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Omics Data Science - Bioinformatics and Analysis of large-scale biomedical data.

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The course is implemented as part of the project "Genetically conditioned diseases - education and diagnostics (EDUGEN)" co-financed by the European Union in partnership with the Interdisciplinary Centre for Mathematical and Computational Modelling University of Warsaw and the Institute of the Mother and Child in Warsaw.

This postgraduate program aims to create a new community of scientists, medical doctors, technicians able to dissect the organizing principles and functions of modern and complex systems biology, systems medicine and systems genetic.

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The optic of this extended postgraduate informatics course is to enable the future graduates to create specific programs resolving and responding precisely to their OMICS question, in the context of medical genetics. Therefore the program developed by the program council, is composed of two pillars established on one hand on informatics studies, one the other on six different OMICS.

Introductory classes for high-throughput data analysis

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- High-throughput tests in medicine
- Infrastructure in high-throughput studies
- Basic IT tools (Python)
- Basic databases and tools for analysing high-throughput data
- Basics of analysis using the R package
- Application of Big Data tools in OMICS analyses
- Deep Learning Models in biomedical research
- Ethical aspects of biomedical high-throughput studies

Practical classes for high-throughput data analysis

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- Genomics
- Transcriptomics
- Metagenomics/ Mikrobiom
- Epigenomics
- Proteomics
- Metabolomics

Lecturers from the best polish institutions

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- Ardigen SA
- Institute of Biochemistry and Biophysics, Polish Academy of Sciences
- Institute of Computer Science, Polish Academy of Sciences
- Institute of Mother and Child
- Jagiellonian University
- M. Nencki Institute of Experimental Biology, Polish Academy of Sciences;
- Nicolaus Copernicus University in Toruń
- Samsung Electronics Polska Sp. z o.o.;
- SmartDataSense;
- Warsaw University
- Warsaw University of Technology
- Wroclaw University of Technology

Candidates

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- 150 candidates for 36 places (over 4 people per place) registered for the first edition
- 250 candidates for 34 places (over 7 people per place) registered for the second edition
- We already have 340 applications for the planned next edition.

- Last year graduates or students came from: bio-informatics, biological, biotechnology, chemical, physical, information technology, mathematics or medical studies.
- After completing the course, some alumni were proposed a new position or undertook doctoral studies and post-doc positions.

Goals

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Among others, this new community will be proficient in:

- analysing the diagnosis of genetic diseases, including molecular identification of new syndromes
- Forecasting the course of diseases
- Identifying risk factors in civilisation diseases
- Assisting and improving the management of healthcare structures

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Thank you for your attention