

Quality Assurance Plan

Doctoral School of Mathematics and Computer Science

University of Szeged

(April 11, 2019)

This plan was **approved** by the Doctoral School Council on **April 12, 2019** with 9 yes and 0 no votes.

The present quality assurance plan (hereafter: **Plan**) is largely based on Government Decree 387/2012 (XII. 19.) [on doctoral schools, procedures and habilitation](#) (hereafter: **Decree**), the [2015 CCVI Act](#) amending the 2011 CCIV [Higher Education Act](#) (hereafter: **Nft**), the [Regulation on Doctoral Training and Doctoral Degrees of the University of Szeged](#) (May 2, 2018, hereafter **SZTE-DSZ**), the [Operating Regulations](#) (2013, **TDT-MR**) of the Discipline-specific Doctoral Council (hereafter **TDT**), and the Doctoral School's own [Operating Regulations](#) (September 18, 2017, amended February 23, 2018, hereafter **DI-MSZ**). These are also available under the "Regulations" menu on the Doctoral School's [website](#). In addition, this Plan (which was approved by the Doctoral School Council on April 12, 2019 with 9 yes and 0 no votes) contains many further elements.

This Quality Assurance Plan *applies only to the 2+2 year new-type program*. For the old 3-year training and degree acquisition, the previous quality assurance plan remains unchanged (available at both <http://www.doktori.hu/> and the Doctoral School's own [website](#)). Partly, this is because nearly finished old-type training cannot be changed, and there is no point in drafting a new plan for it. (At the time this document was approved, in the old-type training only two students remained—delayed due to previous postponements—for the last few months of their final semester.) Also, based on the EDT's decision, any old-type doctoral students who have not yet started their degree award procedure this year will be transferred into the new system.

Quality Assurance in Doctoral Training

Quality Assurance in Admission

The success and quality of doctoral training depend on the knowledge and abilities of the admitted students; that is, also on how we inform and rank applicants for state and Stipendium Hungaricum scholarships.

- Admission criteria and scoring are regulated by the Discipline-specific Doctoral Council (available on the [Faculty website](#)), providing sufficient freedom for individual schools. The Doctoral School's more precise rules are available on the School's [own website](#) (citing this document) in the "For Applicants" menu. This organizational freedom refers to the scoring of scientific performance; our algorithm is in [DI-MSZ](#) point 7.1—also available both under "Regulations" and "For Applicants" on the website. The document on admission scoring is cited as an appendix at the end of this Plan. Although scores of Stipendium Hungaricum applicants must be given to Tempus Public Foundation on a "100-point scale", their points are first determined by the "domestic applicants' scale" and then converted.
- The admission point system is brought to students' attention early, at the start of the Master's program. This motivates work in student science circles, which has positive effects on the success of the doctoral program.

- The admission syllabus is always available on the Doctoral School ([DI])'s [website](#).
- The Doctoral School Council ([DIT]) recommends the admission committee and the applicant ranking (taking the committee's advice into account), and the TDT makes the decision.
- DIT reviews annually the likely applicants from our own students. The School is also promoted to supervisors in computational science at SZTE Informatics, and through personal contacts at partner universities (including those across the border), as a larger applicant pool allows selection of better prepared and more able doctoral students.
- On its [own English website](#) the School provides information for potential international applicants (mainly those interested in Stipendium Hungaricum scholarships).
- For foreign Stipendium Hungaricum applicants, we invite the intended future supervisor to participate in the Skype interview. We also require applicants to apply for our pre-announced topics—not to seek support for their own (often unrealistic or inadequate) ideas.

Quality Assurance in Infrastructure

- The Doctoral Students' Representative proposes the assignment of new students to rooms. Each September, the School's head and the student representative jointly welcome admitted students. New students (including those rarely in Szeged) receive keys and server access.
- Infrastructure is provided by the SZTE Bolyai Institute, governed by the Institute Council ([IT]). Since March 7, 2016, the Doctoral Students' Representative has had voting rights at IT meetings. Most DIT members are also present, including the DS head, deputies, and program leaders. Infrastructure issues are discussed by the student representative and the DS head, who contacts the IT or head of the Bolyai Institute as needed. If necessary, the representative can appeal directly to the IT.
- Equipment in doctoral offices (computers, notebooks, printers, scanners, copiers) is reviewed annually by the School, Bolyai Institute, and Student Rep as new students arrive.
- Doctoral students—if they accept shared responsibility (as they always have)—enjoy 24/7 open-stack use of the well-equipped Bolyai library, just like faculty (who also share responsibility).
- Foreign students can always access immediate help regarding infrastructure (and other issues): the School admin and sysadmin both speak intermediate English, and an Institute office staff member has a degree in English.

Quality Assurance in Education and Research

- The student's supervisor is responsible for their studies and research; in special cases (e.g. during the first year), if a permanent supervisor has not yet been appointed, a temporary mentor is assigned from the School faculty. Supervisors and mentors are approved or assigned by the DIT.
- If requested, DIT may approve supervisor changes and help find a new supervisor (within practical limits). This rarely occurs, but does happen (most recently on Sep 1, 2018, for a foreign student).
- Exceptionally, a student may have two supervisors at once; one is named responsible by DIT.
- A supervisor (at least one of the two, if there are two) is an actively publishing, recognized scholar meeting the MAB and www.doktori.hu requirements (ten published papers, with at least five in the last five years).
- To ensure that *future* doctoral students also have qualified supervisors, the DIT annually reviews topic proposers and research topics for both Hungarian and English-language topics. MAB does not require

publications from core emeritus members, so DIT does not either—only success in supervision is assessed.

- Students follow the DIT-established credit system, regularly reviewed; see Appendix 1 to the Operating Regulations, publicly available on the [website](#). This ensures transparency, predictability, and verifiability.
- The credit system clearly guides students towards more successful research.
- [Course offerings and syllabi](#) are available on the website. They are approved by DIT at the start of each reporting period (semester). Syllabi or reading lists are sometimes slightly updated. Successful standard courses rarely change, but new special courses often appear.
- Course selection is done with and approved by the supervisor, aiming to best prepare the student for the comprehensive exam (including the research part). When needed (e.g. for guest-led courses), the supervisor may request DIT to approve a new course (this happens on average 1–2 times per semester).
- The School expects supervisors to meet with students weekly (on a fixed but flexible schedule).
- According to Tempus Foundation, the School requires Stipendium Hungaricum students to reside in Szeged and confirm attendance with a monthly sheet—even if the supervisor is traveling and only available by email.
- All local doctoral students are given the opportunity for regular research seminar participation. Most major topics have established seminars in the Bolyai Institute; students routinely attend and present at these. (Masters students often join.) Seminar attendance is credited. The School, on supervisor suggestion, funds travel for scholarship holders to Budapest research seminars when relevant.
- Since the 2018 measure by the SZTE chancellor, the School has no direct financial budget, but the Bolyai Institute tries to support student attendance at domestic and international conferences. Every student has had the opportunity to attend at least one (usually more) nearby conference with support; most have used this. The Travel Committee prefers (and motivates) those with research results who want to present at conferences. Support may sometimes serve as the “own contribution” required for university or municipal grants.
- Each student must submit a report before semester (reporting period) completion, electronically (rtf or htm) via the supervisor to the School head and signed copy to the Administrator (template in [DI-MSZ](#) Appendix 2). Reports are approved by the relevant program leader (DI-MSZ 2.2).
- Supervisors encourage and help doctoral students (from wording through journal choice to responding to referees) to publish results in the best journals.
- If the DS head learns (from the student rep, a teacher or student, or otherwise) of a quality issue, or a DIT member requests it, DIT discusses the problem.
- One foreign language exam (basic A or B certified or professional) suffices for doctoral students. In Feb 2009, the (now predecessor) Faculty Doctoral Council approved the “basic complex researcher’s exam” offered by SZTE’s Institute of Foreign Language Communication (IKI), which focuses on conference needs; a preparatory course is also offered by IKI.

Quality Assurance in Information Services

- Doctoral students (especially early on) must navigate a variety of rules and guidance. The Doctoral School *public* [website](#) provides all current regulations, credit tables, course lists, syllabi, news, grants, and required assessments. Well-informed students better meet expectations. The site also informs supervisors.

- All students must upload their dissertation (before submission) to the open-access SZTE Doctoral Repository ([repository](#)); due to voluntary service, these are also available on the School [website](#), where theses are easier to find and direct links to English dissertations are made for foreign visitors.
- The School also operates an *internal secret website* accessible to the Council, core members, and Administrator. This stores Council minutes, student reports, and procedure records. It's much easier to find something on a website than in a paper archive or library. Supervisors' students' progress is visible to DIT, and they can compare it themselves to other students' progress—ongoing internal monitoring serves ongoing quality improvement, for training and degree award alike.
- The secret internal website also makes routine institutional data reporting easier.
- One risk of (internal and public) websites is duplicated information in different forms; the danger is out-of-date content. To address this, each document is date-stamped, and only one version is maintained. Previously, the credit table from [DI-MSZ](#) existed as a duplicate and was copied into the quality plan; now this is avoided. Also, in the new approach, the [DI Operating Regulations](#) do not quote (constantly changing) other regulations but refer to the [School's guidelines page](#), drawing attention to the need to comply with higher-level regulations—even if these may change. This also reduces the risk of students consulting obsolete rules.

Quality Assurance in the Degree Award Process

Quality Assurance in the Comprehensive Exam

- The comprehensive exam has two parts. Subjects are always clearly posted on the Doctoral School website and require high-level knowledge.
- A doctoral candidate in didactics must also demonstrate high-level mathematical knowledge—at least one exam subject must be mathematics (see DI-MSZ 5.1 for details).

Quality Assurance in Language Requirements

- Since English is essential in mathematics, [DI-MSZ](#) 5.6 gives stricter rules for language certification than SZTE-DSZ V.17–20 (e.g., English for professional use + intermediate Spanish is not sufficient).
- The “complex researcher’s exam” mentioned in I.3 is an alternative that is not easier than basic “A” or “B” but is more useful for a doctoral student.
- Foreign applicants are only admitted if the Faculty of Science and Informatics has pre-screened and approved their English certificate. This pre-screening is done by a staff member with an English teaching degree, guided by the science and public relations vice-dean.

Quality Assurance for the Doctoral Thesis

- Quality is supported by the publication requirement: two publications in reputable venues before dissertation submission. Since “reputable venue” is measured differently in pure math, applied math, or didactics, [DI-MSZ](#) 5.3 is necessarily lengthy to ensure and explain quality in all three areas.
- It is emphasized, and supervisors convey this view, that there are essential qualitative and quantitative differences between papers; thus two papers are a necessary but not sufficient condition for thesis submission.
- According to [DI-MSZ](#) 5.4, a dissertation may be submitted only after a successful workplace discussion (internal defense).

- After thesis submission, the School head appoints a referee (usually from the Council), who checks publication and language requirements and proposes a review committee.
- The Council discusses a submitted thesis only if it is available online for at least a week, both on the [School website](#) and the official [University Repository](#).

Monitoring

- According to [DI-MSZ](#) 1.13, DIT convenes at least once per semester.
- Since 2014, reviewing the DS as a whole has been on the agenda for one DIT meeting per year. Because DIT members can access all documents on the secret website, they are prepared for this agenda item. The primary material is the semester student reports; ODT Database (www.doktori.hu) annual update experience and tasks are also reviewed.

Appendix (April 9, 2019)

Valid since: 2012

Calculation of Admission Points

Academic achievements

- For graduates within 3 years (max. **25** points)
 - (BSc diploma average -- 3.5) • 20/3
 - (MSc diploma average -- 3.5) • 10
 - (University diploma average -- 3.5) • 50/3
- For graduates over 3 years ago (max. **20** points)
 - (BSc diploma average -- 3.5) • 16/3
 - (MSc diploma average -- 3.5) • 8
 - (University diploma average -- 3.5) • 40/3

Results should be rounded to the nearest integer.

Scientific achievements

- For graduates within 3 years: max. **25** points
- For graduates over 3 years: max. **30** points

Requirements for scores on scientific achievements may be tailored by each doctoral school to its own field.
(For the Doctoral School of Mathematics and Computer Science, this is described in [DI-MSZ](#) 7.1.)

Professional aptitude/interview

An admissions interview before a committee of at least three, on pre-defined topics (max. **30** points).

Language proficiency

Optional points (in addition to the degree requirement) for English, French, German, Italian, Spanish, or Russian (max. **5** points):

- advanced level (C): 5 points
- intermediate level (C): 3 points
- advanced level (A or B): 3 points
- intermediate level (A or B): 2 points

Admission requires at least half of the maximum available points, i.e., 42.5.

The Doctoral School Council may regulate the evaluation system for foreign applicants differently.