

PhD Policies and Guidelines of the HEIBRiDS Data Science School

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The HEIBRiDS Data Science School was established in 2018 as collaboration between six Helmholtz centers and ECDF partner universities. It aspires to attract outstanding international doctoral researchers interested to combine disciplinary knowledge with competencies in data science. Doctoral researchers within the HEIBRiDS PhD Program conduct research under the supervision of two project supervisors, they are mentored by the Thesis Advisory Committee (TAC) and can access the training opportunities within the Helmholtz and ECDF partners according to their scientific and personal needs and interests.

The policies of the HEIBRiDS Data Science School are described in the following pages and shall facilitate and guarantee the productive and efficient progression of the PhD dissertation. As the Helmholtz centers are not degree-awarding institutions, each researcher has to be admitted and enrolled at an ECDF partner university and has to meet - in addition to the present guidelines - the academic requirements of the degree-granting faculty and the standards of Good Scientific Practice. The policies and guidelines herein apply to all HEIBRiDS doctoral candidates.

Entry and Registration of Doctoral Researchers

Researchers may enter the HEIBRiDS Data Science School by applying to the PhD Program. The assessment procedure during interview week consists of several elements such as candidate presentations and panel sessions, one-to-one interviews, and visits to the partner Helmholtz centers. Moreover, candidates have the opportunity to attend a series of talks where recruiting group leaders provide a brief overview of the group's work. The selected doctoral researchers are automatically registered with the HEIBRiDS Data Science School as soon as they start their PhD project. All doctoral researchers are invited to an orientation session, which gives an introduction to the HEIBRiDS Data Science School and the curriculum of the PhD Program.

University affiliation

In Germany, the right to award academic degrees resides exclusively with the university departments or faculties (Fachbereiche or Fakultäten). Doctoral researchers have to be admitted and enrolled at an ECDF partner university to receive their doctoral degree. The ECDF partner universities of HEIBRiDS are: Humboldt-Universität zu Berlin (HUB), Technische Universität Berlin (TU), Freie Universität Berlin (FUB), Charité-Universitätsmedizin Berlin and the Berlin University of the Arts (UdK). The HEIBRiDS Office gives advice on the doctoral procedures of partner universities and supports the paper work for admission process. Doctoral researchers can register with the ECDF partner university that one of their supervisors is affiliated with. In the case that the university supervisor is not the main project supervisor, doctoral researchers have to ensure that the writing, submission and publication of the doctoral thesis are in consultation and agreement with the main project supervisor.

The doctorate procedure is comprised of three parts:

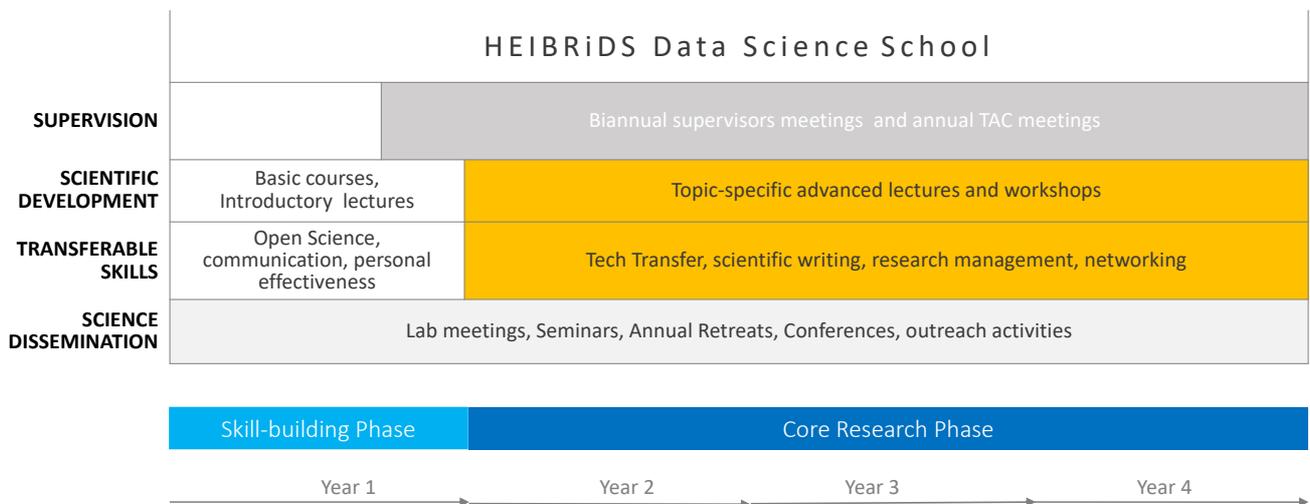
1. Admission of the research project with a university supervisor and enrollment at the university
2. Submission of thesis and doctorate examination. This includes the appointment of the examination panel and the public defense of the thesis, disputation, or viva
3. Publication of thesis and submission to university library

Each university department or faculty has its own Doctorate Regulations (Promotionsordnung). The Doctorate Regulations set out who is eligible to be admitted as a doctoral researcher, how the thesis should be submitted, how the oral examination, the viva voce, is organized, and how the thesis should be published. The doctorate will be completed in accordance with the Doctorate Regulations of the respective universities. All researchers are expected to complete the admission and enrollment process until their first Thesis Advisory Committee (TAC) meeting.

Curriculum

Over the period of research work, doctoral researchers complete the curriculum of the HEIBRiDS PhD Program. A broad spectrum of lectures and seminars allows each doctoral

researcher to customize a curriculum based on research interest and personal needs and shall be decided in dialogue with the supervisors. The elements of the HEIBRiDS PhD Program curriculum are broken down into 4 modules and visualized in the figure below:



1. Supervision

Personal supervision and advice on the research project are guaranteed through bi-annual meetings with all supervisors and by annual meetings with the TAC. The TAC advises on the project proposal in the first year, and reviews the progress and personal development in the following years.

All HEIBRiDS doctoral researchers are required to participate in TACs independent of their status. The TAC consists of at least 3 scientific members: the two project supervisors and at least one independent scientist from the Helmholtz centers or the ECDF partner universities. The organization of committee meetings is in the responsibility of the doctoral researcher.

All three TACs follow the same schedule:

- Presentation & discussion (30min)
- Committee resume in the absence of the PhD researcher (5min)
- Committee members receive feedback from PhD in the absence of the direct supervisors (15min)
- Feedback including advise on training activities (10min)

1st TAC Meeting: Research proposal (within months 6-12)

Doctoral researchers prepare a written project proposal in consultation with their supervisors. The project proposal must be sent to all members of the TAC and to the HEIBRiDS Office at least 1 week before the meeting, alongside with the admission letter from the university.

The TAC evaluates the suitability of topic and methods for a 4-year project, and further overviews training requirements and accomplishments to recommend extension of the project after the first year. Suggestions resulting from the TAC's discussion shall be given to the doctoral researcher during the meeting. Immediately following each meeting, doctoral researchers must submit the minutes report form to the HEIBRiDS Office. The doctoral researcher will summarize the conclusions and recommendations in a minute report, which will be signed by the supervisors and sent to the HEIBRiDS Office within 3 weeks of the meeting.

2nd TAC Meeting: Progress report (within months 24-30)

The project progress is presented to the TAC at the end of the second or beginning of the third year. The written report must include project title, abstract, introduction, results, discussion and outlook and shall not exceed 5 pages, excluding references and training activities. The report should be sent to the members of the TAC and the HEIBRiDS Office at least 1 week before the meeting.

The main responsibilities of the TAC are the review of the project progress over the last year, discussion of the project plan/ milestones/ time schedule and outline of future goals for the following year. Additional training requirements including special research training and soft- skill courses shall be considered and determined in dialogue with the committee. The PhD researcher receives feedback after the Committee's discussion and summarizes the conclusions and recommendations in a minute report, which has to be signed by the supervisors and sent to the HEIBRiDS Office within 3 weeks after the meeting.

3rd TAC Meeting: Final PhD project report (within months 36-42)

At the beginning of the 4th year the doctoral researcher should prepare a timeline for completion of the research project, which is presented with the progress report to the Committee during the third TAC meeting. In addition, the final report shall include a plan for completion of the thesis and preparation of a paper, a thesis content outline and a suggestion for the composition of the Thesis Defense Committee. The report should be sent to the members of the TAC and the HEIBRiDS Office at least 1 week before the meeting.

The Committee should evaluate the readiness for completing the project work and writing the thesis. If the submission cannot be accomplished within the 4th year, the TAC can approve an additional extension of 6 months to 4.5 years. In the event of an extended sick leave, parental leave etc., the contract is entitled to be extended accordingly.

Extension of the employment status beyond 4.5 years requires that the doctoral researcher and the project supervisors develop a completion strategy which is reviewed by the HEIBRiDS Program Committee at least 6 months before the end of the contract. After

evaluation of the proposal, the HEIBRiDS Program Committee recommends conditions for a final contract extension to the host institution.

2. Scientific Development

The scientific training program provides a wide range of lectures and workshops to enhance scientific skills and expertise. In addition to the interdisciplinary training organized by the HEIBRiDS Data Science School, each university and research center offers its own set of research-related courses. Due to the interdisciplinary nature of the HEIBRiDS program, the scientific training shall complement the background of the doctoral candidate, e.g. candidates with strong data science background shall select courses primarily from the particular application domain, whereas candidates with a strong application domain background should select courses on data science. Scientific courses shall be selected after agreement with the supervisors.

3. Transferrable Skills

Personal skills training and career development for early-career researchers is an integral part of the broader range of activities supported by the HEIBRiDS Data Science School. Because acquiring non-scientific skills is an important aspect of a researcher's career path and contributes to their wider professional development, the HEIBRiDS Office has official partnerships with the Dahlem Research School and the Humboldt Graduate School, providing access to all HEIBRiDS PhD students, irrespective of their university affiliation, to follow courses from their extensive list of offered courses. In addition, HEIBRiDS PhD students can attend courses offered by all partner Helmholtz Centers, as well as courses organized by the HEIBRiDS Data Science School.

4. Science Dissemination

Doctoral researchers are strongly encouraged to play an active role in the scientific community, e.g. communicating their research to a scientific audience in lab meetings and research seminars, by inviting guest speakers, organizing meetings and colloquia, etc.

Furthermore, doctoral researchers must present their research project at the annual HEIBRiDS Retreat. The HEIBRiDS Retreat is an important part of the curriculum, fostering scientific cross-disciplinary exchange and interaction. This event is organized with the active support of doctoral researchers, providing valuable lessons in organization and communication skills.

Last but not least, doctoral researchers should present at least twice their scientific work at international conferences.

HEIBRiDS Transcripts and Certificates

Training records, thesis reports and minutes are maintained at the HEIBRiDS Office. Doctoral researchers may review their academic record and information at the HEIBRiDS Office.

An official transcript containing the scientific training program and personal development achievements and the HEIBRiDS certificate is prepared by the HEIBRiDS Office after submission of the thesis to the corresponding university.

Change of Research Group, Withdrawal and Dismissal

If a doctoral researcher wishes to change research group or if a supervisor seeks to dismiss a researcher, the HEIBRiDS Office shall be contacted ensuring that both are aware of pending action.

Change of Supervisor

In the case of change of one or more of the supervisors, Helmholtz Research Group or University affiliation, the doctoral researcher must submit a short, written statement to the HEIBRiDS Office. A change can be approved only before the first meeting of the Thesis Advisory Committee. In case of such a change, the first Thesis Advisory Committee meeting with the new group will be postponed by 6 months. The first meeting must take place within 15 months of beginning of the contract. After successful presentation of the new research proposal, the contract will be continued until 3 years of HEIBRiDS funding are completed. The new supervisor will guarantee continued funding after expiration of HEIBRiDS funding to completion of the research project.

Withdrawal and Dismissal

If a doctoral researcher wishes to abort the doctoral project, a short, written statement must be passed to the HEIBRiDS Office. The project supervisors must also submit a short, written statement.

Policy of Conduct and Academic Standard

Every doctoral researcher is expected to be familiar and comply with the rules of Good Scientific Practice of the respective host institution. All documents presenting data from the Research Group have to be discussed with the project supervisors, including the doctoral thesis.

Organization of the HEIBRiDS Data Science School

Members

All HEIBRiDS doctoral researchers and supervisors are members of the HEIBRiDS Data Science School.

Assembly of doctoral researchers, PhD representatives and Ombudspersons

All doctoral researchers make up the general PhD Assembly and are represented by two elected PhD Representatives. The PhD Representatives give the PhD assembly a formal voice in the operation of the HEIBRiDS Data Science School Program and communicate all relevant subjects to the Program Committee. The PhD Representatives are further involved in planning of researcher events and networking opportunities, and in supporting the integration of international researchers. The PhD representatives are elected by the doctoral body. Every PhD Representative shall be in office for the duration of 12 - 24 months.

The ombudsperson of the respective universities and Helmholtz partners are available to doctoral researchers of HEIBRiDS. Ombudspersons support doctoral candidates upon request and can help them to resolve misunderstandings, express concerns, manage conflicts, and learn more productive ways of communication. In case of disagreement on terms of employment, discrimination, harassment, or problems with colleagues or supervisors, doctoral candidates may contact the PhDs ombudspersons under strict confidentiality.

Steering Committee

The Steering Committee is responsible for all structural, scientific and financial decisions. It is comprised of 16 members representing all partner Helmholtz centers and ECDF universities. The committee meets whenever the governance policy requires its intervention, but at least biannually. Three members of the Steering Committee are members of the Executive Board and represent the HEIBRiDS Data Science School as spokespersons.

Program Committee

The Program Committee acts as an advisory board and supports management. It suggests projects for funding, develops the study program, and prepares admission decisions for the Steering Committee. The Program Committee consists of all active PhD project supervisors and meets four times a year. Permanent guests

of the Program Committee are the two PhD Representatives and the HEIBRiDS Office.

Scientific Advisory Board

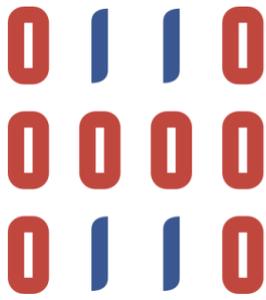
The Scientific Advisory Board consists of five international leading scientists with experience in interdisciplinary graduate education, who offer their advice on the development of the educational curricula (element of quality assurance). Members of the Scientific Advisory Board are invited to participate in events and meetings organized by the HEIBRiDS Data Science School at regular intervals.

Administration and Management

Administration and management of the academic program is in the responsibility of the HEIBRiDS Office, which assumes the following tasks:

- Administrative management of the HEIBRiDS PhD Program
- Guidance to doctoral researchers on all matters concerning the HEIBRiDS PhD Program, including curriculum, training activities, travel grants, Thesis Advisory Committees and support admission to university
- Liaison to local universities and close collaboration with other Graduate and Research Schools
- Developing and implementing training and events for the doctoral community
- Advising on external grants, professional and career development
- Managing the HEIBRiDS PhD Program including international recruitment and marketing
- Registration, recording and monitoring of all activities and providing statistical analysis to faculty and directorate on academic matters
- Ensuring the development, revision and implementation of policies and strategies together with the Program and Steering Committees
- Fostering of national and international cooperation

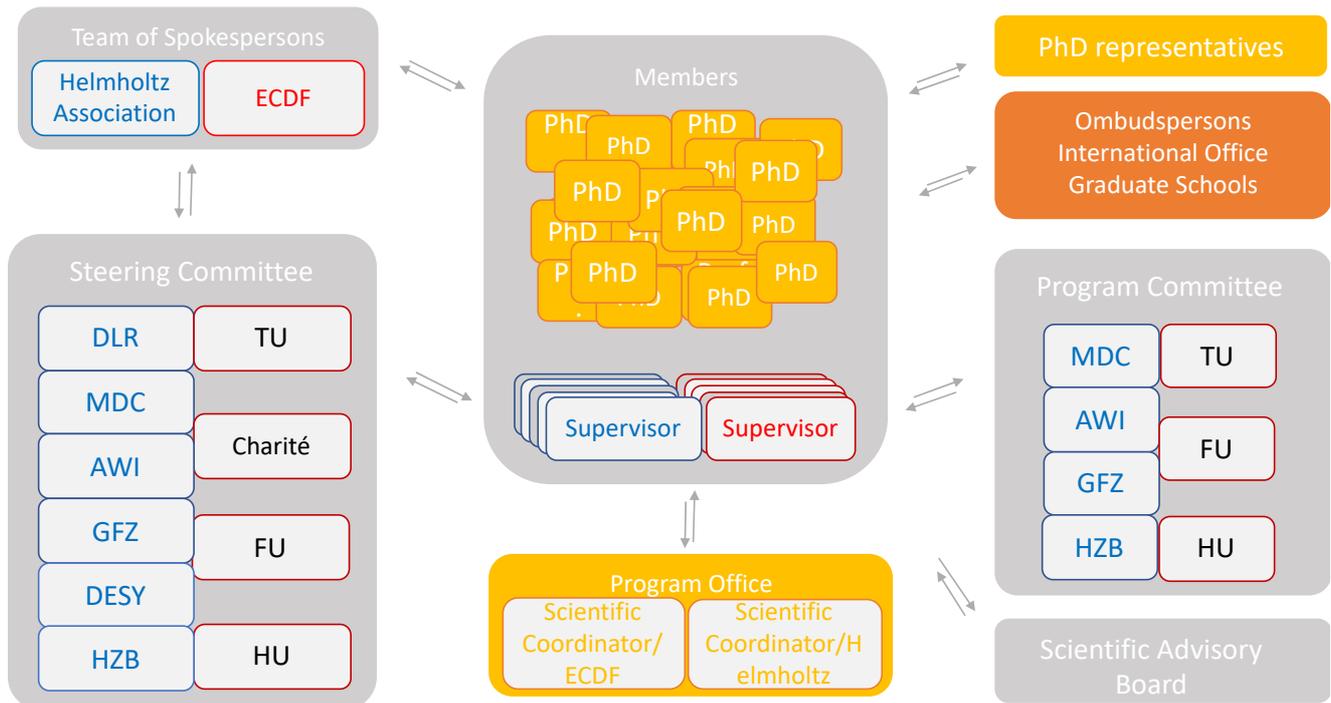
The HEIBRiDS Office works in close collaboration with the coordinators of other Graduate Schools, Research Schools and local partners to guarantee the highest standard of structured education to all doctoral researchers at HEIBRiDS.



HEIBRiDS

HELMHOLTZ EINSTEIN INTERNATIONAL
BERLIN RESEARCH SCHOOL IN DATA SCIENCE

Organisation of HEIBRiDS Data Science School



Associated HEIBRiDS Doctoral Researchers

Doctoral researchers, who are pursuing their dissertation with one of HEIBRiDS' core scientific areas (molecular medicine, geosciences, astronomy, earth & environment, space & planetary research and materials & energy), can apply to associate with HEIBRiDS and participate in the HEIBRiDS PhD Training Program. Essential for acceptance to the Program is that the PhD project has a strong data science element. When this is not already in place, it can be incorporated by affiliating to the project a HEIBRiDS mentor with data science expertise.

Interested candidates complete the registration form and submit an application to the HEIBRiDS Office including the following documents:

- 1) Completed form "Request for Association"
- 2) Letter of Motivation describing why they want to join the HEIBRiDS program
- 3) CV including education details, publications, honours, etc.
- 4) Abstract of the dissertation project (1-2 pages)
- 5) Letter of support from their supervisor

6) Statement of approval from the potential data science mentor

Requests for Association are accepted all year round. Project proposals are evaluated by the HEIBRiDS Program Committee. The Committee decides on the basis of the scientific quality and interdisciplinarity of the proposed project, as well as the competence and motivation of the candidate. We strongly encourage the associated doctoral researchers to actively participate, to the extent possible, in the HEIBRiDS training program.
