

Pharmacy education & training in

# CROATIA

2012

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.

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:[http://enzu.pharmine.org/media/filebook/files/PHARMINE\\_Paradigm.pdf](http://enzu.pharmine.org/media/filebook/files/PHARMINE_Paradigm.pdf) )

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

Jeffrey ATKINSON  
PHARMINE executive director  
Pharmacolor Consultants Nancy  
12 rue de Versigny  
54600 Villers  
France.  
[jeffrey.atkinson@univ-lorraine.fr](mailto:jeffrey.atkinson@univ-lorraine.fr)  
[www.pharmine.org](http://www.pharmine.org)

Marijana Zovko KONČIĆ  
University of Zagreb,  
Faculty of Pharmacy and Biochemistry  
Kovačića 1  
10000 Zagreb  
Croatia  
[mzovko@pharma.hr](mailto:mzovko@pharma.hr)  
[www.pharma.hr](http://www.pharma.hr)

with the help of:

Danijela JONJIC  
Professional associate  
Croatian Chamber of Pharmacists  
Martićeva 27/III  
10000 Zagreb  
Croatia  
[hjik@hjik.hr](mailto:hjik@hjik.hr)  
<http://www.hjik.hr/Default.aspx?alias=www.hjik.hr/eng>

Ana CRNKOVIC  
Hospital pharmacy,  
Clinic for psychiatry Vrapce,  
Zagreb,  
Croatia  
[ana.crnkovic@bolnica-vrapce.hr](mailto:ana.crnkovic@bolnica-vrapce.hr)

Daisy VOLMER  
Lecturer  
Department of Pharmacy  
University of Tartu  
50411 Tartu  
Estonia  
[daisy.volmer@ut.ee](mailto:daisy.volmer@ut.ee)  
[www.med.ut.ee/farmaatsia/](http://www.med.ut.ee/farmaatsia/)

Lea NOEL  
PHARMINE project assistant  
Dept. MICH  
Vrije Universiteit Brussel  
Laarbeeklaan 103  
B 1090 Brussel  
Belgium  
[lea.noel@vub.ac.be](mailto:lea.noel@vub.ac.be)  
[www.vub.ac.be/MICH](http://www.vub.ac.be/MICH)

## Contacts in Croatia.

	First contact	Second contact
Name	Marijana Zovko Končić	Lidija Bach-Rojecky
HEI	University of Zagreb, Faculty of Pharmacy and Biochemistry	University of Zagreb, Faculty of Pharmacy and Biochemistry
Street	A. Kovačića 1	A. Kovačića 1
City, zip	10000 Zagreb	10000 Zagreb
Country	Croatia	Croatia
Telephone	+38516394792	+38516394751
Fax	+38516394400	+38516394400
e-mail	<a href="mailto:mzovko@pharma.hr">mzovko@pharma.hr</a>	<a href="mailto:lbach@pharma.hr">lbach@pharma.hr</a>
Website	<a href="http://www.pharma.hr">www.pharma.hr</a>	<a href="http://www.pharma.hr">www.pharma.hr</a>

# Index

	Page
<b>Chapter 1. Organization of the activities of pharmacists, professional bodies</b>	<b>6</b>
<b>Chapter 2. Pharmacy HEIs, students and courses</b>	<b>9</b>
<b>Chapter 3. Teaching and learning methods</b>	<b>11</b>
<b>Chapter 4. Subject areas</b>	<b>12</b>
<b>Chapter 5. Impact of the Bologna principles</b>	<b>13</b>
<b>Chapter 6. Impact of EC directive 2005/36/EC</b>	<b>14</b>

All the data and information provided in this document have been provided to the best of the knowledge of the authors.

Any comments and suggestions will be welcomed: [jeffrey.atkinson@pharma.univ-lorraine.fr](mailto:jeffrey.atkinson@pharma.univ-lorraine.fr)

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

	Y/N, number or %	If you wish to expand your answer, please add your comments below.
<b>Community pharmacy</b>		
Number of community pharmacists	Number:2529	With a population of 4,424,161, there are 2,100 inhabitants per community pharmacist
Number of community pharmacies	Number:1083	4,085 inhabitants per pharmacy 2.34 pharmacists per pharmacy
Competences and roles of community pharmacists		Care for the welfare of the patient in all circumstances, guidance and advice to patients on proper use and monitoring of drug effects, taking care of supply of drugs, medical devices and other means to protect health, managing medicines for some ailments, giving advice on medicine, contribution of pharmacists rational and economic prescribing and use of drugs
Is ownership of a community pharmacy limited to pharmacists?	No	Private community pharmacy chain consists of at least two community pharmacies; the founder of the chain can be any physical or legal entity. The owner of private independent community pharmacy can be only pharmacist.
Are there rules governing the geographical distribution of community pharmacies?	Yes	To get that permission, each pharmacy needs to meet conditions defined by the <i>Ordinance on criteria for defining the area where pharmacy will be opened</i> : Cities of up to 3000 inhabitants: 1 pharmacy Cities of 3000-8000 inhabitants: 2 pharmacies; For every following pharmacy: additional 5000 inhabitants.
Are drugs and healthcare products available to the general public by channels other than pharmacies?	Yes	Non-prescription drugs are classified as: BR= non prescription drugs sold only in pharmacies BRX = non prescription drugs on General Sale List that can be sold only in pharmacies and specialised stores for retail sale of medical devices and medicinal products (drugstores). Food supplements can be sold also in cosmetic shops, "herbal pharmacies".
Are persons other than pharmacists involved in community practice?	Yes	
Their titles and number(s)	Number: 1-2 per pharmacy	Pharmaceutical technicians
Organization providing and validating the E&T		School for pharmaceutical technicians
Duration of studies (years)		4 years (after elementary school)
Subject areas		Anatomy, physiology, fundamentals of health professions, general, organic and analytical chemistry, biochemistry, pharmaceutical chemistry with pharmacology, medical microbiology, botany with pharmacognosy, pharmaceutical technology with cosmetology, food chemistry, natural remedies, the industrial production of medicines, introduction to laboratory work
<b>Hospital pharmacy</b>		
Does such a function exist?	Yes	The function is defined by government law (part of Law on pharmacy)
Number of hospital pharmacists	Number: 110	<a href="http://www.hljik.hr/Komora/Op%C4%87iaktikomore/tabid/59/Default.aspx">http://www.hljik.hr/Komora/Op%C4%87iaktikomore/tabid/59/Default.aspx</a> In English: <a href="http://www.hljik.hr/Default.aspx?alias=www.hljik.hr/eng">http://www.hljik.hr/Default.aspx?alias=www.hljik.hr/eng</a>

Number of hospital pharmacies	Number: 52	
Competences and roles of hospital pharmacists		Part of multidisciplinary patient-care team Provision of a supply of hospital healthcare facilities with medication and medical products involving purchasing and packaging (unit-dose drug distribution) of drugs and medical material, preparing the main galenical and magistral preparations necessary for the performance of hospital activities, monitoring of drug use...
<b>Pharmaceutical and related industries</b>		
Number of companies with production, R&D and distribution	Number: 4	Pliva ( <a href="http://www.pliva.hr/">http://www.pliva.hr/</a> ), Jadran Galenski Laboratorij <a href="http://www.jgl.hr">http://www.jgl.hr</a> , Belupo ( <a href="http://www.belupo.hr/">http://www.belupo.hr/</a> ) The numbers may not be exact. See: <a href="http://www.pharma-info.com/sites/en/ph_static/ph_en_croatia_a.html">http://www.pharma-info.com/sites/en/ph_static/ph_en_croatia_a.html</a>
Number of companies with production only	Number:2	PharmaS ( <a href="http://www.pharmas.hr/">http://www.pharmas.hr/</a> ) , Genera ( <a href="http://www.genera.hr/">http://www.genera.hr/</a> )
Number of companies with distribution only	Number:5	Oktal pharma ( <a href="http://www.oktal-pharma.hr">http://www.oktal-pharma.hr</a> ), Medika ( <a href="http://www.medika.hr">www.medika.hr</a> ) , Phoenix farmacija ( <a href="http://www.phoenix-farmacija.hr">www.phoenix-farmacija.hr</a> )
Number of companies producing generic drugs only	Number:4	Jadran Galenski Laboratorij <a href="http://www.jgl.hr">http://www.jgl.hr</a> , Belupo ( <a href="http://www.belupo.hr/">http://www.belupo.hr/</a> ), PharmaS ( <a href="http://www.pharmas.hr/">http://www.pharmas.hr/</a> ) , Genera ( <a href="http://www.genera.hr/">http://www.genera.hr/</a> )
<b>Industrial pharmacy</b>		
Number of pharmacists working in industry	Number: 10%	Approximately 10% of total pharmacists in Croatia
Competences and roles of industrial pharmacists		Research and development, participation in production, quality assurance
<b>Other sectors</b>		
Number of pharmacists working in other sectors	Number: 10%	Approximately 10% of total pharmacists in Croatia
Sectors in which pharmacists are employed		Regulatory, education, R&D, marketing, distribution
<b>Roles of professional associations</b>		
Registration of pharmacists	Yes	There is legal obligation for pharmacists to be registered (licensed) in Croatia. Pharmacists are obliged to follow continuing education to keep their licence for independent work. Licence renewal every 6 years by collecting at least 30 points through following professional continuing education programs or by passing an exam at the Croatian Chamber of Pharmacists.
Ethical and other aspects of professional conduct	Yes	Ethical and other aspects of professional conduct are described in " <i>Kodeks ljekarničke etike i deontologije</i> " (Ethical Codex) published in the year 1996, and document " <i>Pravila dobre ljekarničke prakse</i> " (Good pharmacy practice guidelines) published in the year 1997.
Quality assurance and validation of HEI courses for pharmacists	Yes	<i>Commission for continuing professional education of pharmacists at Croatian Chamber of Pharmacists</i> makes decisions regarding verification and evaluation of the courses and other forms of continuing education of pharmacists.

## References

References to texts and articles of national law

Croatian Chamber of Pharmacists:

<http://www.hljik.hr/Komora/Op%C4%87iaktikomore/tabid/59/Default.aspx>

In English: <http://www.hljik.hr/Default.aspx?alias=www.hljik.hr/eng>

Croatian Law on Pharmacy:

<http://www.hljik.hr/eng/CroatianLawonPharmacy/tabid/95/Default.aspx>



## Chapter 2. Pharmacy HEIs, students and courses

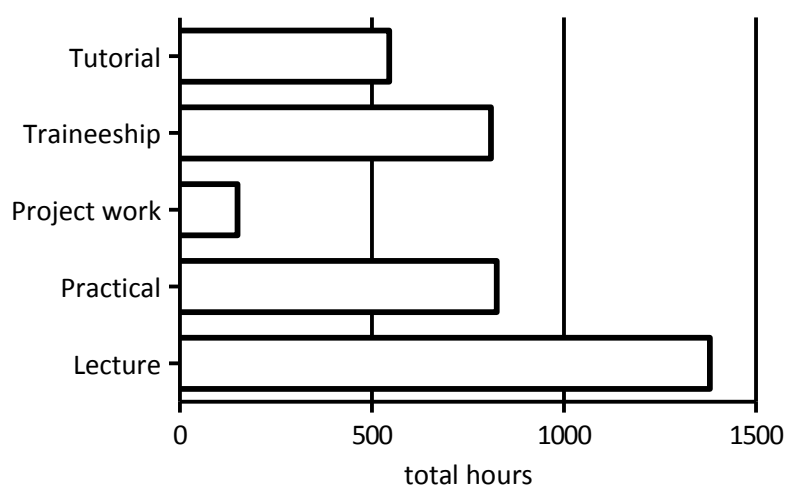
	Y/N, number or %	If you wish to expand your answer, please add your comments below.
Total number of HEIs in your country	Number: 1+1	<p>1. Faculty of pharmacy: Faculty of Pharmacy and Biochemistry University of Zagreb (Faculty of pharmacy) <a href="http://www.pharma.hr">www.pharma.hr</a></p> <p>2. Study of pharmacy: Combination of Faculty of chemical technology and Medical faculty, University of Split <a href="http://www.unist.hr/Default.aspx?alias=www.unist.hr/eng">http://www.unist.hr/Default.aspx?alias=www.unist.hr/eng</a></p> <p>Pharmacy studies are multidisciplinary; they include the basic (mathematics, chemistry, physics, statistics, biochemistry, biology, molecular biology), biomedical (anatomy, physiology, pathophysiology, microbiology and parasitology, pharmacology, toxicology and haematology) and pharmaceutical courses (pharmaceutical botany, pharmacognosy, pharmaceutical chemistry, biochemistry of drugs, pharmaceutics, drug design, drug analytics, clinical pharmacy, pharmacotherapy, cosmetology, <i>etc.</i>), through which students acquire specific knowledge and skills in the field of pharmacy.</p> <p>Unfortunately we have no data on the other study on pharmacy in Split. They have started their program just recently. Thus, I will mostly answer the questions related to Faculty of Pharmacy and Biochemistry in Zagreb (following subsection).</p>
Public	Number: 2	
<b>Organisation of HEIs</b>		
Independent faculty	Y/N:1	Zagreb
Attached to a science faculty	Y/N: 1	Split
Attached to a medical faculty	Y/N: 1	Split
<b>Zagreb</b>		
<b>Teaching staff</b>		
Number of teaching staff (nationals)	Number:55	
Number professionals from outside the HEIs, involved in E&T	Number:20	
<b>Students</b>		
Entry places	Number: 120	
Number of applicants for entry	Number: 500-600	4.2 – 5.0 applicants / place
Graduates that become registered pharmacists.	Number: 95-115	
Number of international students	Number: 5	
<b>Entry requirements (beginning of S1 of B1, following secondary school)</b>		
Your HEI has a specific pharmacy-related entrance examination	Y/N: N	

<b>Advanced entry</b>		
At which level?		Not possible
<b>Fees per year</b>		
For home students	Amount (€):	Free of charge for first year, later depends on the success of the student
For EU MS students	Amount (€): 20,000 Kn	Circa 2,700 €
For non EU students	Amount (€): 20,000 Kn	Circa 2,700 €
<b>Length of course</b>	<b>5 years</b>	
<b>Specialization</b>		
Does your HEI provide specialized courses?	Clinical pharmacy	<p>New postgraduate specialist study, "Clinical Pharmacy", was opened in January 2011 in Croatia. It has been organized by the Faculty of Pharmacy and Biochemistry (FPB) University of Zagreb, headed by the professor Vesna Bacic Vrca, PhD, clinical pharmacy specialist, one of the lecturers and a long time hospital pharmacist. Postgraduate specialist study "Clinical Pharmacy" offers additional knowledge and skills to pharmacists in pharmacy practice, moving the professional interest focus towards the patient and his safety.</p> <p>This postgraduate study is also a part of 3 years long specialization in Clinical Pharmacy, approved by Croatian Ministry of Health.</p> <p>Courses last for 2 semesters during which students must collect 60 ECTS points, 40 of which must be collected through 10 core subjects and the remaining 20 ECTS points through the offered elective courses at FPB or other related faculties, at University of Zagreb or other universities.</p> <p>At the end of the course, a final paper must be written under the mentorship of one of the teachers of this study. Upon graduation, the student acquires theoretical and practical knowledge which, in cooperation with the doctors, promotes and ensures proper and safe use of the medications.</p> <p>Upon graduation the title of <i>University Master of Clinical Pharmacy</i> is acquired.</p> <p>Amount cca 2,700 EUR</p>
<b>Past and present changes in E&amp;T</b>		
Have there been any major changes since 1999 at your HEI?	Y/N: Y	We have changed the program 3 times. The newest program has started last year.
Are any major changes envisaged before 2019 at your HEI?	Y/N: N	
<b>Is your HEI typical of all HEIs in the country?</b>		It is the only faculty of pharmacy in the country

## Chapter 3. Teaching and learning methods

Student hours						
Method	Year 1	Year 2	Year 3	Year 4	Year 5	Total (-electives)
<b>HEIs courses</b>						
Lecture	315	360	330 (+elective courses)	300 (+elective courses)	75 (+elective courses)	<b>1380</b>
Tutorial	165	115	115 (+elective courses)	90 (+elective courses)	60 (+elective courses)	<b>545</b>
Practical	180	210	210 (+elective courses)	195 (+elective courses)	30 (+elective courses)	<b>825</b>
Project work					150	<b>150</b>
<b>Traineeship</b>						
Community Hospital			30 with mentor pharmacist usually in community pharmacy	60 with mentor pharmacist usually in community pharmacy	720 in community and hospital pharmacies combined	<b>810</b>
<b>Total (-electives)</b>	<b>660</b>	<b>685</b>	<b>685</b>	<b>645</b>	<b>1135</b>	<b>3710</b>
<b>Electives</b>						
Choice Optional			Total of 9 subjects (choice + optional)	Total of 10 subjects (choice + optional)	Total of 8 subjects (choice + optional)	

Student hours by teaching method.



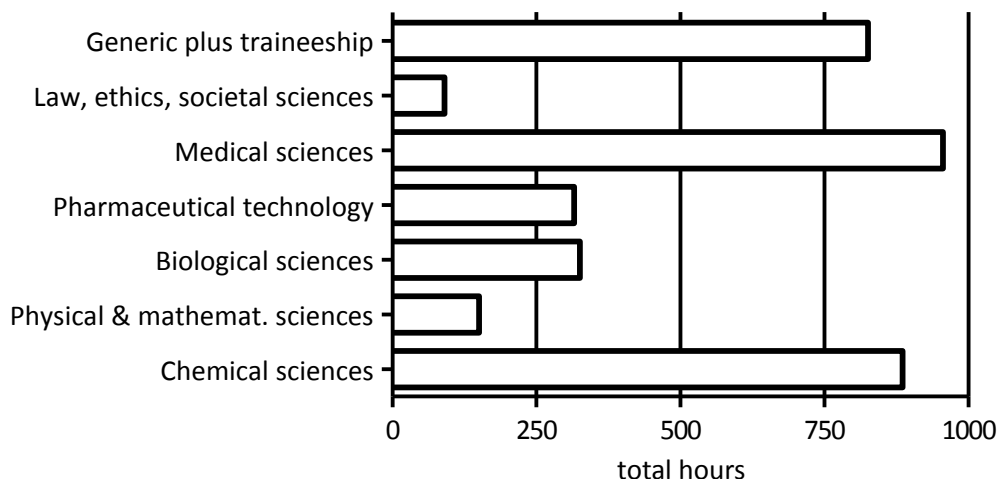
## Chapter 4. Subject areas

Student hours						
Subject area	Year 1	Year 2	Year 3	Year 4	Year 5	Total (- electives)
<b>CHEMSCI</b>	120L + 75T + 90P = 285	150L + 45T + 105P = 300	90L + 15T + 60P = 165 Electives 25L + 20T + 35P	60L + 15T + 60P = 135 Electives 30L + 20T + 10P	Electives 30L + 15T + 0P	<b>885</b>
<b>PHYSMATH</b>	75L + 45T + 30P = 150		Electives 30L + 15T + 15P		Electives 15L + 15T + 0P	<b>150</b>
<b>BIOLSCI</b>	60L + 30T + 60P = 150	60L + 10T + 30P + 100	30L + 15T + 30P = 75		Electives 15L + 15T + 0P	<b>325</b>
<b>PHARMTECH</b>			45L + 30T + 30P = 105 Electives 15L + 0T + 0P	60L + 5T + 85P = 150 Electives 30L + 15T + 15P	30L + 0T + 30P = 60 Electives 15L + 15T + 0P	<b>315</b>
<b>MEDISCI</b>		150L + 60T + 75P = 285	165L + 55T + 90P = 310 Electives 15L + 0T + 0P	180L + 70T + 50P = 300 Electives 35L + 25T + 0P	30L + 30T + 0P = 60 Electives 40L + 45T + 0P	<b>955</b>
<b>LAWSOC</b>	60L + 15T + 0P = 75		Electives 25L + 10T + 0P	Electives 45L + 5T + 0P	15L + 0T + 0P = 15 Electives 15L + 0T + 0P	<b>90</b>
<b>GENERIC</b>					0L + 15T + 0P = 15	<b>15</b>
<b>GENERIC + traineeship</b>			30	60	735	<b>825</b>
<b>Total (- electives)</b>	<b>660</b>	<b>685</b>	<b>685</b>	<b>645</b>	<b>870</b>	<b>3545</b>

General remark:

In the 5-th year students have 100 hours for their diploma thesis work and 720 hours pharmacy practice. Subject area depends on their choice.

Student hours by subject area.



## 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	y	DS in English: On demand
2. Two main cycles (B and M) <u>with entry and exit at B level</u>	N	
3. ECTS system of credits / links to LLL	Y	Students with 300 ECTS or more can continue their education at Faculty of Pharmacy (e.g. do their PhD)
4. Obstacles to mobility	Y	Language, finances, lodgings... At the faculty we pose no obstacles to the students who wish to study abroad but try to make it easier for them. However, all the above mentioned are potential obstacles to the students who wish to study abroad
5. European QA	N	QA is run by the University and Ministry of Science Education and Sport
6. European dimension	N	
ERASMUS staff exchange to your HEI from elsewhere		Number of staff months: 14*
ERASMUS staff exchange from your HEI to other HEIs		Number of staff months: 15*
ERASMUS student exchange to your HEI from elsewhere		Number of student months: 20*
ERASMUS student exchange from your HEI to other HEIs		Number of student months: 19*

\*The answer corresponds to places open for mobility through Erasmus. The actual exchange may vary (usually it is significantly lower). Although we have 19 places for outgoing students usually less than 10 apply for the scholarship.

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

The directive states	How does / will this directive statement affect pharmacy E&T?	Comments?
“Evidence of formal qualifications as a pharmacist shall attest to training of at least <u>five years' duration,...</u> ”	The duration of study is 5 years	
“ <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> ”	Four years of full-time theoretical and practical training is provided	
“ <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> ”	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 is provided.	Due to the recent changes in the program the first generation of students who will have six-month traineeship included in their program have now started their second year.
“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 balance between theoretical and practical training gives sufficient importance to theory to maintain the university character of the training.	
Directive annex	How does / will this directive annex affect pharmacy E&T?	Comments
<b>V.6. PHARMACIST</b> <b>5.6.1. Course of training for pharmacists</b> 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.	All of the mentioned subjects are embedded in curriculum.	



**PHARMINE**  
*Pharmacy Education  
in Europe*

**PCN**



*Pharmacolor  
Consultants  
Nancy*



**UNIVERSITY OF TARTU**



Vrije  
Universiteit  
Brussel

---

## PHARMINE

Coordinator: Bart Rombaut, School of Pharmacy, Vrije Universiteit Brussel, Brussels, Belgium. [brombaut@vub.ac.be](mailto:brombaut@vub.ac.be)  
Executive Director: Jeff Atkinson, Pharmacolor Consultants Nancy, Villers, France. [jeffrey.atkinson@univ-lorraine.fr](mailto:jeffrey.atkinson@univ-lorraine.fr)

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