

**Self-assessment report for accreditation of the
PhD Programme in Biomedicine**

Department of Experimental and Health Sciences

Universitat Pompeu Fabra

Assessed academic year: 2015-2016

Approval date: February 27, 2018

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0. Identification data

University	Universitat Pompeu Fabra
Name of the doctoral programme	PhD Programme in Biomedicine
RUCT Code	5600010
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Responsible body for approval	Doctoral and Postgraduate Studies Comission
Approval date	27/02/2018

1. Presentation of the programme

The PhD Programme in Biomedicine is the PhD programme of the [Department of Experimental and Health Sciences](#) (*Ciències Experimentals i de la Salut* -CEXS) at the [Universitat Pompeu Fabra](#) (UPF). This programme started in the academic year 1998-99 and on 2011 it was awarded with the “Quality Label towards Excellence” (MEE2011-0323) by the [Spanish National Agency for Quality Assessment and Accreditation](#) (ANECA). In the academic year 2012-13, the ANECA also verified its contents and since then it forms part of the [UPF Doctoral School](#) and follows the latest regulations for doctoral studies in Spain, the so-called Royal Decree (RD) 99/2011, which were introduced to comply with the guidelines and recommendations of the European Higher Education Area ([EHEA](#)) on doctoral studies. Accordingly, this self-assessment report for accreditation summarizes the activity of our programme during the period comprised between the academic years 2012-13 to 2015-16 and includes only data from doctoral students enrolled under the RD 99/2011. Our doctoral programme carries out all of its activities in English and every year attracts a large number of students from abroad. These activities aim at preparing students to become independent researchers pursuing a scientific career.

Applicant’s profile and admission

Given that the applicant student fulfils the eligibility requirements, the recommended applicant’s profile to join the PhD Programme in Biomedicine is as follows.

Academic training

- Undergraduate training in natural and medical sciences, such as biology, physics, medicine or biochemistry, or in quantitative sciences, such as mathematics, statistics or computer science.
- Graduate training in one of the [Master of Science programmes](#) taught at DCEXS-UPF, or in other graduate programmes within the scope of the previously mentioned natural, medical or quantitative sciences.
- Currently, no additional complementary training is required.

Soft skills

- Fluently writing and speaking in English.
- Cooperative attitude when working in collaboration with others.
- Responsibility and integrity in using publicly funded resources.

Aspects positively considered

- Training in tools and methodologies associated with one or more of the research lines of the doctoral programme.
- Research experience prior to joining the doctoral programme.

Additional requirements

- *Research project proposal.* Brief document describing the research questions that the doctoral candidate wants to pursue during the doctoral training. The Academic Committee (AC) will evaluate its contents on the basis of its suitability to the research lines of the doctoral programme.

- *Support letter from a doctor with accredited research.* Letter in which a doctor with accredited research supports the application to join the doctoral programme, expresses the willingness to supervise the doctoral student and specifies the available funding sources that guarantee the viability of the doctoral research project proposal. When this support letter comes from a doctor that has not yet supervised a doctoral thesis at the PhD Programme in Biomedicine, a CV from this doctor must be enclosed with the support letter. In such a case, the AC will evaluate the enclosed CV on the basis of the scientific publications from the last 5 years and the participation and leadership in research projects developed through grants obtained in competitive calls.

Goals and strategy

The goal of the PhD Programme in Biomedicine is to provide graduate students a training framework to develop a research project and complete a doctoral thesis in the fields of health and life sciences that allows them to become scientists. This training framework completes the training in higher education offered by DCEXS-UPF and which includes [BSc degrees](#) in Human Biology, Medicine, Biomedical Engineering and Bioinformatics, and [MSc degrees](#) in Bioinformatics for Health, Pharmaceutical and Biotechnology Industry, Clinical Analysis Laboratory, Biomedical Research, Public Health and Multidisciplinary Research in Experimental Sciences.

The UPF-CEXS centre, in which this doctoral programme is developed, is located at the [Barcelona Biomedical Research Park](#) (*Parc de Recerca Biomèdica de Barcelona -PRBB*) and includes a large number of [research groups](#) organized into the following research programmes:

- Cell and Molecular Biology
- Molecular Medicine
- Evolutionary Biology and Complex Systems
- Biomedical Informatics
- Genetics and Neurosciences
- Systems Bioengineering
- Transversal Programme

Given the presence of other research institutions in the life sciences at the PRBB, such as the Hospital del Mar Medical Research Institute (*Institut Hospital del Mar d'Investigacions Mèdiques – IMIM*), the Centre for Genomic Regulation (*Centre de Regulació Genòmica –CRG*) or the Barcelona Institute for Global Health (*Institut de Salut Global Barcelona –ISGLOBAL*), the location of UPF-CEXS at the PRBB is strategic because doctoral students have the opportunity to listen and interact with a large number of senior researchers with a solid scientific track record and, likewise, these researchers may participate in thesis monitoring committees and examination boards of doctoral students. On the other hand, our PhD programme enrolls doctoral students from those institutions, and even from a few other ones outside the PRBB, raising the current number of doctoral students to nearly 500 and having over 250 thesis supervisors, most of which are affiliated with research institutions outside the UPF. The high number of students and supervisors, and their distribution across different research institutions, increase the complexity in managing and monitoring this doctoral programme, and often constrain its activities and procedures to only those that scale to these dimensions.

2. The process of producing the self-assessment report

Link to evidences:

<https://www.upf.edu/intranet/doctorat-en-biomedicina-2018-/process-of-producing>

To elaborate this self-assessment report an internal evaluation committee (*Comitè d'Avaluació Interna* –CAI) was formed with the following 12 members:

- The UPF-CEXS director, who is also head of the unit of academic coordination (Unitat de Coordinació Acadèmica –UCA) and who acts as chair of the CAI.
- The coordinator of the doctoral programme.
- One thesis director.
- One doctoral student.
- The head of the unit of management and administration (Unitat de Gestió i Administració –UGA).
- The vicedean of quality assurance.
- The coordinator of the doctoral programme at the UGA.
- The quality assurance technician from the UPF Technical Quality Office (Oficina Tècnica de Qualitat –OTQ).
- The director of the PhD School.
- The head of the postgraduate and doctoral studies office.
- The UPF-CEXS quality assurance technician.

In a first meeting, this committee established a subcommittee to elaborate a draft of the self-assessment report. This subcommittee has been closely working and met once a week to assess the progress of the drafting process. It has also interacted with the different departments, units and centres, inside and outside the UPF, to collect the required data.

Once a first draft of the self-assessment report was ready, it was submitted to the CAI for its evaluation. In a specific meeting, the CAI discussed it, incorporated the made suggestions and comments, and approved it, as well as the improvement plan, which includes proposals resulting from a collective reflection on the doctoral programme and the analysed processes. This self-assessment report was then made publicly available to the three UPF communities: students, faculty (*PDI*) and administrative support (*PAS*). After the period of public exposure, the CAI discussed and incorporated the suggestions received. The final version of this self-assessment report has been revised and approved by the subcommittee of postgraduate and doctoral studies, the academic committee of the doctoral programme and the CAI itself.

We consider that the process to elaborate this self-assessment report has been adequate, as well as the employed methodology. We would like to highlight the large degree of implication of the people and institutions involved in this accreditation process and thank all doctoral students, thesis supervisors and research institutions for their collaboration.

3. Assessment of compliance with the accreditation standards

Standard 1: Quality of the training programme

1.1 The programme has mechanisms to ensure that admitted students have a suitable profile and their number is coherent with the characteristics and distribution of the programme research lines and the number of places offered.

Link to evidences:

<https://www.upf.edu/intranet/doctorat-en-biomedicina-2018-/quality-of-the-training-programme>

Every year the PhD Programme in Biomedicine offers 100 places and every year receives a higher number of applications. Table 1 below shows summary figures for offered places, applications and enrolments in the programme. It also includes the rate of students with scholarship.

Table 1. Summary figures for places, applications and enrolments in the doctoral programme.

	Nr. of offered places (O)	Nr. of appl. (A)	Ratio A/O	Nr. of students enrolled first time	Cumulative total enrolled	Part-time enrolments	Part-time enrolments (%)	Students with scholarship	Students with scholarship (%)
2012-13	100	181	1.81	102	102	0	0.00	38	37.25
2013-14	100	170	1.70	119	209	1	0.48	105	50.24
2014-15	100	124	1.24	92	271	1	0.37	119	43.91
2015-16	100	157	1.57	122	376	1	0.27	144	38.30
2016-17	100	142	1.42	114	486	1	0.21	208	42.80

We observe that the ratio A/O of applications (A) to offered (O) places is well above one. The highest ratio A/O occurred the first two academic years, 2012-13 and 2013-14, of the new regulation RD 99/2011, because a number of students transferred their enrolment from older regulations to the newer one. We consider these results very satisfactory as they reflect an increasing interest to join our PhD programme. Moreover, in the latest satisfaction survey, doctoral students show a fair level of satisfaction (3.5 – 3.8 over 5) with the different aspects involved in the information that the UPF provides about the doctoral programme, the clarity of the admission requirements and enrolment procedure, and how the new students are welcomed by the UPF. We expect that the efforts made in the last months to expand the public information of the doctoral programme, as a result of one of the improvement actions from the last monitoring report, will improve the satisfaction of students in forthcoming surveys.

The number and rate of students with scholarship shown in Table 1 between the academic years 2012-13 and 2015-16 were actually lower bounds due to the fact that at that moment we could only estimate this information on the basis of those students whose scholarship is directly paying the tuition to enrol the doctoral programme. However, an important number of students, mostly doing their research in research institutions other than the UPF, have scholarships that do not pay the tuition directly to the UPF and were not being considered as scholarship awardees. We were not satisfied with this situation and we started an improvement action in the academic year 2016-17 to record this information in a more comprehensive way. As a result, the academic year 2016-17 shows that about 43% of our doctoral students have earned a scholarship, which is a higher and more accurate figure than one reported in the academic year 2015-16 (38%).

The assessment report released by AQU on the last monitoring process required making public the applicant's profile and we have included it in both, in the presentation given in Section 1 of this report, as well as in the website of the programme at the URL <https://www.upf.edu/web/phd-biomedicina/applicant-profile-admission>. We will also update this applicant's profile in the

validation proposal of the programme, which we expect to become formally accepted during the academic year 2019-20.

We require applicant students to submit a letter of support by a doctor with accredited research experience, who is willing to act as thesis supervisor and who has access to funding sources that guarantee the viability of the research project. This means that an important part of the selection process of candidate students takes place by the research faculty who decides to give support to a particular prospective doctoral student. As a matter of fact, in a survey we conducted among faculty researchers that have supervised theses between the academic years 2012-13 and 2015-16, thesis supervisors rank the personal interview with the candidate student as first and most important aspect to take into account when deciding to give support to a student, way above other aspects such as undergraduate training or academic marks. Our doctoral programme does not require candidate students to have additional experience or training over what RD 99/2011 regulations specify, but the research faculty who recruits the students may establish their own requirements to join their laboratories.

The number of new students enrolled every year has been above the number of offered places for all academic years, except in 2014-15. This was highlighted by AQU in the assessment of the monitoring report submitted on 2017 jointly with the fact that the cumulative total number of enrolled students in Table 1 remains in an acceptable range, below the cumulative sum of new students enrolled at every academic year, due to the current rate of dropouts. In Standard 6.2, we conduct an analysis of these dropouts that reveals that most of them are due to causes that are not directly related to the programme and propose improvement actions to reduce that rate. At the same time, we propose here an improvement action to revise the current admission criteria to try to keep the number of new enrolled students per year closer to the number of available places.

In a survey we conducted among faculty researchers that have supervised theses between the academic years 2012-13 and 2015-16, thesis supervisors are very satisfied (> 4/5) with most aspects of their doctoral students including their involvement in research work, participation within the research group, participation in dissemination of research (publications, conferences, research stays) and outreach activities, and competences acquired during the doctoral training such as learning new skills and methodologies or ability to conceive and start a research process. They are fairly satisfied with the knowledge of tools and research methodologies that the doctoral students have when they enter the programme (3.3/5) and with their ability to contribute to widen the frontiers of research (3.8/5).

In Table 2 below we show that more than half of our students have followed MSc Programmes at universities different from UPF, and about 40% of our students have a foreign citizenship. These two figures indicate that our doctoral programme is able to attract a substantial number of students outside the UPF and particularly from abroad, and we consider them very satisfactory.

Table 2. Summary figures for the origin of the students enrolled at the doctoral programme.

	Total enrolled	Students from MSc Programmes of other universities	Students from MSc Programmes of other universities (%)	Students with foreign citizenship	Students with foreign citizenship (%)
2012-13	102	57	55.88	43	42.16
2013-14	209	126	60.29	86	41.15
2014-15	271	178	65.68	113	41.70
2015-16	376	203	53.99	156	41.49
2016-17	486	282	58.02	193	39.71

In summary, we are very satisfied with the applicant's profile of the students that join the doctoral programme and at the moment we only consider trying to keep the number of new students closer to the number of offered places with the help of the proposed improvement actions.

The research lines of the PhD Programme in Biomedicine, introduced in the validated programme proposal approved by the Universities Council, are shown in Table 3 jointly with the number of new enrolments per research line and academic year. In the monitoring report we proposed to expand the research lines to better match the current research conducted by our doctoral students and their supervisors. Accordingly, during the last academic year we added a new research line of "Clinical and Translational Research" to the validated programme proposal, which is included in Table 3. However, we feel we can still improve the matching of students and supervisors to research lines and, for this reason, we plan to continue the improvement action of expanding and updating the research lines of the programme, updating the validated programme proposal.

Table 3. Number of new enrolments by research line and academic year. The column 'Dropouts' indicates dropout enrolments without submitting and defending the thesis. The column 'Total' indicates the total number of students without those who dropped out from the programme.

Research line	2012-13	2013-14	2014-15	2015-16	Dropouts	Dropout (%)	Total	Total (%)
Biomedical Informatics	19	11	12	13	5	9.09	50	13.30
Cell and Molecular Biology	35	36	29	45	30	20.69	115	30.59
Clinical and Translational Research	6	12	5	7	0	0.00	30	7.98
Evolutionary Biology and Complex Systems	14	17	23	20	10	13.51	64	17.02
Genetics and Neurosciences	19	24	11	16	7	10.00	63	16.76
Public Health and Education in Health Sciences	9	19	12	21	7	11.48	54	14.36
Total	102	119	92	122	59	18.85	376	100.00

The column 'Dropouts' in Table 3 indicates the number of enrolments at the end of the analysed period that were either cancelled or withdrawn from the programme and will not lead to a defended thesis. This number of dropout enrolments may be slightly larger than the actual number of students who dropped out from the doctoral programme, since a student may have cancelled the enrolment in the first academic year and enrol again the programme in the following year. Following the recommendations made by AQU in the assessment of the monitoring report submitted in 2017, in Standard 6.2 we conduct an analysis of these dropouts.

The final total number of 376 students in Table 3 corresponds to the sum of the new enrolments between the academic years 2012-13 and 2015-16, minus the 59 dropouts. These 376 students, and their thesis supervisors, form the cohort analysed in this self-assessment report. We have assumed that they conducted their doctoral research at the institution of their first thesis supervisor to which has his/her main affiliation. There were a total of 43 different research institutions hosting these 376 students. Figure 1 below shows the distribution of doctoral students across institutions and reveals that more than 60% of the doctoral students conduct their research outside the UPF.

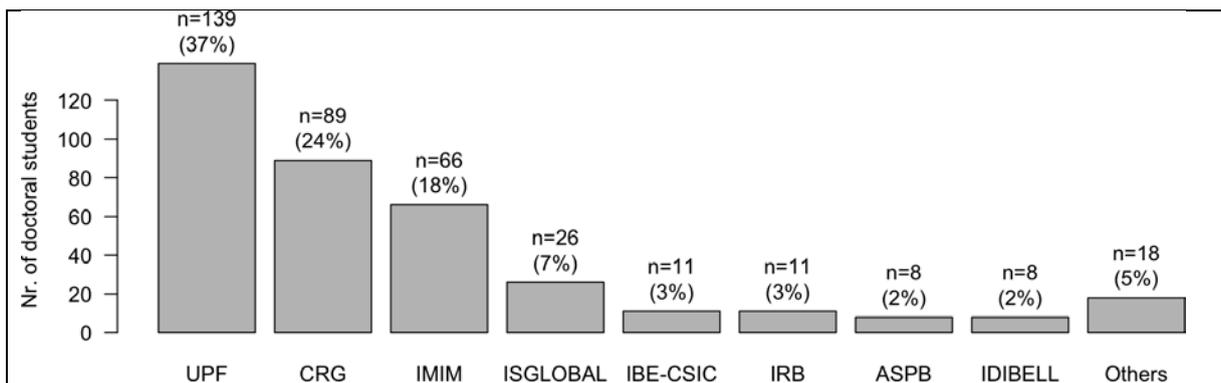


Figure 1. Number of doctoral students enrolled in the doctoral programme between the academic years 2012-13 and 2015-16, by the research institution where they developed their research. Above each bar, the number and percentage of individuals is specified. UPF: Universitat Pompeu Fabra; CRG: Centre de Regulació Genòmica; IMIM: Institut Hospital del Mar d'Investigacions Mèdiques; ISGLOBAL: Institut de Salut Global de Barcelona; IBE-CSIC: Institut de Biologia Evolutiva – Consejo Superior de Investigaciones Científicas; IRB: Institut de Recerca Biomèdica de Barcelona; ASPB: Agència de Salut Pública de Barcelona; IDIBELL: Institut d'Investigació Biomèdica de Bellvitge; Others: other research institutions to which fewer than 5 students belong to.

1.2 The programme has appropriate mechanisms to supervise doctoral students and, if applicable, the training activities.

Link to evidences:

<https://www.upf.edu/intranet/doctorat-en-biomedicina-2018-/quality-of-the-training-programme>

Following RD 99/2011 regulations, the PhD Programme in Biomedicine is managed by an Academic Committee (AC). The specific regulations of the Doctoral School at the UPF establish that this AC is formed by the doctoral programme coordinator, who chairs it, the coordinators of master programmes at the UPF-CEXS, and other doctors up to a maximum of eight, proposed by the director of the UPF-CEXS. The AC defines the training activities of the programme and the mechanisms to supervise doctoral students, which form part of the IQAS process B0610. These mechanisms are the following:

- **Project defence:** This is a training activity in which students must present their research project for the following three years in front of a committee formed by three experts, who will assess the viability of the research plan and give constructive comments to identify possible shortcomings and improve it. After the discussion, the committee also interviews individually the student and the thesis supervisor to assess the degree of satisfaction with the working conditions and freely discuss possible discrepancies in how the doctoral project is perceived separately by the student and the supervisor. The committee submits a structured report to the doctoral programme informing whether its members believe that the project is viable and that there is good communication between student and supervisor. The committee gives also a mark that can be either *pass* or *fail*.
- **Research seminars:** This is a training activity in which the students attend research seminars. The students must write up a summary abstract for ten of those seminars and upload those abstracts to their activities document. These abstracts are evaluated by the AC.
- **Scientific integrity:** This is a training activity that takes form of a conventional subject of a graduate program under the name "Science in Action". Students must analyse and discuss a case study on scientific integrity, which is evaluated by the instructors who communicate the result to the programme.

- **Scientific publishing:** This training activity is the result of an improvement action proposed in the monitoring report. The instructors of the programme evaluate the students and communicate the results to the programme.
- **Research mobility:** This is an optional training activity in which students carry out a research stay in a research group different from their own, either within Spain or abroad. At the end of the research stay the students upload a short report to their activities document that is evaluated by the AC.
- **Research plan:** At the end of every academic year, students must upload a research plan to their activities document, describing the research conducted during that academic year and their plan for the next academic year. This report is evaluated by the AC.
- **Supervisor evaluation:** Once students have submitted their research plan, thesis supervisors must evaluate them positively, or negatively.
- **Programme evaluation:** Once these and other training activities have been finished, the AC of the PhD Programme in Biomedicine evaluates all these items, positively if all of them have been satisfactorily completed, or negatively, otherwise.

Students with a negative evaluation of one or more training activities must attempt to do again the activity at the earliest opportunity and submit the corresponding item to the activities document, which will be evaluated again by the AC within 6 months after the negative evaluation. Following the current regulations of RD 99/2011, two consecutive negative evaluations lead to the permanent withdrawal of the student from the doctoral programme.

Regarding the satisfaction of students and thesis supervisors with these mechanisms, in one hand, the satisfaction survey conducted on thesis supervisors shows that they are largely satisfied (3.9/5) with the supervision and evaluation mechanisms. On the other hand, the satisfaction survey conducted on doctoral students shows that they are also largely satisfied with both, the supervision and monitoring of the research plan by the thesis supervisor (3.9/5) and the supervision and monitoring of their doctoral thesis as a whole (4/5).

We are therefore satisfied with the current mechanisms to supervise doctoral students and training activities. However, in the assessment made by AQU of the validated programme proposal, it was recommended to have a guide of good practices for the supervision of training activities of the doctoral student and the doctoral thesis. We think such a guide could help doctoral students and thesis supervisors to know and use better these mechanisms, and eventually improve their satisfaction with them. Currently, faculty researchers supervising theses at the PRBB adhere to the “Code of Good Scientific Practice” (<http://goodpractice.prbb.org>). This is a general code of scientific integrity and, as an improvement action, we plan to elaborate a guide of good practices for the supervision of training activities of doctoral students and the doctoral thesis, based on this code.

Standard 2: Relevance of the public information

2.1 The institution publishes truthful, complete and up-to-date information on the characteristics of the doctoral programme, its operative development and the achieved results.

Link to evidences:

<https://www.upf.edu/intranet/doctorat-en-biomedicina-2018-/relevance-of-the-public-information>

There are three main institutional bodies in direct contact with the PhD Programme in Biomedicine that provide up to date information on their corresponding websites about their activities:

- The PRBB at <http://www.prbb.org>
- The UPF-CEXS department at <https://www.upf.edu/web/biomed>
- The UPF Doctoral School at <http://www.upf.edu/escola-doctorat>

Moreover, our doctoral programme provides truthful and up to date information through the website <http://www.upf.edu/phd-biomedicine>. More concretely, our website provides the following information accessible through pull-down menus but for which we also include here the corresponding direct links:

Public information	Link
Programme objectives	https://www.upf.edu/web/phd-biomedicine/presentation
Applicant's profile	https://www.upf.edu/web/phd-biomedicine/applicant-profile-admission
Acquired competencies	https://www.upf.edu/web/phd-biomedicine/presentation
Places	https://www.upf.edu/en/web/doctorats/biomedicina
Annual Enrolment	https://www.upf.edu/web/phd-biomedicine/annual-enrolment
Admission	https://www.upf.edu/web/phd-biomedicine/applicant-profile-admission
Tutor and supervisor assignment procedures	https://www.upf.edu/web/phd-biomedicine/tutor-and-supervisor-assignment
Grants	https://www.upf.edu/web/phd-biomedicine/fees-and-grants
Lines of research	https://www.upf.edu/web/phd-biomedicine/presentation
Academic Activities	https://www.upf.edu/web/phd-biomedicine/academic-activities
Project defence	https://www.upf.edu/web/phd-biomedicine/project-defence
Regulations and Government	https://www.upf.edu/web/phd-biomedicine/regulations-and-government
Academic Procedures	https://www.upf.edu/web/phd-biomedicine/academic-procedures#13
Academic Calendar	https://www.upf.edu/web/phd-biomedicine/annual-enrolment
Resources	https://www.upf.edu/web/phd-biomedicine/resources
Quality Assurance	https://www.upf.edu/web/phd-biomedicine/quality-assurance
Faculty	https://www.upf.edu/web/phd-biomedicine/faculty
Mobility	https://www.upf.edu/web/phd-biomedicine/submit-thesis
Submit your Thesis	https://www.upf.edu/web/phd-biomedicine/submit-thesis
Defended Thesis	https://www.upf.edu/web/phd-biomedicine/doctoral-thesis-defended-in-the-last-academic-years
Employability	https://www.upf.edu/web/phd-biomedicine/employability
Quality of the programme	https://www.upf.edu/web/biomed/quality-assurance

Since the last monitoring report, and as part of an improvement action, the public information has been completed. We have incorporated the following types of information:

- Quality of the training programme
- Suitability of the faculty
- Efficacy of the learning support systems
- Quality of the results

A new UPF-CEXS website has been launched (<https://www.upf.edu/web/biomed>) to improve the access to the currently available information and more easily incorporate the aforementioned missing items and indicators. This new website, guarantees the access to information about the characteristics of the doctoral programme, its operative development and the achieved results.

In the last satisfaction survey, doctoral students rate the access to public information with 3.6/5. Students are also satisfied with the previous information about the doctoral programme (3.6/5), clarity of admissions requirements (3.8/5) and clarity of the enrolment process (3.8/5).

2.2 The institution guarantees an easy access to the relevant information about the doctoral programme for all stakeholders, including the monitoring and, if applicable, accreditation outcomes.

Link to evidences:

<https://www.upf.edu/intranet/doctorat-en-biomedicina-2018-/relevance-of-the-public-information>

The new UPF-CEXS website (<https://www.upf.edu/web/biomed>) includes a specific section about quality assurance (<https://www.upf.edu/en/web/biomed/quality-assurance>), where it publishes the main indicators on the different undergraduate and graduate programmes organised by UPF-CEXS, including this doctoral programme. This specific section follows the AQU recommendations about public information, and includes the results of its internal and external evaluation (verification, modification, monitoring, accreditation and quality stamps or mentions). The contents and accessibility of this section are considered very satisfactory, since they make available to all stakeholders the necessary information to know the development of the different training programmes in higher education and their main results.

In the website of the PhD Programme in Biomedicine we provide a direct link to this quality assurance section, at <https://www.upf.edu/web/phd-biomedicine/quality-assurance>, so that any person interested in the quality of the doctoral programme can quickly find the necessary information from a single URL. Regarding the particular results of monitoring and accreditation, it is possible to consult the last monitoring report of the doctoral programme, and the information on the accreditation of this programme will be made available as soon as possible.

This section also provides access to recognitions and to the two annual reports that this doctoral programme elaborated, before the official AQU monitoring reports were required, for the academic years 2013-14 and 2014-15 with the main figures and results of this doctoral programme for those academic years. These annual reports are now discontinued and replaced by the more comprehensive monitoring reports that follow the AQU recommendations.

In the last satisfaction survey on doctoral students, they are fairly satisfied with the access to public information (3.6/5). Many of the enhancements to the public availability of this information were recently made and probably most of the students have not yet been able to use them. We thus expect that in future surveys the satisfaction with the public information may improve.

2.3 The institution publishes the Internal Quality Assurance System (IQAS) which forms the framework of the doctoral programme.

Link to evidences:

<https://www.upf.edu/intranet/doctorat-en-biomedicina-2018-/relevance-of-the-public-information>

The new UPF-CEXS website (<https://www.upf.edu/web/biomed>) includes a specific section about quality assurance (<https://www.upf.edu/en/web/biomed/quality-assurance>) where the institution publishes the IQAS which forms the framework of the doctoral programme, the improvement plan from the most recent review of the IQAS, the Quality Committee members and functions, and the list of IQAS associated processes. We find the public information related to the IQAS very satisfactory.

Standard 3: Efficacy of the internal quality assurance system

3. Introduction

The UPF-CEXS guarantees the quality of its training programmes in higher education (bachelor, master and doctorate) and their continuous improvement through an internal quality assurance system (IQAS), which forms an integral part of these training programmes. The UPF-CEXS IQAS was developed from the corresponding system at the UPF level, which was certified by the AQU in 2011, and externally evaluated for the first time in an accreditation process in 2015, and later in another one in 2016.

The UPF-CEXS IQAS is managed by a committee with the following members:

- The UPF-CEXS director, who is also head of the unit of academic coordination (Unitat de Coordinació Acadèmica –UCA) and who acts as chair of the CAI.
- The dean
- The coordinator of the doctoral programme.
- The coordinators of the master’s degrees.
- The coordinators of the bachelor’s degrees.
- The head of the unit of management and administration (Unitat de Gestió i Administració –UGA).
- The vicedean of quality assurance.
- Two members of the teaching staff.
- 3 students (at least 1 of Bachelor, Master and Doctoral degree)
- The UPF-CEXS quality assurance technician.

3.1 The implemented IQAS facilitates the processes of design and approval, monitoring and accreditation of the doctoral programme.

Link to evidences: <https://www.upf.edu/intranet/doctorat-en-biomedicina-2018-/efficacy-iqas>

The UPF-CEXS has the process B0427 of the IQAS to design and pass a proposal for a new doctoral programme. Once such a proposal is endorsed by the Department Council, it has to be approved by the Postgraduate and Doctoral Committee and the Steering Council of the UPF before it is sent to the evaluating agency. This process suits perfectly its goals because it takes into account the participation of the main stakeholders, national regulations and international points of reference, which guarantees the quality and relevance of new proposals. An evidence of this suitability is the Mention of Excellence obtained by this doctoral programme on 2011 (MEE2011-0323) under the regulations of the previous RD.

To perform the monitoring of the development of the programme, the UPF-CEXS has the process B0436 that facilitates a set of quality indicators to the people in charge of analysis. These indicators are facilitated by the UPF Unit of Projects, Studies and Quality (*Unitat de Projectes, Estudis i Qualitat –UPEQ*) through a data repository, which in the case of doctoral programmes we have detected deficiencies that will have to be improved (see Section 3.2). We used this process to obtain and publish the results of these analyses in the first monitoring report of the doctoral programme that was approved by the AC on 2017. We consider that the monitoring (B0436) and accreditation procedures (B0437) are a useful tool to identify strengths and weaknesses, and design, implement and evaluate improvement actions within the doctoral programme, as well as within the UPF-CEXS. The evolution of indicators shows indeed that the process contributes to the attainment of the expected goals.

Moreover, we have updated the B0437 process in the IQAS to facilitate the application of renewal of accreditation of doctoral programmes. The usefulness of this process will be assessed during this accreditation process but we know that in the case of undergraduate and master programmes there is, since 2014, an accreditation process completely implemented that has been shown to be effective, as demonstrated by the results of previous accreditations.

3.2 The implemented IQAS ensures the collection of information and outcomes relevant to the efficient management of the doctoral programme.

Link to evidences: <https://www.upf.edu/intranet/doctorat-en-biomedicina-2018-/efficacy-iqas>

The main support to the management of training programmes lies in the availability of complete, up to date and accessible information for their systematic analysis and decision making. With this goal, the UPF-CEXS has different instruments and mechanisms, including a data repository as a main tool, to collect information on the academic results and on the satisfaction of stakeholders. Throughout the years, these instruments have been strengthened and expanded. For instance, as we explain in the next section, 4 new processes related to doctoral programmes have been implemented.

As a result of the improvement plan of the IQAS itself, we incorporated a new satisfaction survey for the faculty and the persons in charge of academic responsibilities, as well as the satisfaction survey for doctoral students (B0989 Managing the thesis supervisor and doctoral students satisfaction survey). The deployment of all these instruments is considered sufficient and satisfactory to identify aspects to improve in the doctoral programme.

As it was stated in the monitoring report, the UPF-CEXS has been working to improve how information is collected, as demonstrated by some of the proposed actions included in the last improvement plan. That is why a satisfaction survey for thesis supervisors and students has been carried out during the first term of this academic course. On the other hand, given that we had detected some incoherence among the indicators provided by the data repository and the available data at UPF-CEXS, we are still working to improve the coordination and communication between UPEQ, who is managing the data, and UPF-CEXS.

3.3 The implemented IQAS is periodically reviewed to analyse its suitability and, if applicable, an enhancement plan is proposed to optimize it.

Link to evidences: <https://www.upf.edu/intranet/doctorat-en-biomedicina-2018-/efficacy-iqas>

The UPF-CEXS has the IQAS process B0890 to review and update the IQAS itself with the goal of ensuring its validity, usefulness and continuous improvement. Since its deployment, the reviews of the IQAS have led to improvement proposals that the UPF-CEXS has been implementing throughout these years, or it is about to implement.

The last update of the IQAS took place in February 2018. As stated in the enhancement plan, in the last review of our quality assurance system, we have included 4 specific processes about the doctoral programme:

B0610 Assign tutor-director, supervise and evaluate Biomedicine doctoral students
B0611 Managing the thesis defence of Biomedicine doctoral students
B0031 Managing time extension to submit the doctoral thesis of Biomedicine doctoral students
B0988 Managing the mobility program of Biomedicine doctoral programme

Furthermore, we have updated the one related to the accreditation of these programmes (B0437).

The usefulness of the process to revise the IQAS and the efficacy of the implemented actions of improvement are considered very satisfactory. Jointly with the internal evaluation, it is also important to highlight the usefulness of external evaluations of the UPF-CEXS to revise and improve the IQAS.

Standard 4: Suitability of the teaching staff

4.1 The teaching staff has an accredited research activity.

Link to evidences:

<https://www.upf.edu/intranet/doctorat-en-biomedicina-2018-/suitability-teaching-staff>

In the period comprised between the academic years 2012-13 and 2015-16 a total of 255 researchers from 43 different institutions formed the faculty of the PhD Programme in Biomedicine supervising one or more PhD theses. The assignment of these thesis supervisors followed the IQAS process B0610. In Figure 2 below, we can see this number broken by the institution to which faculty researchers have their main affiliation, where the largest number of them is affiliated to the UPF.

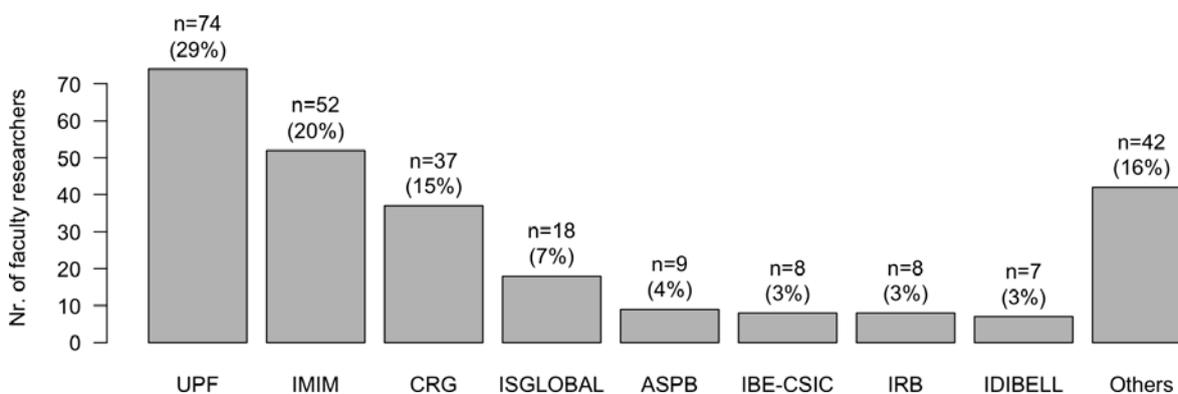


Figure 2. Number of faculty researchers who supervised doctoral thesis between the academic years 2012-13 and 2015-16, by affiliated institution. Above each bar, the number and percentage of individuals is specified. UPF: Universitat Pompeu Fabra; IMIM: Institut Hospital del Mar d'Investigacions Mèdiques; CRG: Centre de Regulació Genòmica; ISGLOBAL: Institut de Salut Global de Barcelona; ASPB: Agència de Salut Pública de Barcelona; IBE-CSIC: Institut de Biologia Evolutiva – Consejo Superior de Investigaciones Científicas; IRB: Institut de Recerca Biomèdica de Barcelona; IDIBELL: Institut d'Investigació Biomèdica de Bellvitge; Others: other research institutions to which fewer than 5 thesis supervisors belong to.

Some of the faculty researchers may have a double appointment with the UPF and another research institution. Those investigators typically develop most of their research in the other institution and have a part-time or adjunct professorship appointment with the UPF. In Figure 2 we have counted as UPF only those researchers whose appointment is exclusively at the UPF and double appointments have been assigned to the non-UPF research institution. The resulting distribution shows that more than 2/3 of our faculty researchers supervising doctoral theses have their main appointment outside the UPF, at research centres and hospitals, and therefore, a UPF-CEXS faculty member also acts as tutor of the corresponding supervised thesis. This reflects the extent to which nowadays research in the health and life sciences is conducted outside the university, and how the PhD Programme in Biomedicine at the UPF is able adapt to that situation and to the complexity that it conveys in managing the interaction with such a large number of faculty researchers outside the UPF.

In Table 4 below we show summary figures on the participation and leadership of faculty researchers in competitive projects in the period between 2012 and 2016. We may see that a large majority of them (72.16%) were participating in competitive projects and nearly 2/3 (63.92%) had a leading role as principal investigators (PIs). Among these PIs, A total of 27 were grantees of the European Research Council (ERC). Given that during this period 168 ERC grants were awarded to Catalan public research institutions (see Fact Sheet ERC Catalonia December

2017, at <http://agaur.gencat.cat>), about 1/6 ERC grantees were supervising doctoral theses in the PhD Programme in Biomedicine during this period. The data provided about the 168 ERC grants obtained in Catalonia is not simultaneously cross-classified by year and knowledge panel. Assuming that the 27 ERC grantees applied to the life sciences panel, and given that the available data shows that 30% of the ERC grants in Catalonia were awarded by that panel, we can estimate that about 50% of the ERC awardees from Catalonia in the life sciences panel were supervising doctoral theses in the PhD Programme in Biomedicine between 2012 and 2016.

Table 4. Faculty researchers and their involvement in competitive research projects.

Faculty researchers	Project participants	Project participants (%)	Project PIs	Project PIs (%)	ERC grantees	ERC grantees (%)
255	184	72.16	163	63.92	27	10.59

In Table 5 below we show summary figures of the scientific productivity of the faculty researchers of the doctoral programme between 2012 and 2016, and number of *ICREA Research Professors* and *ICREA Academia* awardees. These summary figures show that half of the faculty researchers published 22 or more scientific articles in the analysed period receiving an average of 66 or more citations per year, while 1/7 faculty researchers are *ICREA Research Professors* and nearly 1/4 have been *ICREA Academia awardees*, among those working at universities and not being already *ICREA Research Professors*.

Table 5. Scientific productivity. Total number of faculty researchers, median number of publications (articles and reviews) indexed in SCOPUS per faculty researcher, between 2012 and 2016. Median number of citations per faculty researcher during that period and median h-index. Number of faculty researchers that were *ICREA Research Professors* or were *ICREA Academia* awardees during that period. In this latter case, the percentage (% *) has been calculated with respect to the number of faculty researchers working at the three Catalan universities from which we have thesis supervisors and are not *ICREA Research Professors* (UPF 60, UB 4 and UAB 2, a total of 66).

Faculty researchers	Median nr. of pubs.	Median nr. of citations	Median h-index	ICREA Res. Prof.	ICREA Res. Prof. (%)	University faculty (not ICREA Res. Prof.)	ICREA Acad.	ICREA Acad. (% *)
255	22	331	25	38	14.90	66	16	24.24

The summary indicators for publications shown in Table 5 were derived from a total of 7,795 publications. In Table 6 below we show the quartile and decile of the Scopus Scimago Journal Rank (SJR) for a representative subset of those publications. These indicators show that about 85% of those publications appeared in journals classified in the first quartile (Q1) of the SJR ranking and over 60% of them did in journals in the first decile (D1).

Table 6. Journal indicators from published articles. Articles and reviews published by 47 thesis supervisors from DCEXS-UPF between the years 2015 and 2016. Columns Q1 and D1 refer, respectively, to first quartile and first decile of the journal impact factor distribution from the Scopus Scimago Journal Rank (SJR), corresponding to the journals in which the articles were published.

	Total articles	Articles Q1	Articles Q1 (%)	Articles D1	Articles D1 (%)
2015	205	176	85.85	127	61.95
2016	184	156	84.78	115	62.50

In Table 7 below we show summary figures for the faculty researchers that have supervised theses defended during the academic year 2015-16. As we can see, about 40% of the theses were co-supervised leading to a total of 38 faculty researchers involved in the thesis supervision. Nearly 90% of them were participating in projects between 2012 and 2016 and over 80% were leading at least one project as PI. Almost 1/4 are *ICREA Research Professors* and among the rest that are eligible for the *ICREA Academia* distinction, 1/7 earned it. Finally, among the faculty researchers that are eligible to earn 6-year research periods (*sexenis*), half of them had 4 or more such periods and in all of them one such period was alive (*sexeni viu*).

Table 7. Summary indicators of the faculty researchers that supervised theses defended in the academic year 2015-16.

Doctoral theses	Thesis sup.	Co-sup. theses	Project particip.	Project PIs	ICREA	Eligib. ICREA Acad.	ICREA Acad.	Eligib. 6-year res. period	Median 6-year res. periods	Alive 6-year res. period
30	38	13 (43.33%)	34 (89.47%)	32 (84.21%)	9 (23.68%)	13	2 (15.38%)	13	4	13 (100%)

Another relevant aspect to take into account is the fact that, among the research institutions to which our faculty researchers belong to, UPF-CEXS has been recognized with the *Maria de Maeztu* Unit of Excellence distinction, and CRG and IRB have been recognized with the *Severo Ochoa* Centre of Excellence distinction. These distinctions, awarded by the Spanish government, recognize centres with highly competitive strategic research programmes in the frontiers of knowledge and more than 45% of our faculty researchers (119/255) have their main affiliation in one of these three research institutions.

In the light of these indicators we consider that the research faculty has, on average, an excellent scientific productivity and accredited research experience, which warrant a suitable profile to act as supervisors of doctoral students in the PhD Programme in Biomedicine. Students, in fact, share this perception since they consider in the last satisfaction survey that the research team and the thesis tutor, who often is the same person as the thesis supervisor, as the most important elements, with 4.3/5 points, that made them decide to join this doctoral programme.

4.2 There are sufficient teaching staff in the faculty and they have the appropriate dedication to carry out their duties.

Link to evidences:

<https://www.upf.edu/intranet/doctorat-en-biomedicina-2018-/suitability-teaching-staff>

Figure 3 below shows the distribution of the number of doctoral students per thesis supervisor. This distribution shows that more than half of the thesis supervisors mentor one single student and 92% mentor less than 5 students. We consider this a very satisfactory supervising load and demonstrates that the PhD Programme in Biomedicine has sufficient teaching staff to supervise doctoral theses.

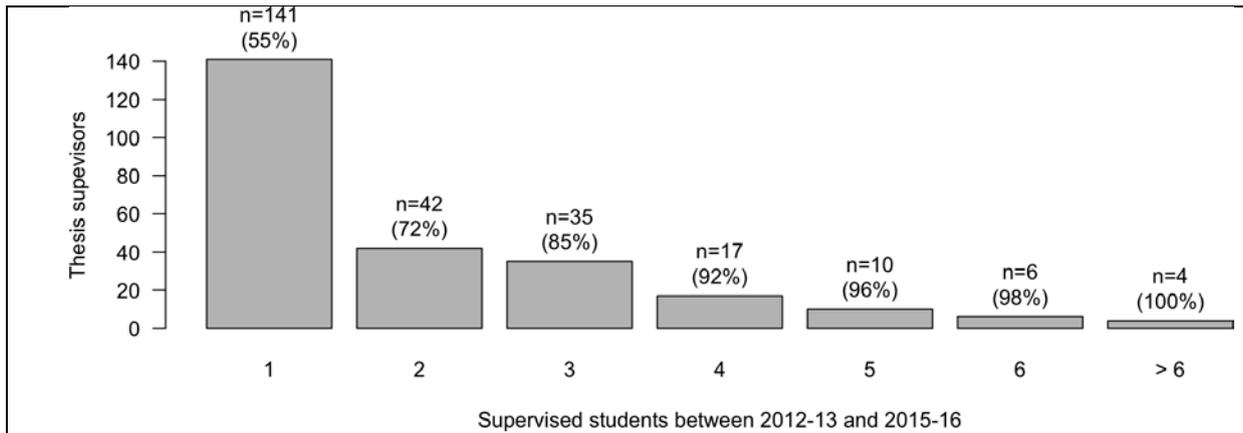


Figure 3. Number of doctoral students per faculty researcher supervising them between the academic years 2012-13 and 2015-16. Above each bar, the number and cumulative percentage of individuals is specified.

Consistently with this supervising load, in one hand, the last satisfaction survey among students shows that they are largely satisfied with the ease to meet their thesis supervisor (4.1/5) and the overall monitoring and mentoring they receive from their thesis supervisors (4.0/5). On the other hand, the last satisfaction survey among thesis supervisors shows that they dedicate, on average, 25% of their time to supervise doctoral students.

As Figure 2 shows in substandard 4.1, more than 2/3 of the faculty in our PhD programme work at research centres and hospitals, and therefore, the focus of their work is on research and, consequently, also the research conducted by their PhD students. The rest, working at UPF, devotes an important fraction of time to teaching duties. However, in one hand the full-time teaching load at the UPF is 120 hours per academic year, much less than in the rest of Catalan and Spanish universities. On the other hand, the UPF implements a policy to regulate this teaching load, described in this URL:

https://seuelectronica.upf.edu/normativa/upf/comunitat/personal_academic/regula.html

This policy attempts to reduce the amount of teaching to faculty who are actively involved in research. More concretely, this policy rewards the supervision of PhD theses, the condition of principal investigator in a competitive grant, distinctions such as *ICREA Academia* or ERC grants and a very good or excellent outcome in the internal evaluation conducted by the UPF-CEXS, every five years, on the research output of its faculty.

We consider that the dedication of our faculty to research and, consequently, to the supervision of doctoral theses, is very satisfactory.

4.3 The doctoral programme has appropriate actions to foster thesis supervision.

Link to evidences:

<https://www.upf.edu/intranet/doctorat-en-biomedicina-2018-/suitability-teaching-staff>

The admission procedure in our PhD programme establishes that every student must submit with the application a letter of support from a doctor with accredited research experience, who would act as the thesis supervisor, if the student were admitted. The policy by the UPF described in the previous section, rewards the thesis supervision in the teaching load and the internal evaluation of the department also takes that parameter into account.

Therefore, in our case, are UPF and CEXS, who are taking action to foster thesis supervision among our faculty. The satisfaction survey among thesis supervisors reveals that while they feel fairly satisfied (3.4/5) with the mechanisms that acknowledge and foster the supervision of doctoral theses, they seem to be unsatisfied (2.5/5) with respect to the compensation they receive from the institution where they are working. Given the large number of doctoral students and thesis supervisors in our programme and that the text-free comments provided by some of the thesis supervisors in the satisfaction survey point to the fact they feel thesis supervision as part of their job, we do not think we need to take additional actions to foster thesis supervision.

4.4 The degree of involvement of foreign teaching staff and international doctors in the monitoring committees and thesis examining boards is appropriate to the scientific area of the programme.

Link to evidences:

<https://www.upf.edu/intranet/doctorat-en-biomedicina-2018-/suitability-teaching-staff>

Among the 255 faculty researchers that have supervised theses between the academic years 2012-13 and 2015-16, 60 have a foreign citizenship (see Table 8 below), which yields a participation of faculty of foreign citizenship close to 1/4 doctoral theses. The compulsory training activity of research seminars requires the students to attend at least 10 research seminars at the PRBB. In Table 8 we show that over half the seminars that took place between 2012 and 2016, were given by speakers from foreign institutions. The compulsory training activity of the project defence requires the students to present their doctoral thesis project within the first 8 months after enrolment in front of a monitoring committee. In Table 8 we show that 1/3 of the monitoring committees of the 30 theses defended during the 2015-16 academic year included at least one member of foreign citizenship. Finally, among the examination boards of the 30 theses defended during the 2015-16 academic year, 17 of them (56.67%) included at least one member from a foreign institution.

Table 8. Information on foreign citizenship of faculty researchers, number and percentage of research seminars at the PRBB by speakers from foreign institutions and fraction of monitoring committees and examination boards from theses defended during the academic year 2015-16 that included, respectively, at least one member from foreign citizenship and from a foreign institution.

Faculty researchers	Faculty researchers with foreign citizenship	Faculty researchers with foreign citizenship (%)	Research seminars	Speakers from foreign institutions at research seminars	Speakers from foreign institutions at research seminars (%)	Doctoral theses 2015-16	Monitoring committees with at least one member of foreign citizenship	Examination boards with at least one member from a foreign institution
255	60	23.53	1672	926	55.38	30	10 (33.33%)	17 (56.67%)

The degree of involvement of faculty of foreign citizenship among thesis supervisors is very satisfactory, as well as the fraction of seminars at the PRBB given by researchers from foreign institutions. Until recently, we were not systematically recording the participation of international doctors in monitoring committees and examination boards and proposed an improvement action to amend this situation in the last monitoring report. We have implemented it and the information derived from this systematic recording will be available for analyses in forthcoming monitoring reports. In the meantime, we have manually collected this information for the theses defended during the academic year 2015-16 and the respective rates of international doctors in monitoring committees and examination boards shown in Table 8 are, respectively, 33.33% and 56.67%. We also consider these two figures a very satisfactory degree of participation of international doctors.

Standard 5: Effectiveness of learning support systems

5.1 The available physical resources are adequate for the number of students and the characteristics of the doctoral programme.

Link to evidences:

<https://www.upf.edu/intranet/doctorat-en-biomedicina-2018-/effectiveness-learning-support>

In the admission procedure we require that a doctor with accredited research experience gives support to the application of the student, declaring the willingness to act as thesis supervisor. This support letter must also declare that there is a specific funding source for the required material and technical resources that are needed to develop the thesis project, as well as to cover publishing costs, facilitate attending conferences and, eventually, research stays. Doctoral students are largely satisfied (4/5) in the last satisfaction survey with the material resources that are available to them to develop their doctoral research. Likewise, their thesis supervisors are also largely satisfied (4.2/5) in the last satisfaction survey with the material resources that they are able to put available to the students with the help of the institution where they are conducting their research.

The UPF offers different resources such as IT and Library (<https://www.upf.edu/bibtic>) and, jointly with other institutions at the PRBB, it maintains and offers six core facilities (<https://portal.upf.edu/web/sct>) for biomedical research. More concretely, genomics, peptide synthesis, scientific information technologies, proteomics, flow cytometry and advanced microscopy; see URL for details. These core facilities not only provide cutting-edge technology, but also highly-trained personnel that run the instruments and provide advice on the experimental design and sample preparation steps that best lead to a successful outcome.

Moreover, the UPF implements a so-called CRAI model (*Centre de Recursos per l'Aprenentatge i la Investigació*), which integrates all services and resources associated with information technologies available to doctoral students. This facilitates the addition of new services and equipment with an integrative view of their management.

The UPF Library/CRAI is present in all UPF buildings where teaching takes place. It has wide opening hours, from Monday to Sunday, offering different types of rooms and equipment for group and personal work.

Information resources

The UPF Library/CRAI provides access to more than 610,000 monographs (either in paper format, electronic or as audio and video media), more than 12,000 journals in paper format and more than 20,000 journals in electronic format. All the electronic resources can be also easily consulted from outside the UPF network using the UPF student credentials through a virtual private network (VPN) bridge.

The access to these information resources is provided through the following four entry points:

- The UPF Library Catalogue ([link](#)).
- The Unified Catalogue of Catalan Universities ([link](#)).
- The UPF Metasearch engine ([link](#)).
- The UPF Thematic Handbooks ([link](#)).

Equipment available to doctoral students

The UPF Library/CRAI at the Mar Campus offers 279 reading places mainly used by the students in the life sciences, and 1,908 reading places jointly with the other UPF libraries. This yields a ratio of 7.14 students per reading place, which is one of the lowest ratios within the Spanish university system. The students can also borrow laptops at each UPF Library/CRAI that include the same software installed as in the computer rooms at each campus. Doctoral students can also access campus-wide licences for *Matlab*, Microsoft Office 365 and *Mendeley*.

We consider that all these material resources are appropriate to the number of doctoral students and the characteristics of the doctoral programme.

5.2 The services available to the doctoral students provide adequate support for the learning process and facilitate entry into the labour market.

Link to evidences

<https://www.upf.edu/intranet/doctorat-en-biomedicina-2018-/effectiveness-learning-support>

The doctoral programme does not provide at the moment specific training for facilitating entering the job market once students graduate. However, the intramural training programme at the PRBB, called Intervals (<http://intervals.prbb.org>), does offer training in leadership and career development. These courses are available for PRBB residents including the students at our doctoral programme. On other hand, the UPF Center for Learning Innovation and Knowledge ([CLIK](#)) provides training for all UPF doctoral students, including introductory training in university teaching (*Formació Inicial en Docència Universitària –FIDU*) and the [CICLIKS](#) programme with different courses in soft skills and career development.

In the improvement plan provided in the last monitoring report we planned to improve the training activities and one of those improvements has been to foster the collaboration between the PRBB Intervals and the CICLIKS programme to provide scientific writing courses for doctoral students of the PhD Programme in Biomedicine, organised at the PRBB premises. This action just started this year 2018 and we expect to be able to assess its impact in the next monitoring report.

Moreover, the UPF Library/CRAI provides a number services specially suited for doctoral students, such as:

- Support in the editing process of the doctoral thesis.
- Publication of the doctoral thesis in the TDX public repository (<http://www.tdx.cat>), a digital repository of electronic versions of doctoral theses defended in universities from Catalonia and other ones from the rest of Spain.
- Consultancy regarding author copyrights.
- Support in using *Mendeley* as bibliographic management software.
- Support and consultancy to publish scientific articles using open access options.
- Support to create ORCID and other types of researcher profiles.

Our doctoral programme provides specific administrative support to all students and their supervisors with the following human resources:

- Two persons working full-time on doctorate administrative tasks and running a help-desk available online and by telephone during office hours, and on site at the PRBB premises from Monday to Friday between 11:00 and 13:00 hours.

- The UPF office for postgraduate and doctoral studies (<https://www.upf.edu/organitzacio/estructura/administrativa/opid.html>).
- The UPF Doctoral School (<https://www.upf.edu/web/phd-school>).

In the last survey conducted on thesis supervisors, they are largely satisfied with the coordination of the doctoral programme (4/5), supporting the perception that these resources devoted to the management and coordination of the programme are appreciated by the thesis supervisors. According to the last survey, this perception is somewhat lower (3.6/5) among doctoral students, albeit fairly satisfactory.

Finally, the UPF provides a professional career service to all alumni through the following website: <https://www.upf.edu/carreres-professionals/en>. This service gives advice on career development and entering the job market.

Nevertheless, the doctoral programme does not provide specific information to the students about entering the job market in the biomedical and biotechnological field after they defend their doctoral thesis. This is reflected in the satisfaction surveys conducted on students and thesis supervisors, who gave, respectively, 2.7/5 and 3.1/5 points to this issue. We will attempt to address this shortcoming of the programme, adding a specific improvement action about it.

Standard 6: Quality of (learning) outcomes

6.1 Doctoral theses, training activities and their assessment meet the expected training goals.

Link to evidences:

<https://www.upf.edu/intranet/doctorat-en-biomedicina-2018-/quality-outcomes>

The research lines of the PhD Programme in Biomedicine cover a wide spectrum of areas of knowledge in the health and life sciences. Students acquire technical and methodological competences that are specific to their field of research within the research group where they conduct their doctoral research. Most transversal competences, such as the ones required by Article 5 from the RD99/2011 for doctoral programmes, are also gradually acquired by the students within the research group through the daily work in their doctoral research. However, the PhD Programme in Biomedicine offers a number of training activities geared towards getting the student quickly started in acquiring these fundamental transversal competences and, more concretely, the following ones:

- a) Systematic comprehension of a field of study.
- b) Ability to conceive and design a research process taking into account scientific as well as ethical aspects involved in it.
- c) Ability to conduct a critical analysis and synthesis of new and complex ideas.
- d) Ability to communicate with the academic and scientific community, and with society in general, by the means and the language that are normally used within the international scientific community.
- e) Ability to foster, in the academic and professional context, the scientific and technological advancement within a knowledge-based society.

The mandatory training activities are the following ones:

- **Project defence:** This is a training activity that takes place within 8 months after starting the PhD, thus during the first academic year, in which students must write up a short project proposal (no more than one or two pages) describing the research they plan to conduct during the following three years. They also have to present this project proposal in front of a monitoring committee formed by three experts, one of which should be a researcher in a close relationship with the UPF-CEXS. The committee will assess the viability of the proposal and give constructive comments to identify possible shortcomings and to try to improve it. After the discussion, the committee also interviews individually the student and the thesis supervisor to assess the degree of satisfaction with the working conditions and freely discuss possible discrepancies in how the doctoral project is perceived separately by the student and the supervisor. The monitoring committee submits a structured report to the doctoral programme, which becomes part of the activities document of the student, informing whether its members believe that the project is viable and whether they perceive that there is good communication between student and supervisor. This training activity aims to start developing competences (a), (b), (c) and (d).
- **Research Seminars:** This is a training activity in which the students must attend research seminars. The purpose of attending research seminars is not only to listen to the research the students like but, more importantly at an early stage of the scientific career, to learn how to extract information from them and how to communicate science. The students must write up a summary abstract for ten of those seminars trying to answer the following two questions: what was the research question posed by the speaker and why is that research question important. Students must upload those abstracts to their activities

document, and these abstracts are evaluated by the AC. This training activity aims to start developing competences (a), (c) and (d).

- **Scientific integrity:** This is a training activity on scientific integrity called “Science in Action” (SiA) and whose content is based on the [PRBB Code of Good Scientific Practice](#). This activity takes the form of a conventional subject of a graduate programme with lectures, seminars and personal workload that involves a total of 27 hours of training. Attendance to lectures and seminars is compulsory to the students and monitored by the instructors. The personal workload consists of critical reading of given articles, watching online video material on the subject, discussing with class-mates on integrity issues proposed by the instructors through an online forum of the SiA UPF Moodle site, and analysing and discussing a case study in scientific integrity. The instructors follow up the completion of these activities, and the students are also welcome to provide feedback on them. This feedback has been so far very positive as the majority of students evaluate it as very good or excellent. This training activity aims to start developing competences (b), (d) and (e).
- **Scientific publishing:** This training activity, which we will start on the academic year 2018-19 but which we have already updated in the validation proposal of the programme, is the result of an improvement action proposed in the monitoring report and it has been designed with three goals. First, learn about the different options for scientific publishing, particularly the one with open access (OA), which is currently required in most public competitive calls for research funding. Second, learn about the creation and maintenance of researcher profiles (ORCID, ResearcherID, ScopusID, Google Scholar) that guarantee a personal and unique researcher identity and which are often required in applications for competitive research funding. Third, learn about the requirements established by UPF about the format and publication options of the doctoral thesis. The instructors of the programme evaluate the students and communicate the results to the programme. This training activity aims to start developing competences (d) and (e).

The optional training activities are the following ones:

- **Research mobility:** This is an optional training activity in which students carry out a research stay in a different research group from the one where they are doing their doctoral training, either in Spain or abroad. At the end of the research stay the students submit a short report that is evaluated by the AC. This training activity aims to start developing competences (a) and (d).
- **Scientific writing:** This is an optional activity we started this academic year as a result of an improvement action proposed in the monitoring report with the aim of providing doctoral students with the fundamentals of scientific writing. This training activity aims to start developing competences (d) and (e).

As a result of an improvement action proposed in the previous monitoring report, we have made public the requirements for submitting a doctoral thesis (see <https://www.upf.edu/web/phd-biomedicine/submit-thesis>). Among these requirements, student and thesis supervisor must propose an examination board formed by 3 main members and 2 replacement members corresponding to doctors with accredited research experience. Within the 3 main members, and within the 2 replacements, there cannot be two doctors from the same research institution. This requirement guarantees a minimum level of diversity among members of the examination board. The programme also funds inviting one main member from a foreign research institution. This is one of the reasons behind the fairly high number of defended theses with such members.

In the last employment satisfaction survey conducted by AQU on graduates from academic years 2011-12 and 2012-13, 96.7% of former students would repeat again this doctoral training. This is a higher figure than the percentage observed for the doctoral graduates from the whole UPF (83.1%) and the whole Catalan University System (79.6%).

The 30 theses defended during the academic year 2015-16 yield an average of 5.3 articles per thesis published in scientific journals. The translation of the doctoral research into scientific publications is one of the main indicators of the quality of the defended theses and of the achievement of the competences in which the doctoral programme aims to train the students. We are very satisfied with the current outcome of programme in these two aspects.

6.2 The values for the academic indicators are adequate for the characteristics of the doctoral programme.

Link to evidences:

<https://www.upf.edu/intranet/doctorat-en-biomedicina-2018-/quality-outcomes>

In Table 9 below we show the main summary indicators of the outcome of the doctoral programme for the period between the academic years 2012-13 and 2015-16. More concretely, during the academic year 2015-16, 30 full-time students defended their PhD thesis after an average of 3.1 years since they enrolled in the doctoral programme for the first time under the RD99/2011. While this represents an important increase over the number of theses (8) defended during 2014-15 under the RD99/2011, this is not yet a representative number of the defended theses per year because 2012-13 was the first year in which students were enrolled under the RD99/2011. A larger number of students who started their PhD at the same time as those 30, submitted their thesis close to their deadline by the end of the 2015-16 academic year, and therefore, defended their thesis on the 2016-17 academic year, in which a total of 70 theses have been defended (data not included in this self-assessment report) and will be analysed in the next monitoring report. We, in fact, expect that this number will still grow over the next two academic years because there is a small fraction of students that were granted a second-time extension to submit the doctoral thesis, and thus they have submitted it during the 2016-17 academic year and those that did it by the end of 2016-17 will defend it during this academic year 2017-18. In summary, until the end of the academic year 2017-18, we will not have a complete accurate figure of the number of defended theses per year from students enrolled under the RD99/2011 in a full-time regime.

Table 9. Summary indicators of the outcome of the PhD Programme in Biomedicine for the period between the academic years 2012-13 and 2015-16, about the total number of enrolled students, dropouts, research stays and number and duration of doctoral theses defended on the 2015-16 academic year.

Total students	Dropout students	Enrolled students (total-dropouts)	Research stays	Defended theses (full time)	Defended theses (part time)	Duration full time (years)	Duration part time (years)
431	56 (12.99%)	376	42 (11.17%)	30	0	3.1	N/A

During the period analysed period from 2012-13 to 2015-16, a total of 431 students were enrolled in the PhD programme, including 56 who dropped out from it. These are 3 fewer than the 59 dropout enrolments shown earlier in this report in Table 3 because those 3 correspond to first-year enrolment cancellations followed by new enrolments in the following year. This means that about one every eight students dropped out from the doctoral programme between the academic years 2012-13 and 2015-16. This is the same rate we already observed in the previous monitoring report and we proposed then an improvement action to record the reason behind those dropouts among a range of possibilities we informally knew they were happening.

We started implementing this action during the last academic year and Table 10 shows the results. As we may see, most dropouts are due to personal reasons, failed scholarship applications and moving to another university. One dropout was due to supervised circumstances affecting the student and/or the thesis supervisor. These causes are not directly related to the doctoral programme and the two in which the doctoral programme is more directly involved, when the student does not acquire the required competences or the research project becomes unviable, add up to 1.16%. While we regret the failure of every single student to successfully defend the doctoral thesis, we consider that 1/100 students is a reasonable dropout rate under such causes.

Table 10. Reasons behind student dropouts.

Total students	Personal reasons	Failed scholarship application	Move to another university	Did not acquire competences	Supervised circumstances	Research project became unviable
431	21 (4.83%)	19 (4.40%)	10 (2.31%)	5 (1.16%)	1 (0.23%)	0 (0.0%)

The students that move to another university typically do it because their thesis supervisor is moving to another research institution, and that circumstance is beyond the influence of this doctoral programme. However, we will attempt to reduce the dropout rate of personal reasons and failed scholarship applications.

Among the personal reasons, we have cases in which the student comes from a country for which a visa is required and the visa application or renewal is somehow rejected, or the student goes on sick leave and because the health condition does not improve, he/she cannot continue with the doctoral training. These situations are also beyond the influence of this doctoral programme. However, we have also observed that within the personal reasons, it includes students enrolling the programme in the full-time regime, but who also are simultaneously developing a professional career that drains the time devoted to doctoral research and at some point they drop out from the programme because they are unable to meet the milestones of their research project. This is often the case of medical doctors with full or part-time appointments in hospitals. Other analogous personal circumstances include motherhood with young children, being in charge of dependant ascending line relatives, having children with disabilities or having disabilities themselves. In our improvement plan, we propose to develop a regulation for enrolling students that pass the admission procedure and are affected by those circumstances, under the part-time regime.

Regarding the failed scholarship applications, it is often the case that the student enrolls in the programme and simultaneously applies to a scholarship. If the scholarship application is rejected, then the student cancels the enrolment. We have studied the application procedures for different scholarships and notice that in general they require the student to prove admission to the programme but not enrolment. For this reason, we propose an improvement action to implement a more flexible enrolment procedure by which first-year students may enrol anytime throughout the academic year, once their scholarship application has been granted. In the second and following years, then they must enrol during the normal enrolment period established in October by the UPF.

In Table 11 below we show the summary indicators for the qualifications and scientific output of the defended theses. More concretely, 5 theses were granted the Special Award by the UPF Doctoral School and 6 obtained the international mention. Finally, these 30 PhD theses led to a total of 159 articles published by the student and his/her thesis supervisor between the first enrolment and December 2017, resulting in an average of 5.3 articles per thesis. We consider this a very satisfactory scientific productivity derived from doctoral research.

Table 11. Summary indicators of the outcome of the PhD Programme in Biomedicine for the academic year 2015-16, concerning qualifications and scientific output of the defended theses.

Defended theses	Cum laude	Extraordinary prize	International mention	Co-tutorship with a foreign university	Articles in scientific journals (Scopus)
30	25 (83.33%)	5 (16.67%)	6 (20%)	0 (0%)	159 (5.3 art/thesis)

The satisfaction survey answered by doctoral students shows that, on average, they are fairly satisfied with the doctoral programme (3.8/5) where, more concretely, 69.3% are very (53.7%) or largely (15.6%) satisfied, while 7.4% are dissatisfied (5.4%) or very dissatisfied (2%). In the monitoring report the average satisfaction was 7.4/10=0.74, thus measured in a different scale over 10 points, but with a substantially lower response rate (31.4%). The average satisfaction showed here on a 10-point scale is 3.8/5=0.76, thus slightly larger than the one observed nearly two years ago but with a larger response rate of 49.6%. One year ago, we proposed two improvement actions in the monitoring report to try to increase the satisfaction of our students: improve the training activities and organize a PhD Symposium. The new training activities just started this year 2018, and therefore, we cannot assess their effect in the satisfaction of students. The first PhD symposium of CEXS-UPF students took place on November 24th, 2017 and it was very positively welcome by CEXS-UPF students; see a summary of the event at this [link](#). At the moment, nearly 3/4 doctoral students work at research institutions that organize a PhD Symposium. As an improvement action, we will attempt to work with those institutions that do not yet organize one such symposiums to cover a larger fraction of doctoral students with one such events.

6.3 The values for the graduate labour market/destination indicators are adequate for the characteristics of the doctoral programme.

Link to evidences:

<https://www.upf.edu/intranet/doctorat-en-biomedicina-2018-/quality-outcomes>

AQU conducted an employment survey in the first trimester of 2017 on 141 students that defended their theses in the PhD Programme in Biomedicine during the academic years 2011-12 and 2012-13. This survey was answered by 30 students, thus with a 21.28% response rate. In the last trimester of 2017, the UPF-CEXS quality assurance team conducted an employment survey on the 92 students, enrolled under the RD99/2011 and earlier RDs, who defended their thesis during the 2015-16 academic year. This survey was answered by 48 students, thus with a 52.2% response rate. Table 12 below shows the results of these surveys where both of them confirm a high employment rate of 90% and 95%, respectively, as well as a fairly high suitability rates of 70% and 87%, respectively. While these employment rates are comparable to the ones derived from the AQU 2017 survey for the UPF (87.7%), the Catalan university system (93.5%) and the active population survey (90.5%), the suitability indicators are clearly above the ones for the UPF (67.7%) and the Catalan university system (59%). Students were also largely satisfied (about 5/7) with the connection of the knowledge and competences acquired during the doctoral training and the job they are currently developing.

Table 12. Employment surveys conducted by AQU and UPF-CEXS on graduated students from the PhD Programme in Biomedicine.

	Graduated students	Response rate	Employment rate	Suitability rate	Satisfaction doctoral training with professional career (over 7)
AQU 2017 (2011-12, 2012-13)	141	30 (21.27%)	90.00%	70.00%	5.58
Biomedicine 2017 (2015-16)	92	48 (52.17%)	95.80%	87.20%	5.74

We proposed in the last monitoring report to improve the response rate in the employment survey. For that reason, the UPF-CEXS quality team designed and conducted a specific survey and we are very satisfied with the outcome of this improvement action that has translated into this 52% response rate.

We are very satisfied with the indicators of labour market and, particularly, with the figures of 95% employment rate and 87% suitability rate resulting from the UPF-CEXS survey because they come from a fairly high response rate of 52% and correspond to students graduated in the same academic year whose results are being analysed in this self-assessment report. These employment indicators are very encouraging because they follow up from defended theses with, on average, a very good scientific productivity.

4. Assessment and proposal of the quality enhancement plan

Std. #	Source of improvement action	Diagnostic	Cause identification	Pretended objectives	Proposed actions	Priority	Responsible person	Deadlines	Does it imply modification of the programme?	Level (doctoral programme, centre, university)	Status	Assessment of achieved goals
1	Monitoring Report 2017	We do not know the full extent of students with scholarship.	We lack this information for students outside UPF.	Estimate how many students in total have been awarded a scholarship.	Record scholarship for all the students.	High	Doctoral School and Doctoral Programme	Academic year 2016-17	No	University	Completed	Fully achieved
1	Monitoring Report 2017	Research lines do not accurately reflect the research of students and their supervisors.	We have not updated the research lines.	Update research lines of the programme and in the validated programme proposal.	Expand current research lines.	High	Doctoral Programme	Academic year 2016-17	Yes (of the validated proposal)	Doctoral programme	Completed	Fully achieved
1	Accreditation Report 2018	Number of new enrolments per year is higher than number of offered places.	Admission criteria do not allow to correctly prioritize applications.	Keep the number of new enrolments per year close to the number of offered places.	Revise the admission criteria and update the applicant's profile.	High	Doctoral Programme	Academic year 2019-20	Yes (of the validated proposal)	Doctoral programme	Open	N/A

1	Accreditation Report 2018	Some research lines do not match well students and supervisors.	There is an uneven distribution of students between research lines.	Approach a more uniform distribution of students across research lines.	Expand current research lines.	Medium	Doctoral Programme	Academic year 2019-20	No	Doctoral programme	Open	N/A
1	Accreditation Report 2018	Students and supervisors are not completely satisfied with supervision mechanisms	We lack a Guide of Good Practices for supervision and training activities.	Improve satisfaction of students and supervisors with currently available supervision mechanisms.	Elaborate a Guide of Good Practices for supervision and training activities.	High	Doctoral Programme	Academic year 2018-19	No	Doctoral programme	Open	N/A
2	Monitoring Report 2017	Incomplete public information about the doctoral programme.	We do not publish all information.	Make public all information and indicators about the programme.	Update our website with information.	High	Doctoral Programme Secretariat and Centre	First trimester academic year 2017-18	No	Centre	Completed	Fully achieved
2	Monitoring Report 2017	There is no easy access to all public information about the doctoral programme.	Website of UPF-CEXS is not well designed.	Improve access to public information by the stakeholders.	Build a new website of UPF-CEXS.	High	Centre	2017	No	Centre and University	Completed	Fully achieved

3	Monitoring Report 2017	We lack feedback from thesis supervisors on their satisfaction about the doctoral programme.	We have only informal contact with the thesis supervisors.	Obtain a structured and comprehensive feedback on the satisfaction of thesis supervisors with the doctoral programme.	Conduct a satisfaction survey for thesis supervisors.	High	UPEQ	Second semester of the academic year 2016-17	No	University	Completed	Fully achieved
3	Monitoring Report 2017	We have detected some incoherence between indicators provided by the UPEQ and data available at the UPF-CEXS secretariat.	Coordination between UPEQ and UPF-CEXS secretariat can be improved.	Ensure the coherence and reliability of data collected by UPEQ and UPF-CEXS about the doctoral programme.	1. Joint work between OTQ, UPEQ and UPF-CEXS to define data requirements.	High	Doctoral School, OTQ, UPEQ, Centre	Academic year 2018-19	No	Centre and University	Ongoing	N/A
					2. Build a unique open web access with data for monitoring the programme.	High	UPEQ	Academic year 2016-17	No	University	Completed	Fully achieved
3	IQAS review 2016	Some doctoral programme processes are not defined	Processes were identified but not deployed	Ensure that all the doctoral processes are correctly defined	Identify processes and deploy them	High	Quality Responsible / UOP/ OTQ	1st term 2017-2018	No	Centre	Completed	Fully achieved

4	Monitoring Report 2017	Rate of foreign members in project defence committees and examination boards not well recorded.	Information is not recorded in a systematic way.	Record the rate of foreign members in project defence committees and examination boards.	Record committee member citizenship	Medium	Doctoral School and Doctoral Programme	Academic year 2017-18	No	University	Completed	Fully achieved
5	Accreditation Report 2018	Students and supervisors are not satisfied with information available to enter the job market.	The doctoral programme does not provide specific information about entering the job market.	Provide specific information about entering the job market in the biomedical field.	Coordinate with the UPF professional career service to offer such specific information.	High	Doctoral Programme	Academic year 2018-19	No	Centre	Open	N/A
6	Monitoring Report 2017	We do not know why students abandon the doctoral programme.	We do not record that information.	Understand why students abandon.	Record reason for abandoning.	Medium	Doctoral School and Doctoral Programme	Academic year 2017-18	No	University	Completed	Fully achieved

6	Monitoring Report 2017	Employment indicators are lower than expected but data were based on a low response rate.	Contact with former students can be improved.	A higher response rate in the survey on employment indicators.	Engage former students to respond.	Medium	UPEQ and Alumni UPF	Academic year 2017-18	No	University	Completed	Fully achieved
6	Monitoring Report 2017	Students are moderately satisfied with the doctoral programme.	Lack of additional training and group activities	Improve satisfaction of the students with the doctoral programme	1. Improve training activities	High	Doctoral School and Doctoral programme	First trimester of the academic year 2017-18	Yes (of the validated proposal)	University and Centre	Completed	Fully achieved
					2. Celebrate a PhD Symposium	High	Doctoral programme and centre	First trimester of the academic year 2017-18	No	Centre	Completed	Fully achieved
6	Accreditation Report 2018	Some students abandon the doctoral programme b/c of personal reasons	Lack of time for doctoral research b/c cannot devote sufficient time to research.	Reduce the rate of student dropouts for personal reasons.	Develop regulations for enrolling students under part-time regime.	High	Doctoral programme	Academic year 2017-18	No	Doctoral programme	Open	N/A

6	Accreditation Report 2018	Some students abandon the doctoral programme b/c of personal reasons	Scholarship is not granted.	Reduce the rate of student dropouts for personal reasons.	Develop a more flexible first-year enrolment procedure	High	Doctoral programme and PhD School	Academic year 2017-18	No	University	Open	N/A
6	Accreditation Report 2018	Satisfaction of students with the doctoral programme can improve	About 1/4 students do not yet have programme-level group activities	Improve satisfaction of the students with the doctoral programme	Collaborate with institutions that do not organize a PhD Symposium to organize one for their students.	Medium	Doctoral programme	Academic year 2019-20	No	Doctoral programme	Open	N/A