

KEN

2023-2027

# DOCTORAL SCHOOL

## EDUCATION QUALITY REPORT

Szkoła Doktorska Nauk Ścisłych i Przyrodniczych UŁ  
Uniwersytet Łódzki

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**Name and seat of the doctoral school**

Szkoła Doktorska Nauk Ścisłych i Przyrodniczych UŁ

**Evaluation period**

10/1/19–9/10/25

**Name and seat of the entity that is responsible for running the doctoral school**

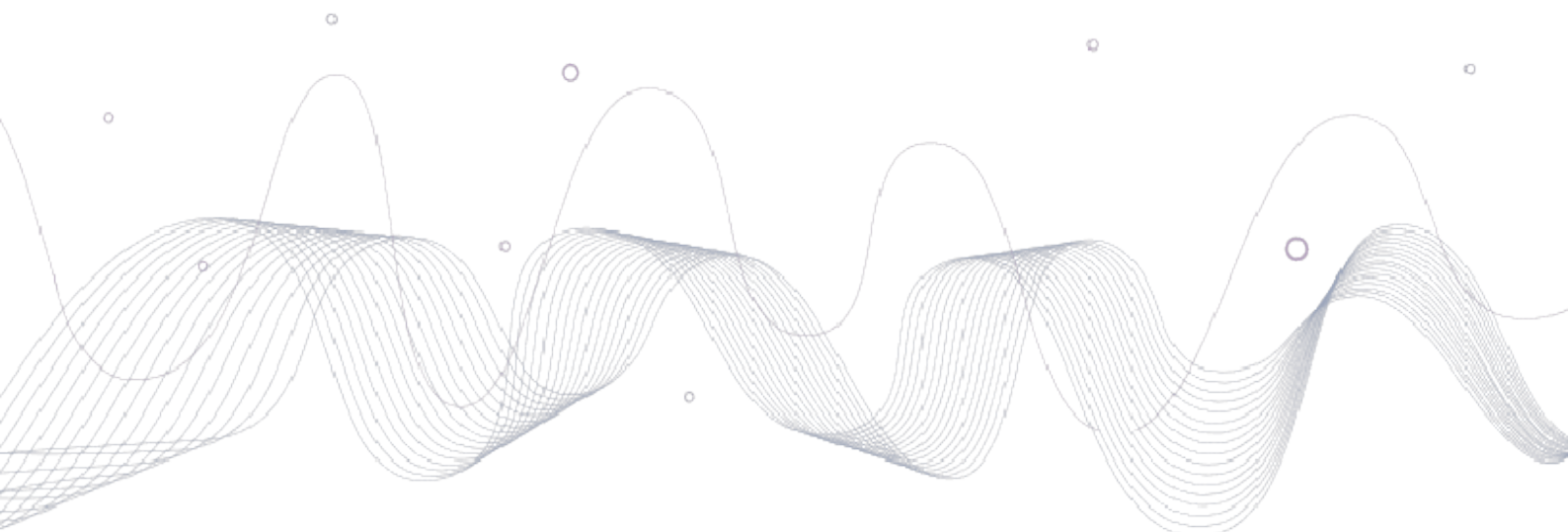
Uniwersytet Łódzki

**Entities that jointly run the doctoral school (when conducted jointly)**

-

**Date of report**

12/3/25



Composition of the evaluation team:

**Chairman:**

Jacek Jeziński

**Secretary:**

Maciej Molas

**Team members:**

Rafał Czajkowski

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# I. GENERAL INFORMATION ON THE DOCTORAL SCHOOL

Name of doctoral school	Szkoła Doktorska Nauk Ścisłych i Przyrodniczych UŁ
Date of establishment	2019
Date of commencement of education at doctoral school	10/1/19
Entity cooperating in the conduct of education (this does not refer to entities co-founding a doctoral school)	-
Domains of study	Natural sciences (from: 01-01-2018)
Discipline(s) of science or art in which training is provided	computer and information sciences (from: 01-01-2018) mathematics (from: 01-01-2018) biological sciences (from: 01-01-2018) chemical sciences (from: 01-01-2018) physical sciences (from: 01-01-2018) earth and related environmental sciences (from: 01-01-2018)
Name/scope of the education programme	Curriculum of the UL Doctoral School of Exact and Natural Sciences Curriculum of the University of Lodz Doctoral School of Exact and Natural Sciences
Number of instructors	160
Number of doctoral students undergoing training at the doctoral school (as of 12/3/25)	128
Number of supervisors in terms of guidance in preparing doctoral dissertations (as of 12/3/25)	93
Number of auxiliary supervisors in terms of guidance in preparing doctoral dissertations (as of 12/3/25)	60

## II. INFORMATION ON THE INSPECTION AND ITS COURSE

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The evaluation of the Doctoral School of Exact and Natural Sciences at the University of Łódź was conducted at the initiative of the Committee for the Evaluation of Science in accordance with the established work schedule. The evaluation report was prepared following a review of the self-assessment report submitted by the Doctoral School, an analysis of data available on the School's and the University's websites, supplementary documentation provided at the request of the Evaluation Team, and the on-site visit. The site visit took place on 29 January 2026 and was attended by all members of the Evaluation Team. The schedule of the visit was agreed upon with the authorities of the Doctoral School well in advance.

The visit was conducted according to the following programme:

9:00–10:00 Meeting with the Director of the Doctoral School and the Rector supervising the Doctoral School

10:00–12:00 Meeting with the team responsible for preparing the self-assessment report, individuals responsible for the functioning and education within the Doctoral School in the respective disciplines, and the Doctoral School Council

12:00–13:00 Analysis of documentation concerning the Doctoral School, including the Doctoral School Regulations, recruitment rules, educational programmes, and legal acts governing its operation; assessment of the quality of education

15:00–16:00 Meeting with teaching staff of the Doctoral School, academic supervisors, and representatives of the Scientific Councils of the disciplines represented in the Doctoral School

16:00–16:40 Meeting with doctoral candidates and the Council of the Doctoral Candidates' Self-Government

16:40–17:00 Internal meeting of the Evaluation Team to summarize findings

17:00 Final meeting with the Director of the Doctoral School and the administrative staff of the Doctoral School; presentation of the subsequent stages of the evaluation procedure

The authorities and administrative staff of the Doctoral School remained at the disposal of the Evaluation Team throughout the entire duration of the visit. The scheduled meetings were held in a conference room setting. The requested documentation was prepared with great care and made available in the same room, which significantly facilitated the work of the committee during the meetings. The administrative staff of the Doctoral School also provided additional documentation and relevant summaries at the committee's request during the meetings. It should be emphasized that the level of organization and the quality of the prepared and delivered documentation were exceptionally high and significantly exceeded generally accepted standards. The meetings were attended by a representative group of supervisors, doctoral candidates enrolled in the Doctoral School, members of the Doctoral School Council and the Scientific Councils of the disciplines, academic supervisors, representatives of the doctoral candidates' self-government, and staff members of the Doctoral School office.

Before concluding the visit, the Evaluation Team assessed the degree of fulfilment of the criteria and formulated preliminary conclusions, which were communicated to the Director of the

Doctoral School during the summary meeting. The authorities of the Doctoral School, the University authorities, and the authorities of the Centre for Doctoral Schools created very favourable working conditions for the Evaluation Team appointed to assess the Doctoral School of Exact and Natural Sciences at the University of Łódź.

### III. COLLABORATION BETWEEN THE ENTITY AND THE DOCTORAL STUDENT SELF-GOVERNMENT

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The cooperation between the Doctoral School and the Doctoral Student Government is institutionalized, systemic, and multidimensional in nature. It is grounded in clearly defined legal frameworks, the University Statute, and internal regulations, and its practical implementation goes beyond the statutory minimum. Doctoral candidates have genuine representation in key collegial bodies, in particular in the Doctoral School Council, which ensures their influence over strategic decisions concerning the curriculum, admission rules, and the evaluation of supervisor nominations. These mechanisms should be assessed as fully implementing the principle of doctoral candidates' agency in the governance of the School.

Particular emphasis should be placed on solutions enhancing the transparency of recruitment and evaluation processes. The participation of representatives of the Doctoral Student Government, acting as observers on admission committees and, at the request of a doctoral candidate, on mid-term evaluation committees, strengthens trust in the impartiality of procedures and constitutes an example of good practice in quality assurance in education.

The cooperation also has a financial and organizational dimension. The Doctoral Student Government manages a separate budget allocated for its statutory activities, as well as funds supporting doctoral candidates' academic activities, including participation in conferences. The principles governing the allocation of funds are developed within a partnership model, through dialogue and consensus, which demonstrates the genuine influence of doctoral candidates on financial policies in areas directly concerning them.

Relations between the School's Directorate, the administrative staff, and representatives of the Doctoral Student Government are characterized by regular contact, openness, and mutual respect. Consultation meetings, ongoing information exchange, and joint problem-solving foster a climate of cooperation and shared responsibility for the School's development. Additionally, the Doctoral Student Government actively contributes to shaping the academic culture, having co-developed, among other initiatives, a code of good practices in supervisor–doctoral candidate cooperation and dispute resolution procedures. Recorded cases of conflict have been resolved using the adopted mechanisms, confirming their effectiveness.

Doctoral students have unrestricted and prompt access to psychological and legal support provided by the University. The documentation outlining guidelines for handling disputes and conflict situations has been prepared carefully and in an impartial manner. However, the Committee recommends improving communication regarding the available mediation mechanisms, in particular by providing more detailed information on the competences of the Ombudsperson for Doctoral Students of the University of Łódź, the Academic Ombudsperson,

and the Disciplinary Officers for Doctoral Students.

The only identified challenge concerns personnel turnover resulting from the fixed-term nature of the Student Government's bodies, which requires continuous implementation and organizational support. However, this phenomenon is natural and does not negatively affect the overall assessment of the cooperation.

In conclusion, the cooperation between the Doctoral School and the Doctoral Student Government operates at a high level of organizational maturity. It is characterized by active collaboration, provides doctoral candidates with genuine instruments of influence over decision-making processes, educational quality, and conditions for academic development, and fosters the development of partnership-based relations founded on transparency and trust. The criterion of cooperation with the Student Government should therefore be considered fulfilled to a high degree.

## **IV. INFORMATION ON THE DOCTORAL SCHOOL TO WHICH THE STATUTORY CRITERIA APPLY**

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- **The adequacy of the education programmes and individual research plans with respect to the learning outcomes for qualifications at level 8 of the PQF and their implementation:**  
The educational programme, in particular the one in force since the 2024/2025 academic year, has been developed in a systematic manner, in compliance with applicable legal regulations and the standards appropriate for qualifications at Level 8 of the Polish Qualifications Framework. Its structure is clear and based on a distinct division between the general study plan and detailed schedules for individual disciplines. A separate programme has been prepared for each field, taking into account its specific methodological, instrumental, legal, and ethical characteristics, while maintaining a common offer of general and competence-oriented courses. This solution fosters both specialization and interdisciplinarity.

The programme has a modular structure and includes both specialist courses and those aimed at developing transferable competences (e.g., research methodology, teaching competences, and project-related skills). The learning outcomes matrix has been developed with precision; learning outcomes are clearly assigned to modules and courses, and the methods of their verification have been explicitly defined. This ensures coherence between the intended learning outcomes and the educational content delivered, and enables effective monitoring of the attainment of qualifications corresponding to Level 8 of the Polish Qualifications Framework.

Particular positive attention should be given to the linkage between the educational programme and the Individual Research Plans (IRPs). The structure of the IRP requires doctoral candidates to directly relate their planned research activities to specific learning outcomes, thereby ensuring the integrity of the research pathway with the objectives of the programme. IRPs include a schedule for the preparation of the doctoral dissertation, research tasks, project activities, publication and dissemination activities, as well as elements of cooperation with the supervisor. The system of seminars, periodic evaluations, and reporting ensures effective monitoring of doctoral candidates' progress.

An important element of the programme is the internationalization of research, treated as a qualitative component. Academic mobility, participation in international conferences, and cooperation with foreign research institutions are actively promoted. This strengthens both the academic development of doctoral candidates and the visibility of research results. Interdisciplinarity is implemented through joint courses, seminars, and organizational solutions fostering cooperation between disciplines.

The School also demonstrates maturity in the area of quality management in education. The educational programme is subject to systematic quality-oriented modifications, as exemplified by the adjustment of the scope of teaching practice to the actual workload of doctoral candidates. Regulatory mechanisms enable the ongoing verification of the completeness, currency, and proper allocation of learning outcomes to disciplines, as well as their compliance with Level 8 of the Polish Qualifications Framework.

In conclusion, the educational programme and the system of Individual Research Plans at the Doctoral School of Exact and Natural Sciences of the University of Łódź are adequate to the intended learning outcomes, internally coherent, and compliant with applicable standards. The adopted solutions ensure the comprehensive development of doctoral candidates' research, teaching, and social competences, effective monitoring of progress, and continuous improvement of educational quality. The criterion of programme adequacy should therefore be considered fulfilled to a high degree.

- **The method of assessing the learning outcomes for qualifications at level 8 of the PQF:** The system for verifying learning outcomes at the Doctoral School is comprehensive, multi-stage, and compliant with the requirements for qualifications at Level 8 of the Polish Qualifications Framework (PQF). It is based on the integration of the general educational programme with the Individual Research Plan (IRP), thereby ensuring both the achievement of general learning outcomes and the implementation of the doctoral candidate's individually designed research pathway. Learning outcomes and the methods of their verification are clearly specified in the Doctoral School Regulations, the educational programme, and the course syllabi available in the USOS system.

The verification of learning outcomes is conducted at several complementary levels. With regard to coursework, a variety of assessment methods are applied, including examinations, projects, presentations, and the completion of teaching practice, each assigned to specific learning outcomes in the syllabi. This ensures transparency and clarity of assessment criteria. The attainment of research competences is monitored through the implementation of the IRP, annual progress reports, the Doctoral Candidate Evaluation Sheet, seminars, and the supervisor's opinion. A key verification milestone is the mid-term evaluation conducted by a committee, which enables a comprehensive assessment of the degree of implementation of the research plan and the candidate's preparedness for the subsequent stage of doctoral work.

The system also encompasses the assessment of teaching and social competences. Teaching skills are verified through classroom observations documented in formal reports, while the development of social and organizational competences is confirmed, inter alia, through research activity, participation in projects, international mobility, and science dissemination initiatives. The final confirmation of the attainment of full qualifications at Level 8 of the PQF occurs upon the awarding of the doctoral degree.

An important feature of the system is its transparency and its quality enhancement mechanisms. Course evaluations, the involvement of the doctoral schools committee, and ongoing supervision of the educational process enable the monitoring of the effectiveness of adopted solutions and the introduction of improvements. The role of the supervisor, as the person providing an opinion on progress and co-responsible for the implementation of the IRP, reinforces the individualized character of the educational process.

In conclusion, the system for verifying learning outcomes at the Doctoral School is coherent, multidimensional, and adequate to Level 8 of the PQF. It encompasses the assessment of knowledge, research and teaching skills, as well as social competences, ensuring reliability, transparency, and effective monitoring of doctoral candidates' progress. The adopted solutions constitute a mature and effective system for confirming doctoral candidates' achievements, consistent with the standards of education at the highest academic level.

- **Qualification of academic teachers and academic staff employed at the doctoral school:** The selection of teaching staff and supervisors is consistent with the Strategy of the University of Łódź and with the principles arising from the implementation of the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers, as confirmed by the HR Excellence in Research award. The system of recruiting and engaging academic staff is transparent and based on clearly defined substantive criteria.

The staff responsible for teaching and doctoral supervision possess academic achievements corresponding to the specific disciplines they represent, as evidenced by their publication record, involvement in research projects, and, in many cases, high bibliometric indicators. This ensures that doctoral candidates receive substantive support at both the national and international levels and creates favourable conditions for the implementation of ambitious Individual Research Plans. Key criteria in staff selection include the currency of scholarly achievements (particularly within the last five years), research or professional experience, and the alignment of competences with the scope of the courses delivered.

The Doctoral School also places strong emphasis on the development of teaching and supervisory competences among its staff. Training is provided on the role of the supervisor, the development of interdisciplinary competences, research process management, risk analysis, research ethics, and supporting doctoral candidates in achieving academic independence. These activities are embedded within a motivational and quality-oriented model of human resource management.

An important component of the system is the multi-level verification of the quality of staff performance. This includes course evaluations conducted through the USOS system, doctoral candidates' assessments of the programme and the functioning of the School, evaluation of courses delivered by external instructors, and observations of teaching practice. Particular significance is attached to the evaluation of supervisory support carried out within the framework of the mid-term evaluation committee, which enables an analysis of the quality of scientific, organizational, and methodological guidance provided to the doctoral candidate. This structured system of oversight allows for ongoing monitoring of staff performance and the implementation of corrective measures where necessary.

In conclusion, the qualifications, as well as the procedures for the selection and monitoring of teaching staff and supervisors at the Doctoral School of Exact and Natural Sciences of the University of Łódź, are fully adequate to the educational programme implemented and to the requirements placed upon doctoral candidates. The adopted organizational and quality-oriented solutions ensure a high level of substantive support and a stable system of quality supervision over the work of academic staff.

- **The quality of the admission process:**

The recruitment process is conducted in an open, transparent manner and in compliance with the provisions of the Act on Higher Education and Science. The admission rules are approved annually by the Senate of the University of Łódź and published in the Public Information Bulletin and on the University's website, in both Polish and English, within the statutory deadlines. The documentation includes a detailed description of the stages of the procedure, the timetable, admission limits, and assessment criteria. Electronic registration of candidates through the IRK system ensures transparency and the archiving of the proceedings.

The recruitment procedure is competitive and two-stage in nature, and is fundamentally based on a substantive assessment of candidates' research potential. The scoring system has been designed with a quality-oriented approach, introducing minimum thresholds (50% of the total points and 50% within key criteria) that must be met regardless of the number of available places, thereby guaranteeing the high standard of admitted doctoral candidates. A significant modification has been the increased weighting of the interview, which allows for the verification of knowledge, methodological competences, and the maturity of the research concept. An important element of the selection process is also the assessment of the doctoral dissertation proposal; the planned introduction of detailed scoring criteria in place of a descriptive evaluation should be regarded as a step towards further objectification of the process.

The participation of doctoral candidates' representatives in recruitment committees, as well as project leaders in the case of grant-funded positions, and the possibility of inviting external experts, should be positively assessed. These measures strengthen the impartiality of evaluations and reduce the risk of bias. Candidates are also given the opportunity to participate in interviews online, which increases the accessibility of the process for applicants from outside the region and from abroad.

The School also ensures the accessibility of the procedure for persons with disabilities by offering, in cooperation with a specialized University unit, individual adjustments to the form of recruitment. The process is subject to systematic analysis, and subsequent editions are modified in response to identified needs (including the digitization of documentation, adjustments to scoring weights, and clarification of criteria).

At the same time, an area requiring further action has been identified, namely the internationalization of recruitment. Despite the availability of information in English and the openness of the competition, the number and national diversity of foreign candidates remain limited. Formal requirements (such as certified translations of documents) and the necessity of early contact with a prospective supervisor may constitute administrative barriers, which calls for further analysis and potential improvements.

Overall, the recruitment process is characterized by a high degree of formalization,

transparency, and quality orientation, and the adopted selection mechanisms support the identification of candidates with the greatest research potential while maintaining standards of equality and ethics.

- **The quality of scientific or artistic guidance, and support in research:**  
The solutions implemented at the Doctoral School with regard to the organization and quality of academic supervision allow for an unequivocally positive assessment of the doctoral support system. The Regulations of the Doctoral School clearly and comprehensively define the principles for the appointment and change of a supervisor, as well as the qualification criteria required of candidates for this role.

The selection of a supervisor takes place at the recruitment stage, with due consideration given to the alignment of research competences with the subject of the planned doctoral dissertation. This process involves the initiative of the doctoral candidate, a recommendation by the recruitment committee, and an opinion issued by the Doctoral School Council, thus ensuring multi-level verification of nominations. The criteria for assessing a supervisor's competences are clearly defined and include, inter alia, scholarly achievements from the last five years, at least five years of professional experience, effectiveness in supervising doctoral candidates, and research performance outcomes. Limits have also been introduced regarding the number of doctoral candidates assigned to one supervisor (as a rule, a maximum of four in the case of a principal supervisor and two in the case of an auxiliary supervisor), which supports the maintenance of a high-quality mentor–mentee relationship.

The system provides for regular and multi-faceted evaluation of supervisors' performance. The assessment is conducted both by the Director and the Doctoral School Council, on the basis of annual doctoral candidate surveys, documentation of the educational process, and interviews with supervisors, and by the evaluation committee during the mid-term evaluation. This procedure includes an analysis of the quality of substantive and methodological support, the supervisor's engagement in the implementation of the Individual Research Plan, and the doctoral candidate's progress. The results of the evaluation are documented and used to enhance the quality of academic supervision. The high level of doctoral candidate satisfaction (85% positive responses in the survey) and the uniformly positive evaluations issued by the evaluation committees confirm the effectiveness of the adopted solutions.

The Doctoral School also provides formalized frameworks for cooperation, including a code of good practices and conflict resolution procedures, which contribute to the stability of the educational process (only four cases of supervisor change were recorded during the analysed period). In addition, supervisors are encouraged to enhance their competences through participation in training sessions on mentoring and supervisor–doctoral candidate cooperation. Support for the implementation of research is also ensured through a system of internal grants enabling the effective execution of Individual Research Plans.

The degree of involvement of distinguished external specialists in supporting doctoral candidates is assessed as sufficient, being implemented, inter alia, through guest lectures, research seminars, and elective courses. At the same time, it is recommended that additional informal forms of interaction with invited experts be developed in order to foster direct scholarly contacts. A further direction for improvement of the system would be to increase the

participation of international specialists in doctoral supervision.

Overall, the adopted solutions demonstrate a reliable, systematic, and consistently implemented approach to ensuring high standards of academic supervision and effective support for doctoral candidates.

- **The reliability of the midterm evaluation:**

The evaluation team concludes that the procedures adopted by the Doctoral School, as well as the practice of conducting the mid-term evaluation, comply with statutory requirements and are characterized by a high level of transparency and attention to academic quality.

The principles governing the mid-term evaluation are clearly defined in the Doctoral School Regulations and further specified in resolutions of the Doctoral School Council, including documents outlining the general evaluation criteria. All necessary information, document templates, and guidelines are publicly available on the School's website, and detailed communications are provided to doctoral candidates well in advance. The timeliness of the evaluations raises no concerns.

The mid-term evaluation is conducted in two stages. It includes an analysis of documentation, in particular the implementation of the Individual Research Plan (IRP) and the opinion of the supervisor or supervisors, followed by a meeting between the committee and the doctoral candidate, combined with a presentation of the report on the implementation of the IRP. A key element of the evaluation is the degree of implementation of the IRP; a positive outcome requires the completion of at least 80% of the tasks planned for the first two years of education. The introduction of a tolerance margin (65–79.9%) in circumstances beyond the doctoral candidate's control demonstrates the system's flexibility while maintaining high quality standards. The doctoral candidate's academic activity (including publications, conference participation, research stays, and grant applications) and its relevance to the achievement of research objectives are also subject to evaluation.

Evaluation committees are appointed individually for each doctoral candidate by the Director of the School from among candidates recommended by the Doctoral School Council and approved by the relevant University of Łódź committee for academic degrees in the discipline corresponding to that of the dissertation. Each committee consists of three members holding at least the degree of habilitated doctor or the title of professor, including, obligatorily, one member from outside the entity running the School. Supervisors may not serve as members of the committee, which ensures impartiality and minimizes the risk of conflicts of interest. An additional element strengthening transparency is the possibility for a representative of the doctoral candidates' self-government to participate as an observer.

The results of the evaluations, together with their justification, are public and published, and doctoral candidates have the right to submit objections in the case of a negative evaluation. During the analysed period, all conducted evaluations resulted in a positive outcome. Although the absence of negative evaluations could suggest limited selectivity, the School indicates that doctoral candidates who fail to meet programme requirements are removed from the list of participants at an earlier stage, which affects the structure of results. At the same time, a low score, even if accompanied by a positive evaluation, is treated as a signal to modify the research plan and intensify support.

Particular attention should be paid to the linkage between the mid-term evaluation and the assessment of the quality of academic supervision. The committee also analyses the support provided by the supervisor in the planning and implementation of the IRP, which constitutes an added value of the quality assurance system. In addition, the School has implemented measures to support doctoral candidates prior to the formal evaluation, such as open seminars enabling them to receive feedback.

It is recommended that consideration be given to further enhancing the quality of committee reports by standardizing their format and, where appropriate, providing training for committee members in the preparation of more comprehensive and substantive justifications.

In light of the solutions presented, it should be concluded that the criterion of reliability in conducting the mid-term evaluation is fulfilled, and that the adopted system ensures transparency, objectivity, and a high substantive standard of the evaluation process.

- **Internationalisation:**

The analysis of the Doctoral School's activities in the area of internationalization leads to the conclusion that the institution has established coherent and adequate formal and organizational frameworks conducive to the internationalization of both the educational process and the research activity of doctoral candidates. The internationalization strategy is implemented with regard to academic staff, the educational programme, doctoral candidates' research activities, and the intended learning outcomes, which translates into a high level of the School's integration into the international academic community.

The educational process is conducted in Polish or English, and complete documentation, including regulations, the educational programme, and recruitment information, is also available in English. Courses delivered in English are taught by foreign academics employed at the University, visiting professors, and staff members with extensive experience in international research collaboration. Internationalization is further supported by visits of foreign professors under programmes such as NAWA STER and by the involvement of experts delivering remote classes. Doctoral candidates may also benefit from courses and initiatives offered within international academic networks, which further broaden their competences and scholarly contacts.

The educational programme requires doctoral candidates to present their research results at least twice in a foreign language during a scientific conference. Elements of internationalization are also incorporated into Individual Research Plans, including, inter alia, research stays abroad, publications in English, and participation in international conferences. The effectiveness of these measures is evidenced, among other indicators, by doctoral dissertations conducted under co-tutelle arrangements, a significant proportion of publications produced in international collaboration (including articles in journals listed in the Journal Citation Reports), and doctoral dissertations prepared in English. Doctoral mobility is substantially supported by programmes financing international travel, including initiatives such as NAWA, Erasmus, and projects implemented within the IDUB framework, which have resulted in numerous research stays and conference visits abroad.

The recruitment system should also be positively assessed, as it enables the admission process to be conducted in English and in a remote format, and promotes candidates with international experience. The University additionally provides administrative, linguistic, and adaptation support for international candidates, facilitating their integration into the academic environment.

At the same time, areas requiring further development should be identified. Despite the existing support mechanisms, the effectiveness of promotional activities aimed at attracting international candidates remains moderate. The number and national diversity of international doctoral students are not yet fully satisfactory. It is therefore recommended to intensify promotional efforts on the international stage and to further increase the involvement of foreign specialists in doctoral supervision. Moreover, the Committee recommends introducing

clear and transparent rules for fulfilling the teaching load by doctoral students who do not speak Polish. In particular, in consultation with the participating faculties, a detailed catalogue of available teaching activities should be developed that both meet statutory requirements and can be carried out by international doctoral students.

In conclusion, the level of internationalization of the educational process and research activity should be assessed as high. The School has established solid institutional and programme-based foundations for functioning within the international academic environment; however, further strengthening of promotional and staffing measures may contribute to a fuller realization of its potential in this area.

- **The effectiveness of the doctoral education:**

The analysis of the effectiveness of education at the Doctoral School allows for a high assessment of the efficiency of the implemented educational model and the level of doctoral candidates' achievements. Data concerning the first two admission cohorts indicate a high rate of programme completion and attainment of the doctoral degree. In the first cohort, 11 out of 13 individuals who completed their education according to the schedule successfully defended their doctoral dissertations (84.6%), while in the second cohort, 5 out of 6 individuals completing the programme were awarded the doctoral degree (83.3%). Cases of removal from the list of participants concerned individuals who failed to submit their doctoral dissertations, which confirms the functioning of rational mechanisms for monitoring progress.

It is worth emphasizing that some doctoral candidates made use of the possibility to extend the deadline for submitting their dissertations, most frequently due to unforeseen or health-related circumstances, which demonstrates the flexibility of the system while maintaining quality requirements. At the same time, the analysis of the course of education indicates that individuals unable to meet programme requirements are verified at earlier stages, usually before the mid-term evaluation.

The substantive level of doctoral candidates' achievements should be assessed as high. Doctoral candidates demonstrate significant publication activity and effectiveness in applying for research grants, which reflects the efficient implementation of Individual Research Plans and the quality of academic supervision.

The School has implemented systematic tools for evaluating the quality of education, including course evaluations conducted through the USOS system, annual surveys on the functioning of the School, and evaluation initiatives undertaken by the doctoral candidates' self-government. The results of these surveys are analysed by the Doctoral School Council, the doctoral candidates' self-government, and relevant committees, and serve as the basis for improvement measures, including those concerning the offer of specialist courses. The highest-rated elements of the educational process include the quality of supervision, the organization of classes, and the availability of research infrastructure. At the same time, the School identifies a challenge in the relatively low level of doctoral candidates' engagement in evaluation surveys.

The professional situation of graduates should also be assessed positively. Among individuals from the first cohort who obtained the doctoral degree, more than 60% have taken up employment in higher education institutions. Data from the ELA system indicate that graduates of the School achieve results above the national average in terms of employment stability, job availability, and remuneration levels.

An area requiring further development is the systematic and long-term monitoring of the professional careers of graduates and individuals awarded the doctoral degree. The

implementation of new regulations enabling the tracking of career paths from 2026 onwards should be regarded as a step in the right direction.

In conclusion, the criterion of educational effectiveness should be considered fulfilled. The Doctoral School ensures a high level of attainment of educational objectives, effective verification of doctoral candidates' progress, and favourable professional prospects for its graduates, while simultaneously identifying areas requiring further improvement.

## V. FINAL OPINION AND RECOMMENDATIONS

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The comprehensive analysis of the documentation, as well as of the organizational and programme-related solutions, provides grounds for a very high assessment of the functioning of the Doctoral School of Exact and Natural Sciences at the University of Łódź. The adopted educational model is characterized by systemic coherence, compliance with applicable legal regulations and the standards for qualifications at Level 8 of the Polish Qualifications Framework, as well as a consistently implemented quality-oriented approach. The existing mechanisms of management, supervision, and evaluation of the educational process demonstrate the organizational maturity of the unit, a high level of procedural transparency, and a stable and effective quality assurance system.

### **Strengths**

The School's principal strengths include:

The genuine involvement of the doctoral candidates' self-government in the management of the School, which reinforces doctoral candidates' agency and a culture of dialogue.

A coherent and modular educational programme, closely linked to Individual Research Plans, ensuring the integrity of the research pathway and effective monitoring of progress.

A multi-stage system for verifying learning outcomes, encompassing the assessment of research, teaching, and social competences, with particular emphasis on the mid-term evaluation.

A high standard of academic supervision, based on clearly defined criteria for the selection of supervisors, limits on the number of doctoral candidates per supervisor, and systematic evaluation of the quality of supervisory support.

A transparent and competitive recruitment process, incorporating quality thresholds and multi-level assessment of candidates' research potential.

Well-developed mechanisms for internationalization, including mobility, publications in the international academic arena, courses delivered in English, and cooperation with foreign institutions.

A high level of educational effectiveness, confirmed by favourable completion rates, substantial publication activity among doctoral candidates, and positive labour market outcomes for graduates.

The overall functioning of the School reflects a firmly established culture of quality, based on regular evaluation, data analysis, and readiness to introduce quality-enhancing modifications.

### **Weaknesses and Areas for Development**

The identified weaknesses are not systemic in nature but rather developmental and improvement-oriented. They primarily include:

A limited level of internationalization of recruitment, in particular the insufficient number and national diversity of international candidates, indicating the need to strengthen promotional activities and further simplify administrative procedures.

The need for further standardization of evaluation documentation, especially with regard to the justification of mid-term evaluations and the documentation of the achievement of certain learning outcomes.

A relatively low level of doctoral candidates' engagement in survey processes, which may limit the comprehensiveness of feedback used for quality enhancement.

The natural rotation of the authorities of the doctoral candidates' self-government, which requires systematic organizational support to maintain continuity of experience and competences.

### **Conclusion**

Taking into account the scale and nature of the identified strengths, as well as the fact that the recognized weaknesses are developmental and do not undermine the stability of the system, it should be concluded that the Doctoral School of Exact and Natural Sciences at the University of Łódź fulfils the analysed criteria at a high or very high level.

The educational model ensures reliability of assessment, effective support for doctoral candidates, high-quality academic supervision, and genuine prospects for academic and non-academic career development. The School operates as an organizationally mature academic unit, possessing solid foundations for further development and for strengthening its position within the national and international scientific community.

## VI. ASSESSMENT AND REASON

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Final assessment  
positive

**Reason:**

After completing the evaluation procedure concerning the quality of education, the Evaluation Team recommends awarding a positive assessment to the Doctoral School of Exact and Natural Sciences at the University of Łódź. The implemented education process enables doctoral students to achieve the intended learning outcomes corresponding to Level 8 of the Polish Qualifications Framework (PRK). The high qualifications of the academic staff, access to research infrastructure, and the internationalisation of the education programme and research activities contribute to the high quality and effectiveness of the education process. In view of the above, the Evaluation Team recommends that the next evaluation be conducted in 6 years, in accordance with Article 259(2) of the Act of 20 July 2018, Law on Higher Education and Science (Journal of Laws of 2024, item 1571, as amended).

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The System of Evaluation of Doctoral Schools is financed by  
the Minister of Science and Higher Education.

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