

## Subject card

|                                             |                                                                                                                                                                                                                                                                                                         |                                                          |                                         |                                     |                                                                                                                                                                                   |            |     |
|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-----------------------------------------|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-----|
| Subject name and code                       | Hydrology of coasts and lake districts, PG_00091477                                                                                                                                                                                                                                                     |                                                          |                                         |                                     |                                                                                                                                                                                   |            |     |
| Field of study                              | Water Management and Protection of Water Resources                                                                                                                                                                                                                                                      |                                                          |                                         |                                     |                                                                                                                                                                                   |            |     |
| Date of commencement of studies             | October 2025                                                                                                                                                                                                                                                                                            |                                                          | Academic year of realisation of subject |                                     | 2026/2027                                                                                                                                                                         |            |     |
| Education level                             | Bachelor's studies                                                                                                                                                                                                                                                                                      |                                                          | Subject group                           |                                     | Obligatory subject group in the field of study<br>Subject group related to scientific research in the field of study<br>Subject group related to practical vocational preparation |            |     |
| Mode of study                               | full-time studies                                                                                                                                                                                                                                                                                       |                                                          | Mode of delivery                        |                                     | at the university                                                                                                                                                                 |            |     |
| Year of study                               | 2                                                                                                                                                                                                                                                                                                       |                                                          | Language of instruction                 |                                     | Polish                                                                                                                                                                            |            |     |
| Semester of study                           | 3                                                                                                                                                                                                                                                                                                       |                                                          | ECTS credits                            |                                     | 1.0                                                                                                                                                                               |            |     |
| Learning profile                            | practical                                                                                                                                                                                                                                                                                               |                                                          | Assessment form                         |                                     |                                                                                                                                                                                   |            |     |
| Conducting unit                             | Pracownia Hydrologii -> Department of Hydrology -> Faculty of Oceanography and Geography -> Rector                                                                                                                                                                                                      |                                                          |                                         |                                     |                                                                                                                                                                                   |            |     |
| Name and surname of lecturer (lecturers)    | Subject supervisor                                                                                                                                                                                                                                                                                      |                                                          | prof. dr hab. Roman Cieśliński          |                                     |                                                                                                                                                                                   |            |     |
|                                             | Teachers                                                                                                                                                                                                                                                                                                |                                                          |                                         |                                     |                                                                                                                                                                                   |            |     |
| Lesson types                                | Lesson type                                                                                                                                                                                                                                                                                             | Lecture                                                  | Tutorial                                | Laboratory                          | Project                                                                                                                                                                           | Seminar    | SUM |
|                                             | Number of study hours                                                                                                                                                                                                                                                                                   | 20.0                                                     | 0.0                                     | 0.0                                 | 0.0                                                                                                                                                                               | 0.0        | 20  |
|                                             | E-learning hours included: 0.0                                                                                                                                                                                                                                                                          |                                                          |                                         |                                     |                                                                                                                                                                                   |            |     |
| Learning activity and number of study hours | Learning activity                                                                                                                                                                                                                                                                                       | Participation in didactic classes included in study plan |                                         | Participation in consultation hours |                                                                                                                                                                                   | Self-study | SUM |
|                                             | Number of study hours                                                                                                                                                                                                                                                                                   | 20                                                       |                                         | 6.0                                 |                                                                                                                                                                                   | 9.0        | 35  |
| Subject objectives                          | Familiarising students with the spatial variation of hydrographic relations of the coastal and lake districts of the southern Baltic Sea.To discuss processes in the aquatic environment, the course of which determines and conditions the hydrography and hydrology of the coasts and lake districts. |                                                          |                                         |                                     |                                                                                                                                                                                   |            |     |

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| Learning outcomes               | Course outcome                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Subject outcome                                                                                                                                                                                                                                                                                                                                                                                          | Method of verification            |
|                                 | [GWOZWL3-W02] the importance of knowledge in the sciences allowing to understand the processes and phenomena occurring in the hydrosphere, as well as knowledge of the social sciences and of the Earth's geographic environment - as a system of interrelated and interacting components                                                                                                                                                                                                                                                                                                                                                                                                    | Students will be able to identify the basic processes and phenomena occurring in the sea-land interface and determine the interactions between them.                                                                                                                                                                                                                                                     | [SW4] test/exam - oral or written |
|                                 | [GWOZWL3-U02] select and independently apply basic research techniques and tools, with adhering to established analytical procedures in the field of environmental research in water management, adequately to the considered research problem                                                                                                                                                                                                                                                                                                                                                                                                                                               | The student is familiar with the basic research methods needed to assess processes occurring in the marine coastal zone.                                                                                                                                                                                                                                                                                 | [SU4] test/exam - oral or written |
|                                 | [GWOZWL3-U01] make basic observations of processes and phenomena occurring in the hydrosphere and carry out basic measurements of selected processes of water purification on a laboratory scale                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | The student is able to carry out independent research on coastal and nearshore processes.                                                                                                                                                                                                                                                                                                                | [SU4] test/exam - oral or written |
| Subject contents                | <p>A.1 Identification of factors determining and conditioning the water cycle in coastal and lake areas.</p> <p>A.2 Surface water characteristics.</p> <p>A.3 Groundwater characteristics.</p> <p>A.4 Problems arising in the interface between sea and land.</p> <p>A.5. Characteristics of hydrographic units (lakeshores, nontidal areas, coastal areas, coastal plains, coastal alluvial plains, bottoms of major river valleys, sea level, sea ice, etc.).alluvial plains, main river valley bottoms, marginal zones).</p> <p>A.6 Areas with natural and man-made circulation.</p> <p>A.7 Areas with clean water and with degraded water. Translated with DeepL.com (free version).</p> |                                                                                                                                                                                                                                                                                                                                                                                                          |                                   |
| Prerequisites and co-requisites | Knowledge of general hydrology, hydrology of alluvial plains.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                          |                                   |
| Assessment methods and criteria | Subject passing criteria                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Passing threshold                                                                                                                                                                                                                                                                                                                                                                                        | Percentage of the final grade     |
|                                 | Pass mark, written test exam.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 51.0%                                                                                                                                                                                                                                                                                                                                                                                                    | 100.0%                            |
| Recommended reading             | Basic literature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1 Augustowski B., (ed.), 1977, Pomerania, GTN, 5th Department of Earth Sciences, Gdańsk (in Polish).2. Bajkiewicz- Grabowska E., Mikulski Z., 2002, General hydrology, PWN, Warsaw (in Polish).3. Bogdanowicz R., Fac-Beneda J., (eds.), 2009, Water resources and their protection, FRUG, Gdańsk (in Polish).4. Chelmicki W., 2002, Water. Resources, degradation, protection. PWN, Warsaw (in Polish). |                                   |

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|----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                | Supplementary literature                                                                                                                                                                                                                      | <p>1. Byczkowski A., 1979, Hydrological bases of water reclamation projects, PWRiL, Warsaw (in Polish).</p> <p>2. Chlost I., Cieśliński R., Pietruszyński Ł., Budzisz M., 2018, Influence of human activity on the functioning of the raised bog on the example of the Żarnowska Peatland (in northern Poland), [in:] P. Gâştescu, P. Bretcan (eds.), Water resources and wetlands, Transversal Publishing House, Targoviste, 246-254.</p> <p>3. Cieśliński R., 2018, Changes in hydrological, physical and chemical properties of water in closed/open coastal lakes due to hydrotechnical structures, Oceanological and Hydrobiological Studies, 47 (4), 345-358, DOI: 10.1515/ohs-2018-0000</p> <p>4. Cieśliński R., Obolewski K., 2017, Research of Polish coastal lakes with their classification, [w:] Obolewski K., Astel A., Kujawa R. (red.), Hydroecological determinants of functioning of southern Baltic coastal lakes, Wyd. PWN, Warszawa, 11-25</p> <p>5. Cieśliński R., Olszewska A., 2018, New insight into defining the lakes of the southern Baltic coastal zone, Environmental Monitoring and Assessment, 190 (2), DOI: 10.1007/s10661-017-6447-8.</p> <p>6. Cieśliński R., Pietruszyński Ł., Budzisz M., Ossowska A., Olszewska A., 2017, Pollution load released into the Bay of Gdańsk by small river catchments in the coastal city of Sopot, Forum geografic. Studii și cercetări de geografie și protecția mediului, 15, 105-114, doi: <a href="http://dx.doi.org/10.5775/fg.2016.139.s">http://dx.doi.org/10.5775/fg.2016.139.s</a></p> <p>7. Partyka J., Pociask-Karteczka J., (ed.), 2008, Waters in protected areas, IG and GP UJ, Cracow (in Polish).</p> <p>8. Pociask-Karteczka J. (ed.), 2003, Catchment. Properties and processes, Jagiellonian University, Cracow (in Polish).</p> |
|                                                                | eResources addresses                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Example issues/<br>example questions/<br>tasks being completed | <p>1. Explain the terms coastal zone and coast.</p> <p>2. Give examples of hydrological effects of climate change in the coastal zone.</p> <p>3. Discuss quasiaestuarine processes in the Polish coastal zone of the southern Baltic Sea.</p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Work placement                                                 | Not applicable                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

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