

Proposed titles of diploma theses for first-year students of Sustainable Development studies 2023/24

no	supervisor	e-mail address	Faculty	title	description
1	dr inż. Agnieszka Kałmykow-Piwińska	a.kalmykow-piwinska@uw.edu.pl	Faculty of Geology	Renaturalization of river valleys on an example of the ...	The river valleys have been subjected to strong anthropopressure for centuries. In addition to contamination with sewage and runoff from agricultural fields, it most often manifests itself in the straightening of channels, increasing the channel inclination, unifying the shapes and dimensions of river bed cross-sections, eliminating irregularities of the banks and the bottom of the channel, cutting off connections with oxbow lakes, limiting the range and duration of the valley floods. Only recently has it been noticed that natural river valleys have a great natural and economic importance. It became an impulse to modify river development methods and implement river renaturalization projects. The renaturalization of rivers to a near-natural state is generally a long-term process involving both technical measures and natural processes.
2	dr hab. Grzegorz Barczyk	gb59@uw.edu.pl	Faculty of Geology	The impact of violent / catastrophic natural phenomena (hurricane, flood, torrential rainfall) on the natural environment (inanimate nature) in protected areas. Monitoring and "corrective" actions. (on the example of the Tatra National Park)	In recent years, there has been an increase in violent / catastrophic weather phenomena in the Tatra Mountains. It is mainly about the exceptionally strong and unusual "blows" of the fen wind (colloquially called "mountain wind" in Poland), as well as the phenomena of mass surface movements - rock falls, landslides, scree - caused by the intensification of otherwise natural weathering processes. Especially this hurricane wind caused damage to the vegetation (trees, forest vegetation) on the large areas. This damage, in turn, exposed the surface of the land and - as a result of rainfall and surface runoff - changes, and sometimes even the removal of a small soil layer and the exposure of the parent rock. Currently, they are subject to the direct effect of surface weathering (frost and others) much more intensively. This, in turn, influenced changes in the conditions of supply, circulation and drainage of groundwater and surface waters in the areas of individual Tatra valleys / catchments. The repair work related to the reconstruction and maintenance of the route network - carried out in the areas affected by the disasters also influenced the changes. The work will generally consist in describing the extent and character of these impacts, analyzing the climatic, hydrological and hydrogeological observations before and after these phenomena, and demonstrating the relationship between these phenomena and changes in the entire ecosystem. It is not only about "theoretically calculated" changes, but also about physical changes in the morphology of the land surface or, for example, of springs, karst springs, water courses.
3	Prof. Barbara Wagner	barbog@chem.uw.edu.pl	Faculty of Chemistry	Investigation into the elemental composition of urban dust using spectral methods.	The proposed topic involves the use of spectral methods (ICP-MS and XRF) to study the elemental composition of urban dust samples collected at several locations within the urban area, with different densities and traffic loads. The simultaneous monitoring of particulate matter (PM 2.5 and PM10) levels will allow for the correlation of data with respect to differences in sampling conditions and allow for the relative inter-site comparisons.
4	Prof. Elżbieta Megiel	e.megiel2@uw.edu.pl	Faculty of Chemistry	Carbon dioxide capture and utilization - novel methods in the reduction of greenhouse gases emission	The diploma project concerns the problem of decreasing global emission of CO2 by applying technologies enable for converting this greenhouse gas into valuable products. In a frame of the MSc work, a series of experiments are performed with designed and fabricated nanocatalysts to obtain cyclic esters using CO2 as one of the substrates.

5	Prof. Beata Krasnodębska Ostrega	bekras@chem.uw.edu.pl	Faculty of Chemistry	New pollutants - new research and a new monitoring approach	Advanced sample pretreatment before toxic substances analysis in water, soil and air systems is a challenges in researching and protecting the environment. New pollutants are not only famous microplastics, but also nanaoparticles, drugs or hormones. Necessity to develop new methods of analysis and observation of content changes in various environmental matrices. The control of them content an important role in the propagation of pollutants as well as their transformation. We need to know if these substances (effect of transformation) are even worse than the original factor. The aim is to present the prospect of an advanced environmental analysis of issues related to: identifying new relevant substances that have potential as environmental degrading substances (technology development, self-degradation; mobility, bioavailability); indication of the procedures for their monitoring (standardization, accredited laboratory, limit values) on the basis of indicators. The work will include elements of theoretical considerations as well as acquiring basic knowledge in the field of environmental analysis.
6	dr. Agnieszka Dąbrowska	adabrowska@chem.uw.edu.pl	Faculty of Chemistry	Sustainable exfoliating agents in cosmetics (peelings, scrubs): natural or synthetic?	This research will be concentrated on a comparison between different types of particles in cosmetics: their environmental persistence, sustainability of production, sorptive properties, chemistry and physics, and enhancement of biofilm formation. In addition, a student will test the hypothesis to what extent it is reasonable to substitute PE and PP particles with "natural" ones and what types are the most feasible.
7				Spectral identification of microplastics - selected case studies	Within this work, students will have an opportunity to learn the main spectral methods used in microplastics characterization (FTIR and Raman spectroscopy) and perform the identification within a selected project (for instance, concerning primary microplastics, glitters, soil MPs, air-born MPs, freshwater microplastics, other). ** This topic is available for more than 1 person, each analysing a different set of samples
8				Green polymers in the environment	This work aims to analyse the ageing, fate transport, behaviour and environmental impact of selected green polymers (such as PLA and natural glitters). The survey monitoring citizen awareness will extend the physical and chemical measurements.
9				Plastisphere and the ecotoxicological aspect of microplastics and nanoplastics	This diploma will familiarise students with the principles of ecotoxicological test design "from scratch" and allow them to be tested in practice.
10				The change of attitude towards plastics from XX to XXI century	This diploma will be based on natural and social science measuring consumers' attitudes, behaviour schemes and perceptions of plastics in disposable items. The student work will be based on literature research and a survey testing an original hypothesis about possible tracking of dynamic behavioural changes. This topic is within key 5 of an ongoing PLASTICOLOGY research project.
11				Public engagement strategies towards the issue of marine microplastics: to encounter, to understand, to act	This diploma proposal is dedicated to students who want to design their engagement event, document it and monitor its impact with survey tools.
12				Synthetic fibres - from microplastic waste to the sustainable material	This research aims to use polymer fibres as fillers in composite materials. The work will include spectral and material science measurements.
13	dr Ada Górna	ada.gorna@uw.edu.pl	Faculty of Geography and Regional Studies	Urban agriculture as an opportunity for sustainable development	The thesis could explore the role and presence of urban agriculture in a city/cities chosen in the context of sustainable development. The choice of the topic will require a further investigation towards the selection of a case study city (cities) and specification of the aspect of urban agriculture to be analyzed.
14				Biophilic cities/Smart cities/Sustainable cities	The thesis could explore the concept of biophilic/smart/sustainable cities and check whether a city of a choice can be treated as an example. The choice of the topic will require a further investigation towards a selection of a case study city (cities) and specification of the dimension of the analysis to be conducted.
15	dr hab. Artur Magnuszewski prof. ucz.	asmagnus@uw.edu.pl	Faculty of Geography and Regional Studies	Sustainable development indices in water management at different spatial scales	There is a number of sustainable development indices and some of them are relevant for water management. The aim of the diploma work is to look for SD indices applicable for sector of water management. MSc candidate will perform some tests in GIS and census data as well as overview of existing literature.

16	Dr Michał Barcz	m.barcz@uw.edu.pl	Faculty of Philosophy	The assumptions behind the idea of sustainable development	The goals of the paper are: (1) to isolate the philosophical, social, economical or other important assumptions behind the idea of sustainable development, and (2) to provide a critical analysis of these theses. The discussion of the latter goal implies the confrontation of the said assumptions with actual economical theories, theories of human nature, social psychology etc.
17	dr Mariola Zalewska	me.zalewska@uw.edu.pl	Faculty of Management	The Role of SDGs and Corporate Social Responsibility: Evidence from Listed Companies	I propose a study titled "The Identity of SDGs and Corporate Social Responsibility: Evidence from Listed Companies." As the global community increasingly emphasizes the importance of sustainable development, this study delves into the integration of Sustainable Development Goals (SDGs) and Corporate Social Responsibility (CSR) practices in publicly traded companies. Through a comprehensive analysis of financial reports, sustainable development information, and corporate behavior, the study aims to provide empirical evidence regarding the extent to which these companies align their strategies with SDGs and fulfill their social commitments. By analyzing the relationship between SDGs, CSR initiatives, and corporate performance, this research seeks to offer valuable insights into the evolving landscape of responsible business practices among publicly traded companies. The findings are expected to provide information for both the academic community and industry, shedding light on the real impact and effectiveness of SDGs and CSR in shaping the behavior and outcomes of contemporary enterprises.
18	Magdalena Klimczuk-Kochańska, PhD. Eng.	mklimczuk@wz.uw.edu.pl	Faculty of Management	Integration of Sustainable Practices in Urban Development Projects: A Project Management Perspective	This thesis could explore how project management methodologies can be adapted to incorporate sustainable practices in urban development projects, considering environmental impact assessments, resource management, and community engagement.
19				Innovative Approaches to Biodiversity Conservation: A Project Management Framework for Protected Area Management	This thesis could investigate innovative project management strategies for the conservation and sustainable management of protected areas, integrating technology, stakeholder collaboration, and adaptive management principles.
20				Renewable Energy Project Development: An Analysis of Project Management Challenges and Innovations	This thesis might focus on the project management aspects of renewable energy initiatives, addressing challenges such as technology integration, permitting processes, and community acceptance while exploring innovative solutions.
21				Eco-friendly Infrastructure Projects: A Comprehensive Project Management Model	This thesis could develop a project management model tailored for eco-friendly infrastructure projects, considering life cycle analysis, green building materials, and environmental impact mitigation strategies.
22				Circular Economy Implementation in Supply Chain Projects: A Project Management Perspective	This thesis might delve into the project management challenges and innovations associated with transitioning supply chain operations towards a circular economy model, emphasizing waste reduction and resource efficiency.
23				Local Food Networks: Project Management for Strengthening Sustainable Community-Based Supply Chains	This thesis might examine the role of project management in developing and managing local food networks, fostering community engagement, and supporting sustainable practices in the production and distribution of locally sourced foods.
24				• Environmental psychology- selected problems with particular emphasis on the psychological aspects of sustainable	
25				• Environmental stress – the essence, manifestations, coping with it and prevention	
26				• Cross- cultural innovative traditions in the field of sustainable development	

27	Tomasz Ochowski, dr hab., prof. ucz.	ochinto@wz.uw.edu.pl	Faculty of Management	<ul style="list-style-type: none"> Development of ecological thought - historical and/or contemporary perspective. The importance of this development for suitable development in business, public administration and non-for-profit organizations 	
28				<ul style="list-style-type: none"> Relations between sustainable development and politics – historical and/or contemporary experiences (global, European and nation-state levels) 	
29				Sustainable Development in Aviation	The goals of the paper are: (1) to present the development of SD in air transport and the origin of those standard, and (2) to provide a critical analysis of these activities.
30	Zuzanna Kulinska-Kępa	z.kulinska-kepa@uw.edu.pl	Faculty of Law and Administration	Sustainable Development in Outer Space	The goals of the paper are: (1) to present the development of SD in space and the origin of those standard, and (2) to provide a critical analysis of these activities. Mainly to focus on Guidelines for the Long-term Sustainability of Outer Space Activities of the Committee on the Peaceful Uses of Outer Space and its application.
31				Sustainable Development from international human rights law perspective	The goals of the paper are: (1) to present the SD and the origin of those standard from human rights perspective, and (2) to present the relationsh between SD and human rights protection.
32	Mgr Katarzyna Zagórska/prof. dr hab. Mikołaj Czajkowski	kzagorska@uw.edu.pl	Faculty of Economic Sciences	Behavioral field interventions in Europe to lower air pollution exposure and damages	
33				Just Transition of the [sector]: A case study of [country/region]	Analyzing the effects of transitioning away from fossil fuels on, e.g. employment, income distribution, and community well-being
34				Climate change and protest movements: a comparative analysis	Examining the role of environmental justice in shaping protest movements and evaluating the effectiveness of these movements in influencing climate policies. Comparing cases from different regions or countries can provide valuable insights.
35				Distributional effects of carbon pricing: A case study of [country/region]	Investigating how carbon pricing policies impact income distribution, considering both direct and indirect effects on households and businesses
36				Equity considerations in [renewable] energy access: case studies from [country/region]	Investigating the equity aspects of renewable energy deployment, focusing on access for marginalized communities. Case studies can provide insights into best practices and challenges.
37	dr Jakub Sokołowski	jsokolowski@wne.uw.edu.pl	Faculty of Economic Sciences	The role of narratives in shaping [climate/sustainability] [justice] discourse	Exploring how cultural narratives influence perceptions of climate justice and contribute to societal attitudes and behaviours.
38				Assessment of climate change adaptation strategies in [country/region] and their impacts on social equity	Evaluating the effectiveness of climate change adaptation strategies in a specific geographical context and analyzing their distributional impacts on vulnerable populations.
39				Energy security in [country/region]: assessing vulnerabilities and resilience strategies	Analyzing the current state of energy security in a specific country or region, identifying vulnerabilities, and proposing strategies to enhance resilience.
40				Resilience of energy systems to climate change: implications for energy security	Investigating the resilience of energy infrastructures to climate change impacts and assessing how climate resilience strategies can enhance overall energy security.
41				Smart Grids and cybersecurity: safeguarding energy infrastructure for sustainable development	Analyzing the role of smart grid technologies in enhancing energy security and addressing cybersecurity challenges associated with these systems.