

SELF-ASSESSMENT

Presentation of the Doctoral School

(09. September 2025)

The present Doctoral School of Biology and Sport Biology (BDS) originated from three independent doctoral programs established in the 1990s: Comparative Neurobiology (headed by József Hámori, launched in September 1993); Botany and Vegetation Science (headed by Attila Borhidi, launched in September 1994); and Microbiology B (headed by Miklós Pesti, launched in September 1997). The first scholarship student was István Hernádi, who is now a professor at our University and the president of the Hungarian Neuroscience Society.

The three programs were merged into a single Doctoral School in 2001, with Ernő Fischer serving as its first head. Upon his retirement, leadership of the BDS was taken over by Róbert Gábrriel in 2005, who continues to direct the School to this day. The Doctoral School operates through thematic research groups; currently, there are six such professional units: Genetics and Molecular Biology, Hydrobiology, Plant Biology, Regulatory Biology, Ecology, and Sport Biology. The credit-based doctoral training system was introduced in 2004. The School was evaluated by the Hungarian Accreditation Committee (MAB) in 2009, 2014, and 2019 — on each occasion, it received an excellent evaluation and was accredited unconditionally.

As of July 10, 2025, a total of 175 students have successfully defended their dissertations within the BDS and its predecessor programs. Many of them have become university lecturers or research scientists working in various cities in Hungary and abroad, while some are teaching in secondary schools. A few outstanding careers will be briefly introduced later in this document.

From its foundation, the BDS has aimed to organize its educational and research activities around the major new interdisciplinary frameworks that have emerged over recent decades. These include, among others, the intersections of ecology and plant biology with water science, agricultural sciences, and molecular biology; the clinical and diagnostic aspects of neurobiology, with particular emphasis on cognitive neuroscience; and the medical, epidemiological, and pathological relevance of microbiology and virology, as well as the effects of sport and physical activity on individual well-being and longevity. All these disciplines share a common goal: to study natural processes and the interactions between

nature and humanity, contributing to the understanding of the natural–social equilibrium. The slogan of the Institute of Biology — *We deal with the world's important problems* — applies equally well to the Doctoral School.

The realization of these goals is supported, on the one hand, by a rich, flexible, and high-quality course offering. Course registration is open to students from other faculties of the University of Pécs (UP), and courses completed at other institutions may also be recognized if they align with the doctoral student's individual study plan. On the other hand, we place strong emphasis on close mentor–student relationships, providing excellent opportunities for workshop-based research. Within these research groups, doctoral students receive personalized academic mentoring; these professional workshops are the primary settings for PhD learning and research support. The depth of these professional relationships is reflected in the fact that “scientific children” and “scientific grandchildren” connections can be traced within the publication lists of current core members and supervisors. Our doctoral candidates benefit from both domestic and international collaborations — they are regularly encouraged to participate in study visits and research exchanges worldwide. We believe there is hardly a better way to prepare for a research career than through this kind of personalized mentorship.

To further broaden this “big picture” approach, the BDS maintains collaborations with several research units within the University of Pécs — including the Faculty of Medicine (ÁOK), Clinical Centre (KK), Pécs Diagnostic Centre (PDK), Faculty of Pharmacy (GyTK), Szentágothai Research Centre (SzKK), Institute of Viticulture and Enology (SzBKI), and the Grastyán Endre Translational Research Centre (GTK). At these partner institutions, our doctoral students can conduct experiments and establish collaborations. Students receive outstanding attention: they are supported through professional consultations, encouraged to participate in national and international conferences and study visits, and guided in the processes of scientific publishing both in Hungary and abroad.

Beyond the university, the BDS also maintains strong external collaborations — most notably with the Balaton Limnological Research Institute (BLKI) and the Centre for Ecological Research (ÖK) in Vácrtót. We regularly host PhD students and invite supervisors from these institutions to join our doctoral programs.

The BDS is committed to increasing student diversity, promoting interdisciplinary research topics, and strengthening industrial partnerships. Aligned with these goals, we have also aimed to attract international students. Since 2015, almost every academic year has seen the admission of students to our English-language PhD program, most of whom have successfully graduated. Ensuring equal opportunities has been another key quality objective consistently prioritized by the BDS leadership. Likewise, since the systemic introduction of the Cooperative Doctoral Programme (KDP), our doctoral school has had successful

scholarship recipients almost every year — this year, two newly admitted students are beginning their PhD studies under this scheme.

In addition to doctoral training, the BDS has also conducted numerous habilitation procedures, and several are currently in progress. We consider it important that not only our former PhD students pursue habilitation with us, but we also welcome applicants from a broad academic background. The impact of these activities will be presented in the following section.

Outstanding Career Paths Originating from Our Doctoral School

Among those who obtained their PhD degree within the framework of the Doctoral School of Biology and Sport Biology (BDS), three alumni currently hold professorial positions at foreign universities: Róbert Pál (Montana Tech University), József Víg (State University of Colorado), and Andrea Zsombok (Tulane University, New Orleans). Without listing further names, our PhD graduates are employed at universities and research institutions in cities such as Geneva, Zurich, New York, Salt Lake City, Alabama, and San Diego.

In Hungary, four graduates have so far obtained the *Doctor of the Hungarian Academy of Sciences (D.Sc.)* title: László Négyesi (Wigner Research Centre for Physics), Béla Völgyi (University of Pécs – UP), Zoltán Botta-Dukát (Centre for Ecological Research – ÖK), and Ferenc Jakab (UP). Among them, Ferenc Jakab – who tragically passed away prematurely – served as Vice-Rector for Innovation of the University of Pécs during the last two years of his life. István Hernádi, the first doctoral student of our school, is also a full professor, currently Head of the GTK and President of the Hungarian Neuroscience Society. Among colleagues who habilitated within our doctoral school, two current core members (Zoltán Csabai and Gábor Kemenesi) are presently undergoing the D.Sc. evaluation procedure.

Although not earning his doctoral degree at UP, Róbert Gábel, the current Head of the BDS, habilitated here in 1999. He served as Dean of the Faculty of Science (TTK) for two consecutive double terms (a total of 12 years), later as Rector of the University of Pécs for one term, and subsequently as Vice-Rector for Science and Innovation for two years. He also served for two years as President of the Pan-European Regional Committee (PERC) of the International Brain Research Organization (IBRO).

Graduates of our doctoral school currently hold leadership, teaching, and research positions at four faculties of the University of Pécs (Faculty of Medicine – ÁOK, Faculty of Health Sciences – ETK, Faculty of Pharmacy – GyTK, and Faculty of Science – TTK) and at five additional university units (Clinical Centre – KK, National Laboratory of Virology – VNL, Szentágotthai Research Centre – SzKK, Institute of Viticulture and Enology – SzBKI,

and Grastyán Endre Translational Research Centre – GTK), totaling more than 80 individuals. Among the 32 graduate employees of the Institute of Biology, 28 hold a scientific degree, 14 of whom obtained it within the BDS. One of them, Safia Zagheb, completed her PhD as an international student in our English-language program and became the first foreign citizen to join the teaching staff of the Faculty of Science (TTK).

Among the 14 institute colleagues with doctoral degrees obtained elsewhere (not from the BDS), all but one (13 in total) completed their habilitation within our doctoral school. Others who habilitated here and now work in external institutions include Zoltán Botta-Dukát and Zsolt Molnár (Centre for Ecological Research – HUN-REN ÖK), Zoltán Bátori (University of Szeged – SzTE), Attila Molnár V. (University of Debrecen – DE, Chair of the Diversity Biology Committee of the Hungarian Academy of Sciences), and Norbert Bauer (Director of the Botanical Department, Hungarian Natural History Museum – MTM).

To a lesser but still noteworthy extent, several of our graduates have built successful careers outside the academic sphere as well — working in pharmaceutical companies, organizations managing clinical trials, microscopy technology enterprises, and public administration.

The younger generation of researchers also includes many promising talents who have already demonstrated their excellence. Several of our current students have won first prizes at the National Scientific Students' Associations Conference (OTDK) and received Pro Scientia Gold Medals. Our students also regularly receive various Excellence Scholarships. Furthermore, during the past six years (since the last accreditation period), four individuals have earned nationally recognized distinctions:

- Gábor Kemenesi received the *Junior Prima Award in Science* (2019) and the *Scientist of the Year in Science Communication* award from the Hungarian Academy of Sciences (2024);
- Gergely Szarka was awarded the *Kuffler Fellowship* (2019);
- Balázs Sebesi received the *Roska Tamás Silver Memorial Medal* for outstanding performance (2025).

It is remarkable that these three colleagues represented three different research groups, illustrating the multidisciplinary strength and diversity of our doctoral school. (According to recent but not yet officially confirmed news, another of our members will receive the Junior Prima Award in 2025.)

To ensure the continuation of this success, several criteria guide the composition of our teaching and supervisory staff. When selecting core members, we strictly adhere to the regulations of the Hungarian Accreditation Committee (MAB), and our operational rules

contain detailed provisions concerning supervisors. The first supervision of young colleagues is always conducted in co-supervision with an experienced mentor. The list of supervisors is reviewed every two years; inactive supervisors or those not meeting publication standards are removed.

Currently, we have nearly 100 active supervisors, and according to the policy of the doctoral school, no one may supervise more than four students simultaneously — a rule that is stricter than the current MAB regulations. This ensures full attention and high-quality guidance throughout both the training and the degree acquisition processes. The same expectations apply to foreign supervisors. Decisions regarding the admission or removal of supervisors are made by the Council of the Doctoral School of Biology and Sport Biology (CBDS) and subsequently submitted to the Doctoral and Habilitation Committee of Sciences (DHCS) for approval, while the admission of new core members is approved by the University Doctoral Council (UDC).

Brief Introduction of the Head of the Doctoral School

As mentioned earlier, the Head of the Doctoral School of Biology and Sport Biology (BDS) **since 2005** has been **Professor Róbert Gábor**, currently 64 years old. His academic studies and qualifications are as follows:

- Diploma: University of Szeged (JATE), 1985
- Dr. Univ.: University of Szeged (JATE), 1989
- Candidate of Sciences (C.Sc.): Hungarian Academy of Sciences (MTA), Budapest, 1995
- Habilitation: Janus Pannonius University, Pécs (JPTE), 1999
- Doctor of the Hungarian Academy of Sciences (D.Sc.): MTA, Budapest, 2001

His current workplace is the Department of Neurobiology, University of Pécs, where he serves as Full Professor, Head of the Doctoral School, and Head of the Institute.

Previous positions and appointments:

- Since 2000: Head of Department and Full Professor; Director of the Institute of Zoology (2000–2004), later of the Department of General and Experimental Zoology and Neurobiology (Head of Department: 2000–2018), currently the Department of Neurobiology.
- 2018–2019: Vice-Rector for General, Scientific, and Innovation Affairs, University of Pécs.

- 2007–2010: Rector, University of Pécs.
- 2001–2007 and 2013–2018: Dean, Faculty of Science (TTK), University of Pécs.
- 1993–1999: Assistant Professor (1993–1995) and Associate Professor (1995–1999), Janus Pannonius University, Department of Zoology / Department of General Zoology and Neurobiology, Pécs.
- 1985–1993: Assistant Lecturer (1985–1990) and Assistant Professor (1990–1993), University of Szeged (József Attila University), Department of Zoology.

Research experience includes light and electron microscopic enzyme and immunohistochemistry, *in situ* hybridization, and intracellular electrophysiology. These methods have been applied to study the autonomic nervous system, circadian rhythm, and the molecular microanatomy, development, and neurochemistry of the retina.

Main scientific achievements:

- 1 book, 9 book chapters or course materials, and over 150 international publications.
- Total impact factor: nearly 400; independent citations: ~2300.
- h-index: 40 (Google Scholar) / 35 (MTMT).
- Supervision record: 8 postdocs, 12 PhD students, 17 diploma works (as primary supervisor), and 22 (as internal consultant).

Major international research visits:

- University of Antwerp, Belgium
- Flinders University of South Australia, Australia
- New York University Medical Center and University of Montana, Missoula, MT, USA

He has delivered more than 20 invited lectures at universities and international conferences.

Expert activities:

Professor Gábor has served within the International Brain Research Organization (IBRO) Central and Eastern European Regional Committee (CEERC) and later the Pan-European Regional Committee (PERC), where he was President between 2017 and 2019. He also contributed to the work of the Committee on Culture of the European Parliament (2010) and the Financial Committee of the Hungarian Rectors' Conference (2009–2010). He was a member of the OTKA evaluation board (2006–2008) and served as Chair of OTKA and later NKFIH panels (2012–2016). He has also reviewed research proposals for the Austrian Science Foundation.

Editorial activities:

Since 2000, he has been active in editorial work—initially as Guest Editor of *Microscopy Research and Technique*, later as Editorial Board Member of *TheScientificWorldJournal – Neurobiology*, *Acta Biologica Hungarica* (now *Biologica Futura*), *Current Neurobiology*, *Life*, and *Frontiers in Neuroscience*. He has also served as reviewer for approximately 30 international journals.

Evaluation and reviewing activities:

He has assessed numerous PhD dissertations, habilitations, job and professorial promotion applications for institutions including Semmelweis University, Eötvös Loránd University (ELTE), University of Pécs, University of Szeged, University of Siena and University of Pisa (Italy), Colorado State University (USA), Yale University (USA), and University of Leiden (Belgium). He has conducted four habitus evaluations and four doctoral reviews for the Doctoral Council of the Hungarian Academy of Sciences (MTA).

Funded research projects as Principal Investigator:

- *Bolyai János Research Fellowship* (2000–2003)
- *OTKA F 16040* (1995–1998)
- *OTKA T 34160* (2001–2004)
- *OTKA K 61766* (2006–2010)
- *OTKA K 100144* (2012–2015)
- *OTKA T 119289* (2016–2020)

Honours and awards:

- Hungarian Electron Microscopy Award (2004)
- Baranya County Prima Award (2009)
- Honorary Doctorate, Izhevsk State Technical University (2010)
- “For the Doctoral Students of Pécs” Memorial Plaque (2020)
- Officer’s Cross of the Hungarian Order of Merit (2023)
- Scientific Award of the City of Pécs (Bishop Vilmos Prize, 2023)

Internal Structure and Operation of the Doctoral School

The operation of the Doctoral School of Biology and Sport Biology (BDS) is based on the coordinated work of its core members, supervisors, and lecturers. The School is

represented in all academic and administrative bodies by its Head. The activities of the BDS research groups are managed by their respective leaders. The academic operation of the School is directed by the Head of the Doctoral School, in cooperation with the Council of the Doctoral School (CBDS). The Council's work is supported by a secretary, who is one of the core members.

The Chair of the Council is the Head of the Doctoral School; voting members are the core members, while the secretary (if not a core member) and the representative of the doctoral students participate with consultative rights. The Council meets at least twice per semester, or more often if required. Meetings may be convened by the Chair or by any voting member.

The Doctoral School conducts its activities in accordance with a formally adopted and publicly accessible quality assurance policy, as approved by the Council. This policy emphasizes academic integrity and freedom, equal opportunity, and non-discrimination. During each accreditation period, the status of all research groups is reviewed, and new groups may be established if justified. The most recent such change occurred in 2014, when the Sport Biology Research Group was created. The group's leader, Professor Márta Wilhelm, a core member of the BDS, provided a guarantee of academic quality for the new group.

As a result of this development, *Sport Biology* was incorporated into the official name of the Doctoral School. Currently, two new professorial appointments are in progress for staff members within this research group. This change also opened an alternative academic pathway for students in sport biology, consistent with the training programme's requirements, which was followed by a corresponding expansion of the comprehensive examination topics. Both the Senate of the University of Pécs (PTE) and subsequent successful doctoral defences have confirmed the value of this reform.

The introduction of sport biology has also attracted Hungarian students from across the borders, particularly from the Faculty of Csíkszereda, Sapientia Hungarian University of Transylvania, thereby increasing diversity within the BDS. In support of this collaboration, a formal agreement was signed between the two universities, highlighting the University of Pécs' role in strengthening Hungarian higher education beyond the borders, with special emphasis on doctoral training.

This growing diversity also presents methodological challenges for lecturers. Traditional lecture-based teaching has been largely replaced by seminars, workshops, and practical sessions, fostering inclusivity and interactive learning. When necessary, these can be held in online or hybrid formats, although in-person teaching remains the preferred mode. The development of teaching methods is the responsibility of the research groups, while a student feedback system now provides structured evaluations, which are reported back to the course

instructors.

To support effective learning and research, the University of Pécs ensures that all doctoral students have access to the essential infrastructural resources, including office space, laboratory access, computers with necessary software, and access to libraries and online databases. The Faculty of Science (TTK) provides working conditions for BDS PhD students comparable to those of assistant lecturers.

Occasional student complaints—which in our case are mostly related to degree procedures, deadlines, or administrative matters rather than courses or facilities—are handled as promptly as possible. Admission requirements and academic progression criteria are clearly defined in the School's regulations, which helps prevent misunderstandings. Every doctoral student has the right to contact the Head or Secretary of the Doctoral School directly, who respond within two working days in matters within their competence. Cases that fall under the Doctoral and Habilitation Committee of Sciences (DHCS) are immediately forwarded to its secretary and discussed at the next Committee meeting, which generally takes place monthly. This system ensures the efficient and transparent resolution of all issues.

The training programme is reviewed regularly—typically once a year—during the first Council meeting of the academic year. As doctoral schools are the primary custodians of academic excellence within the university, alignment with the institution's strategic priorities is essential. Of the four strategic excellence goals defined by the University of Pécs, the BDS directly contributes to three: biotechnology, sustainability, and data science. These priorities are implemented with particular attention to enhancing graduates' employability and incorporating feedback from the student representatives of the Council.

Thanks to the continuous success of our supervisors in securing national and international research grants, the School's scientific programme remains current and internationally connected. Nevertheless, not all students complete their studies. Overall, from 1993 to 2025, the completion rate stands at approximately 60%, while for state-funded students it exceeds 70%. Detailed, up-to-date information on individual students is publicly available on the doktori.hu national doctoral database.

The Position of the Doctoral School within the Institutional Structure

The Doctoral School of Biology and Sport Biology (BDS) is one of the four doctoral schools of the Faculty of Science (TTK) at the University of Pécs (PTE). Based on its main training profiles, tasks, and the employment of the majority of its core members and teaching staff, the BDS is organized within the Institute of Biology. At the same time, as described above, the Doctoral School fully exploits opportunities for both internal and external

collaboration within and beyond the university.

The Doctoral School is integrated into the Doctoral and Habilitation Committee of Sciences (DHCS), to which it delegates a professionally distinguished external member. Previous delegates have included Academician Melinda Kovács (MATE), Dr. Éva Fekete, DSc (University of Szeged), and currently Dr. Zoltán Vidnyánszky, DSc (HUN-REN Research Centre for Natural Sciences). Consequently, this committee regularly addresses and monitors numerous issues concerning organizational operation and student affairs. The committee's secretary, Krisztina Németh (an employee of the Dean's Office), provides high-level professional administrative support.

Direct communication with her takes place on a daily basis regarding the students' status (active–passive), credit fulfilment, eligibility for the comprehensive examination, and the issuing of the pre-degree certificate (*absolutorium*). She also monitors all degree award procedures, having full NEPTUN system access for doctoral students, and immediately informs the Head and Secretary of the Doctoral School in case of any irregularity or emergency.

Courses completed at external institutions, domestic and international study visits, and prior studies are also registered in the NEPTUN system by the Secretary of the DHCS, while the Doctoral School is responsible for credit equivalency assessment in this process. The guiding principle follows the credit regulation framework (1 student working hour per week = 1 credit).

The BDS functions as a strategically important centre within the Institute of Biology for scientific activities, the training of future academic staff, and the support of research leading to the attainment of scientific degrees and qualifications. Therefore, it is essential to evaluate not only student performance but also the performance of the teaching staff.

At the University of Pécs, this has for several years been carried out within a comprehensive electronic Performance Evaluation System, in which activities related to doctoral education hold a prominent role. Although the system is still under refinement, it operates effectively and provides academic staff with feedback on their performance, including their contributions to doctoral training.

Infrastructure of the Doctoral School of Biology and Sport Biology (BDS)

The activities of the Doctoral School of Biology and Sport Biology (BDS) currently take place at three university locations. The first is the Faculty of Science (TTK) building complex, which houses 14 research laboratories and several office rooms. These laboratories are well equipped for molecular biological and microbiological work, neuroscientific

investigations, and analytical techniques.

Additional laboratories (7 in total) and animal facilities are provided by the Faculty of Business and Economics (GTK) and the Szentágothai Research Centre (SzKK). Among these are a building suitable for housing non-human primates and conducting behavioural pharmacology studies, a BSL-4 virology laboratory, and a state-of-the-art microscopy facility.

The Research Institute for Viticulture and Enology (SzBKI) offers opportunities for field and greenhouse experiments. It also hosts a Carpathian Basin grapevine variety collection and an open-field experimental collection of 9,000 clones, both available for research purposes.

The surrounding natural areas of Pécs and its wider region — including the Mecsek Mountains, the protected areas of Baranya and Tolna Counties, as well as the Kis-Balaton and the Alpokalja region — provide excellent opportunities for field excursions and ecological studies. Some ecological projects even extend to cross-border sampling sites (Croatia, Slovenia, the Czech Republic, and Slovakia) and occasionally to intercontinental research collaborations (America, Africa, Asia).

The BDS also maintains regular collaborations with several industrial and institutional partners, including Richter Gedeon Plc., Bóly Co., Soft Flow Hungary Ltd., the Duna–Dráva National Park, and several sports clubs in Pécs.

Nevertheless, additional research funding would be highly beneficial, as grant opportunities have significantly narrowed over the past two years.

Vision – Development Opportunities

The Doctoral School of Biology and Sport Biology (BDS) aims to evolve into an interdisciplinary doctoral school integrating biological and sport sciences, while also assisting the Faculty of Miercurea Ciuc of the Sapientia Hungarian University of Transylvania (EMTE) in establishing a doctoral school in biology-related disciplines.

We have set two main strategic objectives for the coming period, both of which involve substantial internal development but are also expected to yield tangible external outcomes.

1. Transformation into an interdisciplinary doctoral school and laying the foundations for a future Doctoral School in Sport Sciences

At present, two faculty members (Tamás Atlesz and Márk Váczi) are in the process of obtaining full professorships, while Professor Márta Wilhelm already holds this title and is a core member of the BDS. All three have successfully supervised PhD students working on

sport-related research topics.

If the ongoing appointments are completed successfully, the development of a doctoral programme in Sport Sciences will begin in the upcoming academic year, thereby preparing the ground for conferring doctoral degrees in this discipline.

Once at least one of the full professors earns the title of Doctor of the Hungarian Academy of Sciences (DSc), the establishment of a new Doctoral School in Sport Sciences will become feasible. Fortunately, several dissertations have already been completed in the field of sport biology, providing a solid foundation upon which other sport science disciplines can be built.

2. Supporting the establishment of a biology-oriented doctoral school at the EMTE Faculty of Miercurea Ciuc

The renewed 2025 cooperation agreement between the University of Pécs (PTE) and Sapientia Hungarian University of Transylvania (EMTE) places a strong emphasis on doctoral education. Both the Doctoral School of Chemistry and the Doctoral School of Biology and Sport Biology (BDS) of the PTE Faculty of Science (TTK) have hosted, and continue to host, doctoral students from EMTE.

In several cases, EMTE faculty members also act as supervisors within our programmes, and it appears that some of them will obtain habilitation in the 2025/26 academic year. This is a fundamental prerequisite under Romanian higher education regulations for the establishment of a new doctoral school and the subsequent independent operation of doctoral training.

The laboratory infrastructure at EMTE is already of high quality, and the academic staff is well qualified. Naturally, the BDS and the University of Pécs will continue to support these initiatives in the future, helping to strengthen the academic collaboration between the two institutions.