**6-semester Study Programme in English**

**at the Doctoral School of Medical and Health Sciences**

**Basic principles:**

1. Programme of Studies at the Doctoral School of Medical and Health Sciences (DSMHS) was developed in accordance with the Act of July 20, 2018, Law on Higher Education and Science, and current JU guidelines.
2. The education in DSMHS lasts for six semesters and following the Doctoral Programmes (from now on DP) on the basis of the Study Programme (SP) and the Individual Research Plan (IRP).
3. DPs are offered in one or more disciplines in which the Jagiellonian University has the authority to award a doctor's degree.
4. The IRP has to be presented to the DP Head within 12 months from the beginning of education. The DP Head approves the plan after consulting the supervisor, the Programme Committee and the Doctoral Committee if appointed.
5. The study programme in DSMHS leads to learning outcomes for qualifications at level 8 of the Polish Qualifications Framework.
6. The language of the study programme is English.
7. Persons with a degree of MA/MSc., MSc. Engineer or equivalent in any other discipline and persons referred to in Article 186(2) of the Act may apply to DSMHS. The requirement is verified at the registration stage.
8. The number of ECTS credits assigned to the programme is at least 30 ECTS credits, of which: minimum 20 ECTS credits are related to preparing a PhD student to conduct and publish scientific research, including 15 ECTS credits obtained by the end of the III semester.
9. PhD students may choose optional courses at other faculties outside of JU Medical College in a total maximum of 3 ECTS credits.
10. The specific requirements and eligibility criteria for the doctoral programme are specified in the DSMHS Recruitment Procedures, approved by the Senate of the UJ.

**Study programme evaluation**

1. The supervisor oversees the PhD student's SP and IRP.
2. The SP and IRP implementation is periodically assessed by the Doctoral Committee and, if not appointed, by an Evaluation Committee composed of a supervisor/s, a DP Head and a representative of the DSMHS Council, based on the report submitted by a PhD student.
3. The first assessment takes place no later than 12 months after entering education. Subsequent assessments are carried out at least once every 12 months on the dates specified in IRP.
4. The change of IRP, particularly the change of dates related to specific PhD student's duties, requires the DP Head's approval.
5. The DP Head may decide to approve the implementation of courses or classes (with an appropriate number of ECTS credits) not specified in SP.
6. By the end of the fourth semester, the PhD student is subject to a mid-term evaluation before the Committee. The Director appoints the Committee at the DP Head's request, at least three months before the scheduled date for the mid-term evaluation.
7. The DP Head sets the evaluation deadline.
8. At the latest 30 days before the mid-term Evaluation Committee's scheduled meeting, the PhD student submits a report on IRP and SP implementation.
9. The mid-term Evaluation Committee meetings are attended by its members and PhD students, excluding the supervisor and auxiliary supervisor. In the first part of the examination, a PhD student presents his/her accomplishments so far. Then, during a closed session, the committee elaborates on a mid-term evaluation with a substantive justification.

**Competence evaluation:**

In the Doctoral School of Medical and Health Sciences, a PhD student acquires the following competences:

1. competences covering advanced theoretical issues relevant to the scientific DSMHS profile and methodological competences preparing for conducting and publishing scientific research;
2. academic competences (e.g. scientific publications, scientific communication, fundraising for research, research ethics, dissemination of research results, etc.);
3. professional and soft competences (e.g. career planning, preparation for teaching, project management, managerial skills, business communication, etc.);
4. a PhD student who intends to obtain qualifications necessary to conduct didactic work is obliged to undergo internships in the form of conducting classes or participating in their conducting in the amount not exceeding 60 didactic hours for the entire DSMHS education cycle.

**Description of the Study Programme:**

The DSMHS Study Programme consists of four modules:

Module I: Methodological education (compulsory part);

Module II: Education in secondary scientific competences (compulsory part);

Module III: Specialist education in the discipline in which the Individual Research Plan is implemented (optional courses);

Module IV: Complementary professional and soft skills education (optional courses).

The Study Programme is implemented by selecting courses belonging to a particular module.

An obligatory research internship of at least two weeks, conducted at a research centre abroad, is introduced into the Doctoral School's Study Programme. The internship will be financed under the available JU programmes within bilateral agreements or other programmes, including Erasmus plus. The internship will be implemented after the mid-term evaluation. After agreeing with the supervisor, a PhD student applies to a foreign research centre and requests for its funding.

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| **Symbol of learning outcomes**  | **A graduate of the Doctoral School of Medical and Health Sciences:** | **Reference to learning outcomes set out in the Regulation**\*)  |
| **KNOWLEDGE:** |
| W\_1 | knows and understands a scientific research methodology covering theoretical foundations and general issues related to the represented discipline of medical and health sciences taught at the doctoral school. | P8S\_WG |
| W\_2 | knows and understands scientific research methodology covering selected detailed issues relevant to the discipline in which the doctoral dissertation is prepared to the degree that allows for a revision of the existing paradigms. | P8S\_WG |
| W\_3 | knows and understands economic, legal and ethical determinants of research activity and its aspects. | P8S\_WK |
| W\_4 | is familiar with the knowledge transfer and commercialization of research results. | P8S\_WK |
| W\_5 | has basic knowledge of acquiring research projects: sources of funding and current procedures (application for grants, evaluation of applications). | P8S\_WG |
| W\_6 | knows and understands the rules for scientific results dissemination, also in the open-access mode, and the basic principles for the knowledge transfer to the economic and social sphere, including the basic principles for the commercialization of scientific research activity and know-how related to these results. | P8S\_WK |
| W\_7 | knows and understands modern concepts, methods and tools for teaching or training activity. | P8S\_WK |
| W\_8 | knows and understands global achievements, including theoretical foundations, general issues and selected specific issues related to the discipline in which the doctoral dissertation is prepared.  | P8S\_WG |
| W\_9 | knows and understands the main development trends of scientific disciplines crucial for education in medical and health sciences. | P8S\_WG |
| W\_10 | knows and understands selected paradigms in the field of science in which the doctoral programme is carried out. | P8S\_WG |
| **SKILLS:** |
| U\_1 | using his/her knowledge can critically analyze and evaluate the results of scientific research achievements in the discipline represented and his/her contribution to its development; | P8S\_UW |
| can formulate new solutions to problems within established and modified methodological paradigms; |
| can creatively apply and develop methods, techniques and research tools appropriate for the conducted research; |
| is able to make conclusions based on scientific research results.  |
| U\_2 | can disseminate or transfer the results of scientific activities also in popular forms. | P8S\_UK |
| U\_3 | can prepare an application for funding of a research project. | P8S\_UW |
| U\_4 | can speak a modern foreign language to the degree that enables participation in an international scientific and professional environment, in particular in connection with the involvement in conferences, seminars, workshops, etc., at home and abroad; can establish contacts for the exchange of experience and communicate on specialist topics at the B2 level of the Common European Framework of Reference for Languages, with specialists in his/her scientific and professional discipline, as well as with people from outside these environments. | P8S\_UK |
| U\_5 | can plan and implement an individual or team research or creative project, also in an international environment.  | P8S\_UO |
| U\_6 | can document and present research work results and prepare scientific publications, respecting applicable principles and intellectual property protection rules. | P8S\_UW |
| U\_7 | can participate in the scientific discourse and initiate a debate. | P8S\_UK |
| U\_8 | can independently plan and act for his/her own scientific and professional development as well as inspire and organize the development of other people. | P8S\_UU |
| U\_9 | can develop and give classes within his/her ​​scientific and professional activity and use modern methods and tools.  | P8S\_UU |
| U\_10 | can transfer the results of research work into the economic and social sphere; can analyze the potential for sharing research results to the economic and social sphere and initiate actions to implement such transfer. | P8S\_UW |
| U\_11 | can define the purpose and subject-matter of the research, formulate a research hypothesis, develop methods, techniques and research tools and apply them creatively based on the research results. | P8S\_UW |
| U\_12 | using his/her knowledge can critically analyze and evaluate research results, expert activities and other creative works and their contribution to the knowledge development. | P8S\_UW |
| U\_13 | can use knowledge from a given scientific discipline to creatively identify, formulate and innovatively solve complex problems or perform research tasks. | P8S\_UW |
| U\_14 | can critically refer to the current state of research in the discipline in which his/her doctoral project is implemented. | P8S\_UW |
| **SOCIAL COMPETENCES:** |
| K\_1 | is ready for a critical evaluation of his/her scientific achievements and expert activities within the discipline in which the doctoral dissertation is prepared. | P8S\_KK |
| K\_2 | is ready for a critical assessment of his/her contribution to developing the scientific discipline in which the doctoral dissertation is prepared. | P8S\_KK |
| K\_3 | can define the role of methodological paradigms of his/her discipline and the disciplines in solving social problems. | P8S\_KO |
| K\_4 | can identify the need to formulate new research paradigms within the discipline in which is his/her doctoral project is implemented. | P8S\_KR |
| K\_5 | is ready to fulfil social obligations of researchers and creators and initiate public interest activities by properly disseminating information and opinions on scientific achievements to the public, training specialists, and other activities leading to the development of a knowledge-based society. | P8S\_KO |
| K\_6 | is ready to think and act in an enterprising way, creating new ideas and seeking innovative solutions with representatives of other disciplines; is prepared for intellectual challenges in scientific/professional and public sphere and taking responsibility for his/her decisions. | P8S\_KO |
| K\_7 | is ready to maintain and develop the ethos of research and creative environments, including independent researching, taking into account i.a. existing financial and infrastructural constraints; is prepared to respect the principle of public ownership of research results together with the principles of intellectual property protection. | P8S\_KR |
| K\_8 | can recognize the importance of knowledge from other disciplines and domains (other than that the one in which the doctoral programme is implemented) in addressing cognitive and practical problems. | P8S\_KR |
| K\_9 | is ready to take into account in his/her research the solutions proposed by other disciplines of knowledge. | P8S\_KR |
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**SIX SEMESTER STUDY PROGRAMME OF THE DOCTORAL SCHOOL OF MEDICAL AND HEALTH SCIENCES**

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| **STUDY PROGRAMME** |
| **Class module** | **Form of classes/credit**  | **Total amount of hours** | **SEMESTER** | **ECTS** |
| **Module I: Methodological education (compulsory part)** |
| Introduction to the scientific research methodology |  seminars/ credit with a grade  | **30 h** (10 h contact hours/20 h individual work) | I | 1 |
| Ethical and legal aspects of human biomedical research | seminars, classes/ credit with a grade | **50 h** (15 h contact hours/35 h individual work) | I | 2 |
| Writing for publication | seminars, classes/ credit with a grade  | **30 h** (15 contact hours/15 h individual work) | II | 1 |
| Introduction to biostatics with R programming | seminars, classes/ credit with a grade  | **75 h** (25 contact hours/50 h individual work) | II | 3 |
| Principles of operation, scope of research, methodology, equipment and financing university and non-university modern research centres.  | lecture, seminar/ credit with a grade | **30** contact hours | II | 1 |
| Individual workshops with the supervisor | seminar, classes/ credit with a grade | **180 h**(6 x 15 contact hours/6 x 15 h individual work) | I-VI | 6 |
| **Module II: Education in secondary scientific competences****(compulsory part)** |
| How to receive funding for scientific research? Writing, applying for and managing grants | seminar, workshops/ credit with a grade  | **95 h** (35 h contact hours/60 h individual work) | I/II | 3 |
| Protection of intellectual property. Patent and implementation procedures (working with a patent attorney) | seminar, classes/ credit with a grade  | **30 h** (10 h contact hours/20 h individual work) | III | 1 |
|  Presentation of research results. Discussion  | discussion sessions / credit with a grade  | **30 h** (15 h contact hours/15 h individual work) | III | 1 |
| The most important recent scientific achievements in medical and health sciences | lectures, seminars/ credit with a grade | **60 h**  (20 contact hours/40 h individual work) | III/IV | 2 |
| **Module III: Specialist education in the discipline in which the Individual Research Plan is implemented (optional courses);** |
| Scientific research methodology | seminar, classes/ credit with a grade  | **60 h** (20 contact hours/40 h individual work) | III/VI | 2 |
| Use of regression models in biomedical science | seminar, classes/ credit with a grade  | **60 h** (30 contact hours/30 h individual work) | III/VI | 2 |
| Selected methods used in the process of discovering new drugs | seminars, classes/ credit with a grade | **60 h**  (30 contact hours/30 h individual work) | III/VI | 2 |
|  Functional neurosurgery  | seminars, workshops/ credit with a grade | **60 h** (30 h contact hours/30 h individual work) | III/VI | 2 |
| Scientific workshops  | seminar, workshops/ credit with a grade | **60 h**(30 contact hours/30 h individual work) | II | 2 |
| Regenerative medicine: from theory to clinical application | seminars, workshops/ credit with a grade | **60 h**(30 contact hours/30 h individual work) | III/VI | 2 |
| Surgical treatment of metabolic disorders - practical clinical course | seminars, workshops/ credit with a grade | **55 h**(30 contact hours/25 h individual work) | III/VI | 2 |
| Basics of in vitro - in vivo extrapolation for predicting parameters of drugs absorption, distribution, metabolism and excretion | seminars, workshops/ credit with a grade | **30 h**(15 contact hours/15 h individual work) | III/VI | 1 |
| Imaging and biochemical biomarkers in clinical trials | seminars, workshops/ credit with a grade | **55 h**(30 contact hours/25 h individual work) | IV | 2 |
| **Module IV: Complementary professional and soft skills education** **(optional courses)** |
| New medical technologies and philosophy  | lecture, seminar/ credit with a grade | **30 h**(10 contact hours/20 h individual work) | III/VI | 1 |
| Artificial intelligence in medical sciences | lecture, seminar/ credit with a grade | **60 h** (30 contact hours/30 h individual work) | III/VI | 2 |
| Responsible management of research project and scientific data  | lecture, seminar/ credit with a grade | **40 h** (30 contact hours/10 h individual work) | III/VI | 1 |
| Scientific publications - submission for printing, sharing and popularization | seminars, workshops/ credit with a grade | **60 h** (30 h contact hours/30 h individual work) | III/VI | 2 |
| Computational medicine  | seminars, workshops/ credit with a grade | **60 h** (30 h contact hours/30 h individual work) | III/ VI | 2 |
| Digital health technology in chronic diseases: benefits, challenges, practical use  | seminars, workshops/ credit with a grade | **60 h** (30 contact hours/30 h individual work) | III/VI | 2 |
| Writing for publication, advanced level | seminars, workshops/ credit with a grade | **50 h** (25 h contact hours/25 h individual work) | III/VI | 2 |
| Introduction to cognitive neuroscience | seminars, workshops/ credit with a grade | **60 h** (30 contact hours/30 h individual work) | III/VI | 2 |
| Preparation for scientific cooperation in international research projects | seminars, workshops/ credit with a grade | **60 h** (30 contact hours/30 h individual work) | III/VI | 2 |
| Second language course | seminar, discussion session/ credit with a grade  | **60 h** (30 h contact hours/30 h individual work) | III/VI | 2 |
| Basics of didactics at medical university. Effective teaching methods in medical, pharmaceutical and health sciences | seminars, classes/ credit with a grade | **30 h**(10 contact hours/20 h individual work) | II | 1 |
| Professional traineeship in medical didactics – effective teaching methods in medical sciences. Co-teaching or teaching students | co-teaching or teaching students | **60 h** | I-VI | 2 |
| Additional education:Beginner PhD students must complete Occupational Safety & Health training by the end of the first semester on the dates specified by the JU Medical College OSH Inspectorate. |

PQF – Polish Qualifications Framework according to the Regulation of the Minister of Science and Higher Education on the second stage descriptors for qualifications at levels 6-8 of the Polish Qualifications Framework

**Final provisions**

The Study Programme in the discipline: medical and health sciences at the Doctoral School of Medical and Health Sciences shall enter into force on the resolution date.