

75.0200.59.2019

# Ordinance no. 61

**of the Rector of the Jagiellonian University of March 17, 2020**

# On the establishment of doctoral programmes at the doctoral School of Medical and Health Sciences

Pursuant to Article 23 sec.1 of the Act of July 20, 2018, Law on Higher Education and Science (Journal of Laws of 2018, item 1668, as amended d.) in connection with § 6 sec. 4 of the Regulations of the Doctoral School of Medical and Health Sciences, attached as Annex no. 4 to the Resolution no. 27 / IV / 2019 of the Jagiellonian University Senate of April 24, 2019, on the regulations of doctoral schools, I hereby order the following:

§ 1

Since the academic year 2019/2020, the following doctoral programmes have been set up at the Doctoral School of Medical and Health Sciences:

1. a doctoral programme in the domain of medical and health sciences, in the discipline of medical sciences, which is attached as Annex no. 1 to this Ordinance;
2. a doctoral programme in the domain of medical and health sciences, in the discipline of pharmaceutical sciences, which is attached as Annex no. 2 to this Ordinance;
3. a doctoral programme in the domain of medical and health sciences, in the discipline health sciences, which is attached as Annex no. 3 to this Ordinance.

§ 2

The doctoral programmes referred to in paragraph 1 are managed and organized by the heads of respective doctoral programmes.

§ 3

The Ordinance shall enter into force on the date of signature.

# Rector

**Prof. dr hab. med. Wojciech Nowak**

Annex no. 1 to Ordinance no. 61 of the JU Rector of July 26, 2019

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| **DOCTORAL PROGRAMME****discipline: medical sciences**valid from the academic year 2019/2020 |
| Doctoral School | The Doctoral School of Medical and Health Sciences (DSMHS) |
| The scientific domain and scientific discipline of DSMHS | Domain: **medical and health sciences**Discipline: **medical sciences** |
| Duration of education at DSMHS | 4 years, 8 semesters, in accordance with the study programme |
| Language in which the education is carried out | English and Polish |
| Form of doctoral education | Stationary |
| Level of education | Level 8 of the Polish Qualifications Framework and the European Qualifications Framework |
| Conditions for the implementation of the study programme | The following items are required to complete the Doctoral School of Medical and Health Sciences in the medical sciences discipline:1. confirmation of the achievement of the specific learning outcomes envisaged for the Study Programme;
2. obtaining at least 40 ECTS credits in the course of the doctoral programme, including

30 ECTS credits related to the preparation of a PhD student to conduct research and publish its results, with 25 ECTS credits obtained by the end of the IV semester;1. obtaining a doctoral degree in medical and health sciences in the discipline of medical sciences.
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| Terms for awarding ECTS credits | 1 ECTS = 25 - 30 hours of the PhD student's work as part of classes and outside of classes. |
| Principles of verifying accomplishment of learning outcomes on level 8 of the Polish Qualifications Framework as part of classes and outside of classes, including the rules for passing implemented modulesat other universities/foreign universitiesand learning outcomes outside of classes | The achievement of the expected learning outcomes can be confirmed during DSHMS classes specified in the study programme and the Individual Research Plan (IRP). In the latter case, the results are approved by the Head of Doctoral Programme, taking into account the opinion of the Programme Supervisor/s, Programme Committee, including the opinion of Doctoral Committee members if appointed. |

# LIST OF ACTIVITIES

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| **Module I: Methodological education (compulsory part)** **for the doctoral programme: medical sciences** |
| **Course** | **Contact Hours** | **Hours of individual work** | **ECTS** | **Year** | **Semester** | **Form of classes/credits** | **Learning outcomes** |
| Methodology for applied research in medical and health sciences – Part I | 10 h | 20 h | 1 | 1 | I | seminars/ credit with a grade | **knowledge:**W\_1, W\_2**skills:**U\_1, U\_11, U\_12 |
| Library databases – evaluation and verification of medical publications (national/international) | 5 h | 20 h | 1 | 1 | I | classes/ credit with a grade | **knowledge:**W\_6, W\_8**skills:**U\_6, U\_8**social competence:**K\_1, K\_2 |
| Ethical and legal aspects of human and animal biomedical research (completingforms to the ethics and bioethics committee). Personal data protection rules | 15 h | 35  | 2 | 1 | I | seminars, classes/ credit with a grade | **knowledge:**W\_3**skills:**U\_1**social competence:**K\_5, K\_6 |
| Dissemination of research results. Principles of writing for publication and oral presentations techniques.Protection of intellectual property - part I | 15 h | 15 h | 1 | 1 | II | seminars, classes/ credit with a grade | **knowledge:**W\_1, W\_3, W\_5, W\_6**skills:**U\_1, U\_3, U\_4, U\_6, U\_7**social competence:**K\_1, K\_4, K\_5, K\_6, K\_7,K\_8 |
| Methods for computer-assisted analysis of research results (databases). Biostatics– Part I | 25 h | 50 h | 3 | 1/2 | II/III | seminars, classes/ credit with a grade | **knowledge:**W\_1, W\_7**skills:**U\_1, U\_6 |
| Principles of operation, scope of research, methodology, equipment and financing universityand non-university modern research centres | 30 h |  | 1 | 1 | II | lecture, seminar/ credit with a grade | **knowledge:**W\_8, W\_9**skills:**U\_1, U\_11**social competence:**K\_8, K\_9 |
| Medical English – presentation of English-language publications related to the discipline and individual research plan | 30 h | 60 h | 3 | 1 | I/II | classes/ credit with a grade | **knowledge:**W\_8**skills:**U\_4**social competence:**K\_1 |
| Individual workshops with the supervisor | 8 x 15 h | 8 x 15 h | 8 | 1-4 | I-VIII | seminars, classes/ credit with a grade | **knowledge:**W\_1, W\_2, W\_3, W\_5**skills:**U\_1, U\_6, U\_11, U\_13, U\_14**social competence:**K\_1, K\_2, K\_6 |
| **Module II: Education in secondary scientific competences (compulsory part)** **for the doctoral programme: medical sciences** |
| **Course** | **Contact Hours** | **Hours of individual work** | **ECTS** | **Year** | **Semester** | **Form of classes/credits** | **Learning outcomes** |
| Current principles of applying and obtaining funds for financing research projects.Management of national and international research projects | 30 h | 60 h | 3 | 1 | I/II | seminar, workshops/ credit with a grade | **knowledge:**W\_5**skills:**U\_3, U\_5, U\_8, U\_11**social competence:**K\_1, K\_2, K\_5, K\_7, K\_8,K\_9 |
| Protection of intellectual property— Part II. Patent and implementation procedures (working with a patent attorney) | 10 h | 20 h | 1 | 2 | IV | Seminars, classes/ credit with a grade | **knowledge:**W\_4, W\_6**skills:**U\_6, U\_10**social competence:**K\_7 |
| English-language presentation of research results.Discussion | 15 h | 35 h | 2 | 2 | III/IV | outgoing school– discussion sessions/credit with a grade | **knowledge:**W\_4, W\_6, W\_7, W\_8**skills:**U\_1, U\_2, U\_4, U\_7, U\_12**social competence:**K\_2, K\_3, K\_5 |
| The most important recent scientific achievements in medical, pharmaceuticaland health sciences  | 20 h | 40 h | 2 | 2 | III/IV | lectures, seminars/ credit with a grade | **knowledge:**W\_8, W\_9, W\_10**skills:**U\_1**social competence:**K\_8 |
| Basics of didactics at medical university. Effective teaching methods in medical, pharmaceuticaland health sciences | 10 h | 20 h | 1 | 1 | II | seminars, classes/ credit with a grade | **knowledge:**W\_7**skills:**U\_9**social competence:**K\_5 |
| Professional traineeship in medical didactics – effective teaching methods in medical sciences | 60 h |  | 2 | 2 | III-VI | co-teaching or teachingwith PhD students | **knowledge:**W\_4, W\_7**skills:**U\_2, U\_7, U\_8, U\_9**social competence:**K\_5 |

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| **Module III: Specialist education (optional courses) for the doctoral programme: medical sciences** |
| **Course** | **Contact Hours** | **Hours of individual work** | **ECTS** | **Year** | **Semester** | **Form of classes/credits** | **Learning outcomes** |
| Methodology part II | 20 h | 40 h | 2 | 2 | III | seminar, classes/ credit with a grade | **knowledge:**W\_1, W\_2**skills:**U\_1, U\_5, U\_11, U\_12,**social competence:**K\_2, K\_3 |
| Biostatics part II | 20 h | 40 h | 2 | 2 | III | seminar, classes/ credit with a grade | **knowledge:**W\_1, W\_7**skills:**U\_1, U\_6 |
| Systematic reviews | 15 h | 15 h | 1 | 2/3 | III-VI | seminars, workshops/ credit with a grade | **knowledge:**W\_2**skills:**U\_1, U\_11**social competence:**K\_2 |
| Research techniques in biomedicine | 15 h | 15 h | 1 | 2/3 | III-VI | seminars, workshops/ credit with a grade | **knowledge:**W\_1**skills:**U\_1**social competence:**K\_1 |
| The importance of biomarkers in precision and personalizedmedicine | 15 h | 15 h | 1 | 2/3 | III-VI | seminars, workshops/ credit with a grade | **knowledge:**W\_2, W\_8, W\_10**skills:**U\_5-2 / U\_12**social competence:**K\_1 |
| Modern imaging techniques in medical sciences | 15 h | 15 h | 1 | 2/3 | III-VI | seminars, workshops/ credit with a grade | **knowledge:**W\_1, W\_2, W\_7, W\_9**skills:**U\_1, U\_9**social competence:**K\_1, K\_4, K\_9 |
| PhD students may choose optional courses from other doctoral programmes at the Doctoral School of Medical and Health Sciences or from other JU doctoral schools in the total maximum of 3 ECTS credits. |

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| **Module IV: Complementary professional and soft skills education****(optional courses) for the doctoral programme: medical sciences** |
| **Course** | **Contact Hours** | **Hours of individual work** | **ECTS** | **Year** | **Semester** | **Form of classes/credits** | **Learning outcomes** |
| Media in scientific work.Planning and building academic career | 10 h | 20 h | 1 | 3 | V | seminars, classes/ credit with a grade | **knowledge:**W\_6**skills:**U\_2**social competence:**K\_5 |
| Dissemination of research results at national and international level | 10 h | 20 h | 1 | 3 | V | seminars, classes/ credit with a grade | **knowledge:**W\_6, W\_8, W\_9, W\_10**skills:**U\_1, U\_2, U\_4, U\_7**social competence:**K\_2, K\_5, K\_7, K\_8 |
| Principles of academic entrepreneurship: setting up a business, raising funds for implementation research.Start-ups – legal and financial aspects | 10 h | 20 h | 1 | 3/4 | VI-VII | lecture, seminar/ credit with a grade | **knowledge:**W\_3, W\_4, W\_6**skills:**U\_8, U\_10, U\_13**social competence:**K\_6 |
| New medical technologies and philosophy | 10 h | 20 h | 1 | 3/4 | VI-VII | lecture, seminar/ credit with a grade | **knowledge:**W\_1, W\_3, W\_9**skills:**U\_2, U\_5, U\_7, U\_11**social competence:**K\_3, K\_5, K\_6 |

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| Artificial intelligence in medical sciences | 10 h | 20 h | 1 | 3/4 | VI-VII | seminar/ credit with a grade | **knowledge:**W\_1, W\_2**skills:**U\_1, U\_11**social competence:**K\_4 |
| Second language course | 30 h | 30 h | 2 | 2 | III-IV | seminar, discussion session/ credit with a grade | **knowledge:**W\_1**skills:**U\_4**social competence:**K\_1 |
| The basics of interpersonal communication | 15 h | 15 h | 1 | 2/3 | III-VI | seminars, workshops/ credit with a grade | **knowledge:**W\_9**skills:**U\_13**social competence:**K\_8, K\_9 |
| Teaching medical communication | 15 h | 15 h | 1 | 2 | III/IV | seminars, individual work/credit with a grade | **knowledge:**W\_7**skills:**U\_9**social competence:**K\_5 |

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| Clinical psychology | 15 h | 15 h | 1 | 2/3 | III-VI | seminars, workshops/ credit with a grade | **knowledge:**W\_9**skills:**U\_13**social competence:**K\_8 |
| Personalized education in medical didactics (tutoring, monitoring, coaching).Tutoring in PBL. Workshop with PBL | 15 h | 15 h | 1 | 2/3 | III-VI | seminars, workshops/ credit with a grade | **knowledge:**W\_7**skills:**U\_9**social competence:**K\_5 |
| Advanced assessment methods | 10 h | 20 h | 1 | 2/3 | III-VI | seminars, workshops/ credit with a grade | **knowledge:**W\_7**skills:**U\_9**social competence:**K\_5 |
| Marketing authorization of medicinal products, medical devicesand cosmetics | 15 h | 15 h | 1 | 2/3 | III-VI | seminars, classes/ credit with a grade | **knowledge:**W\_3, W\_4, W\_6**skills:**U\_2, U\_14**social competence:**K\_8, K\_9 |
| Pharmaceutical aspects of plant and macrofungi biotechnology | 15 h | 15 h | 1 | 2/3 | III-VI | seminars, classes/ credit with a grade | **knowledge:**W\_1, W\_2, W\_7, W\_9**skills:**U\_1, U\_8**social competence:**K\_1 |

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| Bioinformatics databasesin pharmaceutical sciences | 15 h | 15 h | 1 | 2/3 | III-VI | seminars, classes/ credit with a grade | **knowledge:**W\_1**skills:**U\_1**social competence:**K\_7 |
| Additional education:Beginner PhD students must complete Occupational Safety & Health training **by the end of the first semester** on the dates specified by the OSH Inspectorate.\*PhD students may choose optional courses from other doctoral programmes at the Doctoral School of Medical and Health Sciences or from other JU doctoral schools in a total maximum of 3 ECTS credits. |

Annex no. 2 to Ordinance no. 61 of the JU Rector of July 26, 2019

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| **DOCTORAL PROGRAMME****discipline: pharmaceutical sciences**valid from the academic year 2019/2020 |
| Doctoral School | The Doctoral School of Medical and Health Sciences (DSMHS) |
| The scientific domain and scientific discipline of DSMHS | Domain: m**edical and health sciences**Discipline: **Pharmaceutical sciences** |
| Duration of education at DSMHS | 4 years, 8 semesters, in accordance with the study programme |
| Language in which the education is carried out | English and Polish |
| Form of doctoral education | Stationary |
| Level of education | Level 8 of the Polish Qualifications Framework and the European Qualifications Framework |
| Conditions for the implementation of the study programme | The following items are required to complete the Doctoral School of Medical and Health Sciences in the pharmaceutical sciences discipline:1. confirmation of the achievement of the specific learning outcomes envisaged for the Study Programme;
2. obtaining at least 40 ECTS credits in the course of the doctoral programme, including

30 ECTS credits related to the preparation of a PhD student to conduct research and publish its results, with 25 ECTS credits obtained by the end of the IV semester;1. obtaining a doctoral degree in medical and health sciences in the discipline of pharmaceutical sciences.
 |
| Terms for awarding ECTS credits | 1 ECTS = 25 - 30 hours of the PhD student's work as part of classes and outside of classes.  |
| Principles of verifying accomplishment of learning outcomes on level 8 of the Polish Qualifications Framework as part of classes and outside of classes, including the rules for passing implemented modulesat other universities/foreign universities and learning outcomes outside of classes | The achievement of the expected learning outcomes can be confirmed during DSHMS classes specified in the study programme and the Individual Research Plan (IRP). In the latter case, the results are approved by the Head of Doctoral Programme, taking into account the opinion of the Programme Supervisor/s, Programme Committee, including the opinion of Doctoral Committee members if appointed. |

# LIST OF ACTIVITIES

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| **Module I: Methodological education (compulsory part) for the doctoral programme: pharmaceutical sciences** |
| **Course** | **Contact Hours** | **Hours of individual work** | **ECTS** | **Year** | **Semester** | **Form of classes/credits** | **Learning outcomes** |
| Research methodology in medical and health sciences – Part I | 10 h | 20 h | 1 | 1 | I | seminars/ credit with a grade | **knowledge:**W\_1, W\_2**skills:**U\_1, U\_11, U\_12 |
| Library databases – evaluation and verification of medical publications (national/international) | 5 h | 20 h | 1 | 1 | I | classes/ credit with a grade | **knowledge:**W\_6, W\_8**skills:**U\_6, U\_8**social competence:**K\_1, K\_2 |
| Ethical and legal aspects of human and animal biomedical research (completingforms to the ethics and bioethics committee). Personal data protection rules | 15 h | 35 h | 2 | 1 | I | seminars, classes/ credit with a grade | **knowledge:**W\_3**skills:**U\_1**social competence:**K\_5, K\_6 |
| Dissemination of research results. Principles of writing for publicationand oral presentation techniques.Protection of intellectual property - Part I | 15 h | 15 h | 1 | 1 | II | seminars, classes/ credit with a grade | **knowledge:**W\_1, W\_3, W\_5, W\_6**skills:**U\_1, U\_3, U\_4, U\_6, U\_7**social competence:**K\_1, K\_4, K\_5, K\_6, K\_7,K\_8 |
| Methods for computer-assisted analysis of research results (databases). Biostatics– Part I | 25 h | 50 h | 3 | 1/2 | II/III | seminars, classes/ credit with a grade | **knowledge:**W\_1, W\_7**skills:**U\_1, U\_6 |
| Principles of operation, scope of research, methodology, equipment and financing universityand non-university modern research centres | 30 h |  | 1 | 1 | II | lecture, seminar/ credit with a grade | **knowledge:**W\_8, W\_9**skills:**U\_1, U\_11**social competence:**K\_8, K\_9 |
| Medical English – presentation of English-language publications related to the discipline and individual research plan | 30 h | 60 h | 3 | 1 | I/II | classes/ credit with a grade | **knowledge:**W\_8**skills:**U\_4**social competence:**K\_1 |
| Individual workshops with the supervisor | 8 x 15 h | 8 x 15 h | 8 | 1-4 | I-VIII | seminars, classes/ credit with a grade | **knowledge:**W\_1, W\_2, W\_3, W\_5**skills:**U\_1, U\_6, U\_11, U\_13, U\_14**social competence:**K\_1, K\_2, K\_6 |

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| **Module II: Education in secondary scientific competences****(compulsory part) for the doctoral programme: pharmaceutical sciences** |
| **Course** | **Contact Hours** | **Hours of individual work** | **ECTS** | **Year** | **Semester** | **Form of classes/credits** | **Learning outcomes** |
| Current principles of applying and obtaining funds for financing research projects Management of national and international research projects | 30 h | 60 h | 3 | 1 | I/II | seminar, workshops/ credit with a grade | **knowledge:**W\_5**skills:**U\_3, U\_5, U\_8, U\_11**social competence:**K\_1, K\_2, K\_5, K\_7, K\_8,K\_9 |
| Protection of intellectual property – Part II. Patent and implementation procedures (working with a patent attorney) | 10 h | 20 h | 1 | 2 | IV | seminars, classes/ credit with a grade | **knowledge:**W\_4, W\_6**skills:**U\_6, U\_10**social competence:**K\_7 |
| English-language presentation of research results. Discussion | 15 h | 35 h | 2 | 2 | III/IV | outgoing school– discussion sessions/credit with a grade | **knowledge:**W\_4, W\_6, W\_7, W\_8**skills:**U\_1, U\_2, U\_4, U\_7, U\_12**social competence:**K\_2, K\_3, K\_5 |
| The most important scientific achievements in medical, pharmaceutical and health sciences  | 20 h | 40 h | 2 | 2 | III/IV | lectures, seminars/ credit with a grade | **knowledge:**W\_8, W\_9, W\_10**skills:**U\_1**social competence:**K\_8 |

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| The basics of didactics at medical university. Effective teaching methods in medical, pharmaceuticaland health sciences | 10 h | 20 h | 1 | 1 | II | seminars, classes/ credit with a grade | **knowledge:**W\_7**skills:**U\_9**social competence:**K\_5 |
| Professional traineeship in medical didactics – effective teaching methods in medical sciences | 60 h |  | 2 | 2 | III-VI | co-teaching or teachingwith PhD students | **knowledge:**W\_4, W\_7**skills:**U\_2, U\_7, U\_8, U\_9**social competence:**K\_5 |
| **Module III: Specialist education (optional courses) for the doctoral programme: pharmaceutical sciences** |
| **Course** | **Contact Hours** | **Hours of individual work** | **ECTS** | **Year** | **Semester** | **Form of classes/credits** | **Learning outcomes** |
| Methodology part II | 20 h | 40 h | 2 | 2 | III | seminar, classes/ credit with a grade | **knowledge:**W\_1, W\_2**skills:**U\_1, U\_12**social competence:**K\_1, K\_4 |
| Biostatics part II | 20 h | 40 h | 2 | 2 | III | seminar, classes/ credit with a grade | **knowledge:**W\_1, W\_2, W\_9**skills:**U\_1, U\_6**social competence:**K\_8, K\_9 |

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| Modern organic chemistry methods for new drug research | 15 h | 15 h | 1 | 2/3 | III-VI | seminars, classes/ credit with a grade | **knowledge:**W\_2, W\_9, W\_10**skills:**U\_1, U\_9, U\_12, U\_13, U\_14**social competence:**K\_3, K\_4 |
| Selected aspects of pharmacotherapy safety: monitored therapy, pharmacogenomics, in vitro methods in drug safety assessment | 15 h | 15 h | 1 | 2/3 | III-VI | lecture/ seminars/ credit with a grade | **knowledge:**W\_1, W\_8, W\_9, W\_10**skills:**U\_1, U\_7, U\_12**social competence:**K\_1, K\_8, K\_9 |
| Food-drug interactions – clinical aspects | 15 h | 15 h | 1 | 2/3 | III-VI | seminars, classes/ credit with a grade | **knowledge:**W\_1, W\_8, W\_9**skills:**U\_1, U\_2, U\_11, U\_12, U\_13**social competence:**K\_5 |
| Biological medicines and biosimilars.Generic drugs | 15 h | 15 h | 1 | 2/3 | III-VI | seminars, classes/ credit with a grade | **knowledge:**W\_1, W\_3**skills:**U\_11**social competence:**K\_1, K\_8 |

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| Naturopathy | 15 h | 15 h | 1 | 2/3 | III-VI | seminars, classes/ credit with a grade | **knowledge:**W\_9**skills:**U\_1**social competence:**K\_8 |
| PhD students may choose optional courses from other doctoral programmes at the Doctoral School of Medical and Health Sciences or from other JU doctoral schools in the total maximum of 3 ECTS credits. |
| **Module IV: Complementary professional and soft skills education (optional courses) for the doctoral programme: pharmaceutical sciences** |
| **Course** | **Contact Hours** | **Hours of individual work** | **ECTS** | **Year** | **Semester** | **Form of classes/credits** | **Learning outcomes** |
| Media in scientific work.Planning and building academic career | 10 h | 20 h | 1 | 3 | V | seminars, classes/ credit with a grade | **knowledge:**W\_6**skills:**U\_2**social competence:**K\_5 |
| Dissemination of research results at national and international level | 10 h | 20 h | 1 | 3 | V | seminars, classes/ credit with a grade | **knowledge:**W\_6, W\_8, W\_9, W\_10**skills:**U\_1, U\_2, U\_4, U\_7**social competence:**K\_2, K\_5, K\_7, K\_8 |
| Principles of academic entrepreneurship: setting up a business, raising funds for implementation research. Start-ups – legal and financial aspects | 10 h | 20 h | 1 | 3/4 | VI-VII | lecture, seminar/ credit with a grade | **knowledge:**W\_3, W\_4, W\_6**skills:**U\_8, U\_10, U\_13**social competence:**K\_6 |

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| New medical technologies and philosophy | 10 h | 20 h | 1 | 3/4 | VI-VII | lecture, seminar/ credit with a grade | **knowledge:**W\_1, W\_3, W\_9**skills:**U\_2, U\_5, U\_7, U\_11**social competence:**K\_3, K\_5, K\_6 |
| Artificial intelligence in medical sciences | 10 h | 20 h | 1 | 3/4 | VI-VII | seminar/ credit with a grade | **knowledge:**W\_1, W\_2**skills:**U\_1, U\_11**social competence:**K\_4 |
| Second language course | 30 h | 30 h | 2 | 2 | III-IV | seminar, discussion session/ credit with a grade | **knowledge:**W\_1**skills:**U\_4**social competence:**K\_1 |
| The basics of interpersonal communication | 15 h | 15 h | 1 | 2/3 | III-VI | seminars, workshops/ credit with a grade | **knowledge:**W\_9**skills:**U\_13**social competence:**K\_8, K\_9 |

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| Teaching medical communication | 15 h | 15 h | 1 | 2 | III/IV | seminars, individual work/credit with a grade | **knowledge:**W\_7**skills:**U\_9**social competence:**K\_5 |
| Clinical psychology | 15 h | 15 h | 1 | 2/3 | III-VI | seminars, workshops/ credit with a grade | **knowledge:**W\_9**skills:**U\_13**social competence:**K\_8 |
| Personalized educationin medical didactics (tutoring, monitoring, coaching).Tutoring in PBL. Workshop with PBL | 15 h | 15 h | 1 | 2/3 | III-VI | seminars, workshops/ credit with a grade | **knowledge:**W\_7**skills:**U\_9**social competence:**K\_5 |
| Advanced assessment methods | 10 h | 20 h | 1 | 2/3 | III-VI | seminars, workshops/ credit with a grade | **knowledge:**W\_7**skills:**U\_9**social competence:**K\_5 |

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| Marketing authorization of medicinal products, medical devices and cosmetics | 15 h | 15 h | 1 | 2/3 | III-VI | seminars, classes/credit with a grade | **knowledge:**W\_3, W\_4, W\_6**skills:**U\_2, U\_14**social competence:**K\_8, K\_9 |
| Pharmaceutical aspects of plant and macrofungi biotechnology | 15 h | 15 h | 1 | 2/3 | III-VI | seminars, classes/ credit with a grade | **knowledge:**W\_1, W\_2, W\_7, W\_9**skills:**U\_1, U\_8**social competence:**K\_1 |
| Bioinformatics databasesin pharmaceutical sciences | 15 h | 15 h | 1 | 2/3 | III-VI | seminars, classes/ credit with a grade | **knowledge:**W\_1**skills:**U\_1**social competence:**K\_7 |
| Additional education:Beginner PhD students must complete Occupational Safety & Health training **by the end of the first semester** on the dates specified by the OSH Inspectorate.\* PhD students may choose optional courses from other doctoral programmes at the Doctoral School of Medical and Health Sciences or from other JU doctoral schools in a total maximum of 3 ECTS credits. |

Annex no. 3 to Ordinance no. 61 of the JU Rector of July 26, 2019

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| **Module I: Methodological education (compulsory part) for the doctoral programme: health sciences** |
| **Course** | **Contact Hours** | **Hours of individual work** | **ECTS** | **Year** | **Semester** | **Form of classes/credits** | **Learning outcomes** |
| Research methodology in medical and health sciences – Part I | 10 h | 20 h | 1 | 1 | I | seminars/ credit with a grade | **knowledge:**W\_1, W\_2**skills:**U\_1, U\_11, U\_12 |
| Library databases – evaluation and verification of medical publications (national/international) | 5 h | 20 h | 1 | 1 | I | classes/ credit with a grade | **knowledge:**W\_6, W\_8**skills:**U\_6, U\_8**social competence:**K\_1, K\_2 |
| Ethical and legal aspects of human and animal biomedical research(completing forms to the ethics and bioethics committee).Personal dataprotection rules | 15 h | 35 h | 2 | 1 | I | seminars, classes/ credit with a grade | **knowledge:**W\_3**skills:**U\_1**social competence:**K\_5, K\_6 |
| Dissemination of research results. Principles of writing for publication and oral presentations techniques.Protection of intellectual property – Part I. | 15 h | 15 h | 1 | 1 | II | seminars, classes/ credit with a grade | **knowledge:**W\_1, W\_3, W\_5, W\_6**skills:**U\_1, U\_3, U\_4, U\_6, U\_7**social competence:**K\_1, K\_4, K\_5, K\_6, K\_7,K\_8 |
| Methods for computer-assisted analysis of research results (databases). Biostatics– Part I | 25 h | 50 h | 3 | 1/2 | II/III | seminars, classes/ credit with a grade | **knowledge:**W\_1, W\_7**skills:**U\_1, U\_6 |
| Principles of operation, scope of research, methodology, equipment and financing universityand non-university modern research centres | 30 h |  | 1 | 1 | II | lecture, seminar/ credit with a grade | **knowledge:**W\_8, W\_9**skills:**U\_1, U\_11**social competence:**K\_8, K\_9 |
| Medical English – presentation of English-language publications related to the discipline and individual research plan | 30 h | 60 h | 3 | 1 | I/II | classes/ credit with a grade | **knowledge:**W\_8**skills:**U\_4**social competence:**K\_1 |
| Individual workshops with the supervisor | 8 x 15 h | 8 x 15 h | 8 | 1-4 | I-VIII | seminars, classes/ credit with a grade | **knowledge:**W\_1, W\_2, W\_3, W\_5**skills:** U\_1, U\_6, U\_11, U\_13, U\_14**social competence:**K\_1, K\_2, K\_6 |
| **Module II: Education in secondary scientific competences (compulsory part) for the doctoral programme: health sciences** |
| **Course** | **Contact Hours** | **Hours of individual work** | **ECTS** | **Year** | **Semester** | **Form of classes/credits** | **Learning outcomes** |
| Current principles of applying and obtaining funds for financing research projects | 30 h | 60 h | 3 | 1 | I/II | seminar, workshops/ credit with a grade | **knowledge:**W\_5 |
| Management of national and international research projects |  |  |  |  |  |  | **skills:**U\_3, U\_5, U\_8, U\_11**social competence:**K\_1, K\_2, K\_5, K\_7, K\_8,K\_9 |
| Protection of intellectual property – Part II. Patent and implementation procedures (working with a patent attorney) | 10 h | 20 h | 1 | 2 | IV | seminars, classes/ credit with a grade | **knowledge:**W\_4, W\_6**skills:**U\_6, U\_10**social competence:**K\_7 |
| English-language presentation of research results. Discussion | 15 h | 35 h | 2 | 2 | III/IV | outgoing school– discussion sessions/credit with a grade | **knowledge:**W\_4, W\_6, W\_7, W\_8**skills:**U\_1, U\_2, U\_4, U\_7, U\_12**social competence:**K\_2, K\_3, K\_5 |
| The most important scientific achievements in medical,pharmaceutical andhealth sciences  | 20 h | 40 h | 2 | 2 | III/IV | lectures, seminars/ credit with a grade | **knowledge:**W\_8, W\_9, W\_10**skills:**U\_1**social competence:**K\_8 |
| Basics of didactics at medical university. Effective teaching methods in medical, pharmaceutical and health sciences | 10 h | 20 h | 1 | 1 | II | seminars, classes/ credit with a grade | **knowledge:**W\_7**skills:**U\_9**social competence:**K\_5 |
| Professional traineeship in medical didactics – effective teaching methods in medical sciences | 60 h |  | 2 | 2 | III-VI | co-teaching or teachingwith PhD students | **knowledge:**W\_4, W\_7**skills:**U\_2, U\_7, U\_8, U\_9**social competence:**K\_5 |
| **Module III: Specialist education (optional courses) for the doctoral programme: medical sciences** |
| **Course** | **Contact Hours** | **Hours of individual work** | **ECTS** | **Year** | **Semester** | **Form of classes/credits** | **Learning outcomes** |
| Methodology part II | 20 h | 40 h | 2 | 2 | III | seminar, classes/ credit with a grade | **knowledge:**W\_1, W\_2**skills:**U\_12**social competence:**K\_1 |
| Biostatics part II | 20 h | 40 h | 2 | 2 | III | seminar, classes/ credit with a grade | **knowledge:**W\_1, W\_9**skills:**U\_1, U\_6, U\_11**social competence:**K\_6, K\_8, K\_9 |
| Modern imaging techniques in medical sciences | 15 h | 15 h | 1 | 2/3 | III-VI | seminars, workshops/ credit with a grade | **knowledge:**W\_1, W\_2, W\_7, W\_9**skills:**U\_1, U\_9**social competence:**K\_1, K\_4, K\_9 |
| Organization and financing of health protection in Poland | 15 h | 15 h | 1 | 3 | VI | seminars, classes/ credit with a grade | **knowledge:**W\_8, W\_10**skills:**U\_1, U\_7, U\_12, U\_13, U\_14**social competence:**K\_2, K\_8 |
| Multidimensional models in data analysis | 15 h | 15 h | 1 | 3 | V-VI | seminars, workshops/ credit with a grade | **knowledge:**W\_1, W\_9**skills:**U\_1, U\_6, U\_11**social competence:**K\_6, K\_8, K\_9 |
| European health systems | 15 h | 15 h | 1 | 3 | VI | seminars, classes/ credit with a grade | **knowledge:**W\_8**skills:**U\_10, U\_12**social competence:**K\_9 |
| Critical literature review | 15 h | 15 h | 1 | 2 | III-IV | seminars, workshops/ credit with a grade | **knowledge:**W\_2**skills:**U\_1, U\_7, U\_14**social competence:**K\_1 |
| PhD students may choose optional courses from other doctoral programmes at the Doctoral School of Medical and Health Sciences or from other JU doctoral schools in the total maximum of 3 ECTS credits. |
| **Module IV: Complementary professional and soft skills education (optional courses) for the doctoral programme: health sciences** |
| **Course** | **Contact Hours** | **Hours of individual work** | **ECTS** | **Year** | **Semester** | **Form of classes/credits** | **Learning outcomes** |
| Media in scientific work.Planning and building academic career | 10 h | 20 h | 1 | 3 | V | seminars, classes/ credit with a grade | **knowledge:**W\_6**skills:**U\_2**social competence:**K\_5 |
| Dissemination of research results at national and international level | 10 h | 20 h | 1 | 3 | V | seminars, classes/ credit with a grade | **knowledge:**W\_6, W\_8, W\_9, W\_10**skills:**U\_1, U\_2, U\_4, U\_7**social competence:**K\_2, K\_5, K\_7, K\_8 |
| Principles of academic entrepreneurship: setting up a business, raising funds for implementation research. Start-ups – legal and financial aspects | 10 h | 20 h | 1 | 3/4 | VI-VII | lecture, seminar/ credit with a grade | **knowledge:**W\_3, W\_4, W\_6**skills:**U\_8, U\_10, U\_13**social competence:**K\_6 |
| New medical technologies and philosophy | 10 h | 20 h | 1 | 3/4 | VI-VII | lecture, seminar/ credit with a grade | **knowledge:**W\_1, W\_3, W\_9**skills:** U\_2, U\_5, U\_7, U\_11**social competence:**K\_3, K\_5, K\_6 |
| Artificial intelligence in medical sciences | 10 h | 20 h | 1 | 3/4 | VI-VII | seminar/ credit with a grade | **knowledge:**W\_1, W\_2**skills:**U\_1, U\_11**social competence:**K\_4 |
| Second language course | 30 h | 30 h | 2 | 2 | III-IV | seminar, discussion session/ credit with a grade | **knowledge:**W\_1**skills:**U\_4**social competence:**K\_1 |
| The basics of interpersonal communication | 15 h | 15 h | 1 | 2/3 | III-VI | seminars, workshops/ credit with a grade | **knowledge:**W\_9**skills:**U\_13**social competence:**K\_8, K\_9 |
| Teaching medical communication | 15 h | 15 h | 1 | 2 | III/IV | seminars, individual work/credit with a grade | **knowledge:**W\_7**skills:**U\_9**social competence:**K\_5 |
| Clinical psychology | 15 h | 15 h | 1 | 2/3 | III-VI | seminars, workshops/ credit with a grade | **knowledge:**W\_9**skills:**U\_13**social competence:**K\_8 |
| Personalized educationin medical didactics (tutoring, monitoring, coaching).Tutoring in PBL. Workshop with PBL | 15 h | 15 h | 1 | 2/3 | III-VI | seminars, workshops/ credit with a grade | **knowledge:**W\_7**skills:**U\_9**social competence:**K\_5 |
| Advanced assessment methods | 10 h | 20 h | 1 | 2/3 | III-VI | seminars, workshops/ credit with a grade | **knowledge:**W\_7**skills:**U\_9**social competence:**K\_5 |
| Marketing authorization of medicinal products, medical devices and cosmetics | 15 h | 15 h | 1 | 2/3 | III-VI | seminars, classes/ credit with a grade | **knowledge:**W\_3, W\_4, W\_6**skills:**U\_2, U\_14**social competence:**K\_8, K\_9 |
| Pharmaceutical aspects of plant and macrofungi biotechnology | 15 h | 15 h | 1 | 2/3 | III-VI | seminars, classes/ credit with a grade | **knowledge:**W\_1, W\_2, W\_7, W\_9**skills:**U\_1, U\_8**social competence:**K\_1 |
| Bioinformatics databasesin pharmaceutical sciences | 15 h | 15 h | 1 | 2/3 | III-VI | seminars, classes/ credit with a grade | **knowledge:**W\_1**skills:**U\_1**social competence:**K\_7 |
| Additional education:Beginner PhD students must complete Occupational Safety & Health training **by the end of the first semester** on the dates specified by the OSH Inspectorate.\* PhD students may choose optional courses from other doctoral programmes at the Doctoral School of Medical and Health Sciences or from other JU doctoral schools in a total maximum of 3 ECTS credits. |