UPWr DOCTORAL SCHOOL

in a nutshell

What is the UPWr Doctoral School?

UPWr Doctoral School is a part of the **Wrocław University of Environmental and Life Sciences** (UPWr) which is one of the best specialist universities in Poland.

It conducts training and research in the field of agricultural and natural sciences as well the engineering and technical ones.

Our vision is to shape passionate and committed young scientists who will enter the world of international science by conducting groundbreaking research.

We do this by:

- Creating an **international research entity** where students from all around the world come to build on their knowledge by engaging with complex topics in a specialised field of their choice.
- Providing cutting-edge **research equipment** to strengthen research and teaching excellence,
- Implementing a **modern teaching approach** focusing on individualized, interdisciplinary, and experiential learning paths.

When educating PhD students, we tend to lean towards the student-master relationship, in which we work together and we develop ideas together.The success of my doctoral student is also my success .

prof. Agnieszka Noszczyk-Nowak, director of the UPWr Doctoral School

Why PhD at the UPWr?

A medium size academic centre

There are no anonymous students. We focus on an individual approach to learning and enhancing members' interaction in research teams.

No mass eductaion

Only around 30 candidates are accepted to the UPWr Doctoral School each year which makes the programme prestigious and quality-oriented.

International networks

Networking with more than 140 universities in Europe and worldwide.

Scholarship and research fundings

Education is free and every PhD student receives a monthly scholarship. There are also many ways to apply for additional fundings of the research activities.

Based in Wrocław

Wrocław is one of the fastest developing cities in Poland, a vibrant academic centre with a strong and diverse economy.

I like Wrocław. I've lived here for a year now and I can see how many great historical and tourist places to visit this city has. All the people I've met are always nice and caring which makes me happy.

Abubakar Bello, PhD student

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How is education organized?

The education lasts 4 years and is provided in full-time mode on the UPWr campus.

The interdisciplinary programme involves research with the direction and guidance of a **selected supervisor.**

The supervisors are scientific mentors, the individual academic and career guidance is provided on the basis of the **master-student formula,** and many of our teaching staff completed specialized **tutoring** training.

PhD students are encouraged to publish research findings in the best **international journals** and to participate in one of the **UPWr Leading Research Groups** with top UPWr academics.

The school encourages participation in **training courses**, and **scientific conferences**. PhD students may apply for funding for those activities.

Our PhD programme allows you to become part of the Wrocław international scientific community, setting you on the track to a successful career at any university or research centre so that after graduation you can apply for a postdoc position anywhere in the world.

Some of the PhD programme subjects:

- Interdisciplinary problem solving
- Data analysis techniques
- New trends in the discipline and in related disciplines
- Design of experiments
- English for special purposes

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How do I finance my PhD?

There is no tuition fee for PhD studies.

As an international PhD student, you are granted a monthly **scholarship of 1000 EUR** for covering all living expenses.

PhD students may apply for a room in the university dormitory. The monthly rent there is very affordable.

Additionally, you may receive funds for research projects or for publishing scientific articles in recognized journals.

Funding of research activities:

- 20,000 PLN/4200 EUR – for **research activities**
- 10,000 PLN/2100 EUR – for participation in a specialist **summer/winter School**
- 8,000 PLN/1700 EUR – for participation in an **international foreign scientific conference**
- 6,000 PLN/1200 EUR – for participation in **specialist training or workshop**
- 3,000 PLN/600 EUR – for **publication** which has at least 100 points according to the current list of journals of the Ministry of Science and Higher Education

What's interesting about my doctorate are the opportunities the School provides, and these offer great scope for self-realisation and testing myself in new challenges, often involving leaving my comfort zone, but leading to exciting results.

Jessica Brzezowska, PhD student

How can I apply?

STEP 1

The basic requirements is having a **master's degree** (in some cases Bachelor's degree may be enough) and valuable scientific experience.

STEP 2

During the application period which is usually April-June, you should find a **research topic** in the chosen field of science announced on our website and contact the potential supervisor to evaluate your eligibility.

STEP 3

After you receive the consent from the supervisor, you **register** in our application system and send all **necessary documents** to our e-mail address.

STEP 4

After the successful evaluation of your application, you will be invited to the second stage of application which is an **interview** with the Recruitment Committee. This will take place in person or online.

STEP 5

By the end of June, you will be informed about the **admission results.**

If you are accepted, we will meet in October on the UPWr campus!

From day one I entered the university, I never regret that I came here.
Waheed Rasaq, PhD student

PhD programmes in eight disciplines

1. Agriculture and Horticulture
2. Animal Science and Fisheries
3. Biological Sciences
4. Civil Engineering and Transport
5. Environmental Engineering, Mining and Energy
6. Nutrition and Food Technology
7. Social and Economic Geography and Spatial Management
8. Veterinary Science

If a doctoral student becomes a contributing member of the team rather than a voiceless assistant, they feel a sense of shared responsibility for achieving the team's goals while boosting their commitment to their work.
D.Sc. Tomasz Hadaś, PhD supervisor

Discipline AGRICULTURE AND HORTICULTURE

in a nutshell

The research topics in the discipline may concern:

- optimizing crop production in different farming systems;
- genetic and molecular basis of cultivation of farming crops and methods of seed material enrichment;
- the impact of mineral and organic fertilization on crops and the chemical composition of plants;
- improving the acquisition and processing of plant and animal products in terms of obtaining the highest quality product;
- improving the production technology of horticultural plants in various cultivation conditions;
- the dynamics of soil processes in various bio-ecological conditions;
- microorganisms and fauna in their natural environment, agro-ecosystems in urban areas and human economy;
- research on flora, vegetation and the functioning of natural and anthropogenically variable ecosystems;
- directions of socio-economic changes, with particular emphasis on the food sector and rural areas.

Keywords: agriculture, gardening, plant production, horticultural production, fertilization, soil, flora, fauna, microorganisms, socioeconomic changes

Questions about the discipline?

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Discipline ANIMAL SCIENCE AND FISHERIES

in a nutshell

The research topics in the discipline may concern:

- improving the breeding and performance value of cattle, swine, poultry, sheep and horses
- environmental hygiene and welfare of farmed and wild animals, including protection of the farmed and natural environment
- genetic and population screening of animals
- feed additives in livestock farming
- research on how animal nutrition can control the immune system, the health and quality of animal products
- bioinformatics - (big) data analysis
- evaluation and development of poultry meat quality (including health-promoting properties), nutritional value and sensory qualities
- creating innovative meat and egg products
- modern methods of biopreservation and prolonging the freshness of meat
- conditions for fish farming

Keywords: livestock, companion animals, wild animals, endangered species, animal husbandry, animal hygiene and welfare, protection of livestock and natural environment, ecological husbandry, ecological feed, legal aspects of domestic animal breeding, animal physiology, food safety, animal preventive care, animal physiotherapy, animal ethology, fisheries, ecotoxicology, bioinformatics, molecular cell biology, population genetics, feed additives, biocarbon, mobile chicken coops, organic feed, dietary supplements

Questions about the discipline?

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Discipline

BIOLOGICAL SCIENCES

in a nutshell

The research topics in the discipline may concern:

- development of innovative therapy strategies based on stem cells and biointelligent carriers;
- implementation of innovative treatment protocols including preconditioning stem cells, transfer of extracellular vesicles and the regulation of gene expression;
- biotransformations and chemical synthesis of compounds with important biological properties;
- biotechnological application of bacteriophages in human and veterinary medicines;
- biorefining of various types of waste as a renewable source of carbon and energy for microorganisms;
- the use of biocatalysis to functionalize natural and synthetic chemical compounds;
- description of the molecular mechanism of the interaction between natural and synthetic compounds and biomolecules and biological membranes and cells;
- study of the systematics, biology, ecology and phylogeny of plants and animals;
- research on biological and cultural variability of human prehistoric, historical and present populations;
- human health and ontogenetic development in the context of environmental and genetic backgrounds;

Keywords: stem cells, biotransformations, biocatalysis, bacteriophages, genetic modifications, waste materials, biological activity, biomolecules, taxonomy, phylogenesis, ecology, nature conservation, human biology

Questions about the discipline?

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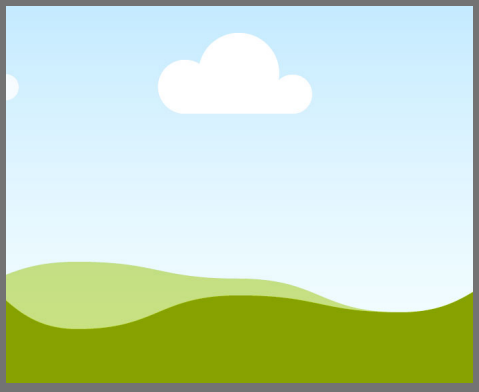

Discipline CIVIL ENGINEERING AND TRANSPORT

in a nutshell

The research topics in the discipline may concern:

Civil engineering:

- sustainable construction - research and analysis of concrete containing modern composites
- Dynamic analysis of structures subjected to moving loads
- Limit states of the load-bearing capacity and serviceability of reinforced concrete structures;
- research on the mechanical properties of soils based on modern research techniques

Geodesy, remote sensing and geoinformatics:

- monitoring of changes in the natural environment and engineering works with the use of satellite, geodetic and other techniques
- multi-facet modeling of spatial phenomena;
- optimization of technology of geodata acquisition, processing and sharing
- building spatial data infrastructures

Keywords: geodesy, geoinformatics, civil engineering, construction, nano-components, building structures, cartography, satellite measurements, gravimetry, photogrammetry, remote sensing, geodynamics, displacement measurements, deformation research, geotechnics, geospatial engineering, satellite navigation, big data, machine learning, spatial analysis, numerical modeling, geographic information systems, spatial information infrastructure, satellite orbit determination, precise positioning, Earth rotation, Earth's gravitational potential, GNSS meteorology, InSAR, Lidar, data integration, geodetic reference systems

Questions about the discipline?

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Discipline

ENVIRONMENTAL ENGINEERING, MINING AND ENERGY

in a nutshell

The research topics in the discipline may concern:

- shaping and protecting of water resources
- techniques and technologies for increasing the efficiency of improving and protecting the quality of surface and groundwater
- improvement of wastewater treatment methods
- hydrodynamic modeling of water supply and sewage networks
- hydrological modeling in river catchments in terms of integrated water management, flood protection and water retention
- green and blue infrastructure of urbanized and rural areas in the context of adaptation to climate change and minimizing its effects
- low-waste and non-waste technologies and alternative use of waste
- decentralized systems of production and storage of electricity from renewable sources
- research on energy independence, diversification of energy production in rural and urbanized areas from alternative sources, including organic waste (biodegradable waste and food waste), water, energy crops, biomass from rapidly growing tree species, wind and sun
- new technologies for the conversion of biomass to energy and its carriers, including multi-fuel low-temperature reactors
- conversion of organic waste to hydrogen and CO2 sequestration
- reclamation of post-mining and post-industrial areas and the anthropogenic landscape shaping

Keywords: water, sewage, waste, water drainage, retention, retention reservoirs, water management, atmosphere, water devices, waterworks, sewers, biomass, energy, climate, waste-free technologies

Questions about the discipline?

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Discipline
NUTRITION AND FOOD TECHNOLOGY
in a nutshell

The research topics in the discipline may concern:

- the use of less popular raw fruit materials for the production of items with increased health value
- searching for new sources of plant nutraceuticals to be used in the prevention of civilization diseases
- identification of the composition and characterization of secondary metabolites of plants
- selecting optimal methods for preservation of bioactive compounds and nutraceuticals
- potato bioactive and toxic compounds
- preparation, purification and modification of vegetable proteins
- modifications of starch for food purposes
- modifications of bread and pasta production technology
- the quality and safety of food of animal origin
- the use of traditional and unconventional raw materials for the production of fermented beverages with high antioxidant potential
- valorization of food industry waste with the use of edible strains of filamentous fungi
- the use of by-products in fermentation processes with the use of unconventional yeast (Yarrowia lypolitica)
- bioactive biocomposites based on natural hydrocolloids as coatings protecting raw materials and products during storage
- determining the influence of nutrients on human metabolism

Keywords: functional food, nutraceuticals, polyphenols, bioactive compounds, unconventional yeast, fermented beverages, food safety, nutritional hazards, nutrigenomics, by-products, modern food processing methods, sensory analysis, foodomics, aromatic compounds, food preservation

Questions about the discipline?

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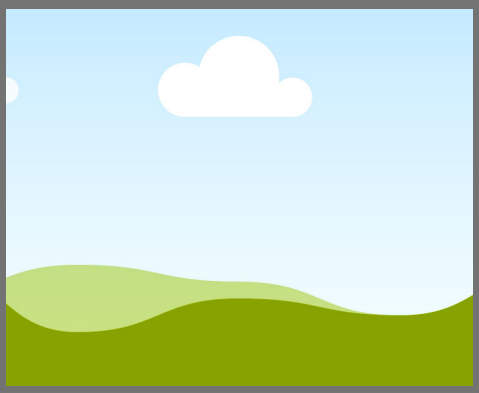

Discipline

SOCIAL AND ECONOMIC GEOGRAPHY AND SPATIAL MANAGEMENT

in a nutshell

The research topics in the discipline may concern:

- rational spatial management, monitoring and forecasting socio-economic phenomena, policies for sustainable development
- resilience of socio-environmental systems and adaptation to climate change
- management of natural resources and the landscape
- housing management and the real estate market
- multi-factor rural development
- assessing quality of life and measuring the ecological footprint of cities and regions
- ecosystem services, environmental value and ecological loss
- resource management and the circular economy
- assessing the development potential of suburban zones
- socio-economic and institutional determinants of local food production, green supply chains, urban foodshed
- demographic change and the problems of an ageing society
- social, economic and environmental determinants for the development of tourism
- the urban soundscape and the sonic environment in areas of significant natural value

Keywords: social and environmental systems, management of natural resources, ecological footprint, ecosystem services, local government, sustainable development, measuring the quality of life, the circular economy, local food, demographic changes, IT systems for spatial and economic analysis, social data science

Questions about the discipline?

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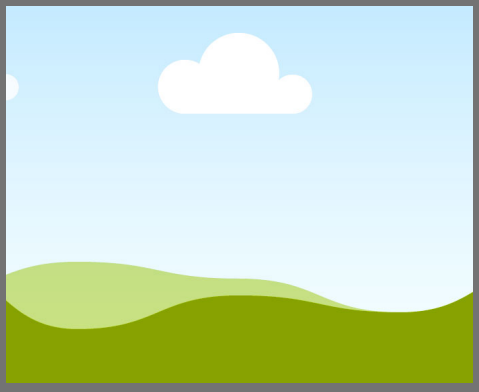

Discipline

VETERINARY SCIENCES

in a nutshell

The research topics in the discipline may concern:

- molecular mechanisms of animal diseases and the applications of new therapeutic methods
- microbial threats to food safety
- molecular background of microorganism pathogenicity
- evaluation of the immunotropic and antitumor activity of natural and synthetic compounds in spontaneous and established cell lines in vitro and in animal models
- population modeling of drug pharmacokinetics in animals
- application of high-throughput techniques in molecular and clinical diagnostics
- research on animal health and productivity
- studies of contemporary infectious diseases
- reproduction and neonatology of domestic and wild animals
- advanced biotechnology of reproduction, including endangered species
- translational research of human disease in animal models
- tissue engineering with the use of animal models
- immunological aspects of animal health protection
- companion and wild animals' pathology

Keywords: veterinary, production animals, companion animals, wild animals, endangered species, animal physiology and pathology, animal diseases, epizootiology, microbiology, innovative diagnostic tools, modern surgical techniques, innovative therapies, clinical prophylaxis and immunology, molecular studies, pharmacology, assisted reproductive techniques, food safety, livestock production, genetic engineering, experimental oncology

Questions about the discipline?

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