

UBFC

UNIVERSITÉ
BOURGOGNE FRANCHE-COMTÉ



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**“PhDs: vector of mobility between
academia and socio-economic fields”**

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The logo for UBFC (Université Bourgogne Franche-Comté) features the acronym 'UBFC' in a bold, black, sans-serif font. To the right of the text is a stylized graphic composed of several overlapping, wavy lines in various colors (blue, green, yellow, orange, red, purple, grey) that create a sense of movement and interconnectedness.

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PhDs: vector of mobility between academia and socio-economic fields

- Information about Doctoral schools and Doctoral College at UBFC
- Ambition for making the interaction between the fields through the PhDs
- The PhDs' skills to allow interaction and on going actions at UBFC
- Some doctoral level supports for interaction
- Concluding remarks and open questioning

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UBFC PhD (University of Burgundy Franche-Comté)



- Since 1 January 2017 (transfer from UB, UFC and UTBM):
 - UBFC is accredited for the delivery of PhDs
 - The Doctoral College defines and implements UBFC's doctoral policy
- UBFC member institutions where PhDs are prepared:
 - University of Burgundy
 - University of Franche-Comté
 - Technological University of Belfort-Montbéliard
 - Institut National Supérieur des Sciences Agronomiques de l'Alimentation et de l'Environnement (Engineering School)
 - Ecole Nationale Supérieure de Mécanique et de Microtechniques (Engineering School)
- Nearly 1,900 PhD students and close to 400 PhD graduates / year
- More than 200 are under a thesis agreement (Dual degree) with an other country

51 research laboratories

280 permanent researchers from the

CNRS, Inra, Inserm, Inrap, EFS, BRGM, IFSTTAR

7 member institutions

13 campuses in Burgundy Franche-Comté Region

60, 000 students

8, 800 staff, including 2, 200 full Professors and Researchers

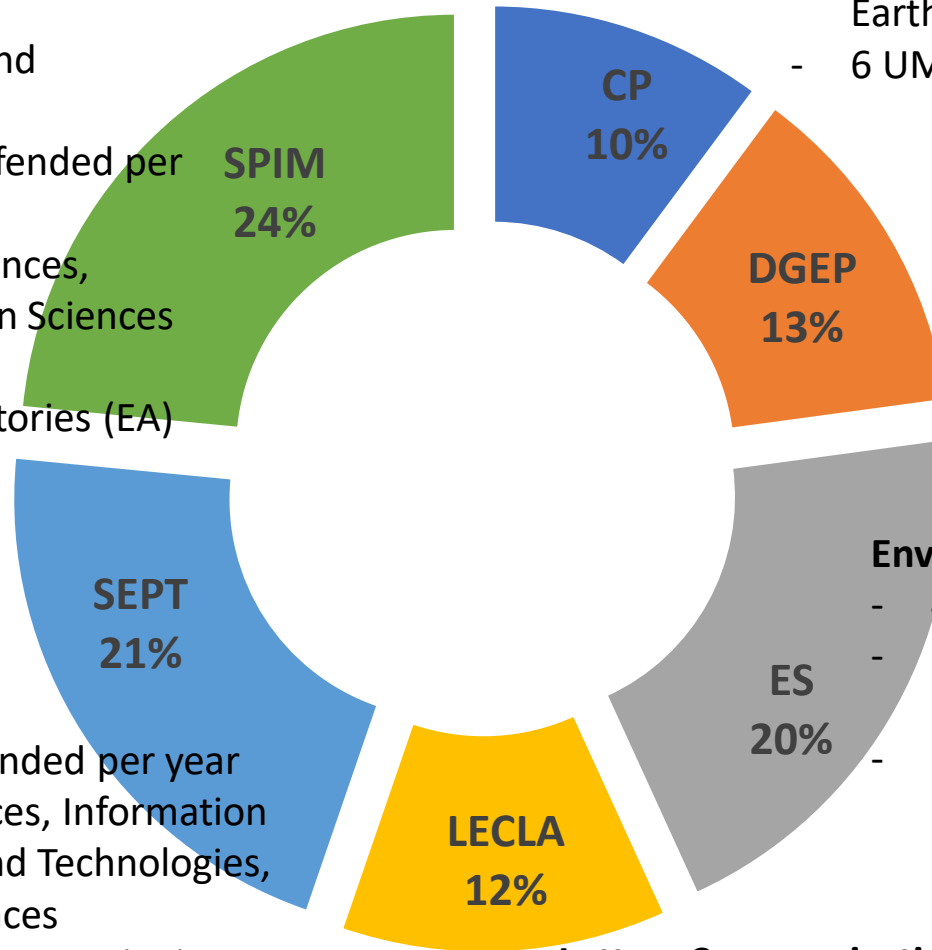
The 6 doctoral Schools of UBFC

Physical Sciences for Engineering and Microtechnology:

- 440 PhD students, 110 PhDs defended per year
- Fields: Physics, Engineering Sciences, Information and Communication Sciences and Technologies
- 2 UMR CNRS, 3 research laboratories (EA)

Societies, Spaces, Practices, Time:

- 400 PhD students, 50 PhDs defended per year
- Fields: Humanities, Social Sciences, Information and Communication Sciences and Technologies, Agricultural and Ecological Sciences
- 5 UMR CNRS, 10 research laboratories (EA), 1 UP



Carnot – Pasteur:

- 190 PhD students, 50 PhDs defended per year
- Fields: Mathematics and their interactions, Physics, Earth and Universe Sciences, Space, Chemistry
- 6 UMR CNRS, 1 UR CEA

Law, Management, Economics and Policy:

- 245 PhD students, 35 PhDs defended per year
- Field: Public and Private Law, History of law, Political Sciences, Economics, Management, Demographic and Social Sciences
- 3 UMR CNRS, 5 research laboratories (EA)

Environment-Health:

- 400 PhD students, 100 PhDs defended per year
- Fields: Biology, Medicine, Health, Agricultural and Ecological Sciences, Earth and Universe Sciences, Space
- 3 UMR CNRS, 3 UMR INSERM, 1 UMR INRA/CNRS, 1 UMR INRA/Agrosup, 1 UMR Agrosup, 11 research laboratories (EA)

Letters Communication Languages Arts:

- 220 PhD students, 40 PhDs defended per year
- Field: Humanities and social sciences
- 5 research laboratories (EA)

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Ambition for making the interaction between the fields through the PhDs

- Doctors have known or know the academic world and the one in which they are working.
- Thanks to the skills acquired during their training by research, PhDs have developed the ability to make worlds interact with worlds with different expectations.
- The Doctoral Schools, the Doctoral College, help to obtain skills complementary to those acquired by the research activity in order to promote quality of life-skills and to develop curiosity.
- From the beginning, some PhDs have received training linking the academic world, the social world and/or the economic world.
- Several research funding mechanisms allow for interaction (joint laboratory, multi-partner project, etc.)
- Several ways to obtain a doctorate, including through an activity outside the academic community



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The PhDs' skills to allow interaction

The PhDs' skills give them the ability to create a strong interaction between companies and universities

At the French National Level, a new standard has been implemented with 6 Skill blocks:

- Design and development of a research and development approach, studies and prospective
- Implementation of a research and development, studies and prospective approach
- Valuation and transfer of the results of an R&D approach, studies and prospective studies
- International scientific and technological monitoring
- Training and dissemination of scientific and technological culture and training
- Supervision of teams dedicated to research and development, studies and prospective activities

- These blocks are identical for all 22 referenced business areas

- These are high-level and transversal skills
- Each block is divided into 3 or 6 "standard" skills

On going actions at UBFC:

- **Make the link with scientific specificities**
- **7th block on life skills**
- **Making things operational for the PhD student**

The PhDs' skills to allow interaction: on going action at UBFC

Skill blocks (National reference)	List of Skills (National reference)	Adaptation of skills according to the scientific field (Doctoral School)	Application and acquisition framework
Block 1 Design and development of a research and development approach, studies and prospective	Have scientific expertise, both general and specific to a given field of research and work	Know how to analyze a situation. Define a problem. Develop work perspectives with the objective of contributing to the advancement of knowledge in the field	Training through research
			Additional training
	Take an overview of the state and limits of knowledge within a given sector of activity, at the local, national and international levels	To make a state of the art at the national and international level. Use documentation tools. Conduct field investigation work. Conduct interviews. Develop statistical analysis tools.	Training through research
			Additional training
	Identify and solve complex and new problems involving a plurality of fields, using the most advanced knowledge and skills.	Critically analyze existing concepts and develop new ones.	Training through research
			Additional training
	Identify opportunities for conceptual breakthroughs and design innovation axes for a professional sector	Make conceptual shifts based on the work of other disciplinary fields, and dare to contact researchers in related or more distant disciplines. Be able to learn quickly about other conceptual frameworks and methodologies.	Training through research
			Additional training
...

From the working matrix

The PhDs' skills to allow interaction: on going action at UBFC

- « Additional training » from the Doctoral College
 - The doctoral College and the Doctoral Schools provide a catalogue of transversal training courses for PhD students
 - Several courses allow you to get to know the socio-economic environments and vice versa. It is mainly in two blocks of courses: "Career Development" and "Management and Entrepreneurship".
- Several uses of this list of PhD's skills:
 - a portfolio of skills for PhD that they can continue to enrich as they pursue their professional careers,
 - an employment support,
 - support for employers from all socio-economic field to hire PhDs
 - support for socio-economic field to create exchanges with academia because it describes the skills of actors of the academia domain
- When there are doctors in a company, mutual knowledge is stronger and relationships are built more easily: to seek the right cooperation support mechanisms if necessary

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Some PhD level supports for interaction

- Development of PhD programs « shared » between laboratories, universities and companies using French financial aid schemes: the aim would be to increase their number at UBFC, and more generally to improve the relationships between PhD programs and stakeholders of the extra-academic socio-economic area :
 - CIFRE: financial support (National funding mechanism) to companies for the employment of a doctoral student on a subject in interaction between company / laboratory,
 - Specific action at Bourgogne Franche-Comté region: I.C.E. (Itinerary Researcher Entrepreneur), the region funds research projects at doctoral and post-doctoral level for business creation. The salary is financed as well as entrepreneurship training,
 - Willingness of UBFC to extend this scheme to support the creation of new and innovative activity within companies, with a scheme complementary to the CIFRE

Some PhD level supports for interaction

- Obtaining a PhD through professional experience: the French law requires universities to establish the possibility of obtaining a doctorate by validating appropriate professional activities.

Each university defines the procedure for obtaining a doctorate: procedure for the presentation of work (initial file, thesis, defence committee).

The general rule is that the candidate must demonstrate personal work of a high scientific level and original presented to the scientific community (papers, conferences) even if it has been carried out outside the academic environment.

In the end, it's a PhD from the university.

- Events for the society (public) and the socio-economic world: competitions such as “My thesis in 180 s” (regional, French national and international competitions), entrepreneur challenge competition where companies and company networks are implicated (regional and French national competition), researcher in the city (region BFC), the 24 hours of the time (city of Besançon), ...

Some PhD level supports for interaction

- Multi-partner national or international projects allow the construction of common ambitions between actors from different fields
 - Projects that are really focused on PhD studies and PhD training: Marie Curie ITN
 - Projects in which the doctoral student and posdoct are at the core of the activity (in addition to permanent researchers): European projects (some are very focused on economic activity), national projects (National Research Agency en France) with companies or not, and regional projects



a way to make the research expectations and the expectations of companies compatible and complementary?

- Alumni networks are potential vectors for very important exchanges; they can be based on professionally oriented social networks such as LinkedIn. At UBFC, we are currently creating a network of former UBFC's graduates (Alumni) to better track the careers of PhD graduates and promote their professional network in a career development approach.

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Concluding remarks and open questioning

- Is the hypothesis of skills development at the PhD level really the right way to create the link between the field and allow for two-way flow?
- We expect a lot from PhDs, not only high scientific capacities (specialists), but also very broad, transversal and very high level skills, and also high level life-skills... maybe it is too much?
- Is interaction created for all domains, in technologies as well as in the humanities?
- Learning to exchange: the language and objectives of some are not the language and objectives of others. Academic objectives do not always meet the objectives of companies... it takes time to get to know each other and the doctor is a brick of this mutual capacity.
- Numerous multi-partner national or international projects: it is "the" means of funding research and "obliges" interaction with the socio-economic world. The consequence: academic researchers sometimes become more project managers (management of a large number) in interaction with companies ...
- From the presentation of a PhD student in the MT180 competition: « At first, the team in the company with whom I interacted to prepare my PhD thesis wondered what I was doing there: now they understood and above all, the colleagues know what my work will bring them! »