	at least B2 level		
Ferenc Gyuris	gyurisf@caesar.elte.hu	New approaches to spatial disparity research	Remarkable social, economic, and political changes at the global scale have resulted in the last decades in massively increasing academic interest in spatial disparities. A great number of new issues have emerged, which opened the floor in human geography to intensifying utilisation of research results and methods from other disciplines. More attention is paid to investigating the geographical and historical context of contemporary inequalities, processes at various geographical scales, and the link between local and global tendencies. It has become a major goal to reveal the power structures responsible for the emergence and maintenance of inequalities and to identify the institutional means and communication strategies various actors make use of in order to present even large disparities as tolerable. Great emphasis is placed on analysing the normative and subjective aspects of inequalities actually lived by individuals and communities in their micro-scale contexts. Applications are expected from students to carry out a research project on spatial disparities in the above presented framework, even with special emphasis on one of the aspects mentioned. The exact research topic will be fixed upon discussion with the applicant.	Eötvös Loránd University, Institute of Geography and Earth Sciences, Department of Regional Science	at least B2 level		Solid research experience in investigating socio-spatial inequalities; processing & synthesising a great amount of multidisciplinary literature. (Proficiency in another language, former involvement in related academic activities are welcome.)
Csaba Szabó	cszabo@elte.hu	Role of fluids in peridotites from ophiolites	The project hints to describe, analyze and identify fluids, occurring in volatile-bearing minerals and as fluid inclusions, and to figure out their sources, migrations, transportations and interactions with constituents of ophiolites, which were previously studied tectonically and structurally.	Lithosphere Fluid Research Lab, Institute of Geography and Earth Science, Eötvös Loránd University	at least B2 level		MSc thesis in geology, previous experience in field work, sampling and petrographic microscopy

Márton Berki	berkimarton@yahoo.com	New approaches to cultural geography in Central and Eastern Europe	From 1989 onwards, the politico-economic transition of Central and Eastern European countries undoubtedly brought a conceptual diversification in terms of the approaches to human geography; nonetheless, as a significant (and still existing) theoretical and empirical research gap, the sub-discipline of cultural geography was largely left untouched by these changes. Although 'new cultural geography' turned out to be one of the most vital fields of human geography from the 1980s, geographers of Central and Eastern European countries placed relatively little emphasis on research foci associated with it (such as the questions of identities and the body, subcultures, the practices of everyday life, landscape iconography, artistic representations and so forth). In the course of this PhD study, in order to fill this gap, the applicant should: (i) either be mapping the different disciplinary histories and trajectories of cultural geography in the Anglo-American and the Central and Eastern European contexts, or (ii) carrying out empirical work connected to research topics associated with 'new cultural geography' or more contemporary (non-representational and more-than-representational) cultural geography.	Eötvös Loránd University, Institute of Geography and Earth Sciences, Department of Social and Economic Geography	at least B2 level		
Ferenc Fodor	ferenc.fodor@ttk.elte.hu	Effect of nanoparticles on plant productivity and metabolism	Production and industrial utilization of manufactured nanoparticles has been increasing rapidly in the last decade. It is inevitable that a considerable fraction of the total produced nanoparticles will finally find its way from the industry and consumer products to different environmental compartments such as air, water and soil. Despite growing concerns regarding the environmental risks of nanoparticles, as of today's knowledge about their transport, possible transformations, final fate and concentration in the ecosystems is scarce. In this program various nanoparticles are tested to characterize their effect on plant productivity and metabolism through different exposition ways. Both potential toxicity and stimulatory effects are evaluated especially for new nanoparticles manufactured for using as fertilizers.	Eötvös Loránd University, Institute of Biology, Department of Plant Physiology and Molecular Plant Biology	at least B2 level		basic knowledge in plant physiology and or plant nutrition
Judit Bartholy and Rita Pongrácz	bartholy@caesar.elte.hu , prita@nimbus.elte.hu	Impact of Climate Change and Land Use On Water Balance at Brantas Watershed East Java Indonesia	Population growth and development result in important consequences in land use, which evidently affects hydrological processes, and thus, the regional/local water resources. To predict the magnitude of the impact of climate change and land-use needs computer-based analytical models. The research aims to estimate the future hydrological parameters of an Indonesian specific region, i.e. Brantas Watershed, for which global climate models are used as an input, and various statistical tools are used in the methodology. After evaluating the water balance of Brantas Watershed area today, an assessment is prepared to predict the changes of water balance at river basin area and upstream Brantas watershed. The expected results of this research can be used by decision makers for watershed management efforts to adapt to regional climate change and land-use changes.	Eötvös Loránd University, Department of Meteorology	intermediate		MSc in a related field

Ágnes Görög	gorog@ludens.elte.hu	Biostratigraphy, palaeoenvironmental and palaeobiogeographical interpretations on the basis of microfossils	The different microfossils (e.g. foraminifera, calcareous algae, pollen and spores) are the most applicable fossil group or the biostratigraphic study, palaeoenvironmental and palaeobiogeographical interpretations. Their advantage is that there are large quantities in a variety of rocks and there are several methods to extract them for the studies. The evolution rate of several microfossil group were quick and their biozonations are well developed serving the correlations for local, regional even global scale. One of the best palaeoenvironmental indicators are different microfossils (e.g. Foraminifera, calcareous algae, pollen and spores). On the basis of previous investigations a number of so-called "proxies" have been developed, which can be used to estimate the ancient marine, freshwater and terrestrial environmental parameters as water depth, salinity, temperature, amounts of dissolved oxygen, light and nutrient etc. The age and the sedimentary environment of the rocks are the fundamental for the further structural geology, tectonical, palaeobiogeographical studies and for hydrocarbon mineral and water researches. During the work material (rocks with fossils) of representative localities or/and drillings will be collected and prepared. After the taxonomic classification, based on the recent analogies or knowledge about the environmental and ecological demands of the given taxa, quantitative and statistical (single and multivariable methods) analyzes will be carried out. These are used for the ecological interpretation: first limited to one given horizon, then to the succession. Finally the results will be compared to the regional and global records known from the literature. Thus these studies might detect the oceanographic and climatic changes and their reasons during the studied period. The specific research topic will be developed after consultation with the applicant.	Palaeontological department	at least B1	German basic level	knowledge in geology, paleontology, MSc degree
Miklós Kázmér	mkazmer@gmail.com	Fossil forests	Taxonomy of buried trees; tree ring studies, forest structure, taphonomy. Reconstruction of local and regional environment based on coexistent flora and fauna.	Department of Palaeontology, Eötvös University plus field work as necessary	at least B2 level		MSc. in geology or biology
Miklós Kázmér	mkazmer@gmail.com	Environmental history	Short- and long-term changes of the crust, using geological, archaeological and historical data (active tectonics, earthquakes, relief change). Details are to be discussed with the applicant.	Department of Palaeontology, Eötvös University plus field work as necessary	at least B2 level		MSc. in geology or biology
Dávid Karátson	dkarat@ludens.elte.hu	Ice-water interaction at the Cotopaxi volcano, Ecuador	Ice-water interaction at the Cotopaxi volcano, Ecuador The planned research plan addresses the ice-volcano interaction on the Cotopaxi volcano through the analysis and GIS modeling of the changing of characteristics of the glaciers after the eruptive event of 2015.	Department of Physical Geography, ELTE	intermediate		MSc in a related field