

**Resolution No. 70/XII/2023**  
**of the Jagiellonian University Senate**  
**of 20 December 2023**

on: the education programmes offered in the Doctoral School of Exact and Natural Sciences at the Jagiellonian University for education cycles starting from the academic year 2024/2025

Acting on the basis of Article 28(1) (12) and in connection with Article 201(4) of the Act of 20 July 2018 – Law on Higher Education and Science (Journal of Laws of 2023, item 742, as amended), hereinafter referred to as the Act, the Senate of the Jagiellonian University resolves as follows:

§ 1

The Senate of the Jagiellonian University establishes the following education programmes for the Doctoral School of Exact and Natural Sciences for education cycles starting from the academic year 2024/2025:

- 1) the eight-semester education programmes attached as Annex 1 to the Resolution;
- 2) a six-semester education programme attached as Annex 2 to the Resolution.

§ 2

The resolution comes into force on the date of its adoption.

**Education Programme in Astronomy  
in the discipline of astronomy  
conducted in English  
at the Doctoral School of Exact  
and Natural Sciences**

**I**

**General provisions**

1. The education programme in Astronomy has been developed according to the Act of 20 July 2018 on Law on Higher Education and Science, and the guidelines in force at the Jagiellonian University in Kraków.
2. The education programme leads to achieving learning outcomes for the qualifications at Level 8 of the Polish Qualification Framework (PQF).
3. The education programme lasts 8 semesters.
4. Detailed requirements and eligibility criteria for admission to the programme are defined in the admission terms and conditions as approved by the Jagiellonian University Senate.
5. Within 12 months of the commencement of the education programme, a doctoral student shall submit an Individual Research Plan (IRP) to the programme coordinator for their opinion and submission to the Director of the Doctoral School.
6. A doctoral student is required to achieve a minimum of 40 ECTS credits (ECTS – European Credit Transfer and Accumulation System) allocated to the Astronomy education programme and to attain all the required learning outcomes as specified at the Level 8 of the Polish Qualification Framework. 22 ECTS are to be achieved by the end of the semester in which mid-term assessment is conducted. A doctoral student is obliged to achieve all the learning outcomes at the Level 8 of the Polish Qualification Framework.
7. Detailed instructions for achieving and assessing learning outcomes shall be specified in the syllabuses of the individual courses.

**II**

**Professional traineeship**

1. Professional traineeship shall take the form of teaching or co-teaching classes.

2. In agreement with and at the application of the doctoral student, the programme coordinator may accept other forms of professional traineeship, including didactic traineeship, such as conducting classes promoting science, provided that such a form ensures achieving all the learning outcomes allocated to professional traineeship.
3. The number of hours of professional traineeship shall not exceed 60 teaching hours (a teaching hour equals 45-minutes) per one academic year.

### **III**

#### **Study and research progress assessment**

1. The supervisor(s), in cooperation with the programme coordinator and the Director of the Doctoral School, shall supervise implementing the education programme and the Individual Research Plan of the doctoral student.
2. Annually, but no later than by 17 September, a doctoral student shall submit to the programme coordinator a written report on the implementation of the Individual Research Plan, reviewed by the supervisor(s) and the auxiliary supervisor.
3. The programme coordinator shall assess the degree of implementing the study and research work based on the information from the doctoral student as defined in Point 2, and a report from the University Study-Oriented System (USOS).
4. Changes to the Individual Research Plan, in particular modifying or rescheduling the doctoral student's duties, shall require consulting the programme coordinator.
5. The programme coordinator may decide to reschedule the doctoral student's duties resulting from the education programme and to accept courses or activities not specified in the education programme as part of the performance of the duties (with the relevant allocation of ECTS credits), provided that no changes to the Individual Research Plan are needed.
6. When additional funding is available or in well justified cases, the programme coordinator, in consultation with School representatives of the Jagiellonian University PhD Student Association and the Director of the Doctoral School, may oblige doctoral students to take courses not specified in the education programme.
7. By the end of the 24<sup>th</sup> month of education, a doctoral student shall be subject to mid-term assessment before the assessment committee appointed by the Director of the Doctoral School.
8. The date of the mid-term assessment is established by the Director of the Doctoral School on the proposal of the programme coordinator.
9. One month before the scheduled meeting of the mid-term assessment committee, a doctoral student shall submit to the programme coordinator a written report on the implementation of the education programme and Individual Research Plan. The report has to be approved by the supervisor(s) and the auxiliary supervisor before submission.
10. Meetings of the mid-term assessment committee shall be attended by the committee members, and the doctoral student in those parts to which they have been invited, in accordance with separate provisions.

## IV

### Schedule

#### SCHEDULE FOR THE EDUCATION PROGRAMME IN ASTRONOMY

DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCE EDUCATION PROGRAMME IN ASTRONOMY					
Item (name of the course)	Aim Description	PQF*	Semester	ECTS	No of hours
OBLIGATORY COURSES (28 ECTS MINIMUM)					
English course	English classes at C1 level for PhD students who do not hold a C1 certificate or are not graduates of master's studies conducted in English. Assessment: <b>examination</b>	P8S_UK	I	4	60
Specialist course	Two lectures from at least three offered: Presentation of the foundations and current research problems of a given discipline. Assessment: <b>examination</b>	P8S_WG P8S_UW	I-IV	4/8	60/120
Doctoral seminar	Preparation for research work, analysis and creative synthesis of world scientific achievements, identifying and solving research problems, participating in the exchange of scientific experience and ideas. Assessment: <b>assessment of the paper and activity at the seminar.</b>	P8S_WG P8S_UW	I-VI	4/12	30/90
Workshop under the direct supervision of the supervisor	PhD student research under the direct supervision of the supervisor. Assessment: <b>awarded by the supervisor; with credit</b>	P8S_UW P8S_UK P8S_UO P8S_KK P8S_KR	I-VIII	4/16	60/240

Research workshop	Individual PhD student's research, preparation of the doctoral dissertation Assessment: <b>awarded by the supervisor</b>	P8S_W P8S_U	I-VIII	No ECTS	Up to 8 hours daily
<b>JOINT ELECTIVE ACTIVITIES FOR THE DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES (4 ECTS MINIMUM)</b>					
Doctoral School seminar	Monthly interdisciplinary seminar with lectures in English offered by the guest researchers Assessment: <b>credit</b>	P8S_WG P8S_UW P8S_UK	I-VIII	4 (1 x 4)	Minimum 6 seminars a year
Modern foreign language	A course offered as a second foreign language Assessment: <b>examination</b>	P8S_UU	I-IV	4	60
Polish for foreigners	Assessment: <b>examination</b>	P8S_UU	I-VIII	4	60
General knowledge development	One course out of a range of courses offered before each academic year (e.g. a course in philosophy, ethics, IA or cosmology) Assessment: <b>examination</b>	P8S_UW P8S_KR P8S_WK	I-VIII	2 for each 30 hours	30 or 60
Professional competencies and soft skills development	A course selected by a PhD student from a range of courses offered before each academic year (e.g. career planning, managerial skills, business communication) Assessment: <b>as provided in the course syllabus</b>	P8S_WK P8S_KR P8S_KO	I-VIII	2 for each 30 hours	30

OPTIONAL ACTIVITIES DEVELOPING PROFESSIONAL COMPETENCIES (4 ECTS MINIMUM)					
Astronomical Observatory Seminar	Participation in chosen seminars to broaden the knowledge of the recent astronomy achievements and to learn how to deliver seminars. Assessment: <b>credit based on a PhD student's declaration that s/he participated in at least 10 seminars during the year.</b>	P8U_U P8U_W	I-VIII	1/8	minimum 5 seminars per semester
Other courses and activities leading to attaining competences to accomplish IRP	For example: summer schools, courses completed at other universities, including foreign universities. Assessment: <b>as provided in the course syllabus</b>	P8S_KK P8S_UO	I-VIII	According to the programme envisaged by the programme coordinator	35 hours minimum
TRAINEESHIP					
Traineeship in academic didactics	Preparation for work as an academic teacher: developing communication skills and knowledge transfer skills. Assessment: <b>credit based on the opinion issued by a person supervising conducting classes by a PhD student</b>	P8U_U P8U_K	I-VIII	1 for 15 hours	Up to 60 hrs a year
Traineeship in a company	Optional; in an industrial company or other company relevant to the PhD student, for a total of 3 months. Assessment: <b>credit based on the participation certificate from the company</b>	P8U_U P8U_K	IV-VIII	1 ECTS point for 35 hours of internship	Up to 3 months

**Additional obligatory courses:**

1. PhD students who start their education in the Doctoral School are required to complete a **Health and Safety at Work** training / BHP.
2. **First Aid** course (theoretical part and practical part) is to be completed by the end of the 2<sup>nd</sup> semester.
3. PhD students who plan research involving vertebrate animals are required to take training to obtain appropriate qualifications.

\*PQF /PRK – Polish Qualifications Framework / Polska Rama Kwalifikacji in accordance with the Regulation of the Minister of Science and Higher Education on the characteristics of second-level learning outcomes for qualifications at Levels 6-8 of the Polish Qualifications Framework.

<https://prk.men.gov.pl/en/en/>

Conducting research and preparing a doctoral dissertation within the meaning of Article 187(3) of the Act of 20 July 2018 - Law on Higher Education and Science (i.e. Journal of Laws of 2023, item 742 as amended) fulfills in part achieving all types of learning outcomes for qualifications at Level 8 of the PQF. The achievement of these outcomes is verified by the supervisor.

Doctoral students with disabilities and persons in a special health situation may apply for the adaptation of the education process realisation to their needs, according to the principles specified in the order of the Jagiellonian University Rector.

## V

### **Final provision**

The *Astronomy* education programme in the discipline of astronomy at the Doctoral School of Exact and Natural Sciences shall enter into force on the date of the Resolution.

**Education Programme in Biochemistry, Biophysics,  
Molecular Biology and Biotechnology  
in the discipline of biological sciences  
conducted in Polish  
at the Doctoral School of Exact  
and Natural Sciences**

**I**

**General provisions**

1. The education programme in Biochemistry, Biophysics, Molecular Biology and Biotechnology has been developed according to the Act of 20 July 2018 on Law on Higher Education and Science and the guidelines in force at the Jagiellonian University in Kraków.
2. The education programme leads to achieving learning outcomes for the qualifications at Level 8 of the Polish Qualification Framework (PQF).
3. The education programme in Biomedical Sciences lasts 8 semesters.
4. Polish is a medium of instruction of the education programme. Courses can also be taught in English.
5. Detailed requirements and eligibility criteria for admission to the programme are defined in the admission terms and conditions as approved by the Jagiellonian University Senate.
6. Within 12 months of the commencement of the programme, a doctoral student shall submit an Individual Research Plan (IRP) to the education programme coordinator for their opinion and submission to the Director of the Doctoral School.
7. A doctoral student is required to achieve a minimum of 40 ECTS credits (ECTS – European Credit Transfer and Accumulation System) allocated to the Biochemistry, Biophysics, Molecular Biology and Biotechnology education programme and to attain all the required learning outcomes at the Level 8 of the Polish Qualification Framework, of which:
  - a minimum of 30 ECTS is related to the preparation to conduct and communicate research;
  - a minimum of 8 ECTS is completed within the framework of elective classes developing professional and didactic skills;
  - a minimum of 25 ECTS is completed by the end of the semester in which mid-term assessment is conducted;
  - a minimum of 10 ECTS is completed in the form of teaching or co-teaching classes.
8. Detailed instruction for achieving and assessing learning outcomes shall be specified in the syllabuses of the individual courses.



## **II**

### **Professional traineeship**

1. Professional traineeship shall take the form of teaching or co-teaching.
2. In agreement and at the application of a doctoral student, the programme coordinator may accept other forms of professional traineeship, including didactic traineeship, such as conducting classes promoting science, providing such a form ensures achieving all the learning outcomes allocated to the professional traineeship.
3. A doctoral student is required to conduct 120 teaching hours during the entire programme, of which a maximum of 40 teaching hours may be in the form of class observation.
4. The number of hours of professional traineeship shall not exceed 60 teaching hours (a teaching hour equals 45 minutes) per academic year.

## **III**

### **Study and research progress assessment**

1. The supervisor(s), in cooperation with the programme coordinator and the Director of the Doctoral School, shall supervise implementing the education programme and the Individual Research Plan of the doctoral student.
2. Annually, but no later than by 17 September, a doctoral student shall submit to the programme coordinator a written report on the implementation of the Individual Research Plan, reviewed by the supervisor(s) and the auxiliary supervisor.
3. The programme coordinator shall assess the degree of implementing the study and research work based on information from the doctoral student as defined in point 2, and a report from the University Study-Oriented System (USOS).
4. Any change to the Individual Research Plan, in particular modifying or rescheduling the doctoral student's duties, shall require consulting the programme coordinator.
5. The programme coordinator may decide to reschedule the doctoral student's duties resulting from the education programme and to accept courses or activities not specified in the education programme as part of the performance of the duties (with the relevant allocation of ECTS credits), provided that changes to the Individual Research Plan are not needed. Such courses may be taken in place of obligatory courses as well as other courses.
6. When additional funding is available or in well justified cases, the programme coordinator, in consultation with School representatives of the Jagiellonian University PhD Student Association and the Director of the Doctoral School, may oblige doctoral students to take courses not specified in the education programme.
7. The date of the mid-term assessment is established by the Director of the Doctoral School on the proposal of the programme coordinator.
8. One month before the scheduled meeting of the mid-term assessment committee, the doctoral student shall submit to the programme coordinator a written report on the implementation of the Individual Research Plan. The report has to be approved by the supervisor(s) and the auxiliary supervisor before submission.

9. Meetings of the mid-term assessment committee shall be attended by the committee members, and the doctoral student in those parts to which they have been invited, in accordance with separate provisions.

## **IV Schedule**

**SCHEDULE FOR THE EDUCATION PROGRAMME IN BIOCHEMISTRY, BIOPHYSICS,  
MOLECULAR BIOLOGY AND BIOTECHNOLOGY**

<b>DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES EDUCATION PROGRAMME IN BIOCHEMISTRY, BIOPHYSICS, MOLECULAR BIOLOGY AND BIOTECHNOLOGY</b>						
<b>Item</b>	<b>Aim</b>	<b>Description</b>	<b>PQF*</b>	<b>Semester</b>	<b>No of ECTS</b>	<b>No of hours</b>
<b>OBLIGATORY COURSES AT THE DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES (16 ECTS)</b>						
Specialist seminar		Seminar: to present the PhD student's own results against the achievements in the field, to solve research problems, to share research experience and ideas. Assessment: <b>an oral presentation and active participation in discussions</b>	P8S_WG P8S_UW P8S_UK P8S_KK	I-VIII	8	120
English		English classes at C1 level for the PhD students who do not hold a C1 certificate or are not graduates of master studies conducted in English. Assessment: <b>examination</b>	P8S_UK	I-II	4	60
Tutorial with the supervisor		Preparation of the individual research project, verification of the work plan, preparation of presentations on the project, editorial work on publication. Assessment: <b>approval of the work progress by the supervisor</b>	P8S_WG P8S_UW P8S_UK P8S_KK	I-VIII	4	60

**ELECTIVE JOINT ACTIVITIES FOR THE DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES(MINIMUM 6 ECTS)**

Doctoral School Seminar	A monthly interdisciplinary seminar with lectures in English delivered by invited researchers. Assessment: <b>credit based on participation</b>	P8S_WG P8S_UW P8S_UK	I-VIII	4 (1 x 4)	Minimum 6 seminars a year
Modern foreign language	As a second foreign language Assessment: <b>examination</b>	P8S_UU	I-IV	4	60
Polish language course for foreigners	Assessment: <b>examination</b>	P8S_UU	I-VIII	4	60
General knowledge development course	One course out of a range of courses offered before each academic year (e.g. a course in philosophy, ethics, IA or cosmology) Assessment: <b>examination</b>	P8S_UW P8S_KR P8S_WK	I-VIII	2 for 30 hours	30 or 60
Professional competencies and soft skills development	A course selected by a PhD student from a range of courses offered before each academic year (e.g. career planning, managerial skills, business communication) Assessment: <b>as provided in the course syllabus</b>	P8S_WKP 8S_KRP8 S_KO	I-VIII	2 for 30 hours	30

**ELECTIVE ACTIVITIES DEVELOPING PROFESSIONAL SKILLS (MINIMUM 6 ECTS)**

Lecture: Progress in Biochemistry and Molecular Biology	Lectures delivered by the specialists in biochemistry and molecular biology (from the University Faculty of Biochemistry, Biophysics and Biotechnology) on the recent research and achievements in the fields. Assessment: <b>examination</b>	P8S_WG P8S_KK	II	2	30
English-language advanced course in biophysics	Lectures delivered by the specialists in biophysics (from the Faculty of Biochemistry, Biophysics and Biotechnology) on the advanced issues of modern biophysics. Assessment: <b>examination</b>	P8S_WG P8S_UK P8S_KK	I	2	30
English-language course in bioethics	Lectures and seminars on the ethical aspects of scientific research in the field of modern life sciences, in particular molecular biology and biotechnology. Assessment: <b>presentation</b>	P8S_WK P8S_UK P8S_KR	I-IV	2	30
Animals in scientific research - a practical training for PhD students	Classes and seminars aimed at preparing PhD students to independently design, prepare and conduct a scientific experiment with the use of laboratory animals, with the main emphasis on learning and improving practical skills. Assessment: seminar: <b>presentation</b> , classes: <b>written credit</b>	P8S_WG P8S_UK P8S_KK	I-IV	3	45

<p>Scientific publication methodology - a course for PhD students</p>	<p>Workshops and practical classes devoted to the methodology of writing a scientific publication, presentation of results, preparation of responses to reviews (grant, publication, etc.), preparation of a dissertation and editing of a grant application. The specifics of "scientific English" (classes with a "native speaker") are also discussed.</p> <p>Assessment: <b>active participation and preparation of two written works: a poster or presentation in PP and a grant application.</b></p>	<p>P8S_WK P8S_UW P8S_UK P8S_KR</p>	<p>I-IV</p>	<p>2</p>	<p>30</p>
<p>Specialist lectures (including lectures of visiting professors)</p>	<p>Lectures on the recent achievements in natural sciences, offered by specialists, including visiting professors.</p> <p>Assessment: <b>presence at the lectures</b></p>	<p>P8S_WG P8S_UK P8S_KK</p>	<p>I-VIII</p>	<p>3 1 for a 15-hour lecture</p>	<p>45</p>
<p>Courses and activities leading to attaining competences to accomplish Individual Research Plan (e.g. summer schools, courses completed at other universities, including foreign universities).</p>	<p>Assessment: <b>as provided in the course syllabus</b></p>				
<p><b>ACTIVITIES DEVELOPING TEACHING SKILLS</b></p>					

<p>Teaching methods and IT tools in didactics and scientific work</p>	<p>Lecture, seminars, distance learning labs. To familiarise PhD students with the basic teaching problems, in particular the teaching methods and techniques, the methodology of designing and evaluating tests and reports. The students learn how to operate a distance learning platform PEGAZ, as well as two programs relevant in scientific work: 1. bibliography management system Mendeley, 2. program for data analysis and processing GraphPad Prism.  Assessment: <b>practical tasks and oral presentation</b></p>	<p>P8S_WK P8S_UU</p>	<p>I-IV</p>	<p>3</p>	<p>45</p>
<p>University didactics for natural sciences</p>	<p>Workshop: to prepare PhD students for conducting classes for the students of natural sciences.  Assessment: <b>active participation in workshops and at the distance learning platform. Written and oral presentation of the class scenario.</b></p>	<p>P8S_WK P8S_UU</p>	<p>I-IV</p>	<p>2</p>	<p>30</p>
<p><b>TRAINEESHIP (MINIMUM 10 ECTS)</b></p>					

Traineeship in academic didactics	Preparation for work as an academic teacher: developing communication skills and knowledge transfer skills. Assessment: <b>credit based on the opinion issued by a person supervising conducting classes by a PhD student</b>	P8S_UO	I-VIII	10	120
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**Additional obligatory courses:**

1. PhD students who start their education in the Doctoral School are required to complete a **Health and Safety at Work** training / BHP.
2. **First Aid** course (theoretical part and practical part) is to be completed by the end of the 2<sup>nd</sup> semester.
3. PhD students who plan research involving vertebrate animals are required to take training to obtain appropriate qualifications.

\*PQF /PRK – Polish Qualifications Framework / *Polska Rama Kwalifikacji* in accordance with the Regulation of the Minister of Science and Higher Education on the characteristics of second-level learning outcomes for qualifications at Levels 6-8 of the Polish Qualifications Framework.

<https://prk.men.gov.pl/en/1en/>

Conducting research and preparing a doctoral dissertation within the meaning of Article 187(3) of the Act of 20 July 2018 - Law on Higher Education and Science (i.e. Journal of Laws of 2023, item 742 as amended) fulfills in part achieving all types of learning outcomes for qualifications at Level 8 of the PQF. The achievement of these outcomes is verified by the supervisor.

Doctoral students with disabilities and persons in a special health situation may apply for the adaptation of the education process realisation to their needs, according to the principles specified in the order of the Jagiellonian University Rector.

## V

### Final provision

The *Biochemistry, Biophysics, Molecular Biology and Biotechnology* education programme in the discipline of biological sciences at the Doctoral School of Exact and Natural Sciences shall enter into force on the date of the Resolution.



**Education Programme in Biology  
in the discipline of biological sciences  
conducted in Polish  
at the Doctoral School of Exact  
and Natural Sciences**

**I**

**General provisions**

1. The education programme in Biology has been developed according to the Act of 20 July 2018 on Law on Higher Education and Science and the guidelines in force at the Jagiellonian University in Kraków.
2. The education programme leads to achieving learning outcomes for the qualifications at Level 8 of the Polish Qualification Framework (PQF).
3. The education programme in Biology lasts 8 semesters.
4. Polish is a medium of instruction of the programme.
5. Detailed requirements and eligibility criteria for admission to the programme are defined in the admission terms and conditions as approved by the Jagiellonian University Senate.
6. Within 12 months of the commencement of the programme, a doctoral student shall submit an Individual Research Plan (IRP) to the education programme coordinator for their opinion and submission to the Director of the Doctoral School.
7. A doctoral student is required to achieve a minimum of 40 ECTS credits (ECTS – European Credit Transfer and Accumulation System) allocated to the Biology education programme and to attain all the required learning outcomes at the Level 8 of the Polish Qualification Framework, of which:
  - a minimum of 30 ECTS is related to the preparation to conduct and communicate research;
  - a minimum of 24 ECTS is completed within the framework of elective classes developing professional skills;
  - a minimum of 25 ECTS is completed by the end of the semester in which mid-term assessment is conducted.
8. Detailed instruction for achieving and assessing learning outcomes shall be specified in the syllabuses of the individual courses.

**II**

**Professional traineeship**

1. Professional traineeship shall take the form of teaching or co-teaching.
2. The rules of traineeship for doctoral students in the Biology programme shall be determined by the Director in agreement with the Deputy Dean of the Faculty of Biology of the Jagiellonian University .

3. The number of hours of professional traineeship shall not exceed 60 teaching hours (a teaching hour equals 45 minutes) per academic year.
4. The 1<sup>st</sup> year doctoral students shall only assist in teaching classes of a minimum of 10 teaching hours, from which they prepare a note with the signature of the course coordinator or of the supervisor, and attend classes developing their teaching skills.

### **III**

#### **Study and research progress assessment**

1. The supervisor(s), in cooperation with the programme coordinator and the Director of the Doctoral School, shall supervise implementing the education programme and the Individual Research Plan of the doctoral student.
2. Annually, but no later than at the end of the 17<sup>th</sup> month after the commencement of the education at the Doctoral School, a doctoral student shall submit to the programme coordinator a written report on the implementation of the Individual Research Plan, reviewed by the supervisor(s) and the auxiliary supervisor. The report shall include, in particular: a brief summary of the doctoral student's research (on scientific progress and progress on the dissertation) and teaching activities.
3. Verification of the implementation of the programme is carried out by the programme coordinator.
4. The programme coordinator shall evaluate the implementation of the programme and research progress on the basis of: the opinion of the supervisor(s) and credit for the courses included in the education programme schedule.
5. The programme coordinator may decide to reschedule the doctoral student's duties resulting from the education programme and to accept courses or activities not specified in the education programme as part of the performance of the duties (with the relevant allocation of ECTS credits), provided that changes to the Individual Research Plan are not needed. Such courses may be taken in place of obligatory courses as well as other courses.
6. When additional funding is available or in well justified cases, the programme coordinator, in consultation with School representatives of the Jagiellonian University PhD Student Association and the Director of the Doctoral School, may oblige doctoral students to take courses not specified in the education programme.
7. By the end of the 24<sup>th</sup> month of education, a doctoral student shall be subject to mid-term assessment before the assessment committee appointed by the Director of the Doctoral School.
8. The date of the mid-term assessment is established by the Director of the Doctoral School on the proposal of the programme coordinator.
9. One month before the scheduled meeting of the mid-term assessment committee, the doctoral student shall submit to the programme coordinator a written report on the implementation of the Individual Research Plan. The report has to be approved by the supervisor(s) and the auxiliary supervisor before submission.
10. Prior to the scheduled date of the mid-term assessment, the supervisor may organise an open session at which the doctoral student will present the degree of progress of the Individual Research Plan. The date and format of the session shall be determined by the education programme coordinator.

## **IV Schedule**

## SCHEDULE FOR THE EDUCATION PROGRAMME IN BIOLOGY

<b>DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES EDUCATION PROGRAMME IN BIOLOGY</b>						
Item	Aim	Description	PQF*/ PRK	Semest er	No of ECTS	No of hours
<b>OBLIGATORY COURSES WITHIN THE DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES (MINIMUM 6 ECTS)</b>						
Doctoral School Seminar conducted in English		Assessment: <b>credit based on participation</b>	P8S_WG P8S_UW P8S_UK	V-VIII	2 (1+1)	Minimum 6 seminars a year
Philosophy (Philosophy of nature)		Assessment: <b>credit with a grade</b>	P8S_WK	V-VI	4	30 hours - lectures 15 or 30 hours - seminars
<b>ELECTIVE JOINT ACTIVITIES FOR THE DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES (MINIMUM 4 ECTS)</b>						
English		Assessment: <b>examination</b>	P8S_UK	I-II	4	60 hours
Polish for foreigners		Assessment: <b>examination</b>	P8S_UU	I-IV	4	60 hours
Modern foreign language (as a second foreign language)		Assessment: <b>examination</b>	P8S_UU	I-IV	4	60 hours

Activities enhancing professional and soft skills development (career planning, managerial skills, business communication, e.g. <i>Document and literature management as tools to facilitate working on a doctoral dissertation</i> ), <i>Elements of rhetoric and communication</i> offered by the Jagiellonian Competence Development Center.	Assessment: <b>credit</b>	P8S_WK P8S_KR P8S_KO	I-VIII		
<b>ELECTIVE ACTIVITIES DEVELOPING PROFESSIONAL SKILLS (MINIMUM 24 ECTS)</b>					
<b>OBLIGATORY TO OBTAIN - 16 ECTS</b>					
Methodology and methods (I year)	Assessment: <b>credit</b>	P8S_UW P8S_UO	I-II	2 (2 x 1)	2 x 25 hours
Methodology and methods (II year)	Assessment: <b>credit</b>	P8S_UW P8S_UO	III-IV	4 (2 x 2)	2 x 40 hours
Methodology and methods (III year)	Assessment: <b>credit</b>	P8S_UW P8S_UO	V-VI	2 (2 x 1)	2 x 25 hours
Methodology and methods (IV year)	Assessment: <b>credit</b>	P8S_UW P8S_UO	VII-VIII	2 (2 x 1)	2 x 25 hours
Seminars (I year)	Assessment: <b>credit</b>	P8S_UK	I-II	2 (2 x 1)	2 x 15 hours
Seminars (II year)	Assessment: <b>credit</b>	P8S_UK	III-IV	2 (2 x 1)	2 x 15 hours
Seminars (III year)	Assessment: <b>credit</b>	P8S_UK	V-VI	2 (2 x 1)	2 x 15

					hours
<b>CORE COURSES TO CHOOSE FROM: MINIMUM 2 OFFERED EVERY 2 YEARS (MINIMUM 8 ECTS)</b>					
Developmental Biology	Assessment: <b>examination</b>	P8S_WG P8S_UW P8S_KK	I-IV	4	60 hours – lecture
Recent Achievements and Discoveries in Botany	Assessment: <b>examination</b>			4	60 hours – lecture
Progress in Cell Biology	Assessment: <b>examination</b>			4	60 hours – lecture
Molecular Ecology for PhD Students	Assessment: <b>examination</b>			4	15 hours – lecture 15 hours – class 15 hours – seminar
Methodological Workshop in Evolutionary Biology – grant writing Methodological Workshop in Evolutionary Biology – practical part	Assessment: <b>credit with a grade</b>			4 (2 x 2)	30 hours + 30 hours workshop
Courses and activities leading to attaining competences to accomplish Individual Research Plan (e.g. summer schools, courses completed at other universities, including foreign universities), No. of ECTS and No. of hours determined individually for each course	Assessment: <b>as provided in the course syllabus</b>		I-VI		
<b>OTHER COURSES TO CHOOSE FROM</b>					

Statistics for research	Assessment: <b>examination</b>	P8S_UW	III-V	4	30 hrs – seminar 15 hrs – practical classes
Research funding and managing research projects	Assessment: <b>credit</b>	P8S_UU P8S_UO	I	1	15 hours – seminar
Intellectual property protection system	Assessment: <b>credit</b>	P8S_KR	I	1	15 hours – seminar
<b>ACTIVITIES DEVELOPING TEACHING SKILLS (MINIMUM 6 ECTS)</b>					
University didactics in natural sciences	Assessment: <b>credit with a grade</b>	P8S_UU	I-II	3	30 hours – workshops
Traineeship in academic didactics	<b>Classes observation report on teaching given by the PhD Student</b>	P8S_UU	In accordance with the guidelines adopted at the Faculty	direct teaching hours 10 hours – 1 ECTS (max. 6 ECTS within the entire course of education)	minimum 10 hours a year
<p><b>Additional obligatory courses:</b></p> <ol style="list-style-type: none"> <li>1. PhD students who start their education in the Doctoral School are required to complete a <b>Health and Safety at Work</b> training / BHP.</li> <li>2. <b>First Aid</b> course (theoretical part and practical part) is to be completed by the end of the 2<sup>nd</sup> semester.</li> <li>3. PhD students who plan research involving vertebrate animals are required to take training to obtain appropriate qualifications.</li> </ol>					

\*PQF /PRK – Polish Qualifications Framework / *Polska Rama Kwalifikacji* in accordance with the Regulation of the Minister of Science and Higher Education on the characteristics of second-level learning outcomes for qualifications at Levels 6-8 of the Polish Qualifications Framework.

<https://prk.men.gov.pl/en/1en/>

Conducting research and preparing a doctoral dissertation within the meaning of Article 187(3) of the Act of 20 July 2018 - Law on Higher Education and Science (i.e. Journal of Laws of 2023, item 742 as amended) fulfills in part achieving all types of learning outcomes for qualifications at Level 8 of the PQF. The achievement of these outcomes is verified by the supervisor.

Doctoral students with disabilities and persons in a special health situation may apply for the adaptation of the education process realisation to their needs, according to the principles specified in the order of the Jagiellonian University Rector.

## V

### **Final provision**

The *Biology* education programme in the discipline of biological sciences at the Doctoral School of Exact and Natural Sciences shall enter into force on the date of the Resolution.



**Education Programme in Biology  
in the discipline of biological sciences  
conducted in English  
at the Doctoral School of Exact  
and Natural Sciences**

**I**

**General provisions**

1. The education programme in Biology has been developed according to the Act of 20 July 2018 on Law on Higher Education and Science and the guidelines in force at the Jagiellonian University in Kraków.
2. The education programme leads to achieving learning outcomes for the qualifications at Level 8 of the Polish Qualification Framework (PQF).
3. The education programme in Biology lasts 8 semesters.
4. English is a medium of instruction of the programme.
5. Detailed requirements and eligibility criteria for admission to the programme are defined in the admission terms and conditions as approved by the Jagiellonian University Senate.
6. Within 12 months of the commencement of the programme, a doctoral student shall submit an Individual Research Plan (IRP) to the education programme coordinator for their opinion and submission to the Director of the Doctoral School.
7. A doctoral student is required to achieve a minimum of 40 ECTS credits (ECTS – European Credit Transfer and Accumulation System) allocated to the Biology education programme and to attain all the required learning outcomes at the Level 8 of the Polish Qualification Framework, of which:
  - a minimum of 30 ECTS is related to the preparation to conduct and communicate research;
  - a minimum of 24 ECTS is completed within the framework of elective classes developing professional skills;
  - a minimum of 25 ECTS is completed by the end of the semester in which mid-term assessment is conducted.
8. Detailed instruction for achieving and assessing learning outcomes shall be specified in the syllabuses of the individual courses.

**II**

**Professional traineeship**

1. Professional traineeship shall take the form of teaching or co-teaching.

2. The rules of traineeship for doctoral students in the Biology programme shall be determined by the Director in agreement with the Deputy Dean of the Faculty of Biology of the Jagiellonian University .
3. The number of hours of professional traineeship shall not exceed 60 teaching hours (a teaching hour equals 45 minutes) per academic year.
4. The 1<sup>st</sup> year doctoral students shall only assist in teaching classes of a minimum of 10 teaching hours, from which they prepare a note with the signature of the course coordinator or of the supervisor, and attend classes developing their teaching skills.

### **III**

#### **Study and research progress assessment**

1. The supervisor(s), in cooperation with the programme coordinator and the Director of the Doctoral School, shall supervise implementing the education programme and the Individual Research Plan of the doctoral student.
2. Annually, but no later than by 17 September, a doctoral student shall submit to the programme coordinator a written report on the implementation of the Individual Research Plan, reviewed by the supervisor(s) and the auxiliary supervisor. The report shall include, in particular: a brief summary of the doctoral student's research (both on scientific progress and progress in the preparation of the dissertation) and teaching activities.
3. Verification of the implementation of the programme is carried out by the programme coordinator.
4. The programme coordinator shall evaluate the implementation of the programme and research progress on the basis of: the opinion of the supervisor(s) and credit for the courses included in the education programme schedule.
5. The programme coordinator may decide to reschedule the doctoral student's duties resulting from the education programme and to accept courses or activities not specified in the education programme as part of the performance of the duties (with the relevant allocation of ECTS credits), provided that changes to the Individual Research Plan are not needed. Such courses may be taken in place of obligatory courses as well as other courses.
6. When additional funding is available or in well justified cases, the programme coordinator, in consultation with School representatives of the Jagiellonian University PhD Student Association and the Director of the Doctoral School, may oblige doctoral students to take courses not specified in the education programme.
7. By the end of the 24<sup>th</sup> month of education, a doctoral student shall be subject to mid-term assessment before the assessment committee appointed by the Director of the Doctoral School.
8. The date of the mid-term assessment is established by the Director of the Doctoral School on the proposal of the programme coordinator.
9. One month before the scheduled meeting of the mid-term assessment committee, the doctoral student shall submit to the programme coordinator a written report on the

implementation of the Individual Research Plan. The report has to be approved by the supervisor(s) and the auxiliary supervisor before submission.

Prior to the scheduled date of the mid-term assessment, the supervisor may organise an open session at which the doctoral student will present the degree of progress of the Individual Research Plan. The date and format of the session shall be determined by the education programme coordinator.

## **IV Schedule**

## SCHEDULE FOR THE EDUCATION PROGRAMME IN BIOLOGY

<b>DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES EDUCATION PROGRAMME IN BIOLOGY</b>						
<b>Item</b>	<b>Aim</b>	<b>Description</b>	<b>PQF*</b>	<b>Semester</b>	<b>No of ECTS</b>	<b>No of hours</b>
<b>OBLIGATORY COURSES WITHIN THE DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES (MINIMUM 6 ECTS)</b>						
Doctoral School Seminar conducted in English		Assessment: <b>credit based on participation</b>	P8S_WG P8S_UW P8S_UK	V-VIII	2 (1+1)	Minimum 6 seminars a year
Philosophy (Philosophy of nature)		Assessment: <b>credit with a grade</b>	P8S_WK	V-VI	4	30 hours - lectures 15 or 30 hours - seminars
<b>ELECTIVE JOINT ACTIVITIES FOR THE DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES (MINIMUM 4 ECTS)</b>						
English for Environmental Sciences		Assessment: <b>examination</b>	P8S_UK	I-II	4	60 hours
Polish for foreigners		Assessment: <b>examination</b>	P8S_UU	I-IV	4	60 hours
Modern foreign language (as a second foreign language)		Assessment: <b>examination</b>	P8S_UU	I-IV	4	60 hours

Activities enhancing professional and soft skills development (career planning, managerial skills, business communication, e.g. <i>Document and literature management as tools to facilitate working on a doctoral dissertation</i> ), <i>Elements of rhetoric and communication</i> offered by the Jagiellonian Competence Development Center.	Assessment: <b>credit</b>	P8S_WK P8S_KR P8S_KO	I-VIII		
<b>ELECTIVE ACTIVITIES DEVELOPING PROFESSIONAL SKILLS (MINIMUM 24 ECTS)</b>					
<b>OBLIGATORY TO OBTAIN - 16 ECTS</b>					
Evaluation of progress in PhD thesis (I year)	Assessment: <b>credit</b>	P8S_UW P8S_UO	I-II	2 (2 x 1)	2 x 25 hours
Evaluation of progress in PhD thesis (II year)	Assessment: <b>credit</b>	P8S_UW P8S_UO	III-IV	4 (2 x 2)	2 x 40 hours
Evaluation of progress in PhD thesis (III year)	Assessment: <b>credit</b>	P8S_UW P8S_UO	V-VI	2 (2 x 1)	2 x 25 hours
Evaluation of progress in PhD thesis (IV year)	Assessment: <b>credit</b>	P8S_UW P8S_UO	VII-VIII	2 (2 x 1)	2 x 25 hours
Seminars I	Assessment: <b>credit</b>	P8S_UK	I-II	2 (2 x 1)	2 x 15 hours
Seminars II	Assessment: <b>credit</b>	P8S_UK	III-IV	2 (2 x 1)	2 x 15 hours
Seminars III	Assessment: <b>credit</b>	P8S_UK	V-VI	2 (2 x 1)	2 x 15

					hours
<b>CORE COURSES TO CHOOSE FROM: MINIMUM 2 OFFERED EVERY 2 YEARS (MINIMUM 8 ECTS)</b>					
Biomedical research methods: from antigen to antibody and beyond	Assessment: <b>credit with a grade</b>	P8S_WG P8S_UW P8S_KK	I-IV	4	15 hours – lecture 25 hours – seminar
Methods in environmental sciences and nature conservation	Assessment: <b>credit with a grade</b>			4	50 hours – laboratory and field workshops
Molecular Ecology for PhD Students	Assessment: <b>examination</b>			4	15 hours – lecture 15 hours – class 15 hours – seminar
Methodological Workshop in Evolutionary Biology – grant writing Methodological Workshop in Evolutionary Biology – practical part	Assessment: <b>credit with a grade</b>			4 (2 x 2)	30 hours + 30 hours workshop
Courses and activities leading to attaining competences to accomplish Individual Research Plan (e.g. summer schools, courses completed at other universities, including foreign universities), No. of ECTS and No. of hours determined individually for each course	Assessment: <b>as provided in the course syllabus</b>		I-VI		
<b>OTHER COURSES TO CHOOSE FROM</b>					
Statistics for research sciences	Assessment: <b>examination</b>	P8S_UW	III-V	4	30 hours – seminar 15 hours – practical

					classes
Advanced Research Communication	Assessment: <b>credit with a grade</b>	P8S_WG P8S_KK	II	3	10 hours – lecture 20 hours – practical classes
<b>ACTIVITIES DEVELOPING TEACHING SKILLS (MINIMUM 6 ECTS)</b>					
Efficient Teaching	Assessment: <b>credit with a grade</b>	P8S_UU	I-II	3	30 hours – workshops
Traineeship in academic didactics	<b>Class observation report on teaching given by the PhD Student</b>	P8S_UU	In accordance with the guidelines adopted at the Faculty	direct teaching hours 10 hours – 1 ECTS (max. 6 ECTS within the entire course of education)	minimum 10 hours a year
<p><b>Additional obligatory courses:</b></p> <ol style="list-style-type: none"> <li>1. PhD students who start their education in the Doctoral School are required to complete a <b>Health and Safety at Work</b> training / BHP.</li> <li>2. <b>First Aid</b> course (theoretical part and practical part) is to be completed by the end of the 2<sup>nd</sup> semester.</li> <li>3. PhD students who plan research involving vertebrate animals are required to take training to obtain appropriate qualifications.</li> </ol>					

\*PQF /PRK – Polish Qualifications Framework / *Polska Rama Kwalifikacji* in accordance with the Regulation of the Minister of Science and Higher Education on the characteristics of second-level learning outcomes for qualifications at Levels 6-8 of the Polish Qualifications Framework.

<https://prk.men.gov.pl/en/1en/>

Conducting research and preparing a doctoral dissertation within the meaning of Article 187(3) of the Act of 20 July 2018 - Law on Higher Education and Science (i.e. Journal of Laws of 2023, item 742 as amended) fulfills in part achieving all types of learning outcomes for qualifications at Level 8 of the PQF. The achievement of these outcomes is verified by the supervisor.

Doctoral students with disabilities and persons in a special health situation may apply for the adaptation of the education process realisation to their needs, according to the principles specified in the order of the Jagiellonian University Rector.

## V

### **Final provision**

The *Biology* education programme in the discipline of biological sciences at the Doctoral School of Exact and Natural Sciences shall enter into force on the date of the Resolution.



**Education Programme  
in Biomedical Sciences ((8 semesters)  
in the discipline of biological sciences  
conducted in English  
at the Doctoral School of Exact  
and Natural Sciences**

**I**

**General provisions**

1. The education programme in Biomedical Sciences has been developed according to the Act of 20 July 2018 on Law on Higher Education and Science and the guidelines in force at the Jagiellonian University in Kraków.
2. The education programme leads to achieving learning outcomes for the qualifications at Level 8 of the Polish Qualification Framework (PQF).
3. The education programme in Biomedical Sciences lasts 8 semesters.
4. English is a medium of instruction of the education programme in Biomedical Sciences.
5. Detailed requirements and eligibility criteria for admission to the programme are defined in the admission terms and conditions as approved by the Jagiellonian University Senate.
6. Within 12 months of the commencement of the programme, a doctoral student shall submit an Individual Research Plan (IRP) to the education programme coordinator for their opinion and submission to the Director of the Doctoral School.
7. A doctoral student is required to achieve a minimum of 40 ECTS credits (ECTS – European Credit Transfer and Accumulation System) allocated to the Biomedical Sciences education programme and to attain all the required learning outcomes at the Level 8 of the Polish Qualification Framework, of which:
  - a minimum of 30 ECTS is related to the preparation to conduct and communicate research;
  - a minimum of 25 ECTS is completed by the end of the semester in which mid-term assessment is conducted.
8. Detailed instruction for achieving and assessing learning outcomes shall be specified in the syllabuses of the individual courses.

**II**

**Professional traineeship**

1. Professional traineeship shall take the form of teaching or co-teaching. Professional traineeship can be conducted also in scientific or industrial laboratories.

2. In agreement and at the application of a doctoral student, the programme coordinator may accept other forms of professional traineeship, including didactic traineeship, such as conducting classes promoting science, providing such a form ensures achieving all the learning outcomes allocated to the professional traineeship.
3. The number of hours of professional traineeship shall not exceed 60 teaching hours (a teaching hour equals 45 minutes) per academic year.
4. Professional traineeship is optional.

### **III**

#### **Study and research progress assessment**

1. The supervisor(s), in cooperation with the programme coordinator and the Director of the Doctoral School, shall supervise implementing the education programme and the Individual Research Plan of the doctoral student.
2. Annually, but no later than at the end of the 10<sup>th</sup> month after the commencement of the education at the Doctoral School, a doctoral student shall submit to the programme coordinator a written report on the implementation of the Individual Research Plan, reviewed by the supervisor(s) and the auxiliary supervisor.
3. The programme coordinator shall assess the degree of implementing the study and research work based on information from the doctoral student as defined in point 2, and a report from the University Study-Oriented System (USOS).
4. Any change to the Individual Research Plan, in particular modifying or rescheduling the doctoral student's duties, shall require consulting the programme coordinator.
5. The programme coordinator may decide to reschedule the doctoral student's duties resulting from the education programme and to accept courses or activities not specified in the education programme as part of the performance of the duties (with the relevant allocation of ECTS credits), provided that changes to the Individual Research Plan are not needed. Such courses may be taken in place of obligatory courses as well as other courses.
6. When additional funding is available or in well justified cases, the programme coordinator, in consultation with School representatives of the Jagiellonian University PhD Student Association and the Director of the Doctoral School, may oblige doctoral students to take courses not specified in the education programme.
7. By the end of the 24<sup>th</sup> month of education, a doctoral student shall be subject to mid-term assessment before the assessment committee appointed by the Director of the Doctoral School.
8. The date of the mid-term assessment is established by the Director of the Doctoral School on the proposal of the programme coordinator.
9. One month before the scheduled meeting of the mid-term assessment committee, the doctoral student shall submit to the programme coordinator a written report on the implementation of the Individual Research Plan. The report has to be approved by the supervisor(s) and the auxiliary supervisor before submission.

10. Meetings of the mid-term assessment committee shall be attended by the committee members, and the doctoral student in those parts to which they have been invited, in accordance with separate provisions.

## **IV Schedule**

## SCHEDULE FOR THE EDUCATION PROGRAMME IN BIOMEDICAL SCIENCES

DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES EDUCATION PROGRAMME IN BIOMEDICAL SCIENCES (8 semesters)						
ITEM	AIM	DESCRIPTION	PQF/PRK*	SEMESTER	NUMBER OF ECTS	NUMBER OF HOURS
OBLIGATORY ACTIVITIES AT THE DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES (36 ECTS)						
English C1 level		A course in English at C1 level; if a PhD student holds a C1 certificate, the course / <i>lektorat</i> can be passed / approved by the Jagiellonian Language Center /Jagiellońskie Centrum Językowe without attending classes Assessment: <b>examination</b>	P8S-UK	I-IV	4	60
New research techniques		It is essential to acquire new experimental techniques and research methodologies to conduct and accomplish research. Training involves, e.g. sessions delivered by external schools, methodological courses, equipment operation courses, or trainings ad hoc delivered during research by more experienced colleagues. Participation is documented in the form of certificates or reports confirmed by a research supervisor / coordinator, supervisor or a training provider in a given technique and approved by the education programme coordinator. The report includes a description of the technique(s) and indication of the time spent by the PhD student learning and implementing the technique(s). The PhD student becomes familiar with the	P8S-WG P8S-UW	I-IV	15	300

	<p>techniques and research equipment available at MCB, JCET, Solaris* and other units.</p> <p>Assessment: <b>credit on the basis of reports</b></p>				
<p>Consultations with Thesis Advisory Committee</p>	<p>Thesis Advisory Committee (TAC) consists of an academic adviser / supervisor, a person working at MCB, JCET or Solaris, and a person from outside these units who holds a PhD degree.</p> <p>TAC can be selected by the PhD student themselves. The appointment of the Team and the first consultation have to take place within the first 9 months of the commencement of the education programme. The consultation meeting consists of: a 30-minute presentation, a 30-minute discussion, a 15-minute discussion without participation of an academic adviser / supervisor, a 15-minute discussion over the proposals, and an advisory session. The PhD student arranges one TAC meeting every 12 months.</p> <p>Assessment: <b>credit on the basis of the report on the TAC meeting</b></p>	<p>P8S-KK P8S-UK P8S-UU P8S-KR</p>	<p>I-VIII</p>	<p>2 (1 out of 2 per year)</p>	<p>Meeting with Thesis Advisory Committee</p>
<p>Communicating science: academic talks</p>	<p>As part of the education programme, each PhD student presents a poster (1<sup>st</sup> year), an oral presentation (2<sup>nd</sup> year) at internal conferences or symposia organised by MCB, JCET or Solaris; research results are presented during internal seminars organised by MCB, JCET, Solaris, i.e. Golden Seminar at MCB (3<sup>rd</sup> year); in the final year (4<sup>th</sup> year) PhD student organises their own symposium at MCB or JCET; such research-oriented presentations may be substituted by similar performances at other conferences or symposia.</p> <p>Form of assessment: <b>credit on the basis of confirmation of participation with contribution</b></p>	<p>P8S-UK P8S-UW P8S-KO</p>	<p>I-VIII</p>	<p>2 (1 out of 2 per year)</p>	<p>50</p>

Interdisciplinary seminars	<p>Participation in seminars conducted at MCB, Solaris and JCET; or participation in seminars, training courses, talks, etc. related to the PhD student's research</p> <p>Assessment: <b>credit on the basis of confirmation of participation with contribution</b></p>	<p>P8S-KK P8S-WG P8S-UK</p>	<p>I-VIII  (100 hrs to be completed in I-IV semester)</p>	6	150
International conferences	<p>Participation with presentation in at least one international conference</p> <p>Form of assessment: <b>credit on the basis of confirmation of participation with contribution</b></p>	<p>P8S-UK P8S-WG P8S-WK</p>	I-IV	1	25
Intellectual Property Law	<p>A course discussing selected issues of research independence, ownership of research results, protection of intellectual property and social obligations of researchers and creators.</p> <p>Assessment: <b>examination</b></p>	<p>P8S-WK P8S-KO P8S-KR</p>	I-VI	1	15
Academic or R&D competencies development	<p>Activities aimed at communicating research results (preparing posters, abstracts, research results / visuals for publication); preparing grant applications, conducting negotiations, developing managerial skills, in particular managing research projects and research team, etc.</p> <p>Assessment: <b>credit on the basis of a PhD student's written report / confirmation of participation</b></p>	<p>P8S-UU P8S-WK P8S-UK P8S-UW P8S-UO</p>	I-IV	3	70
Bioethics	<p>A course discussing the ethos of scientific work and the social obligations of researchers and creators.</p> <p>Assessment: <b>examination</b></p>	<p>P8S-KR P8S-KO</p>	I-VI	2	30

<b>ELECTIVE ACTIVITIES (2 ECTS MINIMUM)</b>					
Intersector activities	Career Days: meetings with the representatives of science, research grant winners to get familiar with their tutoring methods; meetings with biotech business representatives; meetings with editors of academic journals; meetings are organized by PhD students to present alternative professional career paths Assessment: <b>on the basis of a written report</b>	P8S-WK P8S-UW	I-IV	1	25
Promoting science	Participation in the events organised with the purpose of promoting science, such as Malopolska Night of Scientists or University for Children Assessment: <b>on the basis of participation confirmation</b>	P8S-UU P8S-KO P8S-UU	I-IV	1	25
General knowledge development	One course out of a range of courses offered before each academic year (e.g. a course in philosophy, ethics, IA or cosmology) Assessment: <b>examination</b>	P8S-UW P8S-KR P8S-WK	I-VIII	2 for 30 hrs	60 or 30
<b>ELECTIVE JOINT ACTIVITIES FOR THE DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES (2 ECTS MINIMUM)</b>					
Polish for foreigners	A course in Polish for PhD students Assessment: <b>examination</b>	P8S-UU	I-VIII	4	60
Modern foreign language	A course in modern foreign language Assessment: <b>examination</b>	P8S-UU	I-VIII	4	60
Soft skills development	A course selected by a PhD student from a range of courses offered before each academic year (e.g. career planning, managerial skills, business communication) Assessment: <b>as provided in the course syllabus</b>	P8S-WK P8S-KR P8S-KO	I-VIII	2 for 30hrs	30

Doctoral School Seminars	Monthly events in English delivered by Jagiellonian University researchers and the University guests Assessment: <b>credit without grade</b>	P8S-WG P8S-UW P8S-UK	I-VIII	4 (1x4)	6 seminars per academic year
<b>ELECTIVE ACTIVITIES DEVELOPING PROFESSIONAL SKILLS (0 ECTS minimum)</b>					
Courses and activities developing competencies needed to implement IRP (e.g. summer schools, courses run by Polish and foreign universities)	Assessment: <b>credit without grade</b>	P8S-UW P8S-UK P8S-UU	I-VIII	1/2	30 or 60
<p><b>Additional obligatory courses:</b></p> <ol style="list-style-type: none"> <li>1. PhD students who start their education in the Doctoral School are required to complete a <b>Health and Safety at Work</b> training / BHP.</li> <li>2. <b>First Aid</b> course (theoretical part and practical part) is to be completed by the end of the 2<sup>nd</sup> semester.</li> <li>3. PhD students who plan research involving vertebrate animals are required to take training to obtain appropriate qualifications.</li> </ol>					

\*PQF /PRK – Polish Qualifications Framework / *Polska Rama Kwalifikacji* in accordance with the Regulation of the Minister of Science and Higher Education on the characteristics of second-level learning outcomes for qualifications at Levels 6-8 of the Polish Qualifications Framework.

<https://prk.men.gov.pl/en/1en/>

Conducting research and preparing a doctoral dissertation within the meaning of Article 187(3) of the Act of 20 July 2018 - Law on Higher Education and Science (i.e. Journal of Laws of 2023, item 742 as amended) fulfills in part achieving all types of learning outcomes for qualifications at Level 8 of the PQF. The achievement of these outcomes is verified by the supervisor.

Doctoral students with disabilities and persons in a special health situation may apply for the adaptation of the education process realisation to their needs, according to the principles specified in the order of the Jagiellonian University Rector.

\* MCB, JCET, Solaris are the Jagiellonian University units:

Małopolskie Centrum Biotechnologii / Małopolska Center of Biotechnology (MCB)

Jagiellońskie Centrum Rozwoju Leków / Jagiellonian Centre for Experimental Therapeutics (JCET)

Narodowe Centrum Promieniowania Synchrotronowego Solaris / National Synchrotron Radiation Centre Solaris



## V

### **Final provision**

The *Biomedical Sciences* education programme in the discipline of biological sciences at the Doctoral School of Exact and Natural Sciences shall enter into force on the date of the Resolution.

**Education Programme in Chemistry  
in the discipline of chemical sciences  
conducted in Polish  
at the Doctoral School of Exact  
and Natural Sciences**

**I**

**General provisions**

1. The education programme in Chemistry has been developed according to the Act of 20 July 2018 on Law on Higher Education and Science and the guidelines in force at the Jagiellonian University in Kraków.
2. The education programme leads to achieving learning outcomes for the qualifications at Level 8 of the Polish Qualification Framework (PQF).
3. The education programme in Chemistry lasts 8 semesters.
4. Polish is a medium of instruction of the programme. Courses can also be taught in English.
5. Detailed requirements and eligibility criteria for admission to the programme are defined in the admission terms and conditions as approved by the Jagiellonian University Senate.
6. Within 12 months of the commencement of the programme, a doctoral student shall submit an Individual Research Plan (IRP) to the education programme coordinator for their opinion and submission to the Director of the Doctoral School.
7. A doctoral student is required to achieve a minimum of 40 ECTS credits (ECTS – European Credit Transfer and Accumulation System) allocated to the Chemistry education programme and to attain all the required learning outcomes at the Level 8 of the Polish Qualification Framework.
8. Detailed instruction for achieving and assessing learning outcomes shall be specified in the syllabuses of the individual courses.

**II**

**Professional traineeship**

1. Professional traineeship shall take the form of teaching or co-teaching.
2. In agreement with and at the application of the doctoral student, the programme coordinator may accept other forms of professional traineeship, including didactic traineeship, such as conducting classes promoting science, provided that such a form ensures achieving all the learning outcomes allocated to professional traineeship.
3. The rules of traineeship for doctoral students in the Chemistry programme shall be as follows:

- a. The traineeship can take the form of conducting or co-conducting classes at the Jagiellonian University's Faculty of Chemistry.
  - b. With the approval of the academic supervisor and the consent of the education programme coordinator, it is possible to undertake a traineeship in an external institution. The number of hours allocated for such a traineeship is determined individually.
4. The number of hours of professional traineeship shall not exceed 60 teaching hours (a teaching hour equals 45 minutes) per academic year, and the minimum value shall be determined annually by the education programme coordinator in agreement with the Dean of the Faculty of Chemistry of the Jagiellonian University.

### **III**

#### **Study and research progress assessment**

1. The supervisor(s), in cooperation with the programme coordinator and the Director of the Doctoral School, shall supervise implementing the education programme and the Individual Research Plan of the doctoral student.
2. Annually, but no later than by 17 September, a doctoral student shall submit to the programme coordinator a written report on the implementation of the Individual Research Plan, reviewed by the supervisor(s) and the auxiliary supervisor.
3. The programme coordinator shall assess the degree of implementing the study and research work based on the information from the doctoral student as defined in Point 2, and a report from the University Study-Oriented System (USOS).
4. Changes to the Individual Research Plan, in particular modifying or rescheduling the doctoral student's duties, shall require consulting the programme coordinator.
5. The programme coordinator may decide to reschedule the doctoral student's duties resulting from the education programme and to accept courses or activities not specified in the education programme as part of the performance of the duties (with the relevant allocation of ECTS credits), provided that no changes to the Individual Research Plan are needed.
6. When additional funding is available or in well justified cases, the programme coordinator, in consultation with School representatives of the Jagiellonian University PhD Student Association and the Director of the Doctoral School, may oblige doctoral students to take courses not specified in the education programme.
7. By the end of the 24th month of education, a doctoral student shall be subject to mid-term assessment before the assessment committee appointed by the Director of the Doctoral School.
8. The date of the mid-term assessment is established by the Director of the Doctoral School on the proposal of the programme coordinator.
9. One month before the scheduled meeting of the mid-term assessment committee, the doctoral student shall submit to the programme coordinator a written report on the implementation of the Individual Research Plan. The report has to be approved by the supervisor(s) and the auxiliary supervisor before submission.

10. Meetings of the mid-term assessment committee shall be attended by the committee members, and the doctoral student in those parts to which they have been invited, in accordance with separate provisions.

## **IV Schedule**

## SCHEDULE FOR THE EDUCATION PROGRAMME IN CHEMISTRY

DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES EDUCATION PROGRAMME IN CHEMISTRY						
Item (name of the course)	Aim	Description	PQF/ PRK*	Semester	No of ECTS	No of hours
<b>OBLIGATORY COURSES WITHIN THE DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES</b>						
Doctoral seminar		Presentation of PhD student's own results, scientific discussion Assessment: <b>credit with a grade</b>	P8S_WG P8S_UK P8S_KK P8S_WK P8S_UW P8S_KR	IV	3	30
Professional skills development activities		Elective panels for a sum of min. 10 ECTS advanced techniques: computational, structural, synthetic, analytical, spectroscopic, microscopic, advanced technology and environmental Chemistry, BioPharma, optional course for min. 2 ECTS, max. 3 ECTS agreed with the supervisor and education programme coordinator Assessment: <b>examination</b>	P8S_WG P8S_WK P8S_UW P8S_UK	I-IV	10	104
English at C1 level		Assessment: <b>examination</b>	P8S_UK	I-IV	4	60

**ELECTIVE JOINT COURSES FOR THE DOCTORAL SCHOOL OF EXACT AND  
NATURAL SCIENCES**

Doctoral School Seminar	A monthly seminar with lectures in English delivered by invited Jagiellonian University researchers and guest researchers. Assessment: <b>credit based on participation</b>	P8S_WG P8S_UW P8S_UK	I-VIII	1	Minimum 6 seminars a year
Modern foreign language	As a second foreign language Assessment: <b>examination</b>	P8S_UU	I-IV	4	60
Polish for foreigners	Assessment: <b>examination</b>	P8S_UU	I-VIII	4	60
Soft skills and general knowledge development	Selected lectures (courses) or workshops Assessment: <b>credit</b>	P8S_UW P8S_KR P8S_WK	I-VIII	max. 3	max. 60 hours

**ELECTIVE ACTIVITIES DEVELOPING PROFESSIONAL SKILLS**

General knowledge development	Lectures offered by the Polish Chemical Society, interchangeably with the Faculty seminars and the Doctoral School Seminars; minimum 6 meetings a year Assessment: <b>credit</b>	P8S_WK P8S_UK P8S_KK	I-VIII	1	Minimum 6 seminars a year
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Professional skills development	Activities to acquire competences for the implementation of an individual research plan (e.g., summer schools, courses offered at other universities, including foreign universities) Assessment: <b>according to the course syllabus</b>	P8S_UW	I-VIII	No more than 2	Established individually
<b>ACTIVITIES DEVELOPING TEACHING SKILLS</b>					
Workshop course	Introductory course, enabling the implementation of a didactic traineeship Assessment: <b>credit with grade</b>	P8S_UU P8S_UO P8S_WG P8S_KK	III	3	30
Traineeship in academic didactics	Conducting or co-conducting classes Assessment: <b>credit or/and grade</b> on the basis of the opinion issued by a person supervising conducting classes by a PhD student	P8S_UU P8S_KO	I-VIII	12	240 (max. 60/year)
<p><b>Additional obligatory courses:</b></p> <ol style="list-style-type: none"> <li>1. PhD students who start their education in the Doctoral School are required to complete a <b>Health and Safety at Work</b> training / BHP.</li> <li>2. <b>First Aid</b> course (theoretical part and practical part) is to be completed by the end of the 2<sup>nd</sup> semester.</li> <li>3. PhD students who plan research involving vertebrate animals are required to take training to obtain appropriate qualifications.</li> </ol>					

\*PQF /PRK – Polish Qualifications Framework / *Polska Rama Kwalifikacji* in accordance with the Regulation of the Minister of Science and Higher Education on the characteristics of second-level learning outcomes for qualifications at Levels 6-8 of the Polish Qualifications Framework.

<https://prk.men.gov.pl/en/1en/>

Conducting research and preparing a doctoral dissertation within the meaning of Article 187(3) of the Act of 20 July 2018 - Law on Higher Education and Science (i.e. Journal of Laws of 2023, item 742 as amended) fulfills in part achieving all types of learning outcomes for qualifications at Level 8 of the PQF. The achievement of these outcomes is verified by the supervisor.

Doctoral students with disabilities and persons in a special health situation may apply for the adaptation of the education process realisation to their needs, according to the principles specified in the order of the Jagiellonian University Rector.

## V

### **Final provision**

The *Chemistry* education programme in the discipline of chemical sciences at the Doctoral School of Exact and Natural Sciences shall enter into force on the date of the Resolution



**Education Programme in Biophysics  
in the discipline of physical sciences  
conducted in Polish  
at the Doctoral School of Exact  
and Natural Sciences**

**I**

**General provisions**

1. The education programme in Physics has been developed according to the Act of 20 July 2018 on Law on Higher Education and Science, and the guidelines in force at the Jagiellonian University in Kraków.
2. The education programme leads to achieving learning outcomes for the qualifications at Level 8 of the Polish Qualification Framework (PQF).
3. The education programme lasts 8 semesters.
4. Polish is a medium of instruction of the education programme in Biophysics.
5. Detailed requirements and eligibility criteria for admission to the programme are defined in the admission terms and conditions as approved by the Jagiellonian University Senate.
6. Within 12 months of the commencement of the education programme, a doctoral student shall submit an Individual Research Plan (IRP) to the programme coordinator for their opinion and submission to the Director of the Doctoral School.
7. A doctoral student is required to achieve a minimum of 40 ECTS credits (ECTS – European Credit Transfer and Accumulation System) allocated to the Biophysics education programme and to attain all the required learning outcomes as specified at the Level 8 of the Polish Qualification Framework. 24 ECTS are to be achieved by the end of the semester in which mid-term assessment is conducted. A doctoral student is obliged to achieve all the learning outcomes at the Level 8 of the Polish Qualification Framework.
8. Detailed instructions for achieving and assessing learning outcomes shall be specified in the syllabuses of the individual courses.

**II**

**Professional traineeship**

1. Professional traineeship shall take the form of teaching or co-teaching classes.
2. In agreement with and at the application of the doctoral student, the programme coordinator may accept other forms of professional traineeship, including didactic

traineeship, such as conducting classes promoting science, provided that such a form ensures achieving all the learning outcomes allocated to professional traineeship.

3. The number of hours of professional traineeship shall not exceed 60 teaching hours (a teaching hour equals 45-minutes) per one academic year. In exceptional cases, the programme coordinator may decide to modify the duration of professional and didactic traineeship or the form in which they are carried out.

### **III**

#### **Study and research progress assessment**

1. The supervisor(s), in cooperation with the programme coordinator and the Director of the Doctoral School, shall supervise implementing the education programme and the Individual Research Plan of the doctoral student.
2. Annually, but no later than by 17 September, a doctoral student shall submit to the programme coordinator a written report on the implementation of the Individual Research Plan, reviewed by the supervisor(s) and the auxiliary supervisor.
3. The programme coordinator shall assess the degree of implementing the study and research work based on the information from the doctoral student as defined in Point 2, and a report from the University Study-Oriented System (USOS).
4. Changes to the Individual Research Plan, in particular modifying or rescheduling the doctoral student's duties, shall require consulting the programme coordinator.
5. The programme coordinator may decide to reschedule the doctoral student's duties resulting from the education programme and to accept courses or activities not specified in the education programme as part of the performance of the duties (with the relevant allocation of ECTS credits), provided that no changes to the Individual Research Plan are needed.
6. When additional funding is available or in well justified cases, the programme coordinator, in consultation with School representatives of the Jagiellonian University PhD Student Association and the Director of the Doctoral School, may oblige doctoral students to take courses not specified in the education programme.
7. By the end of the 24<sup>th</sup> month of education, a doctoral student shall be subject to mid-term assessment before the assessment committee appointed by the Director of the Doctoral School.
8. The date of the mid-term assessment is established by the Director of the Doctoral School on the proposal of the programme coordinator.
9. One month before the scheduled meeting of the mid-term assessment committee, a doctoral student shall submit to the programme coordinator a written report on the implementation of the education programme and Individual Research Plan. The report has to be approved by the supervisor(s) and the auxiliary supervisor before submission.
10. Meetings of the mid-term assessment committee shall be attended by the committee members, and the doctoral student in those parts to which they have been invited, in accordance with separate provisions.

### **IV**

#### **Schedule**

## SCHEDULE FOR THE EDUCATION PROGRAMME IN BIOPHYSICS

DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES EDUCATION PROGRAMME IN BIOPHYSICS						
ITEM	AIM	DESCRIPTION	PQF/PRK*	SEME STER	NO OF ECTS	NO OF HOURS
<b>OBLIGATORY COURSES IN DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES (16 ECTS MINIMUM)</b>						
English		English at C1 level; if a PhD student holds a C1 certificate, they may obtain credit from JCJ without having to attend classes, and the PhD student may pursue another language at any level. Assessment: <b>exam</b>	P8S_UK	I-IV	2x2	2x30
Specialist course for PhD students		Lecture - presentation of the latest results of world research and current research problems in a given discipline (selected theories, methods, models and relationships between them) or interdisciplinary lecture. It may include exercises or problems to be solved outside the lecture or elements of group work or in the form of workshops. Assessment: <b>exam or another, determined by the teacher.</b>	P8S_WG P8S_KK	I-VIII	2-4/30h (min. 4)	30-120
Doctoral Seminar conducted at the Faculty of Physics, Astronomy and Applied Computer Science		Seminar: preparation for research, analysis and creative synthesis of world scientific achievements, identifying and solving research problems, participating in the exchange of experiences and scientific ideas. Assessment: <b>assessment of paper and participation.</b>	P8S_WG P8S_UK P8S_UW P8S_UO	I-VIII	1/15h (min. 4)	60-120
Introduction to academic didactics		Theoretical preparation for work of an academic teacher. Developing communication skills, knowledge transfer, and ability to assess the work of others. Assessment: <b>credit (or another, determined by the teacher).</b>	P8S_UU P8S_KR	I-VI	2-4 (min 2)	15-30

Classes developing professional competences and "soft" skills	A course selected from the list announced before a given academic year, e.g. career planning, managerial competence, business communication or additional trainings offered during the academic year. Assessment: <b>determined by the teacher.</b>	P8S_WK P8S_KR P8S_KO	I-VIII	2 for 30h	30
English	English at C1 level; if a PhD student holds a C1 certificate, they may obtain credit from JCJ without having to attend classes, and the PhD student may pursue another language at any level. Assessment: <b>exam</b>	P8S_UK	I-IV	4 (min 4)	60
<b>JOINT ELECTIVE ACTIVITIES FOR THE DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES (4 ECTS MINIMUM)</b>					
Doctoral School Seminar	Monthly interdisciplinary seminar with lectures in English offered by the guest researchers Assessment: <b>credit based on participation</b>	P8S_WG P8S_UW P8S_UK	I-VIII	1 ECTS per year (max 4 ECTS)	minimum 6 seminars per year
Modern foreign language	As a second foreign language Assessment: <b>exam</b>	P8S_UU	I-IV	4	60
Polish for foreigners	Assessment: <b>exam</b>	P8S_UU	I-VIII	4	60
General knowledge development	One course out of a range of courses offered before each academic year (e.g. a course in philosophy, ethics, IA or cosmology) Assessment: <b>examination</b>	P8S_UW P8S_KR P8S_WK	I-VIII	2 for 30h	30 or 60

ELECTIVE COURSES DEVELOPING PROFESSIONAL COMPETENCES (8 ECTS MINIMUM)					
Tutorial with the supervisor	Preparing an individual research project, verifying the work plan, preparation of public speeches on the project, editorial work on project publication.	P8S_KK P8S_WG P8S_UO	I-VIII	1 for 15h	15 or 30 or 45 or 60h, max 15h per year
Introduction to academic didactics	Teaching workshops. Assessment: <b>credit</b>	P8S_UK	I-VI	1 for 15h	15-30
Other courses for acquiring competences to implement an individual research plan	E.g.: summer schools, courses at other universities, including foreign universities. Assessment: <b>as per course programme/syllabus</b>	P8S_WG P8S_UW	I-VIII	As per course requirements	As per course requirements
OBLIGATORY COURSES DEVELOPING TEACHING COMPETENCES					
Teaching classes as part of professional traineeship	Preparation for academic teaching, developing communication skills and knowledge transfer. Assessment: <b>by the subject coordinator, taking into account the opinions of students.</b>	P8S_UU P8S_KO	I-VIII	1 for 15h	60h per year in I, II, III year of education and 30h per year in IV year of education

\*PQF /PRK – Polish Qualifications Framework / Polska Rama Kwalifikacji in accordance with the Regulation of the Minister of Science and Higher Education on the characteristics of second-level learning outcomes for qualifications at Levels 6-8 of the Polish Qualifications Framework.

<https://prk.men.gov.pl/en/1/en/>

Conducting research and preparing a doctoral dissertation within the meaning of Article 187(3) of the Act of 20 July 2018 - Law on Higher Education and Science (i.e. Journal of Laws of 2023, item 742 as amended) fulfills in part achieving all types of learning outcomes for qualifications at Level 8 of the PQF. The achievement of these outcomes is verified by the supervisor.

Doctoral students with disabilities and persons in a special health situation may apply for the adaptation of the education process realisation to their needs, according to the principles specified in the order of the Jagiellonian University Rector.

## V

### **Final provision**

The *Biophysics* education programme in the discipline of physical sciences at the Doctoral School of Exact and Natural Sciences shall enter into force on the date of the Resolution.

**Education Programme in Physics  
in the discipline of physical sciences  
conducted in English  
at the Doctoral School of Exact  
and Natural Sciences**

**I**

**General provisions**

1. The education programme in Physics has been developed according to the Act of 20 July 2018 on Law on Higher Education and Science, and the guidelines in force at the Jagiellonian University in Kraków.
2. The education programme leads to achieving learning outcomes for the qualifications at Level 8 of the Polish Qualification Framework (PQF).
3. The education programme lasts 8 semesters.
4. English is a medium of instruction of the education programme in Physics.
5. Detailed requirements and eligibility criteria for admission to the programme are defined in the admission terms and conditions as approved by the Jagiellonian University Senate.
6. Within 12 months of the commencement of the education programme, a doctoral student shall submit an Individual Research Plan (IRP) to the programme coordinator for their opinion and submission to the Director of the Doctoral School.
7. A doctoral student is required to achieve a minimum of 40 ECTS credits (ECTS – European Credit Transfer and Accumulation System) allocated to the Physics education programme and to attain all the required learning outcomes as specified at the Level 8 of the Polish Qualification Framework. 24 ECTS are to be achieved by the end of the semester in which mid-term assessment is conducted. A doctoral student is obliged to achieve all the learning outcomes at the Level 8 of the Polish Qualification Framework.
8. Detailed instructions for achieving and assessing learning outcomes shall be specified in the syllabuses of the individual courses.

**II**

**Professional traineeship**

1. Professional traineeship shall take the form of teaching or co-teaching classes.
2. In agreement with and at the application of the doctoral student, the programme coordinator may accept other forms of professional traineeship, including didactic traineeship, such as conducting classes promoting science, provided that such a form ensures achieving all the learning outcomes allocated to professional traineeship.

3. The rules for teaching traineeship for doctoral students of the education programme in Physics shall be determined by the coordinator of this programme.
4. The number of hours of professional traineeship shall not exceed 60 teaching hours (a teaching hour equals 45-minutes) per one academic year.

### **III**

#### **Study and research progress assessment**

1. The supervisor(s), in cooperation with the programme coordinator and the Director of the Doctoral School, shall supervise implementing the education programme and the Individual Research Plan of the doctoral student.
2. Annually, but no later than by 17 September, a doctoral student shall submit to the programme coordinator a written report on the implementation of the Individual Research Plan, reviewed by the supervisor(s) and the auxiliary supervisor.
3. The programme coordinator shall assess the degree of implementing the study and research work based on the information from the doctoral student as defined in Point 2, and a report from the University Study-Oriented System (USOS).
4. Changes to the Individual Research Plan, in particular modifying or rescheduling the doctoral student's duties, shall require consulting the programme coordinator.
5. The programme coordinator may decide to reschedule the doctoral student's duties resulting from the education programme and to accept courses or activities not specified in the education programme as part of the performance of the duties (with the relevant allocation of ECTS credits), provided that no changes to the Individual Research Plan are needed.
6. When additional funding is available or in well justified cases, the programme coordinator, in consultation with School representatives of the Jagiellonian University PhD Student Association and the Director of the Doctoral School, may oblige doctoral students to take courses not specified in the education programme.
7. By the end of the 24<sup>th</sup> month of education, a doctoral student shall be subject to mid-term assessment before the assessment committee appointed by the Director of the Doctoral School.
8. The date of the mid-term assessment is established by the Director of the Doctoral School on the proposal of the programme coordinator.
9. One month before the scheduled meeting of the mid-term assessment committee, a doctoral student shall submit to the programme coordinator a written report on the implementation of the education programme and Individual Research Plan. The report has to be approved by the supervisor(s) and the auxiliary supervisor before submission.
10. Meetings of the mid-term assessment committee shall be attended by the committee members, and the doctoral student in those parts to which they have been invited, in accordance with separate provisions.



## IV

### Schedule

#### SCHEDULE FOR THE EDUCATION PROGRAMME IN PHYSICS

DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES EDUCATION PROGRAMME IN PHYSICS						
ITEM	AIM	DESCRIPTION	PQF/PRK*	SEME STER	NO OF ECTS	NO OF HOURS
OBLIGATORY COURSES IN DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES (16 ECTS MINIMUM)						
Specialist course for PhD students		Lecture - presentation of the latest results of world research and current research problems in a given discipline (selected theories, methods, models and relationships between them) or interdisciplinary lecture. It may include exercises or problems to be solved outside the lecture or elements of group work or in the form of workshops. Assessment: <b>exam or another, determined by the lecturer.</b>	P8S_WG P8S_KK	I-VIII	2-4/30h (min. 4)	30-120
Doctoral Seminar conducted at the Faculty of Physics, Astronomy and Applied Computer Science		Seminar: preparation for research, analysis and creative synthesis of world scientific achievements, identifying and solving research problems, participating in the exchange of experiences and scientific ideas. Assessment: <b>assessment of paper and participation.</b>	P8S_WG P8S_UK P8S_UW P8S_UO	I-VIII	1/15h (min. 4)	60-120
Introduction to academic didactics		Theoretical preparation for work of an academic teacher. Developing communication skills, knowledge transfer, and ability to assess the work of others. Assessment: <b>credit (or another, determined by the lecturer).</b>	P8S_UU P8S_KR	I-VI	2-4 (min 2)	15-30

Classes developing professional competences and "soft" skills	A course selected from the list announced before a given academic year, e.g. career planning, managerial competence, business communication or additional trainings offered during the academic year. Assessment: <b>determined by the lecturer.</b>	P8S_WK P8S_KR P8S_KO	I-VIII	2 for 30h	30
English	English at C1 level; if a PhD student holds a C1 certificate, they may obtain credit from JCJ without having to attend classes, and the PhD student may pursue another language at any level. Assessment: <b>examination</b>	P8S_UK	I-IV	4 (min 4)	60
<b>JOINT ELECTIVE ACTIVITIES FOR THE DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES (4 ECTS MINIMUM)</b>					
Doctoral School Seminar	Monthly interdisciplinary seminar with lectures in English offered by the guest researchers Assessment: <b>credit based on participation</b>	P8S_WG P8S_UW P8S_UK	I-VIII	1 ECTS per year (max 4 ECTS)	minimum 6 seminars per year
Modern foreign language	As a second foreign language Assessment: <b>examination</b>	P8S_UU	I-IV	4	60
Polish for foreigners	Assessment: <b>examination</b>	P8S_UU	I-VIII	4	60
General knowledge development	One course out of a range of courses offered before each academic year (e.g. a course in philosophy, ethics, IA or cosmology) Assessment: <b>examination</b>	P8S_UW P8S_KR P8S_WK	I-VIII	2 for 30h	30 or 60

ELECTIVE COURSES DEVELOPING PROFESSIONAL COMPETENCES (4 ECTS MINIMUM)					
Tutorial with the supervisor	Preparing an individual research project, verifying the work plan, preparation of public speeches on the project, editorial work on project publication.	P8S_KK P8S_WG P8S_UO	I-VIII	1 for 15h	15 or 30 or 45 or 60h, max 15h per year
Introduction to academic didactics	Teaching workshops. Assessment: <b>credit</b>	P8S_UK	I-VI	1 for 15h	15-30
Other courses for acquiring competences to implement an individual research plan	E.g.: summer schools, courses at other universities, including foreign universities. Assessment: <b>as per course programme/syllabus</b>	P8S_WG P8S_UW	I-VIII	As per course requirements	As per course requirements
OBLIGATORY COURSES DEVELOPING TEACHING COMPETENCES					
Teaching classes as part of professional traineeship	Preparation for academic teaching, developing communication skills and knowledge transfer. Assessment: <b>by the subject coordinator, taking into account the opinions of students.</b>	P8S_UU P8S_KO	I-VIII	1 for 15h	60h per year in I, II, III year of education and 30h per year in IV year of education

\*PQF /PRK – Polish Qualifications Framework / Polska Rama Kwalifikacji in accordance with the Regulation of the Minister of Science and Higher Education on the characteristics of second-level learning outcomes for qualifications at Levels 6-8 of the Polish Qualifications Framework.

<https://prk.men.gov.pl/en/1en/>

Conducting research and preparing a doctoral dissertation within the meaning of Article 187(3) of the Act of 20 July 2018 - Law on Higher Education and Science (i.e. Journal of Laws of 2023, item 742 as amended) fulfills in part achieving all types of learning outcomes for qualifications at Level 8 of the PQF. The achievement of these outcomes is verified by the supervisor.

Doctoral students with disabilities and persons in a special health situation may apply for the adaptation of the education process realisation to their needs, according to the principles specified in the order of the Jagiellonian University Rector.

## V

### **Final provision**

The *Physics* education programme in the discipline of physical sciences at the Doctoral School of Exact and Natural Sciences shall enter into force on the date of the Resolution.

**Education Programme in Computer Science  
in the discipline of computer science  
conducted in English  
at the Doctoral School of Exact  
and Natural Sciences**

**I**

**General provisions**

1. The education programme in Computer Science has been developed according to the Act of 20 July 2018 on Law on Higher Education and Science, and the guidelines in force at the Jagiellonian University in Kraków.
2. The education programme leads to achieving learning outcomes for the qualifications at Level 8 of the Polish Qualification Framework (PQF).
3. The education programme lasts 8 semesters.
4. Detailed requirements and eligibility criteria for admission to the programme are defined in the admission terms and conditions as approved by the Jagiellonian University Senate.
5. Within 3 months of the commencement of the education programme, a doctoral student has their supervisor(s) appointed, according to the Doctoral School Regulations.
6. Within 12 months of the commencement of the education programme, a doctoral student shall submit an Individual Research Plan (IRP) to the programme coordinator for their opinion and submission to the Director of the Doctoral School. The IRP shall cover a period equal to the duration of the education programme and shall specify, among other issues, the schedule for the preparation of the dissertation.
7. By the 15<sup>th</sup> October a doctoral student shall submit to the programme coordinator the plan for implementing the education programme for a given academic year. From the 2<sup>nd</sup> year onwards, this plan is subject to the approval of the supervisor(s) and auxiliary supervisor.
8. A doctoral student is required to achieve a minimum of 40 ECTS credits (ECTS – European Credit Transfer and Accumulation System) allocated to the Computer Science education programme and to attain all the required learning outcomes as specified at the Level 8 of the Polish Qualification Framework. 20 ECTS are to be achieved by the end of the semester in which mid-term assessment is conducted. A doctoral student is obliged to achieve all the learning outcomes at the Level 8 of the Polish Qualification Framework.
9. Detailed instructions for achieving and assessing learning outcomes shall be specified in the syllabuses of the individual courses.

**II**

## **Professional traineeship**

1. Professional traineeship shall take the form of teaching or co-teaching classes.
2. In agreement with and at the application of the doctoral student, the programme coordinator may accept other forms of professional traineeship, including didactic traineeship, such as conducting classes promoting science, provided that such a form ensures achieving all the learning outcomes allocated to professional traineeship.
3. Professional traineeship can also be conducted in a business company, a foundation, etc.
4. The rules for teaching traineeship for doctoral students of the education programme in Computer Science shall be determined by the coordinator of this programme.
5. The number of hours of professional traineeship shall not exceed 60 teaching hours (a teaching hour equals 45-minutes) per one academic year.

## **III**

### **Qualifying examination**

1. The qualifying examination verifies knowledge in the discipline of computer science in the field of exact and natural sciences. The qualifying examination is an obligatory part of the education programme.
2. The qualifying examination is conducted by an examination committee consisting of a minimum of 3 members. The examination committee may not include the supervisor(s), auxiliary supervisor(s) or the education programme coordinator.
3. The examination committee shall be appointed by the Director of the Doctoral School on the request of the education programme coordinator, and with the approval of the Computer Science Discipline Board. The Director of the Doctoral School shall indicate the chairperson of the committee. The committee shall be appointed within 3 months of the commencement date of the education programme. In random events, the Director of the Doctoral School may take their own decision to change the composition of the committee.
4. Within 3 months of appointment of the examination committee, the chairperson in consultation with other members, determines the range of the topics and the form of the examination. A doctoral student applies to the chairperson to conduct the examination. The chairperson, in consultation with the doctoral student, announces the date and place of the examination. The committee conducts an examination, which finishes with a pass or fail. The protocol from the examination committee sitting is prepared and, in the case of a fail, the committee presents the reasons for this grade.
5. A doctoral student is obliged to pass the qualifying examination no later than in the 18<sup>th</sup> month from the commencement date of their education programme. Failure to pass the examination by this date is equivalent to the failure to accomplish the education

programme. This is a valid reason to remove the doctoral student from the list of doctoral students of the Doctoral School, according to Article 203, section 2, point 2 of the Act. A doctoral student who fails the qualifying examination is entitled to a resit examination. The resit examination shall be taken before the same examination committee. However, upon a justified application of a doctoral student to the Director of the Doctoral School, the composition of the examination committee may be extended by a maximum of two members. These members shall be appointed in the manner described in Point 3. The resit examination shall be conducted no sooner than 2 weeks after the date of the first attempt.

6. Two attempts to pass the qualifying examination are allowed: the examination (the first attempt) and one resit examination.
7. A doctoral student has to pass the qualifying examination prior to the mid-term assessment.

## **IV**

### **Study and research progress assessment**

1. The supervisor(s), in cooperation with the programme coordinator and the Director of the Doctoral School, shall supervise implementing the education programme and the Individual Research Plan of the doctoral student.
2. Annually, but no later than by 17 September, a doctoral student shall submit to the programme coordinator a written report on the implementation of the Individual Research Plan, reviewed by the supervisor(s) and the auxiliary supervisor.
3. The programme coordinator shall assess the degree of implementing the study and research work based on the information from the doctoral student as defined in Point 2, and a report from the University Study-Oriented System (USOS).
4. Changes to the Individual Research Plan, in particular modifying or rescheduling the doctoral student's duties, shall require consulting the programme coordinator.
5. The programme coordinator may decide to reschedule the doctoral student's duties resulting from the education programme and to accept courses or activities not specified in the education programme as part of the performance of the duties (with the relevant allocation of ECTS credits), provided that no changes to the Individual Research Plan are needed.
6. When additional funding is available or in well justified cases, the programme coordinator, in consultation with School representatives of the Jagiellonian University PhD Student Association and the Director of the Doctoral School, may oblige doctoral students to take courses not specified in the education programme.
7. By the end of the 24<sup>th</sup> month of education, a doctoral student shall be subject to mid-term assessment before the assessment committee appointed by the Director of the Doctoral School.
8. The date of the mid-term assessment is established by the Director of the Doctoral School on the proposal of the programme coordinator.

9. One month before the scheduled meeting of the mid-term assessment committee, a doctoral student shall submit to the programme coordinator a written report on the implementation of the education programme and Individual Research Plan. The report has to be approved by the supervisor(s) and the auxiliary supervisor before submission.
10. Meetings of the mid-term assessment committee shall be attended by the committee members, and the doctoral student in those parts to which they have been invited, in accordance with separate provisions.

## **V**

### **Schedule**



## SCHEDULE FOR THE EDUCATION PROGRAMME IN COMPUTER SCIENCE

Doctoral School of Exact and Natural Sciences Education programme in Computer Science						
ITEM	AIM	DESCRIPTION	PQF /PRK*	SEMESTER	NO OF ECTS	LIMITS
<b>OBLIGATORY COURSES</b> (25 ECTS minimum or 21 ECTS if a PhD student holds a proper language certificate)						
Basic seminar		Research seminar aimed at discussing recent achievements in a given discipline Assessment: <b>credit based on PhD student's participation in the seminar</b>	P8S_WG P8S_UW P8S_KK	I-VIII	1-2 for 30 hours	minimum 12 ECTS
Specialised courses		Minimum one course / lecture selected by a PhD student The course presents basic or current research problems in a given discipline Assessment: <b>examination</b>	P8S_WG P8S_UW	I-IV	6 (lecture and classes) 3 (lecture only)	minimum 6 ECTS
Seminar for PhD students No I		Preparation for the research work Assessment: <b>credit</b>	P8S_UK P8S_KR	II	1	1 ECTS
Seminar for PhD students No II		Preparation for the research work. Communicating research results by a PhD student Assessment: <b>credit</b>	P8S_UK P8S_UO P8S_KR	IV	2	2 ECTS
English C1		A course at C1 level (not applicable to those PhD students who hold C1 language certificate or are graduates of master's programmes conducted in English) Assessment: <b>examination</b>	P8S_UK	I-II	4 for 60 hours	4 ECTS

JOINT ELECTIVE ACTIVITIES FOR DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES					
Doctoral School Seminar	Monthly interdisciplinary seminar with lectures in English offered by the guest researchers Assessment: <b>credit based on participation</b>	P8S_WG P8S_UW P8S_UK	I-VIII	1 per academic year	
Modern foreign language	A course offered as a second foreign language Assessment: <b>examination</b>	P8S_UU	I-IV	4 for 60 hours	
Polish for foreigners	A course in Polish Assessment: <b>examination</b>	P8S_UU	I-VIII	4 for 60 hours	
General knowledge development	One course out of a range of courses offered before each academic year (e.g. a course in philosophy, ethics, IA or cosmology) Assessment: <b>examination</b>	P8S_WK	I-VIII	2 for 30 hours	
Professional competencies and soft skills development	A course selected by a PhD student from a range of courses offered before each academic year (e.g. career planning, managerial skills, business communication) Assessment: <b>as provided in the course syllabus</b>	P8S_WK	I-VIII	2 for 30 hours	
ELECTIVE ACTIVITIES DEVELOPING PROFESSIONAL COMPETENCIES					
Optional activities	Lectures (3 ECTS for 30 hours), seminars (2-4 ECTS for 60 hours; the number of ECTS depends on the number of academic talks), studying specialized material (2 ECTS for studying the material, which is equivalent to a 30-hour course), activities aimed at soft skills development organised by the Faculty of Mathematics and Computer Science	P8S_UU P8S_WG	I-VIII	according to the description	

<b>TRAINEESHIP</b>					
Traineeship in a company	Optional professional traineeship in an industrial company Assessment: <b>by the programme coordinator on the basis of the participation certificate from the company</b>	P8S_UU P8S_KO	III-VIII	1 for 30 hours	maximum 6 ECTS
Traineeship in academic didactics	Preparation for academic teaching, including conducting classes Assessment: <b>by the programme coordinator on the basis of the opinion issued by a person supervising conducting classes by a PhD student</b>	P8S_UU P8S_UK	I-VIII	8 for 150 hours	maximum totally 8 ECTS
<p><b>Additional obligatory courses:</b></p> <ol style="list-style-type: none"> <li>1. PhD students who start their education in the Doctoral School are required to complete a <b>Health and Safety at Work</b> training / BHP.</li> <li>2. <b>First Aid</b> course (theoretical part and practical part) is to be completed by the end of the 2<sup>nd</sup> semester.</li> <li>3. PhD students who plan research involving vertebrate animals are required to take training to obtain appropriate qualifications.</li> </ol>					

\*PQF /PRK – Polish Qualifications Framework / Polska Rama Kwalifikacji in accordance with the Regulation of the Minister of Science and Higher Education on the characteristics of second-level learning outcomes for qualifications at Levels 6-8 of the Polish Qualifications Framework.

<https://prk.men.gov.pl/en/1en/>

Conducting research and preparing a doctoral dissertation within the meaning of Article 187(3) of the Act of 20 July 2018 - Law on Higher Education and Science (i.e. Journal of Laws of 2023, item 742 as amended) fulfills in part achieving all types of learning outcomes for qualifications at Level 8 of the PQF. The achievement of these outcomes is verified by the supervisor.

Doctoral students with disabilities and persons in a special health situation may apply for the adaptation of the education process realisation to their needs, according to the principles specified in the order of the Jagiellonian University Rector.

## VI

### Final provision

The *Computer Science* education programme in the discipline of computer science at the Doctoral School of Exact and Natural Sciences shall enter into force on the date of the Resolution.

**Education Programme in Mathematics**  
**in the discipline of mathematics**  
**conducted in English**  
**at the Doctoral School of Exact**  
**and Natural Sciences**

**I**

**General provisions**

1. The education programme in Mathematics has been developed according to the Act of 20 July 2018 on Law on Higher Education and Science, and the guidelines in force at the Jagiellonian University in Kraków.
2. The education programme leads to achieving learning outcomes for the qualifications at Level 8 of the Polish Qualification Framework (PQF).
3. The education programme lasts 8 semesters.
4. Detailed requirements and eligibility criteria for admission to the programme are defined in the admission terms and conditions as approved by the Jagiellonian University Senate.
5. Within 3 months of the commencement of the education programme, a doctoral student has their supervisor(s) appointed, according to the Doctoral School Regulations.
6. Within 12 months of the commencement of the education programme, a doctoral student shall submit an Individual Research Plan (IRP) to the programme coordinator. The IRP shall cover a period equal to the duration of the education programme and shall specify, among other issues, the schedule for the preparation of the dissertation.
7. By the 15<sup>th</sup> October a doctoral student shall submit to the programme coordinator the plan for implementing the education programme for a given academic year. From the 2<sup>nd</sup> year onwards, this plan is subject to the approval of the supervisor(s) and auxiliary supervisor.
8. A doctoral student is required to achieve a minimum of 40 ECTS credits (ECTS – European Credit Transfer and Accumulation System) allocated to the Mathematics education programme and to attain all the required learning outcomes as specified at the Level 8 of the Polish Qualification Framework. 20 ECTS are to be achieved by the end of the semester in which mid-term assessment is conducted. A doctoral student is obliged to achieve all the learning outcomes at the Level 8 of the Polish Qualification Framework.
9. Detailed instructions for achieving and assessing learning outcomes shall be specified in the syllabuses of the individual courses.

## **II**

### **Professional traineeship**

1. Professional traineeship shall take the form of teaching or co-teaching classes.
2. In agreement with and at the application of the doctoral student, the programme coordinator may accept other forms of professional traineeship, including didactic traineeship, such as conducting classes promoting science, provided that such a form ensures achieving all the learning outcomes allocated to professional traineeship.
3. Professional traineeship can also be conducted in a business company, a foundation, etc.
4. The rules for teaching traineeship for doctoral students of the education programme in Mathematics shall be determined by the coordinator of this programme.
5. The number of hours of professional traineeship shall not exceed 60 teaching hours (a teaching hour equals 45-minutes) per one academic year.

## **III**

### **Study and research progress assessment**

1. The supervisor(s), in cooperation with the programme coordinator and the Director of the Doctoral School, shall supervise implementing the education programme and the Individual Research Plan of the doctoral student.
2. Annually, but no later than by 17 September, a doctoral student shall submit to the programme coordinator a written report on the implementation of the Individual Research Plan, reviewed by the supervisor(s) and the auxiliary supervisor.
3. The report submitted for the mid-term assessment shall be considered as a report within the meaning of Point 2 and the deadline for its submission shall be the same as the deadline for submission of the report for the mid-term assessment.
4. The programme coordinator shall assess the degree of implementing the study and research work based on the information from the doctoral student as defined in Point 2, and a report from the University Study-Oriented System (USOS).
5. Changes to the Individual Research Plan, in particular modifying or rescheduling the doctoral student's duties, shall require consulting the programme coordinator.
6. The programme coordinator may decide to reschedule the doctoral student's duties resulting from the education programme and to accept courses or activities not specified in the education programme as part of the performance of the duties (with the relevant allocation of ECTS credits), provided that no changes to the Individual Research Plan are needed.
7. When additional funding is available or in well justified cases, the programme coordinator, in consultation with School representatives of the Jagiellonian University PhD Student Association and the Director of the Doctoral School, may oblige doctoral students to take courses not specified in the education programme.

8. By the end of the 24<sup>th</sup> month of education, a doctoral student shall be subject to mid-term assessment before the assessment committee appointed by the Director of the Doctoral School.
9. The date of the mid-term assessment is established by the Director of the Doctoral School on the proposal of the programme coordinator.
10. One month before the scheduled meeting of the mid-term assessment committee, a doctoral student shall submit to the programme coordinator a written report on the implementation of the education programme and Individual Research Plan. The report has to be approved by the supervisor(s) and the auxiliary supervisor before submission.
11. Meetings of the mid-term assessment committee shall be attended by the committee members, and the doctoral student in those parts to which they have been invited, in accordance with separate provisions.

## **IV**

### **Schedule**

## SCHEDULE FOR THE EDUCATION PROGRAMME IN MATHEMATICS

Doctoral School of Exact and Natural Sciences Education programme in Mathematics						
ITEM	AIM	DESCRIPTION	PQF /PRK*	SEMESTE R	NO OF ECTS	LIMITS
<b>OBLIGATORY COURSES</b> (25 ECTS minimum or 21 ECTS if a PhD student holds a proper language certificate)						
Basic seminar		Research seminar aimed at discussing recent achievements in a given discipline Assessment: <b>credit based on PhD student's participation in the seminar</b>	P8S_WG P8S_UW P8S_KK	I-VIII	1-2 for 30 hours	minimum 12 ECTS
Specialised courses		Minimum one course / lecture selected by a PhD student. The course presents basic or current research problems in a given discipline Assessment: <b>examination</b>	P8S_WG P8S_UW	I-IV	6 (lecture and classes) 3 (lecture only)	minimum 6 ECTS
Seminar for PhD students No I		Preparation for the research work Assessment: <b>credit</b>	P8S_UK P8S_KR	II	1	1 ECTS
Seminar for PhD students No II		Preparation for the research work. Communicating research results by a PhD student Assessment: <b>credit</b>	P8S_UK P8S_UO P8S_KR	IV	2	2 ECTS
English C1		A course at C1 level (not applicable to those PhD students who hold C1 language certificate or are graduates of master's programmes conducted in English) Assessment: <b>examination</b>	P8S_UK	I-II	4 for 60 hours	4 ECTS
<b>JOINT ELECTIVE ACTIVITIES</b>						

FOR DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES					
Doctoral School Seminar	Monthly interdisciplinary seminar with lectures in English offered by the guest researchers Assessment: <b>credit based on participation</b>	P8S_WG P8S_UW P8S_UK	I-VIII	1 per academic year	
Modern foreign language	A course offered as a second foreign language Assessment: <b>examination</b>	P8S_UU	I-IV	4 for 60 hours	
Polish for foreigners	A course in Polish Assessment: <b>examination</b>	P8S_UU	I-VIII	4 for 60 hours	
General knowledge development	One course out of a range of courses offered before each academic year (e.g. a course in philosophy, ethics, IA or cosmology) Assessment: <b>examination</b>	P8S_WK	I-VIII	2 for 30 hours	
Professional competencies and soft skills development	A course selected by a PhD student from a range of courses offered before each academic year (e.g. career planning, managerial skills, business communication) Assessment: <b>as provided in the course syllabus</b>	P8S_WK	I-VIII	2 for 30 hours	
ELECTIVE ACTIVITIES DEVELOPING PROFESSIONAL COMPETENCIES					
Optional activities	Lectures (3 ECTS for 30 hours), seminars (2-4 ECTS for 60 hours; the number of ECTS depends on the number of academic talks), studying specialized material (2 ECTS for studying the material, which is equivalent to a 30-hour course), activities aimed at soft skills development organised by the Faculty of Mathematics and Computer Science	P8S_UU P8S_WG	I-VIII	according to the description	



<b>TRAINEESHIP</b>					
Traineeship in a company	Optional professional traineeship in an industrial company Assessment: <b>by the programme coordinator on the basis of the participation certificate from the company</b>	P8S_UU P8S_KO	III-VIII	1 for 30 hours	maximum 6 ECTS
Traineeship in academic didactics	Preparation for academic teaching, including conducting classes Assessment: <b>by the programme coordinator on the basis of the opinion issued by a person supervising conducting classes by a PhD student</b>	P8S_UU P8S_UK	I-VIII	8 for 150 hours	maximum totally 10 ECTS
<p><b>Additional obligatory courses:</b></p> <ol style="list-style-type: none"> <li>1. PhD students who start their education in the Doctoral School are required to complete a <b>Health and Safety at Work</b> training / BHP.</li> <li>2. <b>First Aid</b> course (theoretical part and practical part) is to be completed by the end of the 2<sup>nd</sup> semester.</li> <li>3. PhD students who plan research involving vertebrate animals are required to take training to obtain appropriate qualifications.</li> </ol>					

\*PQF /PRK – Polish Qualifications Framework / Polska Rama Kwalifikacji in accordance with the Regulation of the Minister of Science and Higher Education on the characteristics of second-level learning outcomes for qualifications at Levels 6-8 of the Polish Qualifications Framework.

<https://prk.men.gov.pl/en/1en/>

Conducting research and preparing a doctoral dissertation within the meaning of Article 187(3) of the Act of 20 July 2018 - Law on Higher Education and Science (i.e. Journal of Laws of 2023, item 742 as amended) fulfills in part achieving all types of learning outcomes for qualifications at Level 8 of the PQF. The achievement of these outcomes is verified by the supervisor.

Doctoral students with disabilities and persons in a special health situation may apply for the adaptation of the education process realisation to their needs, according to the principles specified in the order of the Jagiellonian University Rector.

## V

### Final provision

The *Mathematics* education programme in the discipline of mathematics at the Doctoral School of Exact and Natural Sciences shall enter into force on the date of the Resolution.



**Education Programme  
in Technical Computer Science  
in the discipline of information  
and communication technology  
conducted in English  
at the Doctoral School of Exact  
and Natural Sciences**

**I**

**General provisions**

1. The education programme in Technical Computer Science has been developed according to the Act of 20 July 2018 on Law on Higher Education and Science, and the guidelines in force at the Jagiellonian University in Kraków.
2. The education programme leads to achieving learning outcomes for the qualifications at Level 8 of the Polish Qualification Framework (PQF).
3. The education programme lasts 8 semesters.
4. English is a medium of instruction of the education programme in Technical Computer Science.
5. Detailed requirements and eligibility criteria for admission to the programme are defined in the admission terms and conditions as approved by the Jagiellonian University Senate.
6. Within 3 months of the commencement of the education programme, a doctoral student has their supervisor(s) appointed, according to the Doctoral School Regulations.
7. Within 12 months of the commencement of the education programme, a doctoral student shall submit an Individual Research Plan (IRP) to the programme coordinator for their opinion and submission to the Director of the Doctoral School. The IRP shall cover a period equal to the duration of the education programme and shall specify, among other issues, the schedule for the preparation of the dissertation.
8. A doctoral student is required to achieve a minimum of 40 ECTS credits (ECTS – European Credit Transfer and Accumulation System) allocated to the Technical Computer Science education programme and to attain all the required learning outcomes as specified at the Level 8 of the Polish Qualification Framework. 24 ECTS are to be achieved by the end of the semester in which mid-term assessment is conducted. A doctoral student is obliged to achieve all the learning outcomes at the Level 8 of the Polish Qualification Framework.
9. Detailed instructions for achieving and assessing learning outcomes shall be specified in the syllabuses of the individual courses.

## **II**

### **Professional traineeship**

1. Professional traineeship shall take the form of teaching or co-teaching classes.
2. In agreement with and at the application of the doctoral student, the programme coordinator may accept other forms of professional traineeship, including didactic traineeship, such as conducting classes promoting science, provided that such a form ensures achieving all the learning outcomes allocated to professional traineeship.
3. Professional traineeship can also be conducted in a business company, a foundation, etc.
4. The rules for teaching traineeship for doctoral students of the education programme in Technical Computer Science shall be determined by the coordinator of this programme.
5. The number of hours of professional traineeship shall not exceed 60 teaching hours (a teaching hour equals 45-minutes) per one academic year, of which a minimum of 30 teaching hours in the form of teaching classes.

## **III**

### **Study and research progress assessment**

1. The supervisor(s), in cooperation with the programme coordinator and the Director of the Doctoral School, shall supervise implementing the education programme and the Individual Research Plan of the doctoral student.
2. Annually, but no later than by 17 September, a doctoral student shall submit to the programme coordinator a written report on the implementation of the Individual Research Plan, reviewed by the supervisor(s) and the auxiliary supervisor.
3. The programme coordinator shall assess the degree of implementing the study and research work based on the information from the doctoral student as defined in Point 2, and a report from the University Study-Oriented System (USOS).
4. Changes to the Individual Research Plan, in particular modifying or rescheduling the doctoral student's duties, shall require consulting the programme coordinator.
5. The programme coordinator may decide to reschedule the doctoral student's duties resulting from the education programme and to accept courses or activities not specified in the education programme as part of the performance of the duties (with the relevant allocation of ECTS credits), provided that no changes to the Individual Research Plan are needed.
6. When additional funding is available or in well justified cases, the programme coordinator, in consultation with School representatives of the Jagiellonian University PhD Student Association and the Director of the Doctoral School, may oblige doctoral students to take courses not specified in the education programme.

7. By the end of the 24<sup>th</sup> month of education, a doctoral student shall be subject to mid-term assessment before the assessment committee appointed by the Director of the Doctoral School.
8. One month before the scheduled meeting of the mid-term assessment committee, a doctoral student shall submit to the programme coordinator a written report on the implementation of the education programme and Individual Research Plan. The report has to be approved by the supervisor(s) and the auxiliary supervisor before submission.
9. Meetings of the mid-term assessment committee shall be attended by the committee members, and the doctoral student in those parts to which they have been invited, in accordance with separate provisions.

## **IV**

### **Schedule**

## SCHEDULE FOR THE EDUCATION PROGRAMME IN TECHNICAL COMPUTER SCIENCE

DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES EDUCATION PROGRAMME IN TECHNICAL COMPUTER SCIENCE						
ITEM	AIM	DESCRIPTION	PQF /PRK*	SEMESTER	NO OF ECTS	LIMITS
<b>OBLIGATORY COURSES</b> (25 ECTS minimum or 21 ECTS if a PhD student holds a proper language certificate)						
Basic seminar		Research seminar aimed at discussing recent achievements in a given discipline Assessment: <b>credit based on PhD student's participation in the seminar</b>	P8S_WG P8S_UW P8S_KK	I-VIII	1-2 for 30 hours	minimum 12 ECTS
Specialised course		Minimum one course / lecture selected by a PhD student The course presents basic or current research problems in a given discipline Assessment: <b>examination</b>	P8S_WG P8S_UW	I-IV	6 (lecture and classes) 3 (lecture only)	minimum 6 ECTS
Seminar for PhD students No I		Preparation for the research work Assessment: <b>credit</b>	P8S_UK P8S_KR	II	1	1 ECTS
Seminar for PhD students No II		Preparation for the research work. Communicating research results by a PhD student Assessment: <b>credit</b>	P8S_UK P8S_UO P8S_KR	IV	2	2 ECTS
English C1		A course at C1 level (not applicable to those PhD students who hold C1 language certificate or are graduates of master's programmes conducted in English) Assessment: <b>examination</b>	P8S_UK	I-II	4 for 60 hours	4 ECTS

Professional competencies and soft skills development	A course selected by a PhD student from a range of courses offered before each academic year (e.g. career planning, managerial skills, business communication) Assessment: <b>as provided in the course syllabus</b>	P8S_WK	I-VIII	2 for 30 hours	minimum 2 ECTS
<b>JOINT ELECTIVE ACTIVITIES FOR DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES</b>					
Doctoral School Seminar	Monthly interdisciplinary seminar with lectures in English offered by the guest researchers Assessment: <b>credit based on participation</b>	P8S_WG P8S_UW P8S_UK	I-VIII	1 per academic year	
Modern foreign language	A course offered as a second foreign language Assessment: <b>examination</b>	P8S_UU	I-IV	4 for 60 hours	
Polish for foreigners	A course in Polish Assessment: <b>examination</b>	P8S_UU	I-VIII	4 for 60 hours	
General knowledge development	One course out of a range of courses offered before each academic year (e.g. a course in philosophy, ethics, IA or cosmology) Assessment: <b>examination</b>	P8S_WK	I-VIII	2 for 30 hours	
<b>ELECTIVE ACTIVITIES DEVELOPING PROFESSIONAL COMPETENCIES</b>					
Optional activities	Lectures (3 ECTS for 30 hours), seminars (2-4 ECTS for 60 hours; the number of ECTS depends on the number of academic talks), studying specialized material (2 ECTS for studying the material, which is equivalent to a 30-hour course), activities aimed at soft skills development organised by the Faculty of Mathematics and Computer Science, Faculty of Physics, Astronomy and Applied Computer Science, Faculty of Management and Social Communication, soft skills activities.	P8S_UU P8S_WG	I-VIII	according to the description	

<b>TRAINEESHIP</b>					
Traineeship in a company	Optional professional traineeship in an industrial company Assessment: <b>by the programme coordinator on the basis of the participation certificate from the company</b>	P8S_UU P8S_KO	III-VIII	1 for 30 hours	maximum 6 ECTS
Traineeship in academic didactics	Preparation for academic teaching, including conducting classes Assessment: <b>by the programme coordinator on the basis of the opinion issued by a person supervising conducting classes by a PhD student</b>	P8S_UU P8S_UK	I-VIII	1 for 15 hours	maximum totally 16 ECTS
<p><b>Additional obligatory courses:</b></p> <ol style="list-style-type: none"> <li>1. PhD students who start their education in the Doctoral School are required to complete a <b>Health and Safety at Work</b> training / BHP.</li> <li>2. <b>First Aid</b> course (theoretical part and practical part) is to be completed by the end of the 2<sup>nd</sup> semester.</li> <li>3. PhD students who plan research involving vertebrate animals are required to take training to obtain appropriate qualifications.</li> </ol>					

\*PQF /PRK – Polish Qualifications Framework / Polska Rama Kwalifikacji in accordance with the Regulation of the Minister of Science and Higher Education on the characteristics of second-level learning outcomes for qualifications at Levels 6-8 of the Polish Qualifications Framework.

<https://prk.men.gov.pl/en/1/en/>

Conducting research and preparing a doctoral dissertation within the meaning of Article 187(3) of the Act of 20 July 2018 - Law on Higher Education and Science (i.e. Journal of Laws of 2023, item 742 as amended) fulfills in part achieving all types of learning outcomes for qualifications at Level 8 of the PQF. The achievement of these outcomes is verified by the supervisor.

Doctoral students with disabilities and persons in a special health situation may apply for the adaptation of the education process realisation to their needs, according to the principles specified in the order of the Jagiellonian University Rector.

## V

### Final provision

The *Technical Computer Science* programme in the discipline of information and communication technology at the Doctoral School of Exact and Natural Sciences shall enter into force on the date of the Resolution.



**Education Programme**  
**in Earth and environmental sciences**  
**in the discipline of Earth and related environmental sciences**  
**conducted in Polish**  
**at the Doctoral School of Exact**  
**and Natural Sciences**

**I**

**General provisions**

1. The education programme in Earth and environmental sciences has been developed according to the Act of 20 July 2018 on Law on Higher Education and Science and the guidelines in force at the Jagiellonian University in Kraków.
2. The education programme leads to achieving learning outcomes for the qualifications at Level 8 of the Polish Qualification Framework (PQF).
3. The education programme lasts 8 semesters.
4. Polish is a medium of instruction of the programme. Courses can also be taught in English.
5. Detailed requirements and eligibility criteria for admission to the programme are defined in the admission terms and conditions as approved by the Jagiellonian University Senate.
6. Within 12 months of the commencement of the programme, a doctoral student shall submit an Individual Research Plan (IRP) to the education programme coordinator for their opinion and submission to the Director of the Doctoral School.
7. A doctoral student is required to achieve a minimum of 40 ECTS credits (ECTS – European Credit Transfer and Accumulation System) allocated to the Earth and environmental sciences education programme and to attain all the required learning outcomes as specified at the Level 8 of the Polish Qualification Framework. A minimum of 8 ECTS shall be obtained in each year. If a doctoral student has realised a credit excess in previous years, he or she is required to obtain the number of credits corresponding to the difference between the 8 ECTS and the excess obtained.
8. Detailed instruction for achieving and assessing learning outcomes shall be specified in the syllabuses of the individual courses.

## **II**

### **Professional traineeship**

1. Professional traineeship shall take the form of teaching or co-teaching classes.
2. In agreement with and at the application of the doctoral student, the programme coordinator may accept other forms of professional traineeship, including didactic traineeship, such as conducting classes promoting science, provided that such a form ensures achieving all the learning outcomes allocated to professional traineeship.
3. The number of hours of professional traineeship shall not exceed 60 teaching hours (a teaching hour equals 45-minutes) per one academic year.

## **III**

### **Study and research progress assessment**

1. The supervisor(s), in cooperation with the programme coordinator and the Director of the Doctoral School, shall supervise implementing the education programme and the Individual Research Plan of the doctoral student.
2. Annually, but no later than by 17<sup>th</sup> September, a doctoral student shall submit to the programme coordinator a written report on the implementation of the Individual Research Plan, reviewed by the supervisor(s) and the auxiliary supervisor.
3. The programme coordinator shall assess the degree of implementing the study and research work based on the information from the doctoral student as defined in Point 2, and a report from the University Study-Oriented System (USOS).
4. Changes to the Individual Research Plan, in particular modifying or rescheduling the doctoral student's duties, shall require consulting the programme coordinator.
5. The programme coordinator may decide to reschedule the doctoral student's duties resulting from the education programme and to accept courses or activities not specified in the education programme as part of the performance of the duties (with the relevant allocation of ECTS credits), provided that no changes to the Individual Research Plan are needed.
6. When additional funding is available or in well justified cases, the programme coordinator, in consultation with School representatives of the Jagiellonian University PhD Student Association and the Director of the Doctoral School, may oblige doctoral students to take courses not specified in the education programme.
7. By the end of the 24<sup>th</sup> month of education, a doctoral student shall be subject to mid-term assessment before the assessment committee appointed by the Director of the Doctoral School.
8. The date of the mid-term assessment is established by the Director of the Doctoral School on the proposal of the programme coordinator.
9. One month before the scheduled meeting of the mid-term assessment committee, the doctoral student shall submit to the programme coordinator a written report on the

implementation of the Individual Research Plan. The report has to be approved by the supervisor(s) and the auxiliary supervisor before submission.

## **IV**

### **Schedule**

## SCHEDULE FOR THE EDUCATION PROGRAMME IN EARTH AND ENVIRONMENTAL SCIENCES

DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES EDUCATION PROGRAMME IN EARTH AND ENVIRONMENTAL SCIENCES						
Item Obligatory/Elective	Aim	Description	PQF*/ PRK	Seme ster	No of ECT S	No of hours
<b>A. SEMINAR</b>						
A1. Doctoral seminar I (O)		Determining progress in the preparation of the doctoral dissertation. Assessment: <b>credit</b> . [Obligatory module, presentation of a paper and participation in a discussion at an open scientific seminar on the subject of "The state of research in the field of the doctoral dissertation."]	P8U_W P8U_U P8_K	I-II	2	10
A2. Doctoral seminar II (O)		Determining progress in the preparation of the doctoral dissertation. Assessment: <b>credit</b> . [Obligatory module, presentation of a paper and participation in a discussion at an open scientific seminar on the subject of "Purpose, scope and methodology of the planned dissertation against achievements in the field."]	P8U_W P8U_U P8_K	III-IV	2	10
A3. Doctoral seminar III (O)		Determining progress in the preparation of the doctoral dissertation. Assessment: <b>credit</b> . [Obligatory module, presentation of a paper and participation in a discussion at an open scientific seminar on the subject of "Preliminary results of research in the ongoing doctoral dissertation."]	P8U_W P8U_U P8_K	V-VI	2	10
<b>B. JOINT ELECTIVE ACTIVITIES FOR THE DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES (MINIMUM 6 ECTS)</b>						
B1. Polish for foreigners (E)		Polish for foreigners. Assessment: <b>examination</b>	P8U_UU	I-IV	4	60

B2. Second foreign language (E)	Foreign language. Assessment: <b>examination</b>	P8U_UU	I-IV	4	60
B3. Soft skills and general knowledge (E)	Lectures (courses) or workshops selected from the list of courses announced before a given academic year. Assessment: <b>credit</b> . [Credit given by the lecturer as provided in the course syllabus, or by the education programme coordinator based on a PhD student's statement. 1 ECTS for each 15 hours, maximum of 4 ECTS]	P8U_U P8U_K	I-VIII	4	60
B4. Doctoral School Seminar (E)	A monthly interdisciplinary seminar with English lectures conducted by the Jagiellonian University professors and by invited researchers. Assessment: <b>credit based on participation</b> [Credit granted by the lecturer as provided in the course syllabus, or by the education programme coordinator based on a PhD student's statement. 1 ECTS per academic year, which amounts to participating in minimum of 6 seminars]	P8S_W G P8S_U W P8S_U K	I-VIII	4	60
<b>C. PERSONAL DEVELOPMENT</b>					
C1. English course (O)	Acquiring language skills in English at C1 level. Assessment: <b>examination</b> [Obligatory module, Credit granted by the lecturer as provided in the course syllabus, or by the education programme coordinator based on a PhD student's statement.]	P8S_U U	I-II	4	60
C2. Fields of natural and exact sciences research (E)	Exploring current research problems in natural and exact sciences in the world. Assessment: <b>credit</b> . [Participation in lectures / seminars / conferences / courses (including courses at 2nd degree studies at other departments) devoted to current problems and progress of natural and exact sciences. Credit granted by the lecturer as provided in the course syllabus, or by the education programme coordinator based on a PhD student's statement.]	P8_W	I-VIII	2	30

C3. Methodology workshop (E)	Acquiring the ability to conduct research appropriate for the selected subdiscipline of Earth Sciences. Assessment: <b>credit</b> . [Participation in a methodology course or individual study of research methods under the supervision of a selected faculty member, for about 30 hours, credit granted by the lecturer as provided in the course syllabus, or by the education programme coordinator based on the document / certificate provided]	P8_W P8_U	I-VIII	2	30
C4. Scholarly workshop (E)	Acquiring the skills necessary to prepare research projects and techniques for writing scientific texts. Assessment: <b>credit</b> . [Acquiring the skills necessary to prepare and acquire research projects and techniques for writing scientific texts in the form of selected classes or individual work. Credit granted by the education programme coordinator based on a grant awarded to the PhD student as the manager (NCN, EU funds), OR the publication of a PhD student's article in the journal from the A list of the Ministry of Science and Higher Education, in which he is the first author and correspondent author]	P8_U P8_K	II-VIII	6	30
C5. Competence in the humanities (E)	Developing humanistic competencies. Assessment: <b>credit</b> . [Participation in activities developing humanities interests. Credit granted by the lecturer as provided in the course syllabus, or by the education programme coordinator based on a PhD student's statement. Examples: philosophy of science, rhetoric, psychology, Japanese culture, Mediterranean archeology]	P8_K	I-VIII	2	30
C6. Personal competencies (E)	Developing personal skills. Assessment: <b>credit</b> . [Participation in activities developing interpersonal competences. Credit granted by the lecturer as provided in the course syllabus, or by the education programme coordinator based on a PhD student's statement. Examples: group psychological workshops, assertiveness training]	P8_K	I-VIII	2	30
C7. PhD internship (E)	Preparation for employment. Assessment: <b>credit</b> . [Internship (minimum of 1 month) in a foreign research center OR in an institution (Polish or foreign) conducting research and development work Credit granted by the education programme coordinator based on a PhD student's statement]	P8_W	II-IV	4	60

C8. Physical development (E)	Physical activity of choice (sport), two hours a week. Assessment: <b>credit</b> . [Credit granted by the education programme coordinator based on a PhD student's statement, 1 ECTS for each semester, max. 4 semesters]	P8_K	I-IV	4	120
<b>D. TRAINEESHIP</b>					
D1. Traineeship in academic didactics (O)	Preparation for academic teaching, developing communication skills and knowledge transfer. Assessment: <b>credit</b> . [Obligatory module, preparation and conducting or co-conducting of classes at the university in the amount of 60 hours per year, 3 ECTS for each year]	P8U_U P8U_K	I-VIII	12	240
<p><b>Additional obligatory courses:</b></p> <ol style="list-style-type: none"> <li>1. PhD students who start their education in the Doctoral School are required to complete a <b>Health and Safety at Work</b> training / BHP.</li> <li>2. <b>First Aid</b> course (theoretical part and practical part) is to be completed by the end of the 2<sup>nd</sup> semester.</li> <li>3. PhD students who plan research involving vertebrate animals are required to take training to obtain appropriate qualifications.</li> </ol>					

\*PQF /PRK – Polish Qualifications Framework / Polska Rama Kwalifikacji in accordance with the Regulation of the Minister of Science and Higher Education on the characteristics of second-level learning outcomes for qualifications at Levels 6-8 of the Polish Qualifications Framework.

<https://prk.men.gov.pl/en/1en/>

Conducting research and preparing a doctoral dissertation within the meaning of Article 187(3) of the Act of 20 July 2018 - Law on Higher Education and Science (i.e. Journal of Laws of 2023, item 742 as amended) fulfills in part achieving all types of learning outcomes for qualifications at Level 8 of the PQF. The achievement of these outcomes is verified by the supervisor.

Doctoral students with disabilities and persons in a special health situation may apply for the adaptation of the education process realisation to their needs, according to the principles specified in the order of the Jagiellonian University Rector.

## V

### Final provision

The *Earth and environmental sciences* education programme in the discipline of Earth and related environmental sciences at the Doctoral School of Exact and Natural Sciences shall enter into force on the date of the Resolution.

**Education Programme in Astronomy  
in the discipline of astronomy  
conducted in English  
at the Doctoral School of Exact  
and Natural Sciences**

**I**

**General provisions**

1. The education programme in Astronomy has been developed according to the Act of 20 July 2018 on Law on Higher Education and Science, and the guidelines in force at the Jagiellonian University in Kraków.
2. The education programme leads to achieving learning outcomes for the qualifications at Level 8 of the Polish Qualification Framework (PQF).
3. The education programme lasts 8 semesters.
4. Detailed requirements and eligibility criteria for admission to the programme are defined in the admission terms and conditions as approved by the Jagiellonian University Senate.
5. Within 12 months of the commencement of the education programme, a doctoral student shall submit an Individual Research Plan (IRP) to the programme coordinator for their opinion and submission to the Director of the Doctoral School.
6. A doctoral student is required to achieve a minimum of 40 ECTS credits (ECTS – European Credit Transfer and Accumulation System) allocated to the Astronomy education programme and to attain all the required learning outcomes as specified at the Level 8 of the Polish Qualification Framework. 22 ECTS are to be achieved by the end of the semester in which mid-term assessment is conducted. A doctoral student is obliged to achieve all the learning outcomes at the Level 8 of the Polish Qualification Framework.
7. Detailed instructions for achieving and assessing learning outcomes shall be specified in the syllabuses of the individual courses.

**II**

**Professional traineeship**

1. Professional traineeship shall take the form of teaching or co-teaching classes.



2. In agreement with and at the application of the doctoral student, the programme coordinator may accept other forms of professional traineeship, including didactic traineeship, such as conducting classes promoting science, provided that such a form ensures achieving all the learning outcomes allocated to professional traineeship.
3. The number of hours of professional traineeship shall not exceed 60 teaching hours (a teaching hour equals 45-minutes) per one academic year.

### **III**

#### **Study and research progress assessment**

1. The supervisor(s), in cooperation with the programme coordinator and the Director of the Doctoral School, shall supervise implementing the education programme and the Individual Research Plan of the doctoral student.
2. Annually, but no later than by 17 September, a doctoral student shall submit to the programme coordinator a written report on the implementation of the Individual Research Plan, reviewed by the supervisor(s) and the auxiliary supervisor.
3. The programme coordinator shall assess the degree of implementing the study and research work based on the information from the doctoral student as defined in Point 2, and a report from the University Study-Oriented System (USOS).
4. Changes to the Individual Research Plan, in particular modifying or rescheduling the doctoral student's duties, shall require consulting the programme coordinator.
5. The programme coordinator may decide to reschedule the doctoral student's duties resulting from the education programme and to accept courses or activities not specified in the education programme as part of the performance of the duties (with the relevant allocation of ECTS credits), provided that no changes to the Individual Research Plan are needed.
6. When additional funding is available or in well justified cases, the programme coordinator, in consultation with School representatives of the Jagiellonian University PhD Student Association and the Director of the Doctoral School, may oblige doctoral students to take courses not specified in the education programme.
7. By the end of the 24<sup>th</sup> month of education, a doctoral student shall be subject to mid-term assessment before the assessment committee appointed by the Director of the Doctoral School.
8. The date of the mid-term assessment is established by the Director of the Doctoral School on the proposal of the programme coordinator.
9. One month before the scheduled meeting of the mid-term assessment committee, a doctoral student shall submit to the programme coordinator a written report on the implementation of the education programme and Individual Research Plan. The report has to be approved by the supervisor(s) and the auxiliary supervisor before submission.
10. Meetings of the mid-term assessment committee shall be attended by the committee members, and the doctoral student in those parts to which they have been invited, in accordance with separate provisions.

## IV

### Schedule

#### SCHEDULE FOR THE EDUCATION PROGRAMME IN ASTRONOMY

DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCE EDUCATION PROGRAMME IN ASTRONOMY					
Item (name of the course)	Aim Description	PQF*	Semester	ECTS	No of hours
OBLIGATORY COURSES (28 ECTS MINIMUM)					
English course	English classes at C1 level for PhD students who do not hold a C1 certificate or are not graduates of master's studies conducted in English. Assessment: <b>examination</b>	P8S_UK	I	4	60
Specialist course	Two lectures from at least three offered: Presentation of the foundations and current research problems of a given discipline. Assessment: <b>examination</b>	P8S_WG P8S_UW	I-IV	4/8	60/120
Doctoral seminar	Preparation for research work, analysis and creative synthesis of world scientific achievements, identifying and solving research problems, participating in the exchange of scientific experience and ideas. Assessment: <b>assessment of the paper and activity at the seminar.</b>	P8S_WG P8S_UW	I-VI	4/12	30/90
Workshop under the direct supervision of the supervisor	PhD student research under the direct supervision of the supervisor. Assessment: <b>awarded by the supervisor; with credit</b>	P8S_UW P8S_UK P8S_UO P8S_KK P8S_KR	I-VIII	4/16	60/240

Research workshop	Individual PhD student's research, preparation of the doctoral dissertation Assessment: <b>awarded by the supervisor</b>	P8S_W P8S_U	I-VIII	No ECTS	Up to 8 hours daily
<b>JOINT ELECTIVE ACTIVITIES FOR THE DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES (4 ECTS MINIMUM)</b>					
Doctoral School seminar	Monthly interdisciplinary seminar with lectures in English offered by the guest researchers Assessment: <b>credit</b>	P8S_WG P8S_UW P8S_UK	I-VIII	4 (1 x 4)	Minimum 6 seminars a year
Modern foreign language	A course offered as a second foreign language Assessment: <b>examination</b>	P8S_UU	I-IV	4	60
Polish for foreigners	Assessment: <b>examination</b>	P8S_UU	I-VIII	4	60
General knowledge development	One course out of a range of courses offered before each academic year (e.g. a course in philosophy, ethics, IA or cosmology) Assessment: <b>examination</b>	P8S_UW P8S_KR P8S_WK	I-VIII	2 for each 30 hours	30 or 60
Professional competencies and soft skills development	A course selected by a PhD student from a range of courses offered before each academic year (e.g. career planning, managerial skills, business communication) Assessment: <b>as provided in the course syllabus</b>	P8S_WK P8S_KR P8S_KO	I-VIII	2 for each 30 hours	30

OPTIONAL ACTIVITIES DEVELOPING PROFESSIONAL COMPETENCIES (4 ECTS MINIMUM)					
Astronomical Observatory Seminar	Participation in chosen seminars to broaden the knowledge of the recent astronomy achievements and to learn how to deliver seminars. Assessment: <b>credit based on a PhD student's declaration that s/he participated in at least 10 seminars during the year.</b>	P8U_U P8U_W	I-VIII	1/8	minimum 5 seminars per semester
Other courses and activities leading to attaining competences to accomplish IRP	For example: summer schools, courses completed at other universities, including foreign universities. Assessment: <b>as provided in the course syllabus</b>	P8S_KK P8S_UO	I-VIII	According to the programme envisaged by the programme coordinator	35 hours minimum
TRAINEESHIP					
Traineeship in academic didactics	Preparation for work as an academic teacher: developing communication skills and knowledge transfer skills. Assessment: <b>credit based on the opinion issued by a person supervising conducting classes by a PhD student</b>	P8U_U P8U_K	I-VIII	1 for 15 hours	Up to 60 hrs a year
Traineeship in a company	Optional; in an industrial company or other company relevant to the PhD student, for a total of 3 months. Assessment: <b>credit based on the participation certificate from the company</b>	P8U_U P8U_K	IV-VIII	1 ECTS point for 35 hours of internship	Up to 3 months

**Additional obligatory courses:**

1. PhD students who start their education in the Doctoral School are required to complete a **Health and Safety at Work** training / BHP.
2. **First Aid** course (theoretical part and practical part) is to be completed by the end of the 2<sup>nd</sup> semester.
3. PhD students who plan research involving vertebrate animals are required to take training to obtain appropriate qualifications.

\*PQF /PRK – Polish Qualifications Framework / Polska Rama Kwalifikacji in accordance with the Regulation of the Minister of Science and Higher Education on the characteristics of second-level learning outcomes for qualifications at Levels 6-8 of the Polish Qualifications Framework.

<https://prk.men.gov.pl/en/en/>

Conducting research and preparing a doctoral dissertation within the meaning of Article 187(3) of the Act of 20 July 2018 - Law on Higher Education and Science (i.e. Journal of Laws of 2023, item 742 as amended) fulfills in part achieving all types of learning outcomes for qualifications at Level 8 of the PQF. The achievement of these outcomes is verified by the supervisor.

Doctoral students with disabilities and persons in a special health situation may apply for the adaptation of the education process realisation to their needs, according to the principles specified in the order of the Jagiellonian University Rector.

## V

### **Final provision**

The *Astronomy* education programme in the discipline of astronomy at the Doctoral School of Exact and Natural Sciences shall enter into force on the date of the Resolution.

**Education Programme in Biochemistry, Biophysics,  
Molecular Biology and Biotechnology  
in the discipline of biological sciences  
conducted in Polish  
at the Doctoral School of Exact  
and Natural Sciences**

**I**

**General provisions**

1. The education programme in Biochemistry, Biophysics, Molecular Biology and Biotechnology has been developed according to the Act of 20 July 2018 on Law on Higher Education and Science and the guidelines in force at the Jagiellonian University in Kraków.
2. The education programme leads to achieving learning outcomes for the qualifications at Level 8 of the Polish Qualification Framework (PQF).
3. The education programme in Biomedical Sciences lasts 8 semesters.
4. Polish is a medium of instruction of the education programme. Courses can also be taught in English.
5. Detailed requirements and eligibility criteria for admission to the programme are defined in the admission terms and conditions as approved by the Jagiellonian University Senate.
6. Within 12 months of the commencement of the programme, a doctoral student shall submit an Individual Research Plan (IRP) to the education programme coordinator for their opinion and submission to the Director of the Doctoral School.
7. A doctoral student is required to achieve a minimum of 40 ECTS credits (ECTS – European Credit Transfer and Accumulation System) allocated to the Biochemistry, Biophysics, Molecular Biology and Biotechnology education programme and to attain all the required learning outcomes at the Level 8 of the Polish Qualification Framework, of which:
  - a minimum of 30 ECTS is related to the preparation to conduct and communicate research;
  - a minimum of 8 ECTS is completed within the framework of elective classes developing professional and didactic skills;
  - a minimum of 25 ECTS is completed by the end of the semester in which mid-term assessment is conducted;
  - a minimum of 10 ECTS is completed in the form of teaching or co-teaching classes.
8. Detailed instruction for achieving and assessing learning outcomes shall be specified in the syllabuses of the individual courses.

## **II**

### **Professional traineeship**

1. Professional traineeship shall take the form of teaching or co-teaching.
2. In agreement and at the application of a doctoral student, the programme coordinator may accept other forms of professional traineeship, including didactic traineeship, such as conducting classes promoting science, providing such a form ensures achieving all the learning outcomes allocated to the professional traineeship.
3. A doctoral student is required to conduct 120 teaching hours during the entire programme, of which a maximum of 40 teaching hours may be in the form of class observation.
4. The number of hours of professional traineeship shall not exceed 60 teaching hours (a teaching hour equals 45 minutes) per academic year.

## **III**

### **Study and research progress assessment**

1. The supervisor(s), in cooperation with the programme coordinator and the Director of the Doctoral School, shall supervise implementing the education programme and the Individual Research Plan of the doctoral student.
2. Annually, but no later than by 17 September, a doctoral student shall submit to the programme coordinator a written report on the implementation of the Individual Research Plan, reviewed by the supervisor(s) and the auxiliary supervisor.
3. The programme coordinator shall assess the degree of implementing the study and research work based on information from the doctoral student as defined in point 2, and a report from the University Study-Oriented System (USOS).
4. Any change to the Individual Research Plan, in particular modifying or rescheduling the doctoral student's duties, shall require consulting the programme coordinator.
5. The programme coordinator may decide to reschedule the doctoral student's duties resulting from the education programme and to accept courses or activities not specified in the education programme as part of the performance of the duties (with the relevant allocation of ECTS credits), provided that changes to the Individual Research Plan are not needed. Such courses may be taken in place of obligatory courses as well as other courses.
6. When additional funding is available or in well justified cases, the programme coordinator, in consultation with School representatives of the Jagiellonian University PhD Student Association and the Director of the Doctoral School, may oblige doctoral students to take courses not specified in the education programme.
7. The date of the mid-term assessment is established by the Director of the Doctoral School on the proposal of the programme coordinator.
8. One month before the scheduled meeting of the mid-term assessment committee, the doctoral student shall submit to the programme coordinator a written report on the implementation of the Individual Research Plan. The report has to be approved by the supervisor(s) and the auxiliary supervisor before submission.

9. Meetings of the mid-term assessment committee shall be attended by the committee members, and the doctoral student in those parts to which they have been invited, in accordance with separate provisions.

## **IV Schedule**



**SCHEDULE FOR THE EDUCATION PROGRAMME IN BIOCHEMISTRY, BIOPHYSICS,  
MOLECULAR BIOLOGY AND BIOTECHNOLOGY**

<b>DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES EDUCATION PROGRAMME IN BIOCHEMISTRY, BIOPHYSICS, MOLECULAR BIOLOGY AND BIOTECHNOLOGY</b>						
<b>Item</b>	<b>Aim</b>	<b>Description</b>	<b>PQF*</b>	<b>Semester</b>	<b>No of ECTS</b>	<b>No of hours</b>
<b>OBLIGATORY COURSES AT THE DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES (16 ECTS)</b>						
Specialist seminar		Seminar: to present the PhD student's own results against the achievements in the field, to solve research problems, to share research experience and ideas. Assessment: <b>an oral presentation and active participation in discussions</b>	P8S_WG P8S_UW P8S_UK P8S_KK	I-VIII	8	120
English		English classes at C1 level for the PhD students who do not hold a C1 certificate or are not graduates of master studies conducted in English. Assessment: <b>examination</b>	P8S_UK	I-II	4	60
Tutorial with the supervisor		Preparation of the individual research project, verification of the work plan, preparation of presentations on the project, editorial work on publication. Assessment: <b>approval of the work progress by the supervisor</b>	P8S_WG P8S_UW P8S_UK P8S_KK	I-VIII	4	60

**ELECTIVE JOINT ACTIVITIES FOR THE DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES(MINIMUM 6 ECTS)**

Doctoral School Seminar	A monthly interdisciplinary seminar with lectures in English delivered by invited researchers. Assessment: <b>credit based on participation</b>	P8S_WG P8S_UW P8S_UK	I-VIII	4 (1 x 4)	Minimum 6 seminars a year
Modern foreign language	As a second foreign language Assessment: <b>examination</b>	P8S_UU	I-IV	4	60
Polish language course for foreigners	Assessment: <b>examination</b>	P8S_UU	I-VIII	4	60
General knowledge development course	One course out of a range of courses offered before each academic year (e.g. a course in philosophy, ethics, IA or cosmology) Assessment: <b>examination</b>	P8S_UW P8S_KR P8S_WK	I-VIII	2 for 30 hours	30 or 60
Professional competencies and soft skills development	A course selected by a PhD student from a range of courses offered before each academic year (e.g. career planning, managerial skills, business communication) Assessment: <b>as provided in the course syllabus</b>	P8S_WKP 8S_KRP8 S_KO	I-VIII	2 for 30 hours	30

**ELECTIVE ACTIVITIES DEVELOPING PROFESSIONAL SKILLS (MINIMUM 6 ECTS)**

Lecture: Progress in Biochemistry and Molecular Biology	Lectures delivered by the specialists in biochemistry and molecular biology (from the University Faculty of Biochemistry, Biophysics and Biotechnology) on the recent research and achievements in the fields. Assessment: <b>examination</b>	P8S_WG P8S_KK	II	2	30
English-language advanced course in biophysics	Lectures delivered by the specialists in biophysics (from the Faculty of Biochemistry, Biophysics and Biotechnology) on the advanced issues of modern biophysics. Assessment: <b>examination</b>	P8S_WG P8S_UK P8S_KK	I	2	30
English-language course in bioethics	Lectures and seminars on the ethical aspects of scientific research in the field of modern life sciences, in particular molecular biology and biotechnology. Assessment: <b>presentation</b>	P8S_WK P8S_UK P8S_KR	I-IV	2	30
Animals in scientific research - a practical training for PhD students	Classes and seminars aimed at preparing PhD students to independently design, prepare and conduct a scientific experiment with the use of laboratory animals, with the main emphasis on learning and improving practical skills. Assessment: seminar: <b>presentation</b> , classes: <b>written credit</b>	P8S_WG P8S_UK P8S_KK	I-IV	3	45

<p>Scientific publication methodology - a course for PhD students</p>	<p>Workshops and practical classes devoted to the methodology of writing a scientific publication, presentation of results, preparation of responses to reviews (grant, publication, etc.), preparation of a dissertation and editing of a grant application. The specifics of "scientific English" (classes with a "native speaker") are also discussed.</p> <p>Assessment: <b>active participation and preparation of two written works: a poster or presentation in PP and a grant application.</b></p>	<p>P8S_WK P8S_UW P8S_UK P8S_KR</p>	<p>I-IV</p>	<p>2</p>	<p>30</p>
<p>Specialist lectures (including lectures of visiting professors)</p>	<p>Lectures on the recent achievements in natural sciences, offered by specialists, including visiting professors.</p> <p>Assessment: <b>presence at the lectures</b></p>	<p>P8S_WG P8S_UK P8S_KK</p>	<p>I-VIII</p>	<p>3 1 for a 15-hour lecture</p>	<p>45</p>
<p>Courses and activities leading to attaining competences to accomplish Individual Research Plan (e.g. summer schools, courses completed at other universities, including foreign universities).</p>	<p>Assessment: <b>as provided in the course syllabus</b></p>				
<p><b>ACTIVITIES DEVELOPING TEACHING SKILLS</b></p>					

<p>Teaching methods and IT tools in didactics and scientific work</p>	<p>Lecture, seminars, distance learning labs. To familiarise PhD students with the basic teaching problems, in particular the teaching methods and techniques, the methodology of designing and evaluating tests and reports. The students learn how to operate a distance learning platform PEGAZ, as well as two programs relevant in scientific work:  1. bibliography management system Mendeley,  2. program for data analysis and processing GraphPad Prism.</p> <p>Assessment: <b>practical tasks and oral presentation</b></p>	<p>P8S_WK P8S_UU</p>	<p>I-IV</p>	<p>3</p>	<p>45</p>
<p>University didactics for natural sciences</p>	<p>Workshop: to prepare PhD students for conducting classes for the students of natural sciences.</p> <p>Assessment: <b>active participation in workshops and at the distance learning platform. Written and oral presentation of the class scenario.</b></p>	<p>P8S_WK P8S_UU</p>	<p>I-IV</p>	<p>2</p>	<p>30</p>
<p><b>TRAINEESHIP (MINIMUM 10 ECTS)</b></p>					

Traineeship in academic didactics	Preparation for work as an academic teacher: developing communication skills and knowledge transfer skills. Assessment: <b>credit based on the opinion issued by a person supervising conducting classes by a PhD student</b>	P8S_UO	I-VIII	10	120
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**Additional obligatory courses:**

1. PhD students who start their education in the Doctoral School are required to complete a **Health and Safety at Work** training / BHP.
2. **First Aid** course (theoretical part and practical part) is to be completed by the end of the 2<sup>nd</sup> semester.
3. PhD students who plan research involving vertebrate animals are required to take training to obtain appropriate qualifications.

\*PQF /PRK – Polish Qualifications Framework / *Polska Rama Kwalifikacji* in accordance with the Regulation of the Minister of Science and Higher Education on the characteristics of second-level learning outcomes for qualifications at Levels 6-8 of the Polish Qualifications Framework.

<https://prk.men.gov.pl/en/1en/>

Conducting research and preparing a doctoral dissertation within the meaning of Article 187(3) of the Act of 20 July 2018 - Law on Higher Education and Science (i.e. Journal of Laws of 2023, item 742 as amended) fulfills in part achieving all types of learning outcomes for qualifications at Level 8 of the PQF. The achievement of these outcomes is verified by the supervisor.

Doctoral students with disabilities and persons in a special health situation may apply for the adaptation of the education process realisation to their needs, according to the principles specified in the order of the Jagiellonian University Rector.

## V

### Final provision

The *Biochemistry, Biophysics, Molecular Biology and Biotechnology* education programme in the discipline of biological sciences at the Doctoral School of Exact and Natural Sciences shall enter into force on the date of the Resolution.

**Education Programme in Biology  
in the discipline of biological sciences  
conducted in Polish  
at the Doctoral School of Exact  
and Natural Sciences**

**I**

**General provisions**

1. The education programme in Biology has been developed according to the Act of 20 July 2018 on Law on Higher Education and Science and the guidelines in force at the Jagiellonian University in Kraków.
2. The education programme leads to achieving learning outcomes for the qualifications at Level 8 of the Polish Qualification Framework (PQF).
3. The education programme in Biology lasts 8 semesters.
4. Polish is a medium of instruction of the programme.
5. Detailed requirements and eligibility criteria for admission to the programme are defined in the admission terms and conditions as approved by the Jagiellonian University Senate.
6. Within 12 months of the commencement of the programme, a doctoral student shall submit an Individual Research Plan (IRP) to the education programme coordinator for their opinion and submission to the Director of the Doctoral School.
7. A doctoral student is required to achieve a minimum of 40 ECTS credits (ECTS – European Credit Transfer and Accumulation System) allocated to the Biology education programme and to attain all the required learning outcomes at the Level 8 of the Polish Qualification Framework, of which:
  - a minimum of 30 ECTS is related to the preparation to conduct and communicate research;
  - a minimum of 24 ECTS is completed within the framework of elective classes developing professional skills;
  - a minimum of 25 ECTS is completed by the end of the semester in which mid-term assessment is conducted.
8. Detailed instruction for achieving and assessing learning outcomes shall be specified in the syllabuses of the individual courses.

**II**

**Professional traineeship**

1. Professional traineeship shall take the form of teaching or co-teaching.
2. The rules of traineeship for doctoral students in the Biology programme shall be determined by the Director in agreement with the Deputy Dean of the Faculty of Biology of the Jagiellonian University .

3. The number of hours of professional traineeship shall not exceed 60 teaching hours (a teaching hour equals 45 minutes) per academic year.
4. The 1<sup>st</sup> year doctoral students shall only assist in teaching classes of a minimum of 10 teaching hours, from which they prepare a note with the signature of the course coordinator or of the supervisor, and attend classes developing their teaching skills.

### **III**

#### **Study and research progress assessment**

1. The supervisor(s), in cooperation with the programme coordinator and the Director of the Doctoral School, shall supervise implementing the education programme and the Individual Research Plan of the doctoral student.
2. Annually, but no later than at the end of the 17<sup>th</sup> month after the commencement of the education at the Doctoral School, a doctoral student shall submit to the programme coordinator a written report on the implementation of the Individual Research Plan, reviewed by the supervisor(s) and the auxiliary supervisor. The report shall include, in particular: a brief summary of the doctoral student's research (on scientific progress and progress on the dissertation) and teaching activities.
3. Verification of the implementation of the programme is carried out by the programme coordinator.
4. The programme coordinator shall evaluate the implementation of the programme and research progress on the basis of: the opinion of the supervisor(s) and credit for the courses included in the education programme schedule.
5. The programme coordinator may decide to reschedule the doctoral student's duties resulting from the education programme and to accept courses or activities not specified in the education programme as part of the performance of the duties (with the relevant allocation of ECTS credits), provided that changes to the Individual Research Plan are not needed. Such courses may be taken in place of obligatory courses as well as other courses.
6. When additional funding is available or in well justified cases, the programme coordinator, in consultation with School representatives of the Jagiellonian University PhD Student Association and the Director of the Doctoral School, may oblige doctoral students to take courses not specified in the education programme.
7. By the end of the 24<sup>th</sup> month of education, a doctoral student shall be subject to mid-term assessment before the assessment committee appointed by the Director of the Doctoral School.
8. The date of the mid-term assessment is established by the Director of the Doctoral School on the proposal of the programme coordinator.
9. One month before the scheduled meeting of the mid-term assessment committee, the doctoral student shall submit to the programme coordinator a written report on the implementation of the Individual Research Plan. The report has to be approved by the supervisor(s) and the auxiliary supervisor before submission.
10. Prior to the scheduled date of the mid-term assessment, the supervisor may organise an open session at which the doctoral student will present the degree of progress of the Individual Research Plan. The date and format of the session shall be determined by the education programme coordinator.



## **IV Schedule**

## SCHEDULE FOR THE EDUCATION PROGRAMME IN BIOLOGY

<b>DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES EDUCATION PROGRAMME IN BIOLOGY</b>						
Item	Aim	Description	PQF*/ PRK	Semest er	No of ECTS	No of hours
<b>OBLIGATORY COURSES WITHIN THE DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES (MINIMUM 6 ECTS)</b>						
Doctoral School Seminar conducted in English		Assessment: <b>credit based on participation</b>	P8S_WG P8S_UW P8S_UK	V-VIII	2 (1+1)	Minimum 6 seminars a year
Philosophy (Philosophy of nature)		Assessment: <b>credit with a grade</b>	P8S_WK	V-VI	4	30 hours - lectures 15 or 30 hours - seminars
<b>ELECTIVE JOINT ACTIVITIES FOR THE DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES (MINIMUM 4 ECTS)</b>						
English		Assessment: <b>examination</b>	P8S_UK	I-II	4	60 hours
Polish for foreigners		Assessment: <b>examination</b>	P8S_UU	I-IV	4	60 hours
Modern foreign language (as a second foreign language)		Assessment: <b>examination</b>	P8S_UU	I-IV	4	60 hours

Activities enhancing professional and soft skills development (career planning, managerial skills, business communication, e.g. <i>Document and literature management as tools to facilitate working on a doctoral dissertation</i> ), <i>Elements of rhetoric and communication</i> offered by the Jagiellonian Competence Development Center.	Assessment: <b>credit</b>	P8S_WK P8S_KR P8S_KO	I-VIII		
<b>ELECTIVE ACTIVITIES DEVELOPING PROFESSIONAL SKILLS (MINIMUM 24 ECTS)</b>					
<b>OBLIGATORY TO OBTAIN - 16 ECTS</b>					
Methodology and methods (I year)	Assessment: <b>credit</b>	P8S_UW P8S_UO	I-II	2 (2 x 1)	2 x 25 hours
Methodology and methods (II year)	Assessment: <b>credit</b>	P8S_UW P8S_UO	III-IV	4 (2 x 2)	2 x 40 hours
Methodology and methods (III year)	Assessment: <b>credit</b>	P8S_UW P8S_UO	V-VI	2 (2 x 1)	2 x 25 hours
Methodology and methods (IV year)	Assessment: <b>credit</b>	P8S_UW P8S_UO	VII-VIII	2 (2 x 1)	2 x 25 hours
Seminars (I year)	Assessment: <b>credit</b>	P8S_UK	I-II	2 (2 x 1)	2 x 15 hours
Seminars (II year)	Assessment: <b>credit</b>	P8S_UK	III-IV	2 (2 x 1)	2 x 15 hours
Seminars (III year)	Assessment: <b>credit</b>	P8S_UK	V-VI	2 (2 x 1)	2 x 15

					hours
<b>CORE COURSES TO CHOOSE FROM: MINIMUM 2 OFFERED EVERY 2 YEARS (MINIMUM 8 ECTS)</b>					
Developmental Biology	Assessment: <b>examination</b>	P8S_WG P8S_UW P8S_KK	I-IV	4	60 hours – lecture
Recent Achievements and Discoveries in Botany	Assessment: <b>examination</b>			4	60 hours – lecture
Progress in Cell Biology	Assessment: <b>examination</b>			4	60 hours – lecture
Molecular Ecology for PhD Students	Assessment: <b>examination</b>			4	15 hours – lecture 15 hours – class 15 hours – seminar
Methodological Workshop in Evolutionary Biology – grant writing Methodological Workshop in Evolutionary Biology – practical part	Assessment: <b>credit with a grade</b>			4 (2 x 2)	30 hours + 30 hours workshop
Courses and activities leading to attaining competences to accomplish Individual Research Plan (e.g. summer schools, courses completed at other universities, including foreign universities), No. of ECTS and No. of hours determined individually for each course	Assessment: <b>as provided in the course syllabus</b>		I-VI		
<b>OTHER COURSES TO CHOOSE FROM</b>					

Statistics for research	Assessment: <b>examination</b>	P8S_UW	III-V	4	30 hrs – seminar 15 hrs – practical classes
Research funding and managing research projects	Assessment: <b>credit</b>	P8S_UU P8S_UO	I	1	15 hours – seminar
Intellectual property protection system	Assessment: <b>credit</b>	P8S_KR	I	1	15 hours – seminar
<b>ACTIVITIES DEVELOPING TEACHING SKILLS (MINIMUM 6 ECTS)</b>					
University didactics in natural sciences	Assessment: <b>credit with a grade</b>	P8S_UU	I-II	3	30 hours – workshops
Traineeship in academic didactics	<b>Classes observation report on teaching given by the PhD Student</b>	P8S_UU	In accordance with the guidelines adopted at the Faculty	direct teaching hours 10 hours – 1 ECTS (max. 6 ECTS within the entire course of education)	minimum 10 hours a year
<p><b>Additional obligatory courses:</b></p> <ol style="list-style-type: none"> <li>1. PhD students who start their education in the Doctoral School are required to complete a <b>Health and Safety at Work</b> training / BHP.</li> <li>2. <b>First Aid</b> course (theoretical part and practical part) is to be completed by the end of the 2<sup>nd</sup> semester.</li> <li>3. PhD students who plan research involving vertebrate animals are required to take training to obtain appropriate qualifications.</li> </ol>					

\*PQF /PRK – Polish Qualifications Framework / *Polska Rama Kwalifikacji* in accordance with the Regulation of the Minister of Science and Higher Education on the characteristics of second-level learning outcomes for qualifications at Levels 6-8 of the Polish Qualifications Framework.

<https://prk.men.gov.pl/en/1en/>

Conducting research and preparing a doctoral dissertation within the meaning of Article 187(3) of the Act of 20 July 2018 - Law on Higher Education and Science (i.e. Journal of Laws of 2023, item 742 as amended) fulfills in part achieving all types of learning outcomes for qualifications at Level 8 of the PQF. The achievement of these outcomes is verified by the supervisor.

Doctoral students with disabilities and persons in a special health situation may apply for the adaptation of the education process realisation to their needs, according to the principles specified in the order of the Jagiellonian University Rector.

## V

### **Final provision**

The *Biology* education programme in the discipline of biological sciences at the Doctoral School of Exact and Natural Sciences shall enter into force on the date of the Resolution.

**Education Programme in Biology  
in the discipline of biological sciences  
conducted in English  
at the Doctoral School of Exact  
and Natural Sciences**

**I**

**General provisions**

1. The education programme in Biology has been developed according to the Act of 20 July 2018 on Law on Higher Education and Science and the guidelines in force at the Jagiellonian University in Kraków.
2. The education programme leads to achieving learning outcomes for the qualifications at Level 8 of the Polish Qualification Framework (PQF).
3. The education programme in Biology lasts 8 semesters.
4. English is a medium of instruction of the programme.
5. Detailed requirements and eligibility criteria for admission to the programme are defined in the admission terms and conditions as approved by the Jagiellonian University Senate.
6. Within 12 months of the commencement of the programme, a doctoral student shall submit an Individual Research Plan (IRP) to the education programme coordinator for their opinion and submission to the Director of the Doctoral School.
7. A doctoral student is required to achieve a minimum of 40 ECTS credits (ECTS – European Credit Transfer and Accumulation System) allocated to the Biology education programme and to attain all the required learning outcomes at the Level 8 of the Polish Qualification Framework, of which:
  - a minimum of 30 ECTS is related to the preparation to conduct and communicate research;
  - a minimum of 24 ECTS is completed within the framework of elective classes developing professional skills;
  - a minimum of 25 ECTS is completed by the end of the semester in which mid-term assessment is conducted.
8. Detailed instruction for achieving and assessing learning outcomes shall be specified in the syllabuses of the individual courses.

**II**

**Professional traineeship**

1. Professional traineeship shall take the form of teaching or co-teaching.

2. The rules of traineeship for doctoral students in the Biology programme shall be determined by the Director in agreement with the Deputy Dean of the Faculty of Biology of the Jagiellonian University .
3. The number of hours of professional traineeship shall not exceed 60 teaching hours (a teaching hour equals 45 minutes) per academic year.
4. The 1<sup>st</sup> year doctoral students shall only assist in teaching classes of a minimum of 10 teaching hours, from which they prepare a note with the signature of the course coordinator or of the supervisor, and attend classes developing their teaching skills.

### **III**

#### **Study and research progress assessment**

1. The supervisor(s), in cooperation with the programme coordinator and the Director of the Doctoral School, shall supervise implementing the education programme and the Individual Research Plan of the doctoral student.
2. Annually, but no later than by 17 September, a doctoral student shall submit to the programme coordinator a written report on the implementation of the Individual Research Plan, reviewed by the supervisor(s) and the auxiliary supervisor. The report shall include, in particular: a brief summary of the doctoral student's research (both on scientific progress and progress in the preparation of the dissertation) and teaching activities.
3. Verification of the implementation of the programme is carried out by the programme coordinator.
4. The programme coordinator shall evaluate the implementation of the programme and research progress on the basis of: the opinion of the supervisor(s) and credit for the courses included in the education programme schedule.
5. The programme coordinator may decide to reschedule the doctoral student's duties resulting from the education programme and to accept courses or activities not specified in the education programme as part of the performance of the duties (with the relevant allocation of ECTS credits), provided that changes to the Individual Research Plan are not needed. Such courses may be taken in place of obligatory courses as well as other courses.
6. When additional funding is available or in well justified cases, the programme coordinator, in consultation with School representatives of the Jagiellonian University PhD Student Association and the Director of the Doctoral School, may oblige doctoral students to take courses not specified in the education programme.
7. By the end of the 24<sup>th</sup> month of education, a doctoral student shall be subject to mid-term assessment before the assessment committee appointed by the Director of the Doctoral School.
8. The date of the mid-term assessment is established by the Director of the Doctoral School on the proposal of the programme coordinator.
9. One month before the scheduled meeting of the mid-term assessment committee, the doctoral student shall submit to the programme coordinator a written report on the



implementation of the Individual Research Plan. The report has to be approved by the supervisor(s) and the auxiliary supervisor before submission.

Prior to the scheduled date of the mid-term assessment, the supervisor may organise an open session at which the doctoral student will present the degree of progress of the Individual Research Plan. The date and format of the session shall be determined by the education programme coordinator.

## **IV Schedule**

## SCHEDULE FOR THE EDUCATION PROGRAMME IN BIOLOGY

<b>DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES EDUCATION PROGRAMME IN BIOLOGY</b>						
Item	Aim	Description	PQF*	Semester	No of ECTS	No of hours
<b>OBLIGATORY COURSES WITHIN THE DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES (MINIMUM 6 ECTS)</b>						
Doctoral School Seminar conducted in English		Assessment: <b>credit based on participation</b>	P8S_WG P8S_UW P8S_UK	V-VIII	2 (1+1)	Minimum 6 seminars a year
Philosophy (Philosophy of nature)		Assessment: <b>credit with a grade</b>	P8S_WK	V-VI	4	30 hours - lectures 15 or 30 hours - seminars
<b>ELECTIVE JOINT ACTIVITIES FOR THE DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES (MINIMUM 4 ECTS)</b>						
English for Environmental Sciences		Assessment: <b>examination</b>	P8S_UK	I-II	4	60 hours
Polish for foreigners		Assessment: <b>examination</b>	P8S_UU	I-IV	4	60 hours
Modern foreign language (as a second foreign language)		Assessment: <b>examination</b>	P8S_UU	I-IV	4	60 hours

Activities enhancing professional and soft skills development (career planning, managerial skills, business communication, e.g. <i>Document and literature management as tools to facilitate working on a doctoral dissertation</i> ), <i>Elements of rhetoric and communication</i> offered by the Jagiellonian Competence Development Center.	Assessment: <b>credit</b>	P8S_WK P8S_KR P8S_KO	I-VIII		
<b>ELECTIVE ACTIVITIES DEVELOPING PROFESSIONAL SKILLS (MINIMUM 24 ECTS)</b>					
<b>OBLIGATORY TO OBTAIN - 16 ECTS</b>					
Evaluation of progress in PhD thesis (I year)	Assessment: <b>credit</b>	P8S_UW P8S_UO	I-II	2 (2 x 1)	2 x 25 hours
Evaluation of progress in PhD thesis (II year)	Assessment: <b>credit</b>	P8S_UW P8S_UO	III-IV	4 (2 x 2)	2 x 40 hours
Evaluation of progress in PhD thesis (III year)	Assessment: <b>credit</b>	P8S_UW P8S_UO	V-VI	2 (2 x 1)	2 x 25 hours
Evaluation of progress in PhD thesis (IV year)	Assessment: <b>credit</b>	P8S_UW P8S_UO	VII-VIII	2 (2 x 1)	2 x 25 hours
Seminars I	Assessment: <b>credit</b>	P8S_UK	I-II	2 (2 x 1)	2 x 15 hours
Seminars II	Assessment: <b>credit</b>	P8S_UK	III-IV	2 (2 x 1)	2 x 15 hours
Seminars III	Assessment: <b>credit</b>	P8S_UK	V-VI	2 (2 x 1)	2 x 15

					hours
<b>CORE COURSES TO CHOOSE FROM: MINIMUM 2 OFFERED EVERY 2 YEARS (MINIMUM 8 ECTS)</b>					
Biomedical research methods: from antigen to antibody and beyond	Assessment: <b>credit with a grade</b>	P8S_WG P8S_UW P8S_KK	I-IV	4	15 hours – lecture 25 hours – seminar
Methods in environmental sciences and nature conservation	Assessment: <b>credit with a grade</b>			4	50 hours – laboratory and field workshops
Molecular Ecology for PhD Students	Assessment: <b>examination</b>			4	15 hours – lecture 15 hours – class 15 hours – seminar
Methodological Workshop in Evolutionary Biology – grant writing Methodological Workshop in Evolutionary Biology – practical part	Assessment: <b>credit with a grade</b>			4 (2 x 2)	30 hours + 30 hours workshop
Courses and activities leading to attaining competences to accomplish Individual Research Plan (e.g. summer schools, courses completed at other universities, including foreign universities), No. of ECTS and No. of hours determined individually for each course	Assessment: <b>as provided in the course syllabus</b>		I-VI		
<b>OTHER COURSES TO CHOOSE FROM</b>					
Statistics for research sciences	Assessment: <b>examination</b>	P8S_UW	III-V	4	30 hours – seminar 15 hours – practical

					classes
Advanced Research Communication	Assessment: <b>credit with a grade</b>	P8S_WG P8S_KK	II	3	10 hours – lecture 20 hours – practical classes
<b>ACTIVITIES DEVELOPING TEACHING SKILLS (MINIMUM 6 ECTS)</b>					
Efficient Teaching	Assessment: <b>credit with a grade</b>	P8S_UU	I-II	3	30 hours – workshops
Traineeship in academic didactics	<b>Class observation report on teaching given by the PhD Student</b>	P8S_UU	In accordance with the guidelines adopted at the Faculty	direct teaching hours 10 hours – 1 ECTS (max. 6 ECTS within the entire course of education)	minimum 10 hours a year
<p><b>Additional obligatory courses:</b></p> <ol style="list-style-type: none"> <li>1. PhD students who start their education in the Doctoral School are required to complete a <b>Health and Safety at Work</b> training / BHP.</li> <li>2. <b>First Aid</b> course (theoretical part and practical part) is to be completed by the end of the 2<sup>nd</sup> semester.</li> <li>3. PhD students who plan research involving vertebrate animals are required to take training to obtain appropriate qualifications.</li> </ol>					

\*PQF /PRK – Polish Qualifications Framework / *Polska Rama Kwalifikacji* in accordance with the Regulation of the Minister of Science and Higher Education on the characteristics of second-level learning outcomes for qualifications at Levels 6-8 of the Polish Qualifications Framework.

<https://prk.men.gov.pl/en/1en/>

Conducting research and preparing a doctoral dissertation within the meaning of Article 187(3) of the Act of 20 July 2018 - Law on Higher Education and Science (i.e. Journal of Laws of 2023, item 742 as amended) fulfills in part achieving all types of learning outcomes for qualifications at Level 8 of the PQF. The achievement of these outcomes is verified by the supervisor.

Doctoral students with disabilities and persons in a special health situation may apply for the adaptation of the education process realisation to their needs, according to the principles specified in the order of the Jagiellonian University Rector.

## V

### **Final provision**

The *Biology* education programme in the discipline of biological sciences at the Doctoral School of Exact and Natural Sciences shall enter into force on the date of the Resolution.

**Education Programme  
in Biomedical Sciences ((8 semesters)  
in the discipline of biological sciences  
conducted in English  
at the Doctoral School of Exact  
and Natural Sciences**

**I**

**General provisions**

1. The education programme in Biomedical Sciences has been developed according to the Act of 20 July 2018 on Law on Higher Education and Science and the guidelines in force at the Jagiellonian University in Kraków.
2. The education programme leads to achieving learning outcomes for the qualifications at Level 8 of the Polish Qualification Framework (PQF).
3. The education programme in Biomedical Sciences lasts 8 semesters.
4. English is a medium of instruction of the education programme in Biomedical Sciences.
5. Detailed requirements and eligibility criteria for admission to the programme are defined in the admission terms and conditions as approved by the Jagiellonian University Senate.
6. Within 12 months of the commencement of the programme, a doctoral student shall submit an Individual Research Plan (IRP) to the education programme coordinator for their opinion and submission to the Director of the Doctoral School.
7. A doctoral student is required to achieve a minimum of 40 ECTS credits (ECTS – European Credit Transfer and Accumulation System) allocated to the Biomedical Sciences education programme and to attain all the required learning outcomes at the Level 8 of the Polish Qualification Framework, of which:
  - a minimum of 30 ECTS is related to the preparation to conduct and communicate research;
  - a minimum of 25 ECTS is completed by the end of the semester in which mid-term assessment is conducted.
8. Detailed instruction for achieving and assessing learning outcomes shall be specified in the syllabuses of the individual courses.

**II**

**Professional traineeship**

1. Professional traineeship shall take the form of teaching or co-teaching. Professional traineeship can be conducted also in scientific or industrial laboratories.

2. In agreement and at the application of a doctoral student, the programme coordinator may accept other forms of professional traineeship, including didactic traineeship, such as conducting classes promoting science, providing such a form ensures achieving all the learning outcomes allocated to the professional traineeship.
3. The number of hours of professional traineeship shall not exceed 60 teaching hours (a teaching hour equals 45 minutes) per academic year.
4. Professional traineeship is optional.

### **III**

#### **Study and research progress assessment**

1. The supervisor(s), in cooperation with the programme coordinator and the Director of the Doctoral School, shall supervise implementing the education programme and the Individual Research Plan of the doctoral student.
2. Annually, but no later than at the end of the 10<sup>th</sup> month after the commencement of the education at the Doctoral School, a doctoral student shall submit to the programme coordinator a written report on the implementation of the Individual Research Plan, reviewed by the supervisor(s) and the auxiliary supervisor.
3. The programme coordinator shall assess the degree of implementing the study and research work based on information from the doctoral student as defined in point 2, and a report from the University Study-Oriented System (USOS).
4. Any change to the Individual Research Plan, in particular modifying or rescheduling the doctoral student's duties, shall require consulting the programme coordinator.
5. The programme coordinator may decide to reschedule the doctoral student's duties resulting from the education programme and to accept courses or activities not specified in the education programme as part of the performance of the duties (with the relevant allocation of ECTS credits), provided that changes to the Individual Research Plan are not needed. Such courses may be taken in place of obligatory courses as well as other courses.
6. When additional funding is available or in well justified cases, the programme coordinator, in consultation with School representatives of the Jagiellonian University PhD Student Association and the Director of the Doctoral School, may oblige doctoral students to take courses not specified in the education programme.
7. By the end of the 24<sup>th</sup> month of education, a doctoral student shall be subject to mid-term assessment before the assessment committee appointed by the Director of the Doctoral School.
8. The date of the mid-term assessment is established by the Director of the Doctoral School on the proposal of the programme coordinator.
9. One month before the scheduled meeting of the mid-term assessment committee, the doctoral student shall submit to the programme coordinator a written report on the implementation of the Individual Research Plan. The report has to be approved by the supervisor(s) and the auxiliary supervisor before submission.



10. Meetings of the mid-term assessment committee shall be attended by the committee members, and the doctoral student in those parts to which they have been invited, in accordance with separate provisions.

## **IV Schedule**

## SCHEDULE FOR THE EDUCATION PROGRAMME IN BIOMEDICAL SCIENCES

DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES EDUCATION PROGRAMME IN BIOMEDICAL SCIENCES (8 semesters)						
ITEM	AIM	DESCRIPTION	PQF/PRK*	SEMESTER	NUMBER OF ECTS	NUMBER OF HOURS
OBLIGATORY ACTIVITIES AT THE DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES (36 ECTS)						
English C1 level	A course in English at C1 level; if a PhD student holds a C1 certificate, the course / <i>lektorat</i> can be passed / approved by the Jagiellonian Language Center /Jagiellońskie Centrum Językowe without attending classes Assessment: <b>examination</b>		P8S-UK	I-IV	4	60
New research techniques		It is essential to acquire new experimental techniques and research methodologies to conduct and accomplish research. Training involves, e.g. sessions delivered by external schools, methodological courses, equipment operation courses, or trainings ad hoc delivered during research by more experienced colleagues. Participation is documented in the form of certificates or reports confirmed by a research supervisor / coordinator, supervisor or a training provider in a given technique and approved by the education programme coordinator. The report includes a description of the technique(s) and indication of the time spent by the PhD student learning and implementing the technique(s). The PhD student becomes familiar with the	P8S-WG P8S-UW	I-IV	15	300

	<p>techniques and research equipment available at MCB, JCET, Solaris* and other units.</p> <p>Assessment: <b>credit on the basis of reports</b></p>				
<p>Consultations with Thesis Advisory Committee</p>	<p>Thesis Advisory Committee (TAC) consists of an academic adviser / supervisor, a person working at MCB, JCET or Solaris, and a person from outside these units who holds a PhD degree.</p> <p>TAC can be selected by the PhD student themselves. The appointment of the Team and the first consultation have to take place within the first 9 months of the commencement of the education programme. The consultation meeting consists of: a 30-minute presentation, a 30-minute discussion, a 15-minute discussion without participation of an academic adviser / supervisor, a 15-minute discussion over the proposals, and an advisory session. The PhD student arranges one TAC meeting every 12 months.</p> <p>Assessment: <b>credit on the basis of the report on the TAC meeting</b></p>	<p>P8S-KK P8S-UK P8S-UU P8S-KR</p>	<p>I-VIII</p>	<p>2 (1 out of 2 per year)</p>	<p>Meeting with Thesis Advisory Committee</p>
<p>Communicating science: academic talks</p>	<p>As part of the education programme, each PhD student presents a poster (1<sup>st</sup> year), an oral presentation (2<sup>nd</sup> year) at internal conferences or symposia organised by MCB, JCET or Solaris; research results are presented during internal seminars organised by MCB, JCET, Solaris, i.e. Golden Seminar at MCB (3<sup>rd</sup> year); in the final year (4<sup>th</sup> year) PhD student organises their own symposium at MCB or JCET; such research-oriented presentations may be substituted by similar performances at other conferences or symposia.</p> <p>Form of assessment: <b>credit on the basis of confirmation of participation with contribution</b></p>	<p>P8S-UK P8S-UW P8S-KO</p>	<p>I-VIII</p>	<p>2 (1 out of 2 per year)</p>	<p>50</p>

Interdisciplinary seminars	<p>Participation in seminars conducted at MCB, Solaris and JCET; or participation in seminars, training courses, talks, etc. related to the PhD student's research</p> <p>Assessment: <b>credit on the basis of confirmation of participation with contribution</b></p>	<p>P8S-KK P8S-WG P8S-UK</p>	<p>I-VIII  (100 hrs to be completed in I-IV semester)</p>	6	150
International conferences	<p>Participation with presentation in at least one international conference</p> <p>Form of assessment: <b>credit on the basis of confirmation of participation with contribution</b></p>	<p>P8S-UK P8S-WG P8S-WK</p>	I-IV	1	25
Intellectual Property Law	<p>A course discussing selected issues of research independence, ownership of research results, protection of intellectual property and social obligations of researchers and creators.</p> <p>Assessment: <b>examination</b></p>	<p>P8S-WK P8S-KO P8S-KR</p>	I-VI	1	15
Academic or R&D competencies development	<p>Activities aimed at communicating research results (preparing posters, abstracts, research results / visuals for publication); preparing grant applications, conducting negotiations, developing managerial skills, in particular managing research projects and research team, etc.</p> <p>Assessment: <b>credit on the basis of a PhD student's written report / confirmation of participation</b></p>	<p>P8S-UU P8S-WK P8S-UK P8S-UW P8S-UO</p>	I-IV	3	70
Bioethics	<p>A course discussing the ethos of scientific work and the social obligations of researchers and creators.</p> <p>Assessment: <b>examination</b></p>	<p>P8S-KR P8S-KO</p>	I-VI	2	30

<b>ELECTIVE ACTIVITIES (2 ECTS MINIMUM)</b>					
Intersector activities	Career Days: meetings with the representatives of science, research grant winners to get familiar with their tutoring methods; meetings with biotech business representatives; meetings with editors of academic journals; meetings are organized by PhD students to present alternative professional career paths Assessment: <b>on the basis of a written report</b>	P8S-WK P8S-UW	I-IV	1	25
Promoting science	Participation in the events organised with the purpose of promoting science, such as Malopolska Night of Scientists or University for Children Assessment: <b>on the basis of participation confirmation</b>	P8S-UU P8S-KO P8S-UU	I-IV	1	25
General knowledge development	One course out of a range of courses offered before each academic year (e.g. a course in philosophy, ethics, IA or cosmology) Assessment: <b>examination</b>	P8S-UW P8S-KR P8S-WK	I-VIII	2 for 30 hrs	60 or 30
<b>ELECTIVE JOINT ACTIVITIES FOR THE DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES (2 ECTS MINIMUM)</b>					
Polish for foreigners	A course in Polish for PhD students Assessment: <b>examination</b>	P8S-UU	I-VIII	4	60
Modern foreign language	A course in modern foreign language Assessment: <b>examination</b>	P8S-UU	I-VIII	4	60
Soft skills development	A course selected by a PhD student from a range of courses offered before each academic year (e.g. career planning, managerial skills, business communication) Assessment: <b>as provided in the course syllabus</b>	P8S-WK P8S-KR P8S-KO	I-VIII	2 for 30hrs	30

Doctoral School Seminars	Monthly events in English delivered by Jagiellonian University researchers and the University guests Assessment: <b>credit without grade</b>	P8S-WG P8S-UW P8S-UK	I-VIII	4 (1x4)	6 seminars per academic year
<b>ELECTIVE ACTIVITIES DEVELOPING PROFESSIONAL SKILLS (0 ECTS minimum)</b>					
Courses and activities developing competencies needed to implement IRP (e.g. summer schools, courses run by Polish and foreign universities)	Assessment: <b>credit without grade</b>	P8S-UW P8S-UK P8S-UU	I-VIII	1/2	30 or 60
<p><b>Additional obligatory courses:</b></p> <ol style="list-style-type: none"> <li>1. PhD students who start their education in the Doctoral School are required to complete a <b>Health and Safety at Work</b> training / BHP.</li> <li>2. <b>First Aid</b> course (theoretical part and practical part) is to be completed by the end of the 2<sup>nd</sup> semester.</li> <li>3. PhD students who plan research involving vertebrate animals are required to take training to obtain appropriate qualifications.</li> </ol>					

\*PQF /PRK – Polish Qualifications Framework / *Polska Rama Kwalifikacji* in accordance with the Regulation of the Minister of Science and Higher Education on the characteristics of second-level learning outcomes for qualifications at Levels 6-8 of the Polish Qualifications Framework.

<https://prk.men.gov.pl/en/1en/>

Conducting research and preparing a doctoral dissertation within the meaning of Article 187(3) of the Act of 20 July 2018 - Law on Higher Education and Science (i.e. Journal of Laws of 2023, item 742 as amended) fulfills in part achieving all types of learning outcomes for qualifications at Level 8 of the PQF. The achievement of these outcomes is verified by the supervisor.

Doctoral students with disabilities and persons in a special health situation may apply for the adaptation of the education process realisation to their needs, according to the principles specified in the order of the Jagiellonian University Rector.

\* MCB, JCET, Solaris are the Jagiellonian University units:

Małopolskie Centrum Biotechnologii / Małopolska Center of Biotechnology (MCB)

Jagiellońskie Centrum Rozwoju Leków / Jagiellonian Centre for Experimental Therapeutics (JCET)

Narodowe Centrum Promieniowania Synchrotronowego Solaris / National Synchrotron Radiation Centre Solaris

## V

### **Final provision**

The *Biomedical Sciences* education programme in the discipline of biological sciences at the Doctoral School of Exact and Natural Sciences shall enter into force on the date of the Resolution.

**Education Programme in Chemistry  
in the discipline of chemical sciences  
conducted in Polish  
at the Doctoral School of Exact  
and Natural Sciences**

**I**

**General provisions**

1. The education programme in Chemistry has been developed according to the Act of 20 July 2018 on Law on Higher Education and Science and the guidelines in force at the Jagiellonian University in Kraków.
2. The education programme leads to achieving learning outcomes for the qualifications at Level 8 of the Polish Qualification Framework (PQF).
3. The education programme in Chemistry lasts 8 semesters.
4. Polish is a medium of instruction of the programme. Courses can also be taught in English.
5. Detailed requirements and eligibility criteria for admission to the programme are defined in the admission terms and conditions as approved by the Jagiellonian University Senate.
6. Within 12 months of the commencement of the programme, a doctoral student shall submit an Individual Research Plan (IRP) to the education programme coordinator for their opinion and submission to the Director of the Doctoral School.
7. A doctoral student is required to achieve a minimum of 40 ECTS credits (ECTS – European Credit Transfer and Accumulation System) allocated to the Chemistry education programme and to attain all the required learning outcomes at the Level 8 of the Polish Qualification Framework.
8. Detailed instruction for achieving and assessing learning outcomes shall be specified in the syllabuses of the individual courses.

**II**

**Professional traineeship**

1. Professional traineeship shall take the form of teaching or co-teaching.
2. In agreement with and at the application of the doctoral student, the programme coordinator may accept other forms of professional traineeship, including didactic traineeship, such as conducting classes promoting science, provided that such a form ensures achieving all the learning outcomes allocated to professional traineeship.
3. The rules of traineeship for doctoral students in the Chemistry programme shall be as follows:



- a. The traineeship can take the form of conducting or co-conducting classes at the Jagiellonian University's Faculty of Chemistry.
  - b. With the approval of the academic supervisor and the consent of the education programme coordinator, it is possible to undertake a traineeship in an external institution. The number of hours allocated for such a traineeship is determined individually.
4. The number of hours of professional traineeship shall not exceed 60 teaching hours (a teaching hour equals 45 minutes) per academic year, and the minimum value shall be determined annually by the education programme coordinator in agreement with the Dean of the Faculty of Chemistry of the Jagiellonian University.

### **III**

#### **Study and research progress assessment**

1. The supervisor(s), in cooperation with the programme coordinator and the Director of the Doctoral School, shall supervise implementing the education programme and the Individual Research Plan of the doctoral student.
2. Annually, but no later than by 17 September, a doctoral student shall submit to the programme coordinator a written report on the implementation of the Individual Research Plan, reviewed by the supervisor(s) and the auxiliary supervisor.
3. The programme coordinator shall assess the degree of implementing the study and research work based on the information from the doctoral student as defined in Point 2, and a report from the University Study-Oriented System (USOS).
4. Changes to the Individual Research Plan, in particular modifying or rescheduling the doctoral student's duties, shall require consulting the programme coordinator.
5. The programme coordinator may decide to reschedule the doctoral student's duties resulting from the education programme and to accept courses or activities not specified in the education programme as part of the performance of the duties (with the relevant allocation of ECTS credits), provided that no changes to the Individual Research Plan are needed.
6. When additional funding is available or in well justified cases, the programme coordinator, in consultation with School representatives of the Jagiellonian University PhD Student Association and the Director of the Doctoral School, may oblige doctoral students to take courses not specified in the education programme.
7. By the end of the 24th month of education, a doctoral student shall be subject to mid-term assessment before the assessment committee appointed by the Director of the Doctoral School.
8. The date of the mid-term assessment is established by the Director of the Doctoral School on the proposal of the programme coordinator.
9. One month before the scheduled meeting of the mid-term assessment committee, the doctoral student shall submit to the programme coordinator a written report on the implementation of the Individual Research Plan. The report has to be approved by the supervisor(s) and the auxiliary supervisor before submission.

10. Meetings of the mid-term assessment committee shall be attended by the committee members, and the doctoral student in those parts to which they have been invited, in accordance with separate provisions.

## **IV Schedule**

## SCHEDULE FOR THE EDUCATION PROGRAMME IN CHEMISTRY

DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES EDUCATION PROGRAMME IN CHEMISTRY						
Item (name of the course)	Aim	Description	PQF/ PRK*	Semester	No of ECTS	No of hours
<b>OBLIGATORY COURSES WITHIN THE DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES</b>						
Doctoral seminar		Presentation of PhD student's own results, scientific discussion Assessment: <b>credit with a grade</b>	P8S_WG P8S_UK P8S_KK P8S_WK P8S_UW P8S_KR	IV	3	30
Professional skills development activities		Elective panels for a sum of min. 10 ECTS advanced techniques: computational, structural, synthetic, analytical, spectroscopic, microscopic, advanced technology and environmental Chemistry, BioPharma, optional course for min. 2 ECTS, max. 3 ECTS agreed with the supervisor and education programme coordinator Assessment: <b>examination</b>	P8S_WG P8S_WK P8S_UW P8S_UK	I-IV	10	104
English at C1 level		Assessment: <b>examination</b>	P8S_UK	I-IV	4	60

**ELECTIVE JOINT COURSES FOR THE DOCTORAL SCHOOL OF EXACT AND  
NATURAL SCIENCES**

Doctoral School Seminar	A monthly seminar with lectures in English delivered by invited Jagiellonian University researchers and guest researchers. Assessment: <b>credit based on participation</b>	P8S_WG P8S_UW P8S_UK	I-VIII	1	Minimum 6 seminars a year
Modern foreign language	As a second foreign language Assessment: <b>examination</b>	P8S_UU	I-IV	4	60
Polish for foreigners	Assessment: <b>examination</b>	P8S_UU	I-VIII	4	60
Soft skills and general knowledge development	Selected lectures (courses) or workshops Assessment: <b>credit</b>	P8S_UW P8S_KR P8S_WK	I-VIII	max. 3	max. 60 hours

**ELECTIVE ACTIVITIES DEVELOPING PROFESSIONAL SKILLS**

General knowledge development	Lectures offered by the Polish Chemical Society, interchangeably with the Faculty seminars and the Doctoral School Seminars; minimum 6 meetings a year Assessment: <b>credit</b>	P8S_WK P8S_UK P8S_KK	I-VIII	1	Minimum 6 seminars a year
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Professional skills development	Activities to acquire competences for the implementation of an individual research plan (e.g., summer schools, courses offered at other universities, including foreign universities) Assessment: <b>according to the course syllabus</b>	P8S_UW	I-VIII	No more than 2	Established individually
<b>ACTIVITIES DEVELOPING TEACHING SKILLS</b>					
Workshop course	Introductory course, enabling the implementation of a didactic traineeship Assessment: <b>credit with grade</b>	P8S_UU P8S_UO P8S_WG P8S_KK	III	3	30
Traineeship in academic didactics	Conducting or co-conducting classes Assessment: <b>credit or/and grade</b> on the basis of the opinion issued by a person supervising conducting classes by a PhD student	P8S_UU P8S_KO	I-VIII	12	240 (max. 60/year)
<p><b>Additional obligatory courses:</b></p> <ol style="list-style-type: none"> <li>1. PhD students who start their education in the Doctoral School are required to complete a <b>Health and Safety at Work</b> training / BHP.</li> <li>2. <b>First Aid</b> course (theoretical part and practical part) is to be completed by the end of the 2<sup>nd</sup> semester.</li> <li>3. PhD students who plan research involving vertebrate animals are required to take training to obtain appropriate qualifications.</li> </ol>					

\*PQF /PRK – Polish Qualifications Framework / *Polska Rama Kwalifikacji* in accordance with the Regulation of the Minister of Science and Higher Education on the characteristics of second-level learning outcomes for qualifications at Levels 6-8 of the Polish Qualifications Framework.

<https://prk.men.gov.pl/en/1en/>

Conducting research and preparing a doctoral dissertation within the meaning of Article 187(3) of the Act of 20 July 2018 - Law on Higher Education and Science (i.e. Journal of Laws of 2023, item 742 as amended) fulfills in part achieving all types of learning outcomes for qualifications at Level 8 of the PQF. The achievement of these outcomes is verified by the supervisor.

Doctoral students with disabilities and persons in a special health situation may apply for the adaptation of the education process realisation to their needs, according to the principles specified in the order of the Jagiellonian University Rector.

## V

### **Final provision**

The *Chemistry* education programme in the discipline of chemical sciences at the Doctoral School of Exact and Natural Sciences shall enter into force on the date of the Resolution

**Education Programme in Biophysics  
in the discipline of physical sciences  
conducted in Polish  
at the Doctoral School of Exact  
and Natural Sciences**

**I**

**General provisions**

1. The education programme in Physics has been developed according to the Act of 20 July 2018 on Law on Higher Education and Science, and the guidelines in force at the Jagiellonian University in Kraków.
2. The education programme leads to achieving learning outcomes for the qualifications at Level 8 of the Polish Qualification Framework (PQF).
3. The education programme lasts 8 semesters.
4. Polish is a medium of instruction of the education programme in Biophysics.
5. Detailed requirements and eligibility criteria for admission to the programme are defined in the admission terms and conditions as approved by the Jagiellonian University Senate.
6. Within 12 months of the commencement of the education programme, a doctoral student shall submit an Individual Research Plan (IRP) to the programme coordinator for their opinion and submission to the Director of the Doctoral School.
7. A doctoral student is required to achieve a minimum of 40 ECTS credits (ECTS – European Credit Transfer and Accumulation System) allocated to the Biophysics education programme and to attain all the required learning outcomes as specified at the Level 8 of the Polish Qualification Framework. 24 ECTS are to be achieved by the end of the semester in which mid-term assessment is conducted. A doctoral student is obliged to achieve all the learning outcomes at the Level 8 of the Polish Qualification Framework.
8. Detailed instructions for achieving and assessing learning outcomes shall be specified in the syllabuses of the individual courses.

**II**

**Professional traineeship**

1. Professional traineeship shall take the form of teaching or co-teaching classes.
2. In agreement with and at the application of the doctoral student, the programme coordinator may accept other forms of professional traineeship, including didactic

traineeship, such as conducting classes promoting science, provided that such a form ensures achieving all the learning outcomes allocated to professional traineeship.

3. The number of hours of professional traineeship shall not exceed 60 teaching hours (a teaching hour equals 45-minutes) per one academic year. In exceptional cases, the programme coordinator may decide to modify the duration of professional and didactic traineeship or the form in which they are carried out.

### **III**

#### **Study and research progress assessment**

1. The supervisor(s), in cooperation with the programme coordinator and the Director of the Doctoral School, shall supervise implementing the education programme and the Individual Research Plan of the doctoral student.
2. Annually, but no later than by 17 September, a doctoral student shall submit to the programme coordinator a written report on the implementation of the Individual Research Plan, reviewed by the supervisor(s) and the auxiliary supervisor.
3. The programme coordinator shall assess the degree of implementing the study and research work based on the information from the doctoral student as defined in Point 2, and a report from the University Study-Oriented System (USOS).
4. Changes to the Individual Research Plan, in particular modifying or rescheduling the doctoral student's duties, shall require consulting the programme coordinator.
5. The programme coordinator may decide to reschedule the doctoral student's duties resulting from the education programme and to accept courses or activities not specified in the education programme as part of the performance of the duties (with the relevant allocation of ECTS credits), provided that no changes to the Individual Research Plan are needed.
6. When additional funding is available or in well justified cases, the programme coordinator, in consultation with School representatives of the Jagiellonian University PhD Student Association and the Director of the Doctoral School, may oblige doctoral students to take courses not specified in the education programme.
7. By the end of the 24<sup>th</sup> month of education, a doctoral student shall be subject to mid-term assessment before the assessment committee appointed by the Director of the Doctoral School.
8. The date of the mid-term assessment is established by the Director of the Doctoral School on the proposal of the programme coordinator.
9. One month before the scheduled meeting of the mid-term assessment committee, a doctoral student shall submit to the programme coordinator a written report on the implementation of the education programme and Individual Research Plan. The report has to be approved by the supervisor(s) and the auxiliary supervisor before submission.
10. Meetings of the mid-term assessment committee shall be attended by the committee members, and the doctoral student in those parts to which they have been invited, in accordance with separate provisions.

### **IV**

#### **Schedule**



## SCHEDULE FOR THE EDUCATION PROGRAMME IN BIOPHYSICS

DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES EDUCATION PROGRAMME IN BIOPHYSICS						
ITEM	AIM	DESCRIPTION	PQF/PRK*	SEME STER	NO OF ECTS	NO OF HOURS
<b>OBLIGATORY COURSES IN DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES (16 ECTS MINIMUM)</b>						
English		English at C1 level; if a PhD student holds a C1 certificate, they may obtain credit from JCJ without having to attend classes, and the PhD student may pursue another language at any level. Assessment: <b>exam</b>	P8S_UK	I-IV	2x2	2x30
Specialist course for PhD students		Lecture - presentation of the latest results of world research and current research problems in a given discipline (selected theories, methods, models and relationships between them) or interdisciplinary lecture. It may include exercises or problems to be solved outside the lecture or elements of group work or in the form of workshops. Assessment: <b>exam or another, determined by the teacher.</b>	P8S_WG P8S_KK	I-VIII	2-4/30h (min. 4)	30-120
Doctoral Seminar conducted at the Faculty of Physics, Astronomy and Applied Computer Science		Seminar: preparation for research, analysis and creative synthesis of world scientific achievements, identifying and solving research problems, participating in the exchange of experiences and scientific ideas. Assessment: <b>assessment of paper and participation.</b>	P8S_WG P8S_UK P8S_UW P8S_UO	I-VIII	1/15h (min. 4)	60-120
Introduction to academic didactics		Theoretical preparation for work of an academic teacher. Developing communication skills, knowledge transfer, and ability to assess the work of others. Assessment: <b>credit (or another, determined by the teacher).</b>	P8S_UU P8S_KR	I-VI	2-4 (min 2)	15-30

Classes developing professional competences and "soft" skills	A course selected from the list announced before a given academic year, e.g. career planning, managerial competence, business communication or additional trainings offered during the academic year. Assessment: <b>determined by the teacher.</b>	P8S_WK P8S_KR P8S_KO	I-VIII	2 for 30h	30
English	English at C1 level; if a PhD student holds a C1 certificate, they may obtain credit from JCJ without having to attend classes, and the PhD student may pursue another language at any level. Assessment: <b>exam</b>	P8S_UK	I-IV	4 (min 4)	60
<b>JOINT ELECTIVE ACTIVITIES FOR THE DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES (4 ECTS MINIMUM)</b>					
Doctoral School Seminar	Monthly interdisciplinary seminar with lectures in English offered by the guest researchers Assessment: <b>credit based on participation</b>	P8S_WG P8S_UW P8S_UK	I-VIII	1 ECTS per year (max 4 ECTS)	minimum 6 seminars per year
Modern foreign language	As a second foreign language Assessment: <b>exam</b>	P8S_UU	I-IV	4	60
Polish for foreigners	Assessment: <b>exam</b>	P8S_UU	I-VIII	4	60
General knowledge development	One course out of a range of courses offered before each academic year (e.g. a course in philosophy, ethics, IA or cosmology) Assessment: <b>examination</b>	P8S_UW P8S_KR P8S_WK	I-VIII	2 for 30h	30 or 60

ELECTIVE COURSES DEVELOPING PROFESSIONAL COMPETENCES (8 ECTS MINIMUM)					
Tutorial with the supervisor	Preparing an individual research project, verifying the work plan, preparation of public speeches on the project, editorial work on project publication.	P8S_KK P8S_WG P8S_UO	I-VIII	1 for 15h	15 or 30 or 45 or 60h, max 15h per year
Introduction to academic didactics	Teaching workshops. Assessment: <b>credit</b>	P8S_UK	I-VI	1 for 15h	15-30
Other courses for acquiring competences to implement an individual research plan	E.g.: summer schools, courses at other universities, including foreign universities. Assessment: <b>as per course programme/syllabus</b>	P8S_WG P8S_UW	I-VIII	As per course requirements	As per course requirements
OBLIGATORY COURSES DEVELOPING TEACHING COMPETENCES					
Teaching classes as part of professional traineeship	Preparation for academic teaching, developing communication skills and knowledge transfer. Assessment: <b>by the subject coordinator, taking into account the opinions of students.</b>	P8S_UU P8S_KO	I-VIII	1 for 15h	60h per year in I, II, III year of education and 30h per year in IV year of education

\*PQF /PRK – Polish Qualifications Framework / Polska Rama Kwalifikacji in accordance with the Regulation of the Minister of Science and Higher Education on the characteristics of second-level learning outcomes for qualifications at Levels 6-8 of the Polish Qualifications Framework.

<https://prk.men.gov.pl/en/1/en/>

Conducting research and preparing a doctoral dissertation within the meaning of Article 187(3) of the Act of 20 July 2018 - Law on Higher Education and Science (i.e. Journal of Laws of 2023, item 742 as amended) fulfills in part achieving all types of learning outcomes for qualifications at Level 8 of the PQF. The achievement of these outcomes is verified by the supervisor.

Doctoral students with disabilities and persons in a special health situation may apply for the adaptation of the education process realisation to their needs, according to the principles specified in the order of the Jagiellonian University Rector.

## V

### **Final provision**

The *Biophysics* education programme in the discipline of physical sciences at the Doctoral School of Exact and Natural Sciences shall enter into force on the date of the Resolution.

**Education Programme in Physics  
in the discipline of physical sciences  
conducted in English  
at the Doctoral School of Exact  
and Natural Sciences**

**I**

**General provisions**

1. The education programme in Physics has been developed according to the Act of 20 July 2018 on Law on Higher Education and Science, and the guidelines in force at the Jagiellonian University in Kraków.
2. The education programme leads to achieving learning outcomes for the qualifications at Level 8 of the Polish Qualification Framework (PQF).
3. The education programme lasts 8 semesters.
4. English is a medium of instruction of the education programme in Physics.
5. Detailed requirements and eligibility criteria for admission to the programme are defined in the admission terms and conditions as approved by the Jagiellonian University Senate.
6. Within 12 months of the commencement of the education programme, a doctoral student shall submit an Individual Research Plan (IRP) to the programme coordinator for their opinion and submission to the Director of the Doctoral School.
7. A doctoral student is required to achieve a minimum of 40 ECTS credits (ECTS – European Credit Transfer and Accumulation System) allocated to the Physics education programme and to attain all the required learning outcomes as specified at the Level 8 of the Polish Qualification Framework. 24 ECTS are to be achieved by the end of the semester in which mid-term assessment is conducted. A doctoral student is obliged to achieve all the learning outcomes at the Level 8 of the Polish Qualification Framework.
8. Detailed instructions for achieving and assessing learning outcomes shall be specified in the syllabuses of the individual courses.

**II**

**Professional traineeship**

1. Professional traineeship shall take the form of teaching or co-teaching classes.
2. In agreement with and at the application of the doctoral student, the programme coordinator may accept other forms of professional traineeship, including didactic traineeship, such as conducting classes promoting science, provided that such a form ensures achieving all the learning outcomes allocated to professional traineeship.

3. The rules for teaching traineeship for doctoral students of the education programme in Physics shall be determined by the coordinator of this programme.
4. The number of hours of professional traineeship shall not exceed 60 teaching hours (a teaching hour equals 45-minutes) per one academic year.

### **III**

#### **Study and research progress assessment**

1. The supervisor(s), in cooperation with the programme coordinator and the Director of the Doctoral School, shall supervise implementing the education programme and the Individual Research Plan of the doctoral student.
2. Annually, but no later than by 17 September, a doctoral student shall submit to the programme coordinator a written report on the implementation of the Individual Research Plan, reviewed by the supervisor(s) and the auxiliary supervisor.
3. The programme coordinator shall assess the degree of implementing the study and research work based on the information from the doctoral student as defined in Point 2, and a report from the University Study-Oriented System (USOS).
4. Changes to the Individual Research Plan, in particular modifying or rescheduling the doctoral student's duties, shall require consulting the programme coordinator.
5. The programme coordinator may decide to reschedule the doctoral student's duties resulting from the education programme and to accept courses or activities not specified in the education programme as part of the performance of the duties (with the relevant allocation of ECTS credits), provided that no changes to the Individual Research Plan are needed.
6. When additional funding is available or in well justified cases, the programme coordinator, in consultation with School representatives of the Jagiellonian University PhD Student Association and the Director of the Doctoral School, may oblige doctoral students to take courses not specified in the education programme.
7. By the end of the 24<sup>th</sup> month of education, a doctoral student shall be subject to mid-term assessment before the assessment committee appointed by the Director of the Doctoral School.
8. The date of the mid-term assessment is established by the Director of the Doctoral School on the proposal of the programme coordinator.
9. One month before the scheduled meeting of the mid-term assessment committee, a doctoral student shall submit to the programme coordinator a written report on the implementation of the education programme and Individual Research Plan. The report has to be approved by the supervisor(s) and the auxiliary supervisor before submission.
10. Meetings of the mid-term assessment committee shall be attended by the committee members, and the doctoral student in those parts to which they have been invited, in accordance with separate provisions.

## IV

### Schedule

#### SCHEDULE FOR THE EDUCATION PROGRAMME IN PHYSICS

DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES EDUCATION PROGRAMME IN PHYSICS						
ITEM	AIM	DESCRIPTION	PQF/PRK*	SEME STER	NO OF ECTS	NO OF HOURS
<b>OBLIGATORY COURSES IN DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES (16 ECTS MINIMUM)</b>						
Specialist course for PhD students		Lecture - presentation of the latest results of world research and current research problems in a given discipline (selected theories, methods, models and relationships between them) or interdisciplinary lecture. It may include exercises or problems to be solved outside the lecture or elements of group work or in the form of workshops. Assessment: <b>exam or another, determined by the lecturer.</b>	P8S_WG P8S_KK	I-VIII	2-4/30h (min. 4)	30-120
Doctoral Seminar conducted at the Faculty of Physics, Astronomy and Applied Computer Science		Seminar: preparation for research, analysis and creative synthesis of world scientific achievements, identifying and solving research problems, participating in the exchange of experiences and scientific ideas. Assessment: <b>assessment of paper and participation.</b>	P8S_WG P8S_UK P8S_UW P8S_UO	I-VIII	1/15h (min. 4)	60-120
Introduction to academic didactics		Theoretical preparation for work of an academic teacher. Developing communication skills, knowledge transfer, and ability to assess the work of others. Assessment: <b>credit (or another, determined by the lecturer).</b>	P8S_UU P8S_KR	I-VI	2-4 (min 2)	15-30

Classes developing professional competences and "soft" skills	A course selected from the list announced before a given academic year, e.g. career planning, managerial competence, business communication or additional trainings offered during the academic year. Assessment: <b>determined by the lecturer.</b>	P8S_WK P8S_KR P8S_KO	I-VIII	2 for 30h	30
English	English at C1 level; if a PhD student holds a C1 certificate, they may obtain credit from JCJ without having to attend classes, and the PhD student may pursue another language at any level. Assessment: <b>examination</b>	P8S_UK	I-IV	4 (min 4)	60
<b>JOINT ELECTIVE ACTIVITIES FOR THE DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES (4 ECTS MINIMUM)</b>					
Doctoral School Seminar	Monthly interdisciplinary seminar with lectures in English offered by the guest researchers Assessment: <b>credit based on participation</b>	P8S_WG P8S_UW P8S_UK	I-VIII	1 ECTS per year (max 4 ECTS)	minimum 6 seminars per year
Modern foreign language	As a second foreign language Assessment: <b>examination</b>	P8S_UU	I-IV	4	60
Polish for foreigners	Assessment: <b>examination</b>	P8S_UU	I-VIII	4	60
General knowledge development	One course out of a range of courses offered before each academic year (e.g. a course in philosophy, ethics, IA or cosmology) Assessment: <b>examination</b>	P8S_UW P8S_KR P8S_WK	I-VIII	2 for 30h	30 or 60



ELECTIVE COURSES DEVELOPING PROFESSIONAL COMPETENCES (4 ECTS MINIMUM)					
Tutorial with the supervisor	Preparing an individual research project, verifying the work plan, preparation of public speeches on the project, editorial work on project publication.	P8S_KK P8S_WG P8S_UO	I-VIII	1 for 15h	15 or 30 or 45 or 60h, max 15h per year
Introduction to academic didactics	Teaching workshops. Assessment: <b>credit</b>	P8S_UK	I-VI	1 for 15h	15-30
Other courses for acquiring competences to implement an individual research plan	E.g.: summer schools, courses at other universities, including foreign universities. Assessment: <b>as per course programme/syllabus</b>	P8S_WG P8S_UW	I-VIII	As per course requirements	As per course requirements
OBLIGATORY COURSES DEVELOPING TEACHING COMPETENCES					
Teaching classes as part of professional traineeship	Preparation for academic teaching, developing communication skills and knowledge transfer. Assessment: <b>by the subject coordinator, taking into account the opinions of students.</b>	P8S_UU P8S_KO	I-VIII	1 for 15h	60h per year in I, II, III year of education and 30h per year in IV year of education

\*PQF /PRK – Polish Qualifications Framework / Polska Rama Kwalifikacji in accordance with the Regulation of the Minister of Science and Higher Education on the characteristics of second-level learning outcomes for qualifications at Levels 6-8 of the Polish Qualifications Framework.

<https://prk.men.gov.pl/en/1en/>

Conducting research and preparing a doctoral dissertation within the meaning of Article 187(3) of the Act of 20 July 2018 - Law on Higher Education and Science (i.e. Journal of Laws of 2023, item 742 as amended) fulfills in part achieving all types of learning outcomes for qualifications at Level 8 of the PQF. The achievement of these outcomes is verified by the supervisor.

Doctoral students with disabilities and persons in a special health situation may apply for the adaptation of the education process realisation to their needs, according to the principles specified in the order of the Jagiellonian University Rector.

## V

### **Final provision**

The *Physics* education programme in the discipline of physical sciences at the Doctoral School of Exact and Natural Sciences shall enter into force on the date of the Resolution.

**Education Programme in Computer Science  
in the discipline of computer science  
conducted in English  
at the Doctoral School of Exact  
and Natural Sciences**

**I**

**General provisions**

1. The education programme in Computer Science has been developed according to the Act of 20 July 2018 on Law on Higher Education and Science, and the guidelines in force at the Jagiellonian University in Kraków.
2. The education programme leads to achieving learning outcomes for the qualifications at Level 8 of the Polish Qualification Framework (PQF).
3. The education programme lasts 8 semesters.
4. Detailed requirements and eligibility criteria for admission to the programme are defined in the admission terms and conditions as approved by the Jagiellonian University Senate.
5. Within 3 months of the commencement of the education programme, a doctoral student has their supervisor(s) appointed, according to the Doctoral School Regulations.
6. Within 12 months of the commencement of the education programme, a doctoral student shall submit an Individual Research Plan (IRP) to the programme coordinator for their opinion and submission to the Director of the Doctoral School. The IRP shall cover a period equal to the duration of the education programme and shall specify, among other issues, the schedule for the preparation of the dissertation.
7. By the 15<sup>th</sup> October a doctoral student shall submit to the programme coordinator the plan for implementing the education programme for a given academic year. From the 2<sup>nd</sup> year onwards, this plan is subject to the approval of the supervisor(s) and auxiliary supervisor.
8. A doctoral student is required to achieve a minimum of 40 ECTS credits (ECTS – European Credit Transfer and Accumulation System) allocated to the Computer Science education programme and to attain all the required learning outcomes as specified at the Level 8 of the Polish Qualification Framework. 20 ECTS are to be achieved by the end of the semester in which mid-term assessment is conducted. A doctoral student is obliged to achieve all the learning outcomes at the Level 8 of the Polish Qualification Framework.
9. Detailed instructions for achieving and assessing learning outcomes shall be specified in the syllabuses of the individual courses.

**II**

## **Professional traineeship**

1. Professional traineeship shall take the form of teaching or co-teaching classes.
2. In agreement with and at the application of the doctoral student, the programme coordinator may accept other forms of professional traineeship, including didactic traineeship, such as conducting classes promoting science, provided that such a form ensures achieving all the learning outcomes allocated to professional traineeship.
3. Professional traineeship can also be conducted in a business company, a foundation, etc.
4. The rules for teaching traineeship for doctoral students of the education programme in Computer Science shall be determined by the coordinator of this programme.
5. The number of hours of professional traineeship shall not exceed 60 teaching hours (a teaching hour equals 45-minutes) per one academic year.

## **III**

### **Qualifying examination**

1. The qualifying examination verifies knowledge in the discipline of computer science in the field of exact and natural sciences. The qualifying examination is an obligatory part of the education programme.
2. The qualifying examination is conducted by an examination committee consisting of a minimum of 3 members. The examination committee may not include the supervisor(s), auxiliary supervisor(s) or the education programme coordinator.
3. The examination committee shall be appointed by the Director of the Doctoral School on the request of the education programme coordinator, and with the approval of the Computer Science Discipline Board. The Director of the Doctoral School shall indicate the chairperson of the committee. The committee shall be appointed within 3 months of the commencement date of the education programme. In random events, the Director of the Doctoral School may take their own decision to change the composition of the committee.
4. Within 3 months of appointment of the examination committee, the chairperson in consultation with other members, determines the range of the topics and the form of the examination. A doctoral student applies to the chairperson to conduct the examination. The chairperson, in consultation with the doctoral student, announces the date and place of the examination. The committee conducts an examination, which finishes with a pass or fail. The protocol from the examination committee sitting is prepared and, in the case of a fail, the committee presents the reasons for this grade.
5. A doctoral student is obliged to pass the qualifying examination no later than in the 18<sup>th</sup> month from the commencement date of their education programme. Failure to pass the examination by this date is equivalent to the failure to accomplish the education

programme. This is a valid reason to remove the doctoral student from the list of doctoral students of the Doctoral School, according to Article 203, section 2, point 2 of the Act. A doctoral student who fails the qualifying examination is entitled to a resit examination. The resit examination shall be taken before the same examination committee. However, upon a justified application of a doctoral student to the Director of the Doctoral School, the composition of the examination committee may be extended by a maximum of two members. These members shall be appointed in the manner described in Point 3. The resit examination shall be conducted no sooner than 2 weeks after the date of the first attempt.

6. Two attempts to pass the qualifying examination are allowed: the examination (the first attempt) and one resit examination.
7. A doctoral student has to pass the qualifying examination prior to the mid-term assessment.

## **IV**

### **Study and research progress assessment**

1. The supervisor(s), in cooperation with the programme coordinator and the Director of the Doctoral School, shall supervise implementing the education programme and the Individual Research Plan of the doctoral student.
2. Annually, but no later than by 17 September, a doctoral student shall submit to the programme coordinator a written report on the implementation of the Individual Research Plan, reviewed by the supervisor(s) and the auxiliary supervisor.
3. The programme coordinator shall assess the degree of implementing the study and research work based on the information from the doctoral student as defined in Point 2, and a report from the University Study-Oriented System (USOS).
4. Changes to the Individual Research Plan, in particular modifying or rescheduling the doctoral student's duties, shall require consulting the programme coordinator.
5. The programme coordinator may decide to reschedule the doctoral student's duties resulting from the education programme and to accept courses or activities not specified in the education programme as part of the performance of the duties (with the relevant allocation of ECTS credits), provided that no changes to the Individual Research Plan are needed.
6. When additional funding is available or in well justified cases, the programme coordinator, in consultation with School representatives of the Jagiellonian University PhD Student Association and the Director of the Doctoral School, may oblige doctoral students to take courses not specified in the education programme.
7. By the end of the 24<sup>th</sup> month of education, a doctoral student shall be subject to mid-term assessment before the assessment committee appointed by the Director of the Doctoral School.
8. The date of the mid-term assessment is established by the Director of the Doctoral School on the proposal of the programme coordinator.

9. One month before the scheduled meeting of the mid-term assessment committee, a doctoral student shall submit to the programme coordinator a written report on the implementation of the education programme and Individual Research Plan. The report has to be approved by the supervisor(s) and the auxiliary supervisor before submission.
10. Meetings of the mid-term assessment committee shall be attended by the committee members, and the doctoral student in those parts to which they have been invited, in accordance with separate provisions.

## **V**

### **Schedule**

## SCHEDULE FOR THE EDUCATION PROGRAMME IN COMPUTER SCIENCE

Doctoral School of Exact and Natural Sciences Education programme in Computer Science						
ITEM	AIM	DESCRIPTION	PQF /PRK*	SEMESTER	NO OF ECTS	LIMITS
<b>OBLIGATORY COURSES</b> (25 ECTS minimum or 21 ECTS if a PhD student holds a proper language certificate)						
Basic seminar		Research seminar aimed at discussing recent achievements in a given discipline Assessment: <b>credit based on PhD student's participation in the seminar</b>	P8S_WG P8S_UW P8S_KK	I-VIII	1-2 for 30 hours	minimum 12 ECTS
Specialised courses		Minimum one course / lecture selected by a PhD student The course presents basic or current research problems in a given discipline Assessment: <b>examination</b>	P8S_WG P8S_UW	I-IV	6 (lecture and classes) 3 (lecture only)	minimum 6 ECTS
Seminar for PhD students No I		Preparation for the research work Assessment: <b>credit</b>	P8S_UK P8S_KR	II	1	1 ECTS
Seminar for PhD students No II		Preparation for the research work. Communicating research results by a PhD student Assessment: <b>credit</b>	P8S_UK P8S_UO P8S_KR	IV	2	2 ECTS
English C1		A course at C1 level (not applicable to those PhD students who hold C1 language certificate or are graduates of master's programmes conducted in English) Assessment: <b>examination</b>	P8S_UK	I-II	4 for 60 hours	4 ECTS

JOINT ELECTIVE ACTIVITIES FOR DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES					
Doctoral School Seminar	Monthly interdisciplinary seminar with lectures in English offered by the guest researchers Assessment: <b>credit based on participation</b>	P8S_WG P8S_UW P8S_UK	I-VIII	1 per academic year	
Modern foreign language	A course offered as a second foreign language Assessment: <b>examination</b>	P8S_UU	I-IV	4 for 60 hours	
Polish for foreigners	A course in Polish Assessment: <b>examination</b>	P8S_UU	I-VIII	4 for 60 hours	
General knowledge development	One course out of a range of courses offered before each academic year (e.g. a course in philosophy, ethics, IA or cosmology) Assessment: <b>examination</b>	P8S_WK	I-VIII	2 for 30 hours	
Professional competencies and soft skills development	A course selected by a PhD student from a range of courses offered before each academic year (e.g. career planning, managerial skills, business communication) Assessment: <b>as provided in the course syllabus</b>	P8S_WK	I-VIII	2 for 30 hours	
ELECTIVE ACTIVITIES DEVELOPING PROFESSIONAL COMPETENCIES					
Optional activities	Lectures (3 ECTS for 30 hours), seminars (2-4 ECTS for 60 hours; the number of ECTS depends on the number of academic talks), studying specialized material (2 ECTS for studying the material, which is equivalent to a 30-hour course), activities aimed at soft skills development organised by the Faculty of Mathematics and Computer Science	P8S_UU P8S_WG	I-VIII	according to the description	



<b>TRAINEESHIP</b>					
Traineeship in a company	Optional professional traineeship in an industrial company Assessment: <b>by the programme coordinator on the basis of the participation certificate from the company</b>	P8S_UU P8S_KO	III-VIII	1 for 30 hours	maximum 6 ECTS
Traineeship in academic didactics	Preparation for academic teaching, including conducting classes Assessment: <b>by the programme coordinator on the basis of the opinion issued by a person supervising conducting classes by a PhD student</b>	P8S_UU P8S_UK	I-VIII	8 for 150 hours	maximum totally 8 ECTS
<p><b>Additional obligatory courses:</b></p> <ol style="list-style-type: none"> <li>1. PhD students who start their education in the Doctoral School are required to complete a <b>Health and Safety at Work</b> training / BHP.</li> <li>2. <b>First Aid</b> course (theoretical part and practical part) is to be completed by the end of the 2<sup>nd</sup> semester.</li> <li>3. PhD students who plan research involving vertebrate animals are required to take training to obtain appropriate qualifications.</li> </ol>					

\*PQF /PRK – Polish Qualifications Framework / Polska Rama Kwalifikacji in accordance with the Regulation of the Minister of Science and Higher Education on the characteristics of second-level learning outcomes for qualifications at Levels 6-8 of the Polish Qualifications Framework.

<https://prk.men.gov.pl/en/1en/>

Conducting research and preparing a doctoral dissertation within the meaning of Article 187(3) of the Act of 20 July 2018 - Law on Higher Education and Science (i.e. Journal of Laws of 2023, item 742 as amended) fulfills in part achieving all types of learning outcomes for qualifications at Level 8 of the PQF. The achievement of these outcomes is verified by the supervisor.

Doctoral students with disabilities and persons in a special health situation may apply for the adaptation of the education process realisation to their needs, according to the principles specified in the order of the Jagiellonian University Rector.

## VI

### Final provision

The *Computer Science* education programme in the discipline of computer science at the Doctoral School of Exact and Natural Sciences shall enter into force on the date of the Resolution.

**Education Programme in Mathematics**  
**in the discipline of mathematics**  
**conducted in English**  
**at the Doctoral School of Exact**  
**and Natural Sciences**

**I**

**General provisions**

1. The education programme in Mathematics has been developed according to the Act of 20 July 2018 on Law on Higher Education and Science, and the guidelines in force at the Jagiellonian University in Kraków.
2. The education programme leads to achieving learning outcomes for the qualifications at Level 8 of the Polish Qualification Framework (PQF).
3. The education programme lasts 8 semesters.
4. Detailed requirements and eligibility criteria for admission to the programme are defined in the admission terms and conditions as approved by the Jagiellonian University Senate.
5. Within 3 months of the commencement of the education programme, a doctoral student has their supervisor(s) appointed, according to the Doctoral School Regulations.
6. Within 12 months of the commencement of the education programme, a doctoral student shall submit an Individual Research Plan (IRP) to the programme coordinator. The IRP shall cover a period equal to the duration of the education programme and shall specify, among other issues, the schedule for the preparation of the dissertation.
7. By the 15<sup>th</sup> October a doctoral student shall submit to the programme coordinator the plan for implementing the education programme for a given academic year. From the 2<sup>nd</sup> year onwards, this plan is subject to the approval of the supervisor(s) and auxiliary supervisor.
8. A doctoral student is required to achieve a minimum of 40 ECTS credits (ECTS – European Credit Transfer and Accumulation System) allocated to the Mathematics education programme and to attain all the required learning outcomes as specified at the Level 8 of the Polish Qualification Framework. 20 ECTS are to be achieved by the end of the semester in which mid-term assessment is conducted. A doctoral student is obliged to achieve all the learning outcomes at the Level 8 of the Polish Qualification Framework.
9. Detailed instructions for achieving and assessing learning outcomes shall be specified in the syllabuses of the individual courses.

## **II**

### **Professional traineeship**

1. Professional traineeship shall take the form of teaching or co-teaching classes.
2. In agreement with and at the application of the doctoral student, the programme coordinator may accept other forms of professional traineeship, including didactic traineeship, such as conducting classes promoting science, provided that such a form ensures achieving all the learning outcomes allocated to professional traineeship.
3. Professional traineeship can also be conducted in a business company, a foundation, etc.
4. The rules for teaching traineeship for doctoral students of the education programme in Mathematics shall be determined by the coordinator of this programme.
5. The number of hours of professional traineeship shall not exceed 60 teaching hours (a teaching hour equals 45-minutes) per one academic year.

## **III**

### **Study and research progress assessment**

1. The supervisor(s), in cooperation with the programme coordinator and the Director of the Doctoral School, shall supervise implementing the education programme and the Individual Research Plan of the doctoral student.
2. Annually, but no later than by 17 September, a doctoral student shall submit to the programme coordinator a written report on the implementation of the Individual Research Plan, reviewed by the supervisor(s) and the auxiliary supervisor.
3. The report submitted for the mid-term assessment shall be considered as a report within the meaning of Point 2 and the deadline for its submission shall be the same as the deadline for submission of the report for the mid-term assessment.
4. The programme coordinator shall assess the degree of implementing the study and research work based on the information from the doctoral student as defined in Point 2, and a report from the University Study-Oriented System (USOS).
5. Changes to the Individual Research Plan, in particular modifying or rescheduling the doctoral student's duties, shall require consulting the programme coordinator.
6. The programme coordinator may decide to reschedule the doctoral student's duties resulting from the education programme and to accept courses or activities not specified in the education programme as part of the performance of the duties (with the relevant allocation of ECTS credits), provided that no changes to the Individual Research Plan are needed.
7. When additional funding is available or in well justified cases, the programme coordinator, in consultation with School representatives of the Jagiellonian University PhD Student Association and the Director of the Doctoral School, may oblige doctoral students to take courses not specified in the education programme.

8. By the end of the 24<sup>th</sup> month of education, a doctoral student shall be subject to mid-term assessment before the assessment committee appointed by the Director of the Doctoral School.
9. The date of the mid-term assessment is established by the Director of the Doctoral School on the proposal of the programme coordinator.
10. One month before the scheduled meeting of the mid-term assessment committee, a doctoral student shall submit to the programme coordinator a written report on the implementation of the education programme and Individual Research Plan. The report has to be approved by the supervisor(s) and the auxiliary supervisor before submission.
11. Meetings of the mid-term assessment committee shall be attended by the committee members, and the doctoral student in those parts to which they have been invited, in accordance with separate provisions.

## **IV**

### **Schedule**

## SCHEDULE FOR THE EDUCATION PROGRAMME IN MATHEMATICS

Doctoral School of Exact and Natural Sciences Education programme in Mathematics						
ITEM	AIM	DESCRIPTION	PQF /PRK*	SEMESTER	NO OF ECTS	LIMITS
<b>OBLIGATORY COURSES</b> (25 ECTS minimum or 21 ECTS if a PhD student holds a proper language certificate)						
Basic seminar		Research seminar aimed at discussing recent achievements in a given discipline Assessment: <b>credit based on PhD student's participation in the seminar</b>	P8S_WG P8S_UW P8S_KK	I-VIII	1-2 for 30 hours	minimum 12 ECTS
Specialised courses		Minimum one course / lecture selected by a PhD student. The course presents basic or current research problems in a given discipline Assessment: <b>examination</b>	P8S_WG P8S_UW	I-IV	6 (lecture and classes) 3 (lecture only)	minimum 6 ECTS
Seminar for PhD students No I		Preparation for the research work Assessment: <b>credit</b>	P8S_UK P8S_KR	II	1	1 ECTS
Seminar for PhD students No II		Preparation for the research work. Communicating research results by a PhD student Assessment: <b>credit</b>	P8S_UK P8S_UO P8S_KR	IV	2	2 ECTS
English C1		A course at C1 level (not applicable to those PhD students who hold C1 language certificate or are graduates of master's programmes conducted in English) Assessment: <b>examination</b>	P8S_UK	I-II	4 for 60 hours	4 ECTS
<b>JOINT ELECTIVE ACTIVITIES</b>						

FOR DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES					
Doctoral School Seminar	Monthly interdisciplinary seminar with lectures in English offered by the guest researchers Assessment: <b>credit based on participation</b>	P8S_WG P8S_UW P8S_UK	I-VIII	1 per academic year	
Modern foreign language	A course offered as a second foreign language Assessment: <b>examination</b>	P8S_UU	I-IV	4 for 60 hours	
Polish for foreigners	A course in Polish Assessment: <b>examination</b>	P8S_UU	I-VIII	4 for 60 hours	
General knowledge development	One course out of a range of courses offered before each academic year (e.g. a course in philosophy, ethics, IA or cosmology) Assessment: <b>examination</b>	P8S_WK	I-VIII	2 for 30 hours	
Professional competencies and soft skills development	A course selected by a PhD student from a range of courses offered before each academic year (e.g. career planning, managerial skills, business communication) Assessment: <b>as provided in the course syllabus</b>	P8S_WK	I-VIII	2 for 30 hours	
ELECTIVE ACTIVITIES DEVELOPING PROFESSIONAL COMPETENCIES					
Optional activities	Lectures (3 ECTS for 30 hours), seminars (2-4 ECTS for 60 hours; the number of ECTS depends on the number of academic talks), studying specialized material (2 ECTS for studying the material, which is equivalent to a 30-hour course), activities aimed at soft skills development organised by the Faculty of Mathematics and Computer Science	P8S_UU P8S_WG	I-VIII	according to the description	

TRAINEESHIP					
Traineeship in a company	Optional professional traineeship in an industrial company Assessment: <b>by the programme coordinator on the basis of the participation certificate from the company</b>	P8S_UU P8S_KO	III-VIII	1 for 30 hours	maximum 6 ECTS
Traineeship in academic didactics	Preparation for academic teaching, including conducting classes Assessment: <b>by the programme coordinator on the basis of the opinion issued by a person supervising conducting classes by a PhD student</b>	P8S_UU P8S_UK	I-VIII	8 for 150 hours	maximum totally 10 ECTS
<p><b>Additional obligatory courses:</b></p> <ol style="list-style-type: none"> <li>1. PhD students who start their education in the Doctoral School are required to complete a <b>Health and Safety at Work</b> training / BHP.</li> <li>2. <b>First Aid</b> course (theoretical part and practical part) is to be completed by the end of the 2<sup>nd</sup> semester.</li> <li>3. PhD students who plan research involving vertebrate animals are required to take training to obtain appropriate qualifications.</li> </ol>					

\*PQF /PRK – Polish Qualifications Framework / Polska Rama Kwalifikacji in accordance with the Regulation of the Minister of Science and Higher Education on the characteristics of second-level learning outcomes for qualifications at Levels 6-8 of the Polish Qualifications Framework.

<https://prk.men.gov.pl/en/1en/>

Conducting research and preparing a doctoral dissertation within the meaning of Article 187(3) of the Act of 20 July 2018 - Law on Higher Education and Science (i.e. Journal of Laws of 2023, item 742 as amended) fulfills in part achieving all types of learning outcomes for qualifications at Level 8 of the PQF. The achievement of these outcomes is verified by the supervisor.

Doctoral students with disabilities and persons in a special health situation may apply for the adaptation of the education process realisation to their needs, according to the principles specified in the order of the Jagiellonian University Rector.

## V

### Final provision

The *Mathematics* education programme in the discipline of mathematics at the Doctoral School of Exact and Natural Sciences shall enter into force on the date of the Resolution.

**Education Programme**  
**in Technical Computer Science**  
**in the discipline of information and communication technology**  
**conducted in English**  
**at the Doctoral School of Exact**  
**and Natural Sciences**

**I**

**General provisions**

1. The education programme in Technical Computer Science has been developed according to the Act of 20 July 2018 on Law on Higher Education and Science, and the guidelines in force at the Jagiellonian University in Kraków.
2. The education programme leads to achieving learning outcomes for the qualifications at Level 8 of the Polish Qualification Framework (PQF).
3. The education programme lasts 8 semesters.
4. English is a medium of instruction of the education programme in Technical Computer Science.
5. Detailed requirements and eligibility criteria for admission to the programme are defined in the admission terms and conditions as approved by the Jagiellonian University Senate.
6. Within 3 months of the commencement of the education programme, a doctoral student has their supervisor(s) appointed, according to the Doctoral School Regulations.
7. Within 12 months of the commencement of the education programme, a doctoral student shall submit an Individual Research Plan (IRP) to the programme coordinator for their opinion and submission to the Director of the Doctoral School. The IRP shall cover a period equal to the duration of the education programme and shall specify, among other issues, the schedule for the preparation of the dissertation.
8. A doctoral student is required to achieve a minimum of 40 ECTS credits (ECTS – European Credit Transfer and Accumulation System) allocated to the Technical Computer Science education programme and to attain all the required learning outcomes as specified at the Level 8 of the Polish Qualification Framework. 24 ECTS are to be achieved by the end of the semester in which mid-term assessment is conducted. A doctoral student is obliged to achieve all the learning outcomes at the Level 8 of the Polish Qualification Framework.
9. Detailed instructions for achieving and assessing learning outcomes shall be specified in the syllabuses of the individual courses.



## **II**

### **Professional traineeship**

1. Professional traineeship shall take the form of teaching or co-teaching classes.
2. In agreement with and at the application of the doctoral student, the programme coordinator may accept other forms of professional traineeship, including didactic traineeship, such as conducting classes promoting science, provided that such a form ensures achieving all the learning outcomes allocated to professional traineeship.
3. Professional traineeship can also be conducted in a business company, a foundation, etc.
4. The rules for teaching traineeship for doctoral students of the education programme in Technical Computer Science shall be determined by the coordinator of this programme.
5. The number of hours of professional traineeship shall not exceed 60 teaching hours (a teaching hour equals 45-minutes) per one academic year, of which a minimum of 30 teaching hours in the form of teaching classes.

## **III**

### **Study and research progress assessment**

1. The supervisor(s), in cooperation with the programme coordinator and the Director of the Doctoral School, shall supervise implementing the education programme and the Individual Research Plan of the doctoral student.
2. Annually, but no later than by 17 September, a doctoral student shall submit to the programme coordinator a written report on the implementation of the Individual Research Plan, reviewed by the supervisor(s) and the auxiliary supervisor.
3. The programme coordinator shall assess the degree of implementing the study and research work based on the information from the doctoral student as defined in Point 2, and a report from the University Study-Oriented System (USOS).
4. Changes to the Individual Research Plan, in particular modifying or rescheduling the doctoral student's duties, shall require consulting the programme coordinator.
5. The programme coordinator may decide to reschedule the doctoral student's duties resulting from the education programme and to accept courses or activities not specified in the education programme as part of the performance of the duties (with the relevant allocation of ECTS credits), provided that no changes to the Individual Research Plan are needed.
6. When additional funding is available or in well justified cases, the programme coordinator, in consultation with School representatives of the Jagiellonian University PhD Student Association and the Director of the Doctoral School, may oblige doctoral students to take courses not specified in the education programme.

7. By the end of the 24<sup>th</sup> month of education, a doctoral student shall be subject to mid-term assessment before the assessment committee appointed by the Director of the Doctoral School.
8. One month before the scheduled meeting of the mid-term assessment committee, a doctoral student shall submit to the programme coordinator a written report on the implementation of the education programme and Individual Research Plan. The report has to be approved by the supervisor(s) and the auxiliary supervisor before submission.
9. Meetings of the mid-term assessment committee shall be attended by the committee members, and the doctoral student in those parts to which they have been invited, in accordance with separate provisions.

## **IV**

### **Schedule**

## SCHEDULE FOR THE EDUCATION PROGRAMME IN TECHNICAL COMPUTER SCIENCE

DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES EDUCATION PROGRAMME IN TECHNICAL COMPUTER SCIENCE						
ITEM	AIM	DESCRIPTION	PQF /PRK*	SEMESTER	NO OF ECTS	LIMITS
<b>OBLIGATORY COURSES</b> (25 ECTS minimum or 21 ECTS if a PhD student holds a proper language certificate)						
Basic seminar		Research seminar aimed at discussing recent achievements in a given discipline Assessment: <b>credit based on PhD student's participation in the seminar</b>	P8S_WG P8S_UW P8S_KK	I-VIII	1-2 for 30 hours	minimum 12 ECTS
Specialised course		Minimum one course / lecture selected by a PhD student The course presents basic or current research problems in a given discipline Assessment: <b>examination</b>	P8S_WG P8S_UW	I-IV	6 (lecture and classes) 3 (lecture only)	minimum 6 ECTS
Seminar for PhD students No I		Preparation for the research work Assessment: <b>credit</b>	P8S_UK P8S_KR	II	1	1 ECTS
Seminar for PhD students No II		Preparation for the research work. Communicating research results by a PhD student Assessment: <b>credit</b>	P8S_UK P8S_UO P8S_KR	IV	2	2 ECTS
English C1		A course at C1 level (not applicable to those PhD students who hold C1 language certificate or are graduates of master's programmes conducted in English) Assessment: <b>examination</b>	P8S_UK	I-II	4 for 60 hours	4 ECTS

Professional competencies and soft skills development	A course selected by a PhD student from a range of courses offered before each academic year (e.g. career planning, managerial skills, business communication) Assessment: <b>as provided in the course syllabus</b>	P8S_WK	I-VIII	2 for 30 hours	minimum 2 ECTS
<b>JOINT ELECTIVE ACTIVITIES FOR DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES</b>					
Doctoral School Seminar	Monthly interdisciplinary seminar with lectures in English offered by the guest researchers Assessment: <b>credit based on participation</b>	P8S_WG P8S_UW P8S_UK	I-VIII	1 per academic year	
Modern foreign language	A course offered as a second foreign language Assessment: <b>examination</b>	P8S_UU	I-IV	4 for 60 hours	
Polish for foreigners	A course in Polish Assessment: <b>examination</b>	P8S_UU	I-VIII	4 for 60 hours	
General knowledge development	One course out of a range of courses offered before each academic year (e.g. a course in philosophy, ethics, IA or cosmology) Assessment: <b>examination</b>	P8S_WK	I-VIII	2 for 30 hours	
<b>ELECTIVE ACTIVITIES DEVELOPING PROFESSIONAL COMPETENCIES</b>					
Optional activities	Lectures (3 ECTS for 30 hours), seminars (2-4 ECTS for 60 hours; the number of ECTS depends on the number of academic talks), studying specialized material (2 ECTS for studying the material, which is equivalent to a 30-hour course), activities aimed at soft skills development organised by the Faculty of Mathematics and Computer Science, Faculty of Physics, Astronomy and Applied Computer Science, Faculty of Management and Social Communication, soft skills activities.	P8S_UU P8S_WG	I-VIII	according to the description	

TRAINEESHIP					
Traineeship in a company	Optional professional traineeship in an industrial company Assessment: <b>by the programme coordinator on the basis of the participation certificate from the company</b>	P8S_UU P8S_KO	III-VIII	1 for 30 hours	maximum 6 ECTS
Traineeship in academic didactics	Preparation for academic teaching, including conducting classes Assessment: <b>by the programme coordinator on the basis of the opinion issued by a person supervising conducting classes by a PhD student</b>	P8S_UU P8S_UK	I-VIII	1 for 15 hours	maximum totally 16 ECTS
<p><b>Additional obligatory courses:</b></p> <ol style="list-style-type: none"> <li>1. PhD students who start their education in the Doctoral School are required to complete a <b>Health and Safety at Work</b> training / BHP.</li> <li>2. <b>First Aid</b> course (theoretical part and practical part) is to be completed by the end of the 2<sup>nd</sup> semester.</li> <li>3. PhD students who plan research involving vertebrate animals are required to take training to obtain appropriate qualifications.</li> </ol>					

\*PQF /PRK – Polish Qualifications Framework / Polska Rama Kwalifikacji in accordance with the Regulation of the Minister of Science and Higher Education on the characteristics of second-level learning outcomes for qualifications at Levels 6-8 of the Polish Qualifications Framework.

<https://prk.men.gov.pl/en/1/en/>

Conducting research and preparing a doctoral dissertation within the meaning of Article 187(3) of the Act of 20 July 2018 - Law on Higher Education and Science (i.e. Journal of Laws of 2023, item 742 as amended) fulfills in part achieving all types of learning outcomes for qualifications at Level 8 of the PQF. The achievement of these outcomes is verified by the supervisor.

Doctoral students with disabilities and persons in a special health situation may apply for the adaptation of the education process realisation to their needs, according to the principles specified in the order of the Jagiellonian University Rector.

## V

### Final provision

The *Technical Computer Science* programme in the discipline of information and communication technology at the Doctoral School of Exact and Natural Sciences shall enter into force on the date of the Resolution.

**Education Programme**  
**in Earth and environmental sciences**  
**in the discipline of Earth and related environmental sciences**  
**conducted in Polish**  
**at the Doctoral School of Exact**  
**and Natural Sciences**

**I**

**General provisions**

1. The education programme in Earth and environmental sciences has been developed according to the Act of 20 July 2018 on Law on Higher Education and Science and the guidelines in force at the Jagiellonian University in Kraków.
2. The education programme leads to achieving learning outcomes for the qualifications at Level 8 of the Polish Qualification Framework (PQF).
3. The education programme lasts 8 semesters.
4. Polish is a medium of instruction of the programme. Courses can also be taught in English.
5. Detailed requirements and eligibility criteria for admission to the programme are defined in the admission terms and conditions as approved by the Jagiellonian University Senate.
6. Within 12 months of the commencement of the programme, a doctoral student shall submit an Individual Research Plan (IRP) to the education programme coordinator for their opinion and submission to the Director of the Doctoral School.
7. A doctoral student is required to achieve a minimum of 40 ECTS credits (ECTS – European Credit Transfer and Accumulation System) allocated to the Earth and environmental sciences education programme and to attain all the required learning outcomes as specified at the Level 8 of the Polish Qualification Framework. A minimum of 8 ECTS shall be obtained in each year. If a doctoral student has realised a credit excess in previous years, he or she is required to obtain the number of credits corresponding to the difference between the 8 ECTS and the excess obtained.
8. Detailed instruction for achieving and assessing learning outcomes shall be specified in the syllabuses of the individual courses.

## **II**

### **Professional traineeship**

1. Professional traineeship shall take the form of teaching or co-teaching classes.
2. In agreement with and at the application of the doctoral student, the programme coordinator may accept other forms of professional traineeship, including didactic traineeship, such as conducting classes promoting science, provided that such a form ensures achieving all the learning outcomes allocated to professional traineeship.
3. The number of hours of professional traineeship shall not exceed 60 teaching hours (a teaching hour equals 45-minutes) per one academic year.

## **III**

### **Study and research progress assessment**

1. The supervisor(s), in cooperation with the programme coordinator and the Director of the Doctoral School, shall supervise implementing the education programme and the Individual Research Plan of the doctoral student.
2. Annually, but no later than by 17<sup>th</sup> September, a doctoral student shall submit to the programme coordinator a written report on the implementation of the Individual Research Plan, reviewed by the supervisor(s) and the auxiliary supervisor.
3. The programme coordinator shall assess the degree of implementing the study and research work based on the information from the doctoral student as defined in Point 2, and a report from the University Study-Oriented System (USOS).
4. Changes to the Individual Research Plan, in particular modifying or rescheduling the doctoral student's duties, shall require consulting the programme coordinator.
5. The programme coordinator may decide to reschedule the doctoral student's duties resulting from the education programme and to accept courses or activities not specified in the education programme as part of the performance of the duties (with the relevant allocation of ECTS credits), provided that no changes to the Individual Research Plan are needed.
6. When additional funding is available or in well justified cases, the programme coordinator, in consultation with School representatives of the Jagiellonian University PhD Student Association and the Director of the Doctoral School, may oblige doctoral students to take courses not specified in the education programme.
7. By the end of the 24<sup>th</sup> month of education, a doctoral student shall be subject to mid-term assessment before the assessment committee appointed by the Director of the Doctoral School.
8. The date of the mid-term assessment is established by the Director of the Doctoral School on the proposal of the programme coordinator.
9. One month before the scheduled meeting of the mid-term assessment committee, the doctoral student shall submit to the programme coordinator a written report on the

implementation of the Individual Research Plan. The report has to be approved by the supervisor(s) and the auxiliary supervisor before submission.

## **IV**

### **Schedule**



## SCHEDULE FOR THE EDUCATION PROGRAMME IN EARTH AND ENVIRONMENTAL SCIENCES

DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES EDUCATION PROGRAMME IN EARTH AND ENVIRONMENTAL SCIENCES						
Item Obligatory/Elective	Aim	Description	PQF*/ PRK	Seme ster	No of ECT S	No of hours
<b>A. SEMINAR</b>						
A1. Doctoral seminar I (O)		Determining progress in the preparation of the doctoral dissertation. Assessment: <b>credit</b> . [Obligatory module, presentation of a paper and participation in a discussion at an open scientific seminar on the subject of "The state of research in the field of the doctoral dissertation."]	P8U_W P8U_U P8_K	I-II	2	10
A2. Doctoral seminar II (O)		Determining progress in the preparation of the doctoral dissertation. Assessment: <b>credit</b> . [Obligatory module, presentation of a paper and participation in a discussion at an open scientific seminar on the subject of "Purpose, scope and methodology of the planned dissertation against achievements in the field."]	P8U_W P8U_U P8_K	III-IV	2	10
A3. Doctoral seminar III (O)		Determining progress in the preparation of the doctoral dissertation. Assessment: <b>credit</b> . [Obligatory module, presentation of a paper and participation in a discussion at an open scientific seminar on the subject of "Preliminary results of research in the ongoing doctoral dissertation."]	P8U_W P8U_U P8_K	V-VI	2	10
<b>B. JOINT ELECTIVE ACTIVITIES FOR THE DOCTORAL SCHOOL OF EXACT AND NATURAL SCIENCES (MINIMUM 6 ECTS)</b>						
B1. Polish for foreigners (E)		Polish for foreigners. Assessment: <b>examination</b>	P8U_UU	I-IV	4	60

B2. Second foreign language (E)	Foreign language. Assessment: <b>examination</b>	P8U_UU	I-IV	4	60
B3. Soft skills and general knowledge (E)	Lectures (courses) or workshops selected from the list of courses announced before a given academic year. Assessment: <b>credit</b> . [Credit given by the lecturer as provided in the course syllabus, or by the education programme coordinator based on a PhD student's statement. 1 ECTS for each 15 hours, maximum of 4 ECTS]	P8U_U P8U_K	I-VIII	4	60
B4. Doctoral School Seminar (E)	A monthly interdisciplinary seminar with English lectures conducted by the Jagiellonian University professors and by invited researchers. Assessment: <b>credit based on participation</b> [Credit granted by the lecturer as provided in the course syllabus, or by the education programme coordinator based on a PhD student's statement. 1 ECTS per academic year, which amounts to participating in minimum of 6 seminars]	P8S_W G P8S_U W P8S_U K	I-VIII	4	60
<b>C. PERSONAL DEVELOPMENT</b>					
C1. English course (O)	Acquiring language skills in English at C1 level. Assessment: <b>examination</b> [Obligatory module, Credit granted by the lecturer as provided in the course syllabus, or by the education programme coordinator based on a PhD student's statement.]	P8S_U U	I-II	4	60
C2. Fields of natural and exact sciences research (E)	Exploring current research problems in natural and exact sciences in the world. Assessment: <b>credit</b> . [Participation in lectures / seminars / conferences / courses (including courses at 2nd degree studies at other departments) devoted to current problems and progress of natural and exact sciences. Credit granted by the lecturer as provided in the course syllabus, or by the education programme coordinator based on a PhD student's statement.]	P8_W	I-VIII	2	30

<p>C3. Methodology workshop (E)</p>	<p>Acquiring the ability to conduct research appropriate for the selected subdiscipline of Earth Sciences. Assessment: <b>credit.</b> [Participation in a methodology course or individual study of research methods under the supervision of a selected faculty member, for about 30 hours, credit granted by the lecturer as provided in the course syllabus, or by the education programme coordinator based on the document / certificate provided]</p>	<p>P8_W P8_U</p>	<p>I-VIII</p>	<p>2</p>	<p>30</p>
<p>C4. Scholarly workshop (E)</p>	<p>Acquiring the skills necessary to prepare research projects and techniques for writing scientific texts. Assessment: <b>credit.</b> [Acquiring the skills necessary to prepare and acquire research projects and techniques for writing scientific texts in the form of selected classes or individual work. Credit granted by the education programme coordinator based on a grant awarded to the PhD student as the manager (NCN, EU funds), OR the publication of a PhD student's article in the journal from the A list of the Ministry of Science and Higher Education, in which he is the first author and correspondent author]</p>	<p>P8_U P8_K</p>	<p>II-VIII</p>	<p>6</p>	<p>30</p>
<p>C5. Competence in the humanities (E)</p>	<p>Developing humanistic competencies. Assessment: <b>credit.</b> [Participation in activities developing humanities interests. Credit granted by the lecturer as provided in the course syllabus, or by the education programme coordinator based on a PhD student's statement. Examples: philosophy of science, rhetoric, psychology, Japanese culture, Mediterranean archeology]</p>	<p>P8_K</p>	<p>I-VIII</p>	<p>2</p>	<p>30</p>
<p>C6. Personal competencies (E)</p>	<p>Developing personal skills. Assessment: <b>credit.</b> [Participation in activities developing interpersonal competences. Credit granted by the lecturer as provided in the course syllabus, or by the education programme coordinator based on a PhD student's statement. Examples: group psychological workshops, assertiveness training]</p>	<p>P8_K</p>	<p>I-VIII</p>	<p>2</p>	<p>30</p>
<p>C7. PhD internship (E)</p>	<p>Preparation for employment. Assessment: <b>credit.</b> [Internship (minimum of 1 month) in a foreign research center OR in an institution (Polish or foreign) conducting research and development work Credit granted by the education programme coordinator based on a PhD student's statement]</p>	<p>P8_W</p>	<p>II-IV</p>	<p>4</p>	<p>60</p>

C8. Physical development (E)	Physical activity of choice (sport), two hours a week. Assessment: <b>credit</b> . [Credit granted by the education programme coordinator based on a PhD student's statement, 1 ECTS for each semester, max. 4 semesters]	P8_K	I-IV	4	120
<b>D. TRAINEESHIP</b>					
D1. Traineeship in academic didactics (O)	Preparation for academic teaching, developing communication skills and knowledge transfer. Assessment: <b>credit</b> . [Obligatory module, preparation and conducting or co-conducting of classes at the university in the amount of 60 hours per year, 3 ECTS for each year]	P8U_U P8U_K	I-VIII	12	240
<p><b>Additional obligatory courses:</b></p> <ol style="list-style-type: none"> <li>1. PhD students who start their education in the Doctoral School are required to complete a <b>Health and Safety at Work</b> training / BHP.</li> <li>2. <b>First Aid</b> course (theoretical part and practical part) is to be completed by the end of the 2<sup>nd</sup> semester.</li> <li>3. PhD students who plan research involving vertebrate animals are required to take training to obtain appropriate qualifications.</li> </ol>					

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<https://prk.men.gov.pl/en/1en/>

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Doctoral students with disabilities and persons in a special health situation may apply for the adaptation of the education process realisation to their needs, according to the principles specified in the order of the Jagiellonian University Rector.

## V

### Final provision

The *Earth and environmental sciences* education programme in the discipline of Earth and related environmental sciences at the Doctoral School of Exact and Natural Sciences shall enter into force on the date of the Resolution.