

Pharmacy education & training in

BELGIUM

2011

PHARMINE (PHARMacy education IN Europe) is a project funded by the European Commission (LLL programme, Erasmus). Its aims and objectives are to survey the present state of pharmacy education and training in Europe, and on the basis of this survey, formulate recommendations for new competence curricula for pharmacy education and training in the EU. A model for pharmacy education and training for candidate member states and other countries will be proposed. The opportunities for a quality assurance and accreditation scheme for EU pharmacy courses will be investigated. The PHARMINE paradigm can be found here (we will include a web reference to the PHARMINE paradigm text).

PHARMINE will take into account two important issues, (i) the EU directive 2005/36/EC on the recognition of professional qualifications and, (ii) the Bologna declaration. PHARMINE will focus both on recommendations for core education and training and for activities such as industrial and hospital pharmacy.

The PHARMINE consortium consists of universities which are members of the European Association of Faculties of Pharmacy (EAFP) and EU partner associations representing community, hospital or industrial pharmacy, together with the European Pharmacy Students' Association and other interested bodies.

In order to reach the objectives of the PHARMINE project, a work-plan was set up and divided into 7 work-packages (WP).

The aims and objectives of PHARMINE WP7 are to:

1. Survey European higher education institutions (HEIs)
2. Produce a databank of pharmacy education and training courses in Europe leading to core pharmacist qualifications and to qualifications required for industrial and hospital pharmacy
3. Survey to what extent the "Bologna" (based on the principles enumerated in the Bologna declaration) and the "Sectoral profession" (based on 2005/36/EC) models for pharmacy education and training are compatible.

PHARMINE WP7 will produce several documents including a WP7 survey by country. **Such surveys are intended for the use of students and staff interested in mobility and/or contacts with the country in questions as well as educationalists working on pharmacy education and training in Europe.**

(see: [The PHARMINE paradigm.pdf](#))

The "PHARMINE survey of European higher education institutions delivering pharmacy education & training – BELGIUM" was produced by:

Jeffrey ATKINSON
PHARMINE Executive director
Pharmacolor Consultants Nancy
12 rue de Versigny
54600 Villers
France.
jeffrey.atkinson@pharma.uhp-nancy.fr
www.pharmine.org

Bart Rombaut
Dean of School of Pharmacy
Vrije Universiteit Brussel, Faculty of Medicine and
Pharmacy
Dept. Pharmaceutical Biotechnology and Molecular
Biology, Laarbeeklaan 103
B-1090 Brussel
Belgium
brombaut@vub.ac.be
www.vub.ac.be/MICH

Bert Thys
Vrije Universiteit Brussel, Faculty of Medicine and
Pharmacy
Dept. Pharmaceutical Biotechnology and Molecular
Biology, Laarbeeklaan 103
B-1090 Brussel
Belgium
brombaut@vub.ac.be
www.vub.ac.be/MICH

with the help of:

Lea NOEL
PHARMINE project assistant
Dept.MICH
Vrije Universiteit Brussel
Laarbeeklaan 103
B 1090 Brussel
Belgium
lea.noel@vub.ac.be
www.vub.ac.be/MICH

Christine CAPDEVILLE-ATKINSON
Vice-president
Nancy University – UHP
24-30 rue Lionnois - BP 60121
54 003 Nancy Cedex
France
christine.atkinson@uhp-nancy.fr
<http://www.uhp-nancy.fr/>

Contacts in Belgium.

	First contact	Second contact
Name	Bart Rombaut Dean of School of Pharmacy	Bert Thys
HEI	Vrije Universiteit Brussel, Faculty of Medicine and Pharmacy	
Street	Dept. Pharmaceutical Biotechnology and Molecular Biology, Laarbeeklaan 103	
City, zip	B-1090 Brussel	
Country	Belgium	
Telephone	+32-(0)2-477 44 97	32-(0)2-477 45 06
Fax	+32-(0)2-477 44 95	
e-mail	brombaut@vub.ac.be	bert.thys@vub.ac.be
Website	www.vub.ac.be/MICH	

Index

	Page
Summary	6
Introduction	7
Chapter 1. Organization of the activities of pharmacists, professional bodies	8
Chapter 2. Pharmacy HEIs, students and courses	14
Chapter 3. Teaching and learning methods	17
Chapter 4. Subject areas	19
Chapter 5. Impact of the Bologna principles	23
Chapter 6. Impact of EC directive 2005/36/EC	25
The Belgian scheme for pharmacy education and training.	27

Summary.

Pharmacy education and training in Belgium is characterized by:

In the Flemish community there is early specialisation (at the end of the 3rd year) to “pharmaceutical care” (community and hospital) or “drug development” (industry). In the French-speaking community, however, such early specialisation does not exist.

The responsible person in a community pharmacy has a 5-year HEI education with 6 months of practical training in a community pharmacy. The responsible person in a hospital pharmacy has a 6-year HEI education with 6 months of practical training in a community pharmacy and 600 hours in a hospital pharmacy.

There is a possibility to specialize in the 6th year with an advanced master degree in either hospital or industrial pharmacy

Introduction.

Statistics for Belgium.

Gross national income per capita (PPP international \$): 33,860

Life expectancy at birth m/f (years): 77/82

Healthy life expectancy at birth m/f (years, 2003): 69/73

Probability of dying under five (per 1 000 live births): 5

Probability of dying between 15 and 60 years m/f (per 1 000 population): 111/61

Total expenditure on health per capita (Intl \$, 2006): 3,183

Total expenditure on health as % of GDP (2006): 9.5

Detailed information is available at: World Health Statistics 2009:

<http://www.who.int/whosis/whostat/2009/en/index.html>

Highlights on health in Belgium.

Women continue to have a higher life expectancy than men: 82 years and 77 years respectively. For both men and women, this is at the average for the European countries. Belgium has a relatively high neonatal mortality rate. Antenatal care is one of the most important services in health care.

Non-communicable conditions account for 79% of all deaths in Belgium. Diseases of pulmonary circulation and other heart disease together with ischemic heart disease are the biggest killers. Thirty-four per cent of total deaths are due to cardiovascular diseases; 29% to cancer; and about 8% to external causes (intentional and unintentional injuries).

Sixty-three per cent of Belgian men and 41% of Belgian women are overweight. Fourteen per cent of men and 13% of women are obese. Eleven per cent of 15-year-old Belgian boys are pre-obese; about 2% are obese. About 8% of 15-year-old girls are pre-obese and 2% are obese. Twenty-eight per cent of men and 36% of women in Belgium are physically inactive.

The smoking prevalence is higher than the European average. The death rate from lung cancer is high for both sexes and is increasing among females. The incidence rate of lung cancer among Belgian men is among the highest in Europe and 50% over the average. Pure alcohol consumption levels in Belgium are about 7% lower than the European average.

The AIDS incidence has continued to decline among Belgian nationals, whereas the incidence among non-Belgian nationals has remained relatively stable or increased slightly. In Belgium, limited local testing at needle exchange locations found that about 39% of injecting drug users were infected with hepatitis C.

From: Highlights on health in Belgium, WHO, 2004.

Chapter 1. Organization of the activities of pharmacists, professional bodies

	Y/N, number or %	Comments
Community pharmacy		
Number of community pharmacists	12,000	
Number of community pharmacies	5729	From: www.apotheek-net.be (17 November 2008)
Competences and roles of community pharmacists		<p>In the Flemish community there are 5 master degrees and in the French speaking community 4 master degrees (see also scheme). Belgian HEIs in Flanders deliver 2 types of pharmaceutical master and 3 types of 'advanced' master degree:</p> <p>Master: Pharmaceutical Care or Drug Development (5 years) Advanced master: Industrial Pharmacy (6 years), Hospital Pharmacy (6 years) or Clinical Biology (10 years)</p> <p>Although a master in Pharmaceutical care is a better preparation for community pharmacy and a master in drug development for industry, both master holders (provided they have passed a traineeship of 6 months in a community pharmacy), receive the diploma of pharmacist and are qualified to work as a community pharmacist. Only master holders in pharmaceutical care and drug development can enter into the advanced master level; by consequence also these holders of a advanced master degree are qualified to work as a community pharmacist.</p> <p>Belgian HEIs in the French-speaking community deliver 1 pharmaceutical master and 3 types of 'advanced' master degree:</p> <p>Master: Pharmaceutical Sciences Advanced master: see also Flanders</p> <p>The prerequisite to be qualified as a community pharmacist for the government is to have passed a 6 month traineeship in a community pharmacy during the education and training period. In this way master holders in pharmaceutical care as well as in drug development (provided they have passed the traineeship) can have the diploma of pharmacist and thus to be qualified as a community pharmacist.</p> <p><u>Master in Pharmaceutical Care:</u></p> <ul style="list-style-type: none"> • specific competences for working in a community pharmacy • knowledge of the practical frame work of a community pharmacy • collaboration with other health workers (doctors, nurses...) with the notion of integrated care of an individual • cognizance of the medico-legal aspects of community pharmacy practice and of the workings of the social security system • knowledge and insights into all aspects of pharmaceutical care, with the communicative skills required for giving advice and information on the choice and rational use of drugs • transfer of information and advice on drugs in an appropriate way to the patient, to health authorities and other health workers • ability to apply scientific methodology (collection of data through observation or experimentation with testing of hypotheses) to problems encountered • ability to adapt to changes in the profession and its environment through LLL and other aptitudes

		<p>Pharmacists can perform generic drug substitution in an independent way (i.e. without consulting the doctor).</p> <p>Pharmacists have no prescription rights (again without consulting the doctor).</p> <p>Pharmacists play any diagnostic role (measurement and monitoring of blood pressure, blood sugar).</p> <p>There are no barriers for pharmacists from other EU countries wishing to work as pharmacists in Belgium (EC directive 2005/36/EC applies).</p>
Is ownership of a community pharmacy limited to pharmacists?	No	<p>There are no government restrictions on ownership.</p> <p>There is no restriction on the business form a pharmacy may take, and for instance mergers with a health insurance company or a wholesale supplier are possible.</p> <p>Everybody can own a pharmacy, but there has to be a responsible pharmacist present during opening hours. The functionary / responsible pharmacist (<i>apotheker-titularis</i>) should live in the in the same municipality as that in which the pharmacy is located in order to ensure the emergency service (Royal Decree May 1885 - Article 26).</p>
Are there rules governing the geographical distribution of community pharmacies?	Yes	<p>The law regulates the number of pharmacies on two criteria:</p> <ul style="list-style-type: none"> - population density - geographic repartition <p>The law distinguishes 3 categories of <i>population density</i>:</p> <ul style="list-style-type: none"> i) an area with a population smaller than 7500 (k = 2000) ii) population of 7500 - 30000 (k = 2500) iii) population > 30000 (k = 3000) <p>The maximum number of permitted pharmacies is equal to the quotient of the area's inhabitants, divided by its respective k</p> <p>An exception to this regulation can be made under the following <i>geographical</i> terms:</p> <ul style="list-style-type: none"> i) when the nearest pharmacy is located 1 km beyond the new location and this new location can accommodate for 2500 customers ii) similar but respectively 3 km and 2000 clients iii) similar but respectively 5 km and 1500 clients (2) <p>(Royal decree 25/9/1974)</p> <p>In general (simplified):</p> <ul style="list-style-type: none"> - country side (< 100 000 citizens): 1 pharmacy/2500 citizens - urban area (> 100 000 citizens): 1 pharmacy/1000 citizens
Are drugs and healthcare products available to the general public by channels other than pharmacies?	partially	<p>Drugs (registered medicines) are only available through pharmacies. Health care products that are not registered medicines are also available through other channels.</p> <p>The 5000 veterinarians working in Belgium can also dispense prescription drugs to the general public (to be taken by animals).</p>
Are persons other than pharmacists involved in community practice?	Yes	<p>"Pharmaceutical-technical assistants" are also involved in community practice, but they operate always in the supervision of a pharmacist.</p>
Their titles and number(s)	6500	<p>Legal conditions on the profession of "Pharmaceutical-technical assistants" have recently been confirmed (Royal Decree July 6, 2009): a diploma of "Pharmaceutical-technical assistant" granted by a qualified HEI (by the Ministry of Health) is required</p>
Their qualifications		
Organisation providing and validating the E&T		<p>University colleges are providing and validating the organisation of the E&T of "Pharmaceutical-technical assistants".</p> <p>Erasmus hogeschool Brussel: www.erasmushogeschool.be</p> <p>Katholieke hogeschool Leuven: www.katholiekehogeschool.be</p>
Duration of studies	3 years	

Subject areas		Pharmaceutical and Laboratory Techniques The student graduates as a 'professional' bachelor.
Competences and roles		"Pharmaceutical-technical assistants" assist the community pharmacist in the daily tasks but always under the supervision of a community pharmacist.
Hospital pharmacy		
Number of hospital pharmacists	500	More information at: <ul style="list-style-type: none"> • BAHP (Belgian Association of Hospital Pharmacists: Association Belge des Hôpitaux, asbl Wilrijkstraat 10, B-2650 Edegem. This is the professional body representing hospital personnel and lobbying for hospital practice. http://www.hospitals.be • Vlaamse vereniging van ziekenhuisapothekers, VZA Secretariaat, UZ Gent Apotheek, De Pintelaan 185, B-9000 Gent http://www.bahp.be • Association francophone des pharmaciens hospitaliers, http://www.afphb.be
Number of hospital pharmacies	267	General Hospital: 163 Specialized Hospitals: 31 Psychiatric Hospitals: 66 University Hospitals: 7
Competences and roles of hospital pharmacists		<u>Master in Hospital Pharmacy:</u> <ul style="list-style-type: none"> • knowledge of the pharmaceutical and hospital legislation, and legislation in relation with the hospital pharmacy • financial management of a hospital pharmacy • processes concerning purchase, stock management and distribution of drugs in the hospital • tariffication of hospital pharmacy transactions • knowledge of the principles and practice of sterilization • fabrication of hospital pharmacy preparations and formulations • knowledge of the principles and practice of quality assurance and management • participation in hospital policy and decision taking concerning drugs, medical devices and implants, and hospital hygiene • communication with other health workers and members of the board of the hospital • evaluation of individual drug use in relation to pathology • monitoring the hospital drug budget in relation to pathology financing, year reports, etc...) in relation with the given service(s) • scientific research in the setting of an hospital pharmacy The roles of hospital pharmacists in clinical trials of drugs: <ul style="list-style-type: none"> - coordinating and administrative function in clinical trials: planning and follow-up - preparation of pharmaceutical formulations of the drug in clinical trial
Pharmaceutical and related industries		
Companies with production, R&D and distribution		Association of the Belgian pharmaceutical industries: www.pharma.be Federation of Belgian generic medicines firms: www.febelgen.be
Industrial pharmacy		
Number of pharmacists working in industry	800	This is the number of pharmacists employed in areas other than community or hospital, viz industry, research, education, etc.
Competences and roles of industrial pharmacists		<u>Master in Drug Development:</u> <ul style="list-style-type: none"> • Specific competences for work in the pharmaceutical, cosmetic, food and nutrition or chemical industry, or in an HEI in <ul style="list-style-type: none"> ○ Quality assurance ○ Manufacture

- Pharmacovigilance
- Medical / pharmaceutical information services
- Sales and marketing
- R&D
- Basic and applied scientific research.
- Knowledge and insights into
 - Features of active compounds and the biological systems on which they act
 - Biopharmaceutical characteristics of pharmaceutical preparations
 - Therapeutics and rational use of drugs
 - Phases of preclinical and clinical drug design
 - Industrial processes of drug cosmetic, food and nutrition or chemical production
 - Analysis and quality management of drugs and raw materials.
- Knowledge and insights required for the profession of community pharmacist and be cognizant of all aspects of pharmaceutical care
- Ability to apply scientific methodology (collection of data through observation or experimentation with testing of hypotheses) to problems encountered
- Ability to adapt to changes in the profession and its environment through LLL and other aptitudes

Advanced Master in Industrial Pharmacy:

In addition to the competences of the Master in Drug Development (see above), the Master Industrial Pharmacy will possess in-depth knowledge and competences in:

- Processes of production of drugs on an industrial scale
- Implementation and to supervision of quality control of drugs and quality management and control (QA, GMP, ISO, etc.)
- Implementation of research into drug delivery systems
- Integration of all aspects of R&D: chemical, analytical, medical, drug delivery systems, drug packaging, marketing...
- Principles and practice of drug registration
- Preclinical and clinical drug evaluation and expertise (participation in experimental and clinical pharmacological research)
- Principles of industrial economics and of marketing and sales

The advanced master in industrial pharmacy is a possible follow-on from a master in drug development. Is this true? It can be seen as such but it is not strictly.

The specific job for master in industrial pharmacy is the “responsible person”

A graduate with a master in drug development can act as a responsible pharmacist in a community provided they have passed a traineeship of 6 months in a community pharmacy).

Other sectors

Sectors in which pharmacists are employed

Clinical biology

In Belgium there are two types of clinical biology:

- Advanced master in clinical biology for pharmacists (only pharmacists can enter)
- Advanced master in clinical biology for medicines (only medicines can enter)

Only masters in clinical biology for medicines are allowed to make a diagnosis

		Academic research Education Ministry of Health (FAGG and RIZIV)
Roles of professional associations		
Registration of pharmacists	Yes	<p>Registration at the Order of Pharmacists ("Ordre des pharmaciens") is required (Royal Decree N°78, 10/11/1967). In order to become registered, the registrant's education should be acknowledged by the medical commission of the government. This "diploma's visa" should be granted first. The chain of events is as follows:</p> <ol style="list-style-type: none"> 1. In Flanders the NVAO accredits the HEI E&T. NVAO (in Dutch: Nederlands-Vlaamse Accreditatieorganisatie) is not an organisation under the auspices of the Flemish government but the Accreditation Organisation of the Netherlands and Flanders. The organisation was established by international treaty and it ensures the quality of higher education in the Netherlands and Flanders. In the French-speaking community there is no such accreditation 2. The graduate is awarded an accredited master degree 3. The accredited master is accepted by the Belgium Federal Public Service for Health, and on the basis of this, the graduate receives a "diploma's visa" 4. The national Order of Pharmacists registers the graduate on the basis of the "diploma visa". 5. The graduate now practices pharmacy. <p>The Order of Pharmacists has no requirement or exigency in terms of validation of practice (traineeship is validated by the HEI not the Order), oral or written examination, language capability, residency...</p> <p>In other words, registration as a professional pharmacist is under the control of the HEI (they deliver the master degree).</p>
Creation of community pharmacies, control of territorial distribution	Yes	This is the competence of the FAGG / AFMPS (Federal Agency for Medicines and Health Products) (www.fagg-afmps.be) (English: http://www.fagg-afmps.be/en/)
Ethical and other aspects of professional conduct	Yes	<p>Under the auspices of the Order of Pharmacists. Revocation in the following cases:</p> <ol style="list-style-type: none"> 1. Incapacity (withdrawal of diploma's visa) 2. (extreme) disciplinary sanction 3. At the request of the holder of the diploma's visa
Quality assurance and validation of HEI courses for pharmacists	Yes	<p>In Flanders, HEIs for pharmacists are accredited by an independent accreditation organisation (NVAO). The accreditation is valid for 8 years. There is no accreditation in the French-speaking community</p>
Other (please specify)		<p>APB: association of local professional pharmacy associations (Community pharmacies are locally organised in local organisations. All the local organisations form the APB)</p> <p>The APB has the following tasks:</p> <ol style="list-style-type: none"> i) professional defence while the associations represent pharmacists at negotiations with the government ii) access to (scientific, economic and legal) information

References	
References to texts and articles of national law	<p>Royal decrees :</p> <ul style="list-style-type: none"> • Royal Decree No 78 (<i>Koninklijk besluit nr. 78 betreffende de uitoefening van de gezondheidszorgberoepen</i>). On exercising medical professions (registration requirements) (10/11/1967) http://www.health.fgov.be • Royal Decree of 10/25/1974 (<i>Koninklijk besluit van 25 september 1974 betreffende de opening, de overbrenging en de fusie van voor het publiek opengestelde apotheken</i>) On the opening, ownership changes and mergers of community pharmacists (location) (B.S. October 5th 1974) http://www.health.fgov.be http://www.fagg-afmps.be/nl/binaries/AR-KB-1974-09-25_tcm290-27164.pdf • Royal Decree of 6/19/1885 (<i>Koninklijk besluit houdende goedkeuring der nieuwe onderrichtingen voor de geneesheren, de apothekers en de drogisten</i>) Education of physicians, pharmacists and druggists (B.S. June 19th 1885) http://www.ordredespharmaciens.be <p>Belgian law translating directive 2005/36/EC into national law: http://www.fagg-afmps.be/nl/binaries/AR-KB-2006-12-14_tcm290-27173.pdf http://www.fagg-afmps.be/nl/binaries/AR-KB-2009-01-21-pharmaciens_tcm290-37379.pdf</p>
Websites	<p>APB (Association Pharmaceutique Belge) http://www.apb.be</p> <p>OPHACO (Organisation des Pharmacies Cooperatives) http://ophaco.nexenservices.com</p> <p>Société Belge des Sciences Pharmaceutiques http://www.bgfw.be</p> <p>Dynaphar (groupement de pharmaciens indépendants) http://www.dynaphar.be</p> <p>BAHP (Belgian Association of Hospital Pharmacists) http://www.hospitals.be http://www.hospitals.be/nederlands/ziekenhuizen/instellingstype.html</p> <p>NVAO http://www.nvao.net/</p> <p>Vrije Universiteit Brussel: www.vub.ac.be (in English: http://www.vub.ac.be/english/index.php)</p> <p>ECORYS "Study of regulatory restrictions in the field of pharmacy" 2007 (http://ec.europa.eu/internal_market/services/pharmacy_en.htm)</p> <p>Ministry of health : Service public fédéral (SPF) Santé publique, Sécurité de la Chaîne alimentaire et Environnement Eurostation, Bloc 2 Place Victor Horta 40, B.10 - Room 9D34 B-1060 Bruxelles Belgium Tel: +32 2 220 20 11 Fax: +32 2 220 20 67 http://www.belgium.fgov.be/</p> <p>Orde der Apothekers – Ordre des Pharmaciens (Belgian Order of Pharmacists): http://www.ordredespharmaciens.be/</p>

Chapter 2. Pharmacy HEIs, students and courses

	Y/N, number or %	Comments
Total number of HEIs in your country	9	There are 17 universities (or Faculties) in Belgian (Flanders and Wallonia) of which 9 are delivering pharmacy E&T and 22 HEI – non university level in Flanders (no numbers are available for Wallonia but this will be in the same order).
Public	9	
Organisation of HEIs		
Independent faculty	3	Catholic University Leuven (KULeuven) University of Gent (UG) University Libre de Bruxelles (ULB)
Attached to a medical faculty	5	Vrije Universiteit Brussel (VUB) Université de Mons Hainaut Université catholique de Louvain (UCL) Université de Liège Faculties universitaire Notre-Dame de la Paix Namur
Other (please specify)	1	Faculty of Pharmaceutical, Biomedical and Veterinary Sciences - University of Antwerp (UA)
Do HEIs offer B + M degrees?	7	Catholic University Leuven (KULeuven) University of Gent (UG) University Libre de Bruxelles (ULB) Vrije Universiteit Brussel (VUB) University of Antwerp Université catholique de Louvain (UCL) Université de Liège
Belgium		
Teaching staff		
Number of teaching staff	~ 185	
Professionals from outside the HEIs	~ 500	
Students		
Places at entry following secondary school	~ 1000	
Applicants for entry	~ 1000	No <i>numerus clausus</i>
Graduates becoming pharmacists	~ 500	The success rate is 50% - substantial failure rate after L1, the first year of the bachelor course.
International students (EU member states)	< 20	
International students (non EU)	< 20	
Entry requirements (beginning of S1 of B1, following secondary school)		
Pharmacy-related, entrance examination	No	A diploma certifying successful completion of secondary education is sufficient.
Requirements for international students (EU or non EU).		European students: only proof of secondary education Non European students: proof of secondary education + language exam (French or Dutch)
Advanced entry		
At which level?		No entry at advanced level - only holders of a bachelor degree in

		pharmaceutical sciences can enter at the master level
Fees per year		
For home & EU	567,8 €	
For non EU students	1131,6 €	
Length of course	5 years	
Specialization		
Specialized courses?	Yes	
In which years?		After graduation as a pharmacist (At the level of advanced Master (6 th year)
In which specialisation (industry, hospital...)?		6 th year: Industry and hospital pharmacy (1 year) 6 th through 10 th year: Clinical Biology for Pharmacy (5 years)
What are the student numbers in each specialization?	1	Industry pharmacy: 45 Hospital pharmacy: 60 Clinical Biology for Pharmacy: 15
Past and present changes in E&T		
Have there been any major changes since 1999?	Yes	Since the Bologna agreement: - implementation of Bachelor/Master structure - implementation of ECTS
Are any major changes envisaged before 2019?	Partially	Competences will be adjusted to new needs in the community pharmacy.
VUB, Brussels		
Teaching staff		
Number of teaching staff	18.6	FE: 9.6 (full professors affiliated to the Pharmaceutical Institute) + 9 (full professors of the Faculty of Medicine and Pharmacy not affiliated to the Pharmaceutical Institute)
Students		
Places at entry following secondary school	~ 100	
Applicants for entry	~ 80	
Graduate pharmacists.	50	
International students EU member states	<2	
Number of international students (non EU)	<1	
Advanced entry		
At which level?		- S1 of B2 - S1 of M1 (Bachelor of Pharmaceutical Science of any EU HEI)
What are the requirements?		“Professional” Bachelor in Medicinal and Laboratory Practice “Professional” Bachelor in Pharmaceutical Practice “Academic” Bachelor in Medicine (Medicine = 3 years bachelor + 4 years master) in principle, students from the 3 year of bachelor in medicine can have an advanced entry at bachelor level but this is only in theory. Bachelor in Biomedical Sciences
Specialization		
What are the student numbers in each specialization?		Industry pharmacy: 1 to 2/year Hospital pharmacy: 1 to 2/year Clinical Biology: 1/year

References

National websites

Ghent University: www.ugent.be, in English: <http://www.ugent.be/en>

Vrije Universiteit Brussel: www.vub.ac.be, in English <http://www.vub.ac.be/english/index.php>

University of Leuven: www.kuleuven.be

University of Antwerp: www.ua.ac.be, in English: <http://www.ua.ac.be/main.aspx?c=.ENGLISH>

Université Libre de Bruxelles: www.ulb.ac.be

Institut de Pharmacie: <http://www.pharma.ulb.ac.be/>

Université catholique de Louvain: www.ucl.ac.be in English: <http://www.uclouvain.be/en-universite.html>

Université de Mons-Hainaut: www.umh.ac.be

University of Liege: www.ulg.ac.be

Facultés Universitaires Notre-Dame de la Paix: www.fundp.ac.be

Flemish Interuniversity Platform www.vlir.be

Chapter 3. Teaching and learning methods

Student hours									
Method	Year 1	Year 2	Year 3	Year 4		Year 5		Year 6	
				Pharmaceutical care	Drug development	Pharmaceutical care	Drug development	Hospital	Industrial
HEIs courses									
Lecture	314	286	290	392	360	47.5	57.5	299	225
Tutorial ^d	-	-	80	-	-	-	-	-	-
Practical	308	418	405	350	420	160	140	82	52.5
Project work ^d	40	60	110	40	20	540	540	70	870
Total	662	764	885	782	800	747.5	727.5	451	1147.5
Traineeship									
Hospital	-	-	-	-	-	-	-	600	-
Commun.	-	-	-	-	-	1000	1000	-	-
Industrial	-	-	-	-	-	-	-	-	1000 ^c
Total	662	764	885	782	800	1747.5	1727.5	1051	2147.5
Electives									
Optional						From 52 to 156	From 52 to 156		
Total	662	764	885	782	800	1799.5 – 1903.5	1779.5 – 1883.5	1051	2147.5

The university validates all courses, traineeship and electives.

HEI courses – 2nd year: also includes tutorials (interactive problem solving sessions). The borderline between tutorial and independent project work is unclear. During the tutorial there is some independent project work (when the student has to search for information,...). On the other hand during independent project work there is continuously feedback from tutors or mentors (professors and teaching assistants) to the students.

Electives – 5th year: the student has to choose two topics (6 topics on average are available). These topics account for 56 hours of lectures. Alternatively, the student can opt for an “internship” (home or abroad) and this counts for an independent project work of 156 h

4th and 5th years: at the VUB it is possible to follow one of two different Masters (Master in Pharmaceutical Care or Master in Drug Development) to obtain the M. Sc. Pharmacy degree required for registration as a professional pharmacist.

A pharmacist, who wishes to specialise further and work as a hospital or industrial pharmacist in Belgium, needs a diploma in Hospital Pharmacy or Industrial pharmacy, respectively. Both disciplines are recognized by the Flemish government as being an advanced or complimentary Master. The pre-requisite to follow both courses is a pharmacy degree (master). For this reason, advanced masters constitute a 6th year since they can only be followed after the 5th year pharmacy master degree.

There is no traineeship foreseen during the 6th year Advanced Master in Industrial pharmacy. However a traineeship of 1000 hours has to be passed before a pharmacist is certified as a qualified industrial pharmacist.

References	
Texts and articles of national law	<p>Education in Flanders: www.ond.vlaanderen.be</p> <p>Education in Wallonia and Bruxelles: http://www.enseignement.be/</p> <p>Structures of education, vocational training and adult education systems in Europe (EURYDICE)</p> <ul style="list-style-type: none"> • Main website: http://eacea.ec.europa.eu/education/eurydice/eurybase_en.php • Belgium – Flemish community: <ul style="list-style-type: none"> ○ National summary sheet: http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/national_summary_sheets/047_BN_EN.pdf ○ Structure of education: http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/structures/041_BN_EN.pdf ○ Full country description: http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/eurybase_full_reports/BN_EN.pdf • French speaking community: <ul style="list-style-type: none"> ○ National summary sheet: http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/national_summary_sheets/047_BF_EN.pdf ○ Structure of education: http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/structures/041_BF_EN.pdf ○ Full country description: http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/eurybase_full_reports/BF_EN.pdf
VUB sites for courses	<p>Bachelor in pharmaceutical sciences : http://aiv.vub.ac.be/opaweb/index?page=modeltraject&omaNummer=2050&doelgroep=TS&language=en</p> <p>Master in Pharmaceutical Care : http://aiv.vub.ac.be/opaweb/index?page=modeltraject&omaNummer=2051&doelgroep=TS&language=en</p> <p>Master in Drug Development : http://aiv.vub.ac.be/opaweb/index?page=modeltraject&omaNummer=2052&doelgroep=TS&language=en</p> <p>Hospital pharmacy : http://aiv.vub.ac.be/opaweb/index?page=modeltraject&omaNummer=2062&doelgroep=TS&language=en</p> <p>Industrial pharmacy : http://aiv.vub.ac.be/opaweb/index?page=modeltraject&omaNummer=2061&doelgroep=TS&language=en</p>

Chapter 4. Subject areas

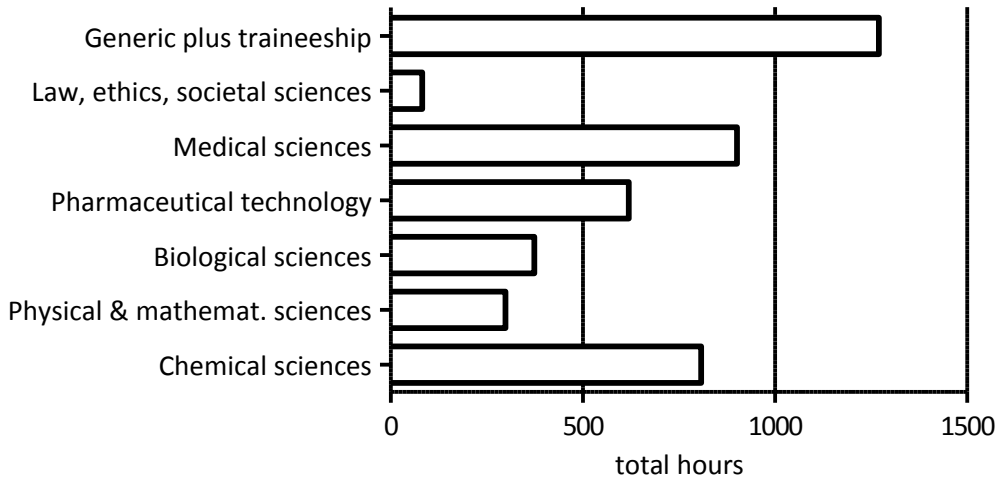
Student hours

Subject area	Year 1	Year 2	Year 3	Year 4 ^a		Year 5 ^{a+c}		Year 6 ^b	
				Pharmaceutical care	Drug development	Pharmaceutical care	Drug development	Hospital	Industry
CHEMSCI	232	262	261.5	52	117	-	-	-	-
PHYSMATH	236.5	62	-	-	-	-	-	-	-
BIOLSCI	103.5	267	-	3	3	-	-	-	-
PHARM-TECH	-	-	259.5	323	395	37	83	70	165
MEDISCI	60	112	257.5	337	210	135	86	286	45
LAWSOC	-	-	-	38	46	44	37	95	67.5
GENERIC	30	61	106.5	29	29	43.5	43.5	-	-
Total	662	764	885	782	800	259.5	249.5	451	277.5

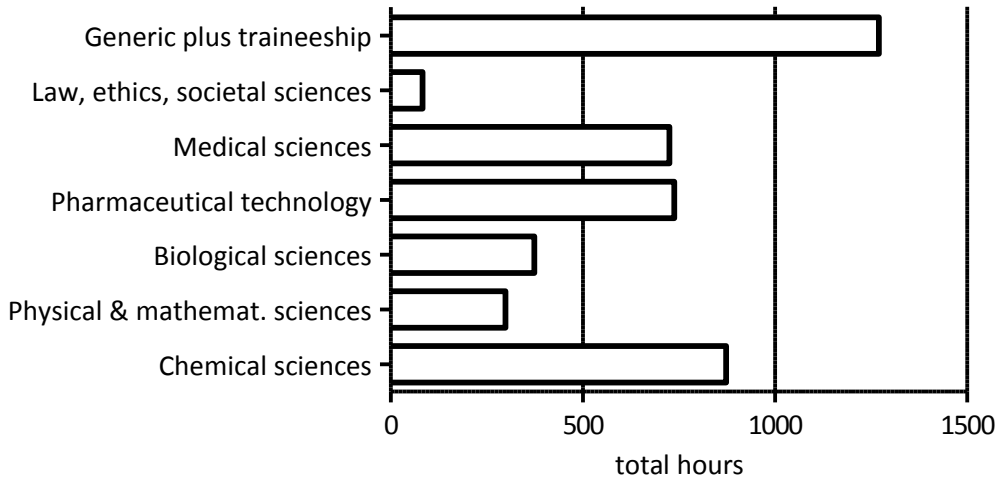
^c During the 2nd Master in Pharmaceutical Care and 2nd Master in Drug Development the student has to present a Master thesis. This Master thesis is an important part of the end evaluation of the students in Pharmaceutical Sciences and must be seen as an end essay. As such, the student is expected to: (i) write a scientifically correct text under supervision, but with an important independent input, concerning a subject in the field of Drug Discovery and Development or Pharmaceutical Care, which is related to the curriculum, and this according to the general quality standards of a scientific report, (ii) display a sufficient amount of problem solving capacity within the field and (iii) to dispose of a general critical-reflecting research attitude. Therefore, the Master thesis is an original experimental work supported with bibliographic data. Experimental work is defined as each operation which produces data that is subsequently processed and reported in a written thesis. The choice of the subject is free within the framework of the courses given within the college calendar and the subjects presented by researchers from CePhar VUB at the beginning of the second semester of the 1st Master year. Because a student is free to choose a given subject and the subject can be quite diverse, it is rather difficult to define the Master thesis in a given subject area. For this reason, we don't have included the hours spent on the Master thesis in any of the subject areas but instead we opted to show these hours in this comment section:

Student hours Master Thesis 2nd Master Pharmaceutical Care: 540
 Student hours Master Thesis 2nd Drug Development: 540

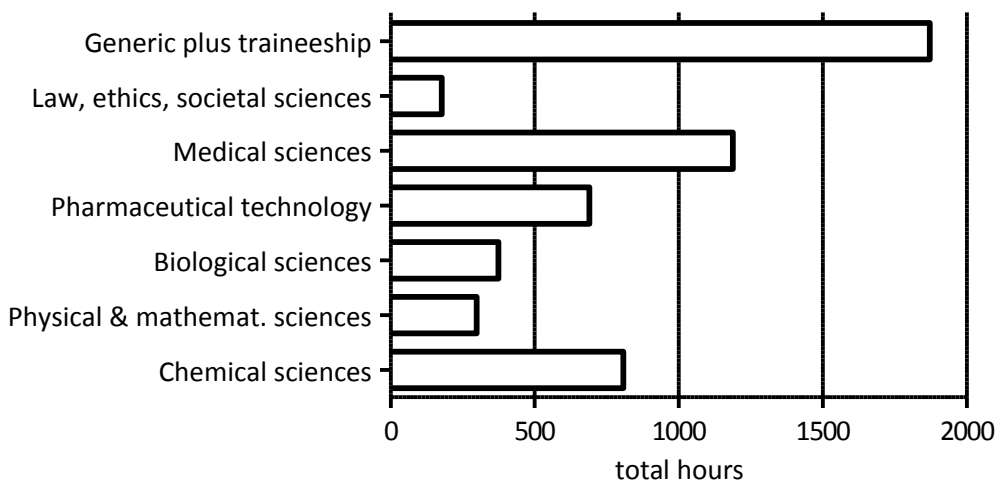
Student hours by subject area – pharmaceutical care.



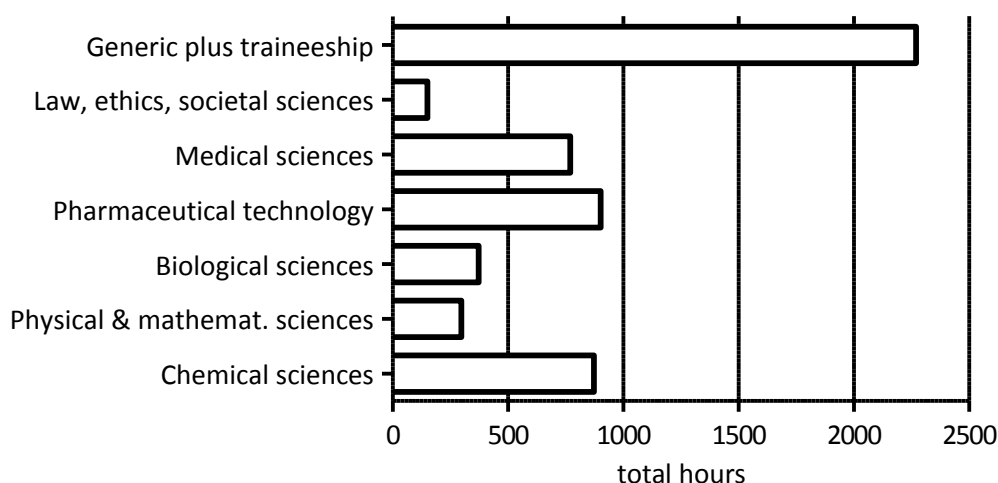
Student hours by subject area – drug development.



Student hours by subject area – hospital pharmacy.



Student hours by subject area – industrial pharmacy.



References

Texts and articles of national law

Education in Flanders: www.ond.vlaanderen.be

Education in Wallonia and Bruxelles: <http://www.enseignement.be/>

Structures of education, vocational training and adult education systems in Europe (EURYDICE)

- Main website: http://eacea.ec.europa.eu/education/eurydice/eurybase_en.php
- Belgium – Flemish community:
 - National summary sheet: http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/national_summary_sheets/047_BN_EN.pdf
 - Structure of education: http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/structures/041_BN_EN.pdf
 - Full country description: http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/eurybase_full_reports/BN_EN.pdf
- French speaking community:
 - National summary sheet: http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/national_summary_sheets/047_BF_EN.pdf
 - Structure of education: http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/structures/041_BF_EN.pdf
 - Full country description: http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/eurybase_full_reports/BF_EN.pdf

VUB sites for courses	<p>Bachelor in pharmaceutical sciences : http://aiv.vub.ac.be/opaweb/index?page=modeltraject&omaNummer=2050&doelgroep=TS&language=en</p> <p>Master in Pharmaceutical Care : http://aiv.vub.ac.be/opaweb/index?page=modeltraject&omaNummer=2051&doelgroep=TS&language=en</p> <p>Master in Drug Development : http://aiv.vub.ac.be/opaweb/index?page=modeltraject&omaNummer=2052&doelgroep=TS&language=en</p> <p>Hospital pharmacy : http://aiv.vub.ac.be/opaweb/index?page=modeltraject&omaNummer=2062&doelgroep=TS&language=en</p> <p>Industrial pharmacy : http://aiv.vub.ac.be/opaweb/index?page=modeltraject&omaNummer=2061&doelgroep=TS&language=en</p>
--------------------------------	---

Chapter 5. Impact of the Bologna principles

Bologna principle	Is the principle applied? Y/N or partially	How is it applied? Does your HEI have multilateral recognition and agreements? Other comments.	
1. Comparable degrees / Diploma Supplement	Yes	- Readable and comparable degrees: yes - Diploma supplement: yes	
2. Two main cycles (B and M) with entry and exit at B level	partially	Courses are divided in two main cycles (3B and 2M) There are no job opportunities for persons with a Bachelor degree as this is an “academic” bachelor degree. A person with a bachelor degree in pharmacy from another national HEI can enrol into M program. A person with a bachelor degree in pharmacy from HEI in another EU country can enrol into M program.	
3. ECTS system of credits / links to LLL	Yes	3 B -> 180 ECTS 2 M -> 120 ECTS	
4. Obstacles to mobility	Partially	Language: Dutch is the basic language in the full curriculum. Only the independent project work resulting in a Master thesis can be done in another language than Dutch (preferentially in English) Erasmus exchange of staff from elsewhere: lessons can occasionally be taught in English rather than Dutch	
5. European QA	Yes	The quality of E&T in Flanders is guaranteed by an independent organisation organized by the Netherlands and Belgium (NVAO: Nederlands-Vlaams accreditatie organisatie – Dutch-Flemish accreditation organisation). This organisation provides the accreditation of all HEIs in the Netherlands and Flanders.	
6. European dimension	Yes		
ERASMUS staff exchange to your HEI from elsewhere		Staff months: 1	2 staff members but in total 1 staff month
ERASMUS staff exchange from your HEI to other HEIs		Less than 1 month	
ERASMUS student exchange to your HEI from elsewhere		Student months: 10	
ERASMUS student exchange from your HEI to other HEIs		Student months: 2	

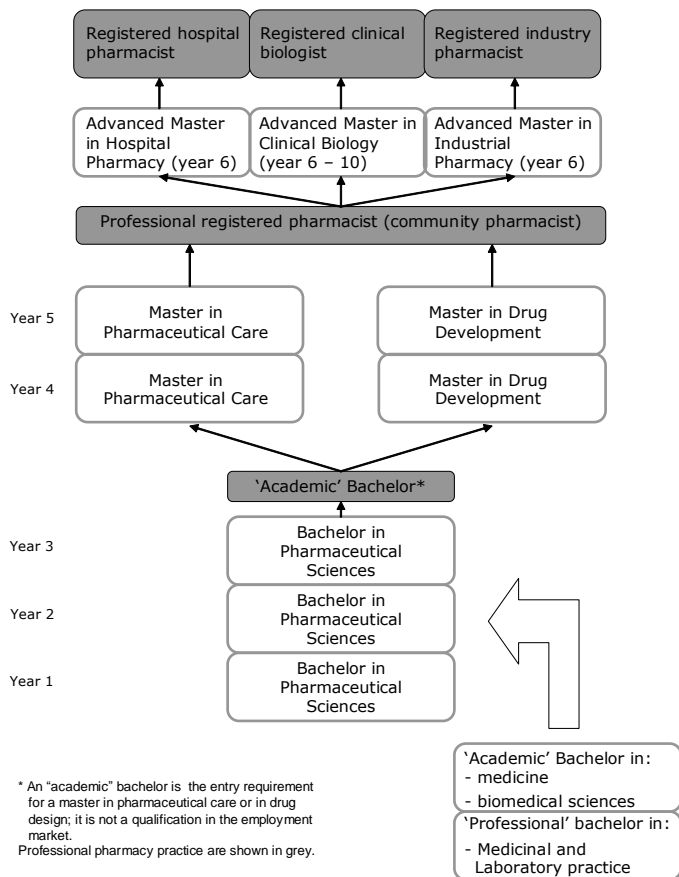
References	
References to texts and articles of national law	<ul style="list-style-type: none"> * Flemish decree of 06/12/1991 (personnel) (Vlaams decreet van 12 juni 1991 betreffende de universiteiten in de Vlaamse Gemeenschap) * Flemish decree of 04/04/2003 (structure of HEI) (decreet van 4 april 2003 betreffende de herstructurering van het hoger onderwijs in Vlaanderen) * Flemish decree of 04/30/2004 (flexibilisation) (decreet van 30 april 2004 betreffende de flexibilisering van het hoger onderwijs in Vlaanderen)
QA website	www.nvao.net

Chapter 6. Impact of EC directive 2005/36/EC

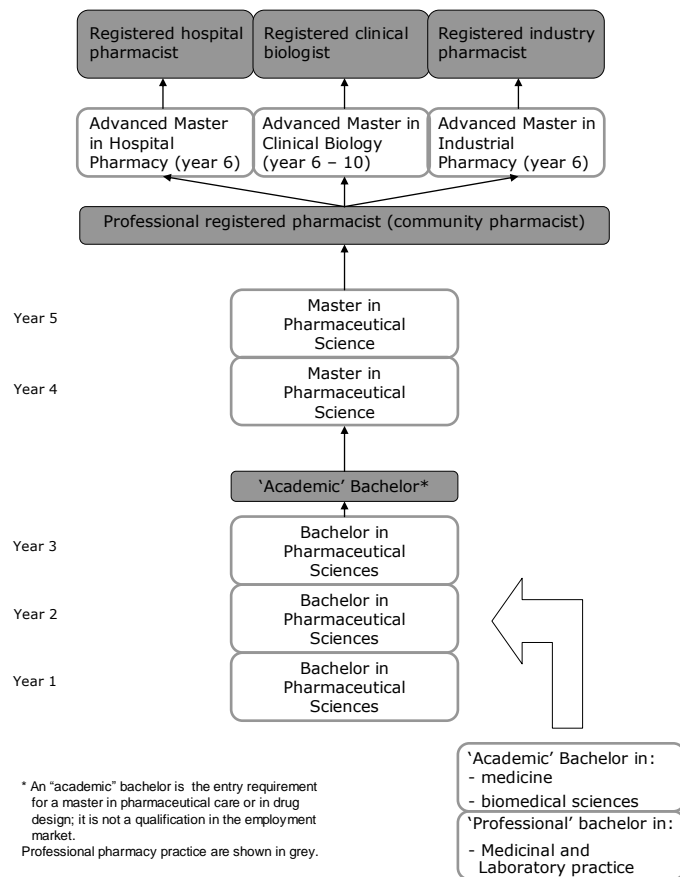
The directive states	How does / will this directive statement affect pharmacy E&T?	If you wish to expand your answer, please add your comments below. Do you consider the directive statement valid? If not how would you change it?
“Evidence of formal qualifications as a pharmacist shall attest to training of at least <u>five years' duration</u> ,...”	The pharmacy E&T in all Belgian universities complies with the EC directive 2005/36/EC regarding this state	
“ <u>...four years of full-time theoretical and practical training at a university or at a higher institute of a level recognised as equivalent, or under the supervision of a university;</u> ”	The pharmacy E&T in all Belgian universities complies with the EC directive 2005/36/EC regarding this state	
“ <u>...six-month traineeship in a pharmacy which is open to the public or in a hospital, under the supervision of that hospital's pharmaceutical department.</u> ”	The Belgian royal decree stipulates that a traineeship of six months can be done in a pharmacy which is open to the public or in a hospital pharmacy and complies therefore with the EC directive 2005/36/EC. The Belgian universities, however, adopted a resolution among themselves that only a maximum of three months traineeship can be done in a hospital pharmacy (closed to the public or a military) and that at least three months out of the six months traineeship have to be done in a pharmacy open to the public.	
“The balance between theoretical and practical training shall, in respect of each subject, give <u>sufficient importance to theory to maintain the university character of the training.</u> ”	The pharmacy E&T in all Belgian universities complies with the EC directive 2005/36/EC regarding this state	
Directive annex	How does / will this directive annex affect pharmacy E&T?	
V.6. PHARMACIST 5.6.1. Course of training for pharmacists Plant and animal biology / Physics / General and inorganic chemistry / Organic chemistry / Analytical chemistry / Pharmaceutical chemistry, including analysis of medicinal products / General and applied biochemistry (medical) / Anatomy and physiology; medical terminology / Microbiology / Pharmacology and pharmacotherapy / Pharmaceutical technology / Toxicology / Pharmacognosy / Legislation and, where appropriate, professional ethics.	The pharmacy E&T in all Belgian universities complies with the EC directive 2005/36/EC regarding this annex Other subjects could be added such as: <ul style="list-style-type: none"> • pharmaceutical biotechnology • pharmaceutical care 	

References	
National law	<p>Belgian Federal Royal Decree of 21/01/2009 concerning the basic principles and duties for community and other pharmacies (with the exception of hospital pharmacies where the royal decree of 31/05/1885 still applies)</p> <p>Royal decree: http://www.fagg-afmps.be/nl/binaries/AR-KB-2009-01-21-pharmaciens_tcm290-37379.pdf</p> <p>Appendix I: http://www.fagg-afmps.be/nl/binaries/AR-KB-2009-01-21-gids-BPO_tcm290-37383.pdf</p> <p>Appendix II: http://www.fagg-afmps.be/nl/binaries/AR-KB-2009-01-21-bijlage-2_tcm290-37384.doc</p> <p>Appendix III: http://www.fagg-afmps.be/nl/binaries/AR-KB-2009-01-21-bijlage-3_tcm290-37385.doc</p> <p>Appendix IV: http://www.fagg-afmps.be/nl/binaries/AR-KB-2009-01-21-bijlage-4_tcm290-37386.doc</p> <p>Appendix V: http://www.fagg-afmps.be/nl/binaries/AR-KB-2009-01-21-bijlage-5_tcm290-37387.doc</p>

The Belgian pharmacy education and training scheme for the *Flemish* community (based on the model of VUB, Brussels), November 2009



The Belgian pharmacy education and training scheme for the *French* speaking community, November 2009





Education and Culture DG

Lifelong Learning Programme

PHARMINE
*Pharmacy Education
in Europe*

PCN

*Pharmacolor
Consultants
Nancy*



Vrije
Universiteit
Brussel

PHARMINE

Coordinator: Bart Rombaut, School of Pharmacy, Vrije Universiteit Brussel, Brussels, Belgium. brombaut@vub.ac.be

Executive Director: Jeff Atkinson, Pharmacolor Consultants Nancy, Villers, France. jeffrey.atkinson@orange.fr

With the support of the Lifelong Learning Programme of the European Union
(142078-LLP-1-2008-BE-ERASMUS-ECDSP).

Website: www.pharmine.org