

# DOCTORAL EDUCATION Bulletin



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**EMBEDDING OPEN SCIENCE IN DOCTORAL EDUCATION**

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# EMBEDDING OPEN SCIENCE IN DOCTORAL EDUCATION AT THE UNIVERSITY OF LIÈGE

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The University of Liège (ULg) is a medium-sized university welcoming about 2 000 doctoral candidates (10% of its student population). Thirty-six percent of them obtain their Master's degree in another country. ULg awards approximately 250 doctorates a year in all disciplines (except theology), with a 50-50 gender balance and an average duration of about 5,2 years. The completion rate is around 50%. These figures obviously vary by discipline and should be seen in the proper context.

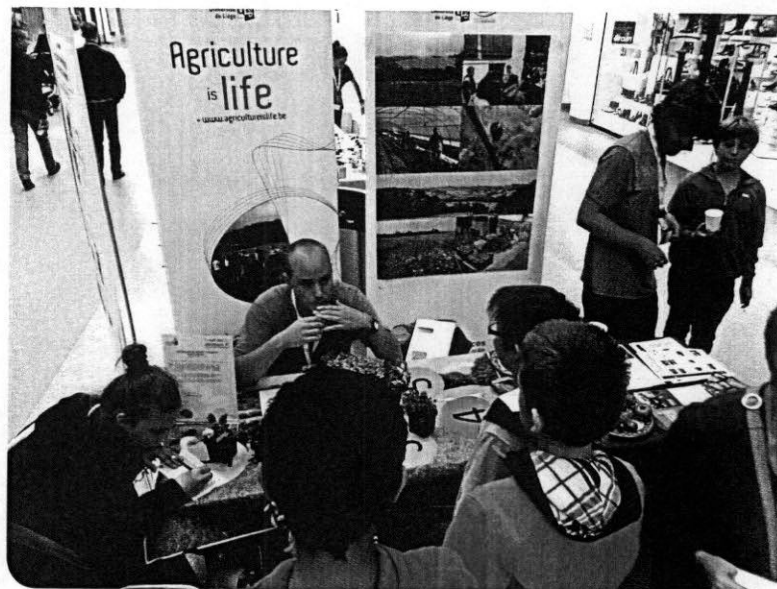
ULg is a European university, which needs to address issues with which most European universities are confronted: training researchers of various origins, guaranteeing excellence, managing internationalisation, increasing the success rate and completing within a reasonable time. Our HR strategy in research,<sup>6</sup> inspired by the European Charter and Code, considers doctoral candidates to be Early Stage Researchers and implements specific actions for the development of their career; this strategy is acknowledged by the European Commission.

## Main achievements

Young researchers are a priority. The first lines of actions of ULg's 2010-2014 HR Strategy focused on the improvement of the research environment and on the development of Lifelong Learning services and administrative support. Particular attention was paid to the transparency of recruitment and the feedback given on applications.

Important institutional budgets were allocated to develop the professional network of doctoral candidates. Specific actions were taken to better monitor the researchers' progress, such as annual evaluation, supervisor training and digital portfolios. ULg also put emphasis on "engagement", as the university and society need young people who enter into a dialogue with them and have an entrepreneurial spirit.

The young researchers begin to intervene as an Open Science network via social networks. You can often find posts on the Facebook and LinkedIn pages of the doctorates association (RED), that lead to collaborative interdisciplinary work: Can you help me solve my statistical problem? Can we exchange information on my doctoral project from an interdisciplinary point of view? Where can I find somebody to criticise my research and open me up to new horizons? Open Science networks are truly engines of innovation. Supervisors maintain that they increase the quality of research through fostering a better understanding of the tools and operations involved.



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The academic world is evolving, and the university has to respond to the changes by communicating in a better way, adapting its structures and improving their quality. ULg no longer wants to train doctors exclusively for itself: it wants to contribute strongly to regional development. Involvement in the larger world is at the heart of the university project. Doctoral education is thus focused on excellence, publication, thesis writing and the development of the skills necessary for participating in the non-academic world.

Thematic research poles are set up in which the university acts as a strong partner with companies and spin-off ventures. Within this scope ULg develops major projects into which the doctoral schemes are integrated and for which they may be adapted. These include: doctorates at a company, research internships, article theses, collaborative doctorates, etc.

The companies require that young researchers assume responsibilities and become leaders. That's why ULg, together with the collaborative online course portal Epigeum and English and American universities, contributed to the development of an online training programme called Professional Skills for Research Leaders.<sup>7</sup> The module is offered to every researcher and complemented by meetings at which ideas are exchanged and a position taken on specific issues: creativity and innovation, project management, team management, network development, etc. A special focus is put on these aspects through Open Education, which has been offered at ULg for

<sup>6</sup> [http://www.ulg.ac.be/cms/c\\_418770/en/rights-hr-strategy](http://www.ulg.ac.be/cms/c_418770/en/rights-hr-strategy)

<sup>7</sup> <https://epigeum.com/courses/research/professional-skills-research-leaders-2/>



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several years and for which the ULg trains MOOC designers, online tutors and e-project implementers.<sup>8</sup>

## How is doctoral education organised?

The law stipulates that a doctoral programme takes a minimum of three years and includes a doctoral training of 30 credits in disciplinary courses and 30 credits in transversal training, research work corresponding to 180 credits, plus a public presentation of the thesis. The doctoral training continues for the entire duration of the doctorate. Every university defines its own regulations on this basis by adding general conditions for peer-reviewed publications to be fulfilled before the viva voce.

In Belgium students have to be enrolled at a university in order to be allowed to do a doctorate. The supervisor must be a doctorate holder employed at this university. An international thesis committee is established to evaluate the doctoral candidate on an annual basis and to give or deny permission to continue. The models of collaboration are rather flexible, in particular for cotutelle and joint PhD programmes (e.g. with companies).

In practice, the doctoral training focuses on responsible management of the doctoral project by the candidate-supervisor team. Candidates define their work and training plans with their supervisor at least once a year. They are in charge of their projects; the supervisor is a guide as much as a coach.

Several aspects of Belgian doctoral training system are innovative, especially in the French-speaking world.

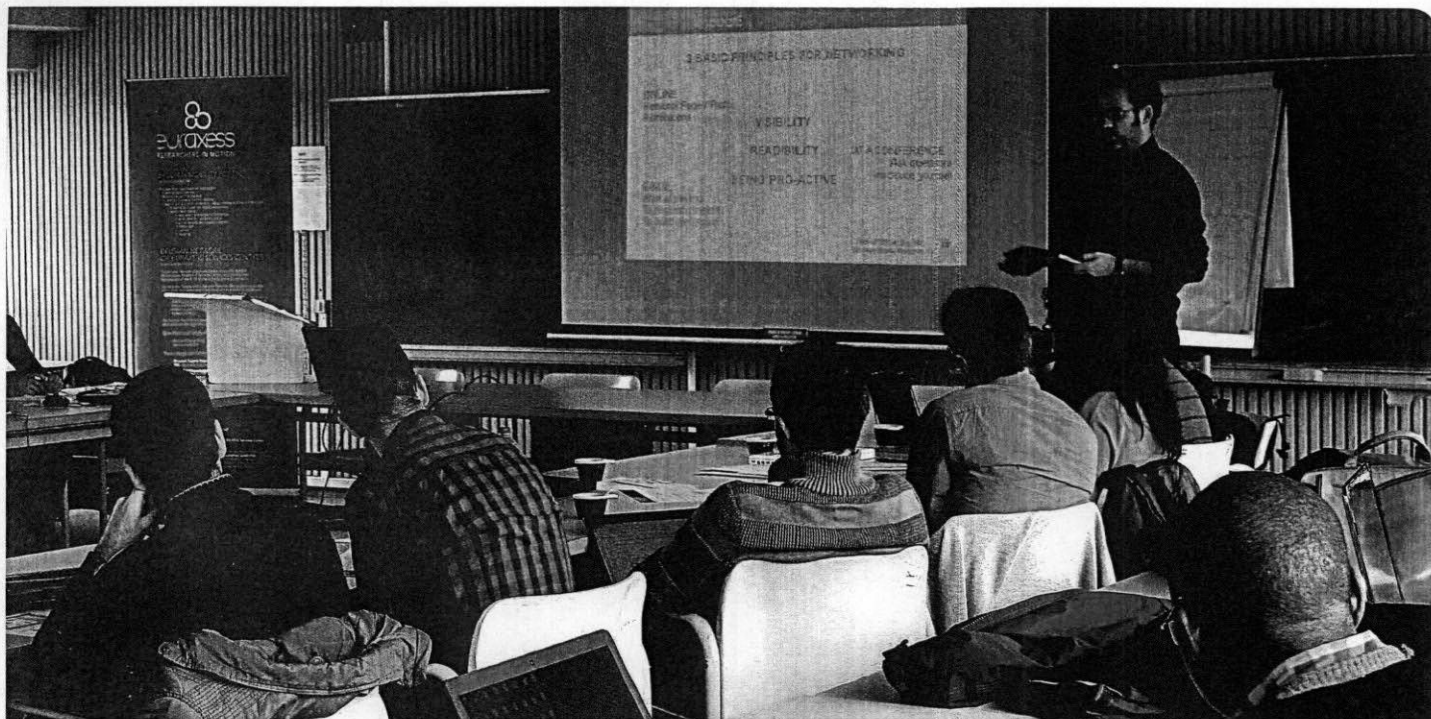
In 2012, ULg developed a university certificate for the preparation of the doctoral project, which allows participants to formulate their research question and to outline the doctoral project in three months' time. A two-week introductory seminar is held to prepare the candidates on all critical points of the doctorate and the researcher's responsibilities. This is followed by an internship in a research unit to address the question of research. The format of this certificate is particularly well adapted to professionals who wish to benefit from academic support and/or from access to ULg's scientific platforms. About twenty young professionals from Europe and university lecturers from developing and emerging countries have entered the programme. They work in their normal occupational environment and join ULg for a few months a year. There is regular contact with the supervisor via the available media. Supervisors recognise the potential of the candidates as well as their maturity and openness to international and cross-sectoral influences.

## The benefits of a cross-border university

It is well known that young researchers have to go where science is at its best. It is therefore crucial to have good knowledge of the best teams and to collaborate with them. Short international distances are however not always easy to manage, either for family reasons or because the added value for the CV is not clear.

At the level of interculturality and doctoral training, ULg takes advantage of its two cross-border networks, ALMA and Uni-GR, which connect universities in Flanders, Netherlands, Germany, Luxembourg and France. Disciplinary seminars, transversal skill trainings and doctorales<sup>9</sup> are jointly organised, in which doctoral candidates, young researchers and economic players meet, think and act in an innovative manner. E-learning, videos or live streaming of conferences are used wherever the instruments make sense. Doctoral students are invited

<sup>8</sup> <http://www.crifa.ulg.ac.be/formations-et-certificats>



to meet their co-supervisor using web conference software, follow remote conferences,<sup>9</sup> or use web-TV productions while preparing their mobility schemes.<sup>10</sup> A MOOC is currently being designed for preparing doctoral students to give pitches about their research.<sup>11</sup>

The Uni-GR consortium added to the "European doctorate" label a request to describe the doctoral candidates' cultural discoveries in three pages.<sup>12</sup> Within the same scope, ULg tries to maintain the partnership with visiting researchers in the long term. It is therefore important for young researchers to become integrated into the society that welcomes them for several months and not only into the university where they work. It is also important for them to know about the political, economic and social context of their host country. Linkin' Wallonia is an integration project that has just been successfully completed. It included information on regional and national structures, projects for economic development, financial support for research in Belgium, and meetings and visits to the Parliament or the city hall of Liège when the issues being discussed intersected with students' research questions. In return, the participants shared their opinion on Walloon culture through artistic works, and today, their artworks have become part of the "immaterial heritage" of ULg.

### The University of Liège, Open Access and Open Repository

When libraries organise seminars for explaining to students the process of publication, and when students are well informed about the absolute responsibility of universities to disseminate science and knowledge to the society, it quickly becomes evident that

Open Access is a must! This is an essential habit and a positive form of global citizenship.

All publications of ULg researchers can be consulted online via ORBI, the ULg Open Repository and Bibliography system,<sup>13</sup> which allows full disclosure of their work to all interested parties without any discrimination and in full compliance with copyright laws. New developments of ORBI include Mendeley and Altmetrics,<sup>14</sup> free reference and citations management software, serving a growing number of researchers who are on social networks like Twitter in order to disseminate publications, results or data.

### What is the future of doctoral education at ULg?

Whatever the international pressure, it is always necessary to remain true to the fundamental mission of universities, namely to develop knowledge with a focus on quality and excellence. In order to carry out these two missions and the third mission of developing the knowledge economy, it is absolutely necessary to dare and risk. ULg has four important imperatives: dare to do true interdisciplinary research; risk new and innovative partnerships; use the media favouring openness; and, above all, do not cut the links between training at the Master's and doctoral level.

The ULg strategic project is moving in this direction. New actions will be included in the 2015-2018 HR Strategy to enable researchers to go further in developing creativity and innovation, increasing the completion rate and decreasing the duration of the doctorate.

<sup>9</sup> e.g. <http://www.unigr.celtech.de/>

<sup>10</sup> e.g. [http://www.ulg.ac.be/cms/c\\_2559829/fr/welcome-to-liege](http://www.ulg.ac.be/cms/c_2559829/fr/welcome-to-liege)

<sup>11</sup> This training will be available in May on <http://www.uni-gr.eu>

<sup>12</sup> <http://www.uni-gr.eu/en/doctorates-research/cross-border-doctorates/european-doctorate-label-unigr.html>

<sup>13</sup> <http://orbi.ulg.ac.be>

<sup>14</sup> <http://www.mendeley.com> ; <http://www.altmetrics.org>