**EDUCATIONAL PROGRAM IN THE POZNAŃ DOCTORAL SCHOOL OF THE**

**INSTITUTES OF THE POLISH ACADEMY OF SCIENCES**

**INSTITUTE OF DENDROLOGY PAS**

**Discipline: biological sciences**

**Program: BIOLOGY 2**

1. **Types of classes held at the Institute of Dendrology PAS**

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| **Category** | **Type of classes** | **ECTS** | **Number of hours1** | **Form of classes** | **Form of credit** |
| **Obligatory classes** | lecture | 4 | 30/120 | lecture | exam |
| seminar2 | 2 | 12/60 | discussion / presentation /  debate /talk | credit |
| **Non-obligatory classes** | lecture/seminar | 2 | 12/50 | the form of classes specified in the syllabus | credit |
| **Working with the supervisor4** | **‒** | ‒ | 60 | **‒** | credit based on a certificate from the supervisor |
| **Didactic activity**  **and popularizing** | taking care of an intern | 2 | 60 | different | credit based on a certificate from the supervisor |
| presentations at conferences /seminars /  workshops5 | 1 | 30 | oral presentations /poster | credit based on a certificate from the supervisor |
| scientific publication6 | 0,5-2 | **‒** | **‒** | publication |
| popular science publication | 0,5 | **‒** | **‒** | publication |
| participation in the organization of conferences / seminars / lectures / scientific meetings, etc. | 1 | 30 | **‒** | credit based on a certificate from the organizer |
| conducting didactic classes | 0,5-4 | ‒ | **‒** | credit based on a certificate from the organizer |

1 Number of organized hours / number of hours of work of a doctoral student (didactic hour is 45 minutes).

2 Obligatory seminars together with the PhD student's reporting session, which will be organized once a semester (30 minutes of oral presentation, for which it is necessary to involve 10 hours of the doctoral student's own work). As part of the reporting session, the doctoral student will learn not only about the research of other doctoral students, but also develop the ability to present and confront his own research results and acquire the ability to master the stress associated with public speaking. Classes are an element of the development of communication skills with the scientific community and are part of the assessment of the doctoral student's progress in scientific work. Classes are credited annually by the deputy coordinator of PDS IPAS on the basis of the presence and the delivered lecture.

3 Optional classes organized by PDS IPAS in selected scientific disciplines conducted by PSD IPAN and, with the supervisor's consent, from outside PDS IPAS.

4 The cooperation of the doctoral student with the supervisor primarily includes the creation of an Individual Research Plan, discussion on the course of the research conducted by the doctoral student, preparation of a doctoral dissertation and preparation of the presentation of results in the form of texts (conference summaries, scientific and popular science publications, etc.), oral presentations and posters . Work with the supervisor may also include the participation of the doctoral student in research (projects) conducted by the supervisor or other employees. The aim of the cooperation between the promoter and the doctoral student is to transfer knowledge and skills as well as to implement the doctoral student for independent and team research work.

5 Presentations at conferences, seminars, workshops - participation in the life of the scientific community, in various forms of meetings, organized at home and abroad, in order to provide the doctoral student with broadening knowledge in his discipline / field and acquire communication skills; credited on the basis of the confirmed active participation of the doctoral student in a convention, conference, workshop with his / her own / co-author oral presentation or a poster. For each active participation, a doctoral student receives 1 ECTS point.

6 Scientific publication - ECTS are awarded for the participation of a doctoral student in the preparation of a publication, if the publication does not specify the participation of authors in its creation, a statement of the doctoral student's direct contribution to the work should be attached, e.g. research, calculations and figures, participation in writing manuscript, etc.

**2. The sum of ECTS points required to complete the education at the Poznań Doctoral School of the**

**Institutes of the Polish Academy of Sciences at the Institute of Dendrology PAS**

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| **Category** | **Type of classes** | **I year** | | **II year** | | **III year** | | **IV year** | |
| **1** | **2** | **1** | **2** | **1** | **2** | **1** | **2** |
| **Obligatory classes** | lecture | 4 | | 4 | |  | |  | |
| seminar | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| **Non-obligatory classes**  **organized by PDS IPAS in selected ones**  **scientific disciplines conducted by PDS IPAS and, with the consent of the promoter, outside PDS IPAS** | non-obligatory classes | At least 8 ECTS | | | | | | | |
| non-obligatory  classes outside the discipline1 |
| **General**  **competences**  **class** |  | At least 6 ECTS | | | | | | | |
| **Didactic and popularizing activities** |  | At least 2 ECTS | | | | | | | |

1. 1-2 non-obligatory classes outside the discipline1

**2. Verification of qualifications at level 8 of the Polish Qualification Framework as an appendix to the education program**

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| **Code of description element in Polish Qualification Framework,**  **level 8** | **Graduate’s learning results** | **The manner of obtaining learning results** | **Assessment methods of learning results** |
| ***P8S\_WG*** | 1. has an advanced knowledge in natural sciences relevant for a particular field and area of research; 2. knows the methodology of scientific research of a particular field; 3. knows scientific publications in their field of study; 4. knows and understands correlations between various fields, which enables cooperation with specialists in other areas | 1. independent learning; 2. work with supervisor; 3. participation in subject seminars and lectures; 4. active participation in scientific environment | 1. supervisor’s assessment of work and progress; 2. examination in basic field; 3. certified active participation; 4. participation and oral presentation at a seminar in the institute |
| ***P8S\_WK*** | (a) knows and understands threats posed to the natural environment by civilisation and knows how to prevent them | 1. independent learning; 2. work with supervisor; 3. participation in institute seminars; 4. participation in scientific environment | 1. supervisor’s assessment of work and progress; 2. examination in basic field; 3. certified active participation |

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|  | (b) knows research methods and techniques necessary to solve research problems, including statistical analysis methods | 1. independent learning; 2. work with supervisor; 3. participation in training courses, seminars and lectures | 1. supervisor’s assessment of work and progress; 2. certified active participation |
| (c) knows the principles of preparing and writing scientific publications, presenting study results (oral presentation, posters) | 1. independent learning; 2. work with supervisor; 3. participation in seminars;   active participation in scientific environment (conventions, conferences,  workshops, seminars) | 1. supervisor’s assessment of work and progress; 2. participation and oral presentation at seminars or scientific conferences; 3. certified active participation |
| 1. knows the principles of obtaining grants for research from various sources; 2. knows basic rules of preparing research projects and basic ethic principles in research | 1. independent learning, 2. work with supervisor; 3. participation in lectures, seminars and workshops; 4. participation in curriculum classes | 1. supervisor’s assessment of work and progress; 2. certified active participation |
| ***P8S\_UW*** | 1. can explain biological phenomena and processes based on knowledge from various sources; 2. can select and interpret the data collected; 3. can independently search for scientific information and use it, create data bases and process them, create   texts, use various presentation techniques | 1. independent work; 2. work with supervisor; 3. active participation in scientific environment (conventions, conferences, workshops, seminars); 4. preparing a doctoral dissertation | 1. supervisor’s assessment of work and progress; 2. documented active participation; 3. doctoral dissertation |

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| ***P8S\_UK*** | | 1. can present the results of their own work in a comprehensive manner and sum up the results of others’ work in a form of a thesis, publication, speech at a conference, study or poster; 2. can publish scientific research results and communicate within scientific environment and outside it in Polish and a foreign language; 3. using their knowledge can search for, analyse, evaluate, select and integrate information from various sources and form critical opinions | | 1. independent work; 2. work with supervisor; 3. active participation in scientific environment; 4. presenting scientific achievements to the public | | 1. supervisor’s assessment of work and progress; 2. documented active participation | |
| ***P8S\_UU*** | | 1. can plan and conduct scientific research within their scope of interest; 2. can manage a scientific team and cooperate with other research teams; 3. participates in, and then conducts classes; 4. applies various teaching forms and methods to share knowledge and skills with various audiences; 5. can give arguments,   create own original opinions, draw conclusions and create problem syntheses | | 1. independent work; 2. work with supervisor; 3. participation in and conducting classes for students; 4. preparing a doctoral dissertation | | 1. supervisor’s assessment of work and progress; 2. documented active participation in classes; 3. doctoral dissertation | |
| ***P8S\_KK*** | | (a) understands and feels the need of constant increasing of their professional and personal competences by learning, particularly in their own field of science   1. shows a critical approach in research, both to their own and others’ work; 2. is aware of the level of their own research competences, their originality, possibility to conduct a research project, creativity and significance of contribution in their field of science; 3. shows creativity in searching for new   research areas and conducting them and actively participates in scientific interchange | | 1. independent work; 2. work with supervisor; 3. participation in scientific environment; 4. presenting science to the public 5. independent work; 6. work with supervisor; 7. participation in scientific environment; 8. preparing a public defence of a doctoral dissertation | | 1. supervisor’s assessment of work and progress; 2. documented active participation | |
| ***P8S\_KR*** | | 1. works in research teams, respects collaborators’ works and experience; 2. understands the need to share the information and opinions on scientific progress with the public, in a commonly understandable manner, with consideration for various points; 3. follows the principles of scientific work ethics and intellectual property principles and best practices in professional work | | 1. independent work; 2. work with supervisor; 3. participation in research project and other works of ID PAS | | 1. supervisor’s assessment of work and progress; 2. documented active participation | |
| ***P8S\_KO*** | | (a) conducts scientific research respecting the natural environment and does not infringe humanitarian principles; abides by safety rules for themselves and others | | 1. independent work; 2. work with supervisor; 3. own research; 4. participation in research project and other works of ID PAS | | 1. supervisor’s assessment of work and progress; 2. documented active participation | |

**Descriptions of abbreviations:**

**P8** – level at PQF, **S** – characteristics typical of higher education qualifications

**W** – **knowledge** (*descriptive category*): **G** – *depth and scope*, **K** – *context*

**U** – **skills** (*descriptive category*): **W** – *using the knowledge*, **K** – c*ommunication*, **O** – *organisation of work*, **U** – *learning*

**K** – **social competences** (*descriptive category*): **K** – *critical grade*, **O** – *responsibility*, **R** – *professional role*