

## Subject card

|                                             |                                                                                                                                                                                                                                                                                                                                               |                                                          |                                         |                                     |                                                                                                                                                |            |     |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-----------------------------------------|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|------------|-----|
| Subject name and code                       | Biodiversity protection in the urban ecosystem, PG_00154791                                                                                                                                                                                                                                                                                   |                                                          |                                         |                                     |                                                                                                                                                |            |     |
| Field of study                              | Natural Resources Conservation                                                                                                                                                                                                                                                                                                                |                                                          |                                         |                                     |                                                                                                                                                |            |     |
| Date of commencement of studies             | October 2025                                                                                                                                                                                                                                                                                                                                  |                                                          | Academic year of realisation of subject |                                     | 2027/2028                                                                                                                                      |            |     |
| Education level                             | Bachelor's studies                                                                                                                                                                                                                                                                                                                            |                                                          | Subject group                           |                                     | Obligatory subject group in the field of study<br>Optional subject group<br>Subject group related to scientific research in the field of study |            |     |
| Mode of study                               | full-time studies                                                                                                                                                                                                                                                                                                                             |                                                          | Mode of delivery                        |                                     | at the university                                                                                                                              |            |     |
| Year of study                               | 3                                                                                                                                                                                                                                                                                                                                             |                                                          | Language of instruction                 |                                     | Polish                                                                                                                                         |            |     |
| Semester of study                           | 5                                                                                                                                                                                                                                                                                                                                             |                                                          | ECTS credits                            |                                     | 1.0                                                                                                                                            |            |     |
| Learning profile                            | academic                                                                                                                                                                                                                                                                                                                                      |                                                          | Assessment form                         |                                     | credit                                                                                                                                         |            |     |
| Conducting unit                             | Laboratory of Avian Ecophysiology -> Department of Vertebrate Ecology and Zoology -> Faculty of Biology -> Rector                                                                                                                                                                                                                             |                                                          |                                         |                                     |                                                                                                                                                |            |     |
| Name and surname of lecturer (lecturers)    | Subject supervisor                                                                                                                                                                                                                                                                                                                            |                                                          | dr hab. Agnieszka Ożarowska             |                                     |                                                                                                                                                |            |     |
|                                             | Teachers                                                                                                                                                                                                                                                                                                                                      |                                                          |                                         |                                     |                                                                                                                                                |            |     |
| Lesson types                                | Lesson type                                                                                                                                                                                                                                                                                                                                   | Lecture                                                  | Tutorial                                | Laboratory                          | Project                                                                                                                                        | Seminar    | SUM |
|                                             | Number of study hours                                                                                                                                                                                                                                                                                                                         | 0.0                                                      | 15.0                                    | 0.0                                 | 0.0                                                                                                                                            | 0.0        | 15  |
|                                             | 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                                                                                                                                                                                                                                                                                                                         | 15                                                       |                                         | 3.0                                 |                                                                                                                                                | 7.0        | 25  |
| Subject objectives                          | 1. To learn and understand the basic biotic and abiotic factors shaping biodiversity in urban areas.<br><br>2. Understanding natural phenomena and processes occurring in urban areas affecting biodiversity in these areas.<br><br>3. Getting knowledge of the principles, methods and techniques of biodiversity protection in urban areas. |                                                          |                                         |                                     |                                                                                                                                                |            |     |

| Learning outcomes               | Course outcome                                                                                                                                                                                                                                                                                                                                                                                                                                         | Subject outcome                                                                                                                                                                                                   | Method of verification                                  |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
|                                 | [OZPL3_K08] The graduate is ready to systematically update his/her natural knowledge and to apply it in practice                                                                                                                                                                                                                                                                                                                                       | The student systematically updates her/his knowledge on ecology of urban areas based on scientific sources and knows its practical application in the sustainable use of biodiversity in these areas              | [SK8] observation of student's independent or team work |
|                                 | [OZPL3_W06] The graduate has an advanced understanding of the names and types of natural environments, including their structural and functional characteristics                                                                                                                                                                                                                                                                                       | The student describes the structure and principles of functioning of ecosystems in urban areas                                                                                                                    | [SW4] test/exam - oral or written                       |
|                                 | [OZPL3_W14] The graduate understands the relationship between the achievements of natural sciences and their potential applications in socio-economic contexts, while considering the sustainable use of biodiversity                                                                                                                                                                                                                                  | The student explains the relationship between the scientific achievements and their possible implementation in the sustainable use of biodiversity in urban areas                                                 | [SW4] test/exam - oral or written                       |
|                                 | [OZPL3_U02] The graduate can read with comprehension scientific texts in the field of natural sciences in Polish and simple texts in English                                                                                                                                                                                                                                                                                                           | The student uses available scientific papers in Polish and simple texts in English                                                                                                                                | [SU8] observation of student's independent or team work |
|                                 | [OZPL3_U07] The graduate is able to draw correct conclusions on the basis of analysis and synthesis of data from various sources                                                                                                                                                                                                                                                                                                                       | The student draws correct conclusions based on the analysis and synthesis of data from various sources to predict the impact of human activities on the protection and development of biodiversity in urban areas | [SU8] observation of student's independent or team work |
| Subject contents                | The ecological network of the town/city. Protected areas in urban ecosystem. Ecological sites. Nature reserves. Nature and landscape complexes. Natural monuments. Documentation sites. Spatial planning and development in urban ecosystem in the context of biodiversity protection. Ecological corridors. Protection of valuable natural areas bordering urbanized areas. The role of society in the protection of biodiversity in urban ecosystem. |                                                                                                                                                                                                                   |                                                         |
| Prerequisites and co-requisites | Knowledge of ecology, botany and zoology                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                   |                                                         |
| Assessment methods and criteria | Subject passing criteria                                                                                                                                                                                                                                                                                                                                                                                                                               | Passing threshold                                                                                                                                                                                                 | Percentage of the final grade                           |
|                                 | written test                                                                                                                                                                                                                                                                                                                                                                                                                                           | 51.0%                                                                                                                                                                                                             | 50.0%                                                   |
|                                 | attendance at classes                                                                                                                                                                                                                                                                                                                                                                                                                                  | 85.0%                                                                                                                                                                                                             | 50.0%                                                   |

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| Recommended reading                                            | Basic literature         | <p>Andrzejewski R. 1980. Fizjografia i ekologiczne kształtowanie środowiska biotycznego na obszarach zurbanizowanych. Człowiek i Środowisko, t.4, nr 4.</p> <p>Przewoźniak M. 2002. Kształtowanie środowiska przyrodniczego miast. Przykłady z regionu gdańskiego.</p> <p>Wyd. Politechniki Gdańskiej, Gdańsk.</p> <p>Richling A. Solon J. 1996. Ekologia krajobrazu. Wydawnictwo Naukowe PWN, W-wa, ss. 318.</p> <p>Symonides E. 2014. Ochrona przyrody. Wydawnictwo Uniwersytetu Warszawskiego, Warszawa</p> <p>Szponar A. 2003. Fizjografia urbanistyczna. Wydawnictwo Naukowe PWN, W-wa, ss.260.</p> <p>Wolański N. 2006. Ekologia człowieka. Wydawnictwo Naukowe PWN, Warszawa.</p> <p>Zimny H. 2005. Ekologia miasta. W-wa, ss. 233.</p>                                                                                                                  |
|                                                                | Supplementary literature | <p>Fudali E. 2009. Antropogeniczne zmiany w ekosystemach. Transformacje roślinności. Wyd. Uniwersytetu Przyrodniczego we Wrocławiu, Wrocław.</p> <p>Gaston K.J. (ed.) 2010. Urban Ecology. Cambridge University Press, Cambridge.</p> <p>Luniak M. (red.) 1990. Urban Ecological Studies in Central and Eastern Europe. Ossolineum, Wrocław.</p> <p>Niemela J., Breuste J. H., Guntenspergen G., McIntyre N. E., Elmquist T., James P. 2011. Urban Ecology: Patterns, Processes, and Applications. Oxford University Press, Oxford.</p> <p>Parris K.M. 2016. Ecology of urban environments. Wiley Blackwell, Oxford.</p> <p>Werner N., Kelcey J.G. 2010. Urban Biodiversity and Design. John Wiley &amp; Sons, Oxford.</p> <p>Wheater C.P. 1999. Urban habitats. Routledge, London and New York.</p> <p>Journals: Problemy Ekologii Krajobrazu, Urban Fauna</p> |
|                                                                | eResources addresses     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Example issues/<br>example questions/<br>tasks being completed |                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Work placement                                                 | Not applicable           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

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