

Proposed diploma dissertation titles for students of the first year of Sustainable Development

no	supervisor	e-mail address	Faculty	title	description
1	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.
2	dr Agnieszka Dąbrowska	adabrowska@chem.uw.edu.pl	Faculty of Chemistry	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
3	dr Agnieszka Dąbrowska	adabrowska@chem.uw.edu.pl	Faculty of Chemistry	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.
4	dr Agnieszka Dąbrowska	adabrowska@chem.uw.edu.pl	Faculty of Chemistry	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.
5	dr Agnieszka Dąbrowska	adabrowska@chem.uw.edu.pl	Faculty of Chemistry	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.
6	dr Agnieszka Dąbrowska	adabrowska@chem.uw.edu.pl	Faculty of Chemistry	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.
7	dr Agnieszka Dąbrowska	adabrowska@chem.uw.edu.pl	Faculty of Chemistry	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.
8	prof. dr hab.. Beata Krasnodębska-Ostręga	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 challenge in researching and protecting the environment. New pollutants are not only famous microplastics, but also nanoparticles, 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.
9	dr hab. Krzysztof Miecznikowski, prof. ucz.	kmiecz@chem.uw.edu.pl	Faculty of Chemistry	Electrocatalytic processes in fuel cells	The aim of this project is to gain novel materials for oxygen reduction reaction or electrooxidation of small organic compounds and their application in alternative energy sources such as fuel cells.
10	dr hab. Krzysztof Miecznikowski, prof. ucz.	kmiecz@chem.uw.edu.pl	Faculty of Chemistry	Photocatalytic material for water splitting and photodegradation of organic pollutants	The investigations devote principally on photo-electrochemical properties of various thin-layer semiconducting oxide electrodes, such as tungsten trioxide (WO ₃), ferric oxide (Fe ₂ O ₃) or molybdenum trioxide (MoO ₃) that are employed to split water or photodegradation of organic pollutants in water samples.
11	dr hab. Elżbieta Megiel	e.megiel2@uw.edu.pl	Faculty of Chemistry	Catalytic conversion of carbon dioxide to cyclic esters using selected nanocatalysts	The diploma project concerns the problem of decreasing global emission of CO ₂ 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 CO ₂ as one of the substrates.
12	dr Witold Uhrzynowski	wuhrzynowski@chem.uw.edu.pl	Faculty of Chemistry	Biotechnological aspects of electrode material recycling - towards circular economy	The dissertation will comprise the results of a literature and an experimental study on the recyclability potential of waste electrode material. Interest in applicational aspects of biology and chemistry, as well as readiness for carrying out <i>in vitro</i> experiments is required.

13	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.
14	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.
15	dr hab. Jerzy Śleszyński, prof. ucz.	sleszynski@wne.uw.edu.pl	Faculty of Economic Sciences	Economics of sustainable development (seminar)	1. The main aim of the seminar is to familiarize students with the broadly understood issues of the concept of development defined by the term sustainable development - which is expressed in Polish as a sustainable and sustainable development. The ultimate goal of the seminar is to specify and develop the research topics of the work being prepared. 2. The subject of seminar meetings includes the following groups of issues: introduction to sustainable management issues, principles and methods for implementation of sustainable development, indicators of permanent development, conditions of permanent development policy at the local, national and international level, methods of economic valuation of goods and services derived from the environment, ecological and economic efficiency in the management of natural resources. The topics of diploma theses within the seminar conducted by him should be agreed directly with him by e-mail.
16	prof. dr hab. Marek Zubik	m.zubik@wpia.uw.edu.pl	Faculty of Law and Administration	Nature and solidarity between generations.	It would be worth examining what legal and ethical rules apply to the current generation's use of nature and state resources.
17	prof. dr hab. Marek Zubik	m.zubik@wpia.uw.edu.pl	Faculty of Law and Administration	Constitutional obligation to repair environmental damage	It would be worth examining that the legislator fulfills the constitutional obligation to care for the environment and to take responsibility for its deterioration.
18	prof. dr hab. Marek Zubik	m.zubik@wpia.uw.edu.pl	Faculty of Law and Administration	Human dignity and animal rights	It would be necessary to trace how deep changes have been recently made in the approach the relationship between the constitutional principle of protection of human dignity and the laws of nature and animals created by the legislator.
19	dr Karolina Tetlak	karolina.tetlak@wpia.uw.edu.pl	Faculty of Law and Administration	Taxation and Sustainable Development	The 2030 Agenda adopted by the UN sets out 17 Sustainable Development Goals (SDGs), balancing economic, social, and environmental outcomes. What they all have in common is that they can be achieved or supported with tax policies. The UN recognizes taxation as a powerful tool to help achieve the SDGs, ranging from ending poverty and hunger to enhancing education, health, gender equality, promoting sustainable use of water and energy, economic growth and employment, responsible consumption and production. In fact, fiscal policies can simultaneously achieve a resource mobilization objective, reduce inequalities, and promote sustainable consumption and production patterns.
20	Dr Artur Studziński	astudzinski@wz.uw.edu.pl	Faculty of Management (Department of Entrepreneurship and Management Systems)	The process management challenges under maintenance of sustainable development goals (SDGs) in R&D activities in the Polish XXX sector/industry.	The study requires analytical and synthetic work, review of domestic and foreign literature in the field of process management, business process improvements, recognition of current R&D trends and activities in the indicated sector. All it is based on the SDGs that are of the most crucial importance in a given sector of the economy. Practical knowledge of Adonis is desirable in case of process maps presentation.

21	Dr Artur Studziński	astudzinski@wz.uw.edu.pl	Faculty of Management (Department of Entrepreneurship and Management Systems)	The commercialisation of clean and environmentally sound technologies and processes in the XXX sector/industry in Poland	The study requires analytical and synthetic work, review of domestic and foreign literature in the field of commercialisation, innovation management, recognition of current clean and environmentally sound technologies and processes. All it is based on the SDGs that are of the most crucial importance in a given sector industry of the Polish economy. Practical knowledge of technology valuation, commercialisation strategies and models is desirable.
22	Dr Artur Studziński	astudzinski@wz.uw.edu.pl	Faculty of Management (Department of Entrepreneurship and Management Systems)	The role of academic entrepreneurship in Poland in achieving selected sustainable development goals (SDGs) on the example of the XXX sector.	The study requires analytical and synthetic work, review of domestic and foreign literature in the field of academic entrepreneurship, start-ups, new role of university, business process improvements, recognition of technological entrepreneurship trends and activities in the indicated sector. All it is based on the SDGs that are of the most crucial importance in a given sector of the economy. Practical knowledge of sectoral/market analysis and statistical analysis are desirable.
23	dr hab. Szwarzewski Piotr	pfszwarc@uw.edu.pl	Faculty of Geography and Regional Studies	Industry development impact on natural environment from XIX c. to contemporary times – records in lake sediments (case study of lakes/ponds in the vicinity of chosen cities)	
24	dr hab. Szwarzewski Piotr	pfszwarc@uw.edu.pl	Faculty of Geography and Regional Studies	Proxies of human impact recorded in peat bogs in the vicinity of Warsaw	
25	dr hab. Szwarzewski Piotr	pfszwarc@uw.edu.pl	Faculty of Geography and Regional Studies	Human impact record during the industrial revolution and in contemporary times - similarities and differences.	
26	dr Ada Górna	ada.gorna@uw.edu.pl	Faculty of Geography and Regional Studies	TOPIC: 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.
27	dr Ada Górna	ada.gorna@uw.edu.pl	Faculty of Geography and Regional Studies	TOPIC: Creating sustainable food systems	The thesis could take up a systemic approach to explore the existing food system in a city/cities chosen and check if its functioning complies with the concept of sustainable development.
28	dr Ada Górna	ada.gorna@uw.edu.pl	Faculty of Geography and Regional Studies	TOPIC: Food in the city - sustainable supply and value chains	The thesis could trace the supply (and value) chain of food in the city/cities chosen.
29	dr Ada Górna	ada.gorna@uw.edu.pl	Faculty of Geography and Regional Studies	TOPIC: Biophilic cities/Smart cities/Sustainable cities	The thesis could explore the concept of biophilic cities and check whether a city of a choice can be treated as an example.
30	dr hab., prof. ucz. Artur Magnuszewski	asmagnus@uw.edu.pl	Faculty of Geography and Regional Studies	Flood potential of selected two countries	Flood potential index will be calculated for two countries in comparative study with the search for future climate change consequences.
31	dr hab. Iwona Stachlewska i/lub mgr Dominika Szczepanik	Iwona.Stachlewska@igf.fuw.edu.pl, Dominika.Szczepanik@fuw.edu.pl	Faculty of Physics	Targeted communication strategy to raise user awareness on the pilot access offered within ATMO-ACCESS	Based on the existing and new user community surveys, it will be identified how the communication to the users on the physical, remote and virtual pilot access offered within H20220 ATMO-ACCESS project could be implemented in a more efficient ways. For this, mapping of the existing communication modalities already used by the three Research Infrastructures (ACTRIS, ICOS, IAGOS) will be done to identify the best strategies, proper means, and adequate tools for enhancing the pilot access visibility and proper advertising its attractiveness to the different user groups (e.g. scientists, private sector, monitoring authorities, funding agencies). Modalities to raise user awareness of the newly developed cross-RI services shall be proposed, including an evaluation and explanation on the added value of such integrated activities. (implementation in Polish or English, knowledge of Polish is not necessary required, advanced knowledge of English is necessary) 1/2-time employment (group: non-scientific employees), 2000 gross, employment contract for 9 months, from January 1, 2023, assuming the need to complete studies by September 30, 2023