

Pharmacy education & training in

# EUROPE

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.

PHARMINE takes into account two important issues, (i) the EU directive 2005/36/EC on the recognition of professional qualifications and, (ii) the Bologna declaration. PHARMINE focuses on 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 of 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 devised and within this the PHARMINE work programme 7 aims 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 has produced several documents including a 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.

The survey (see next chapter) was sent out to the larger and more established faculties in Europe (up to five faculties per country). It covers all member states of the EU as well as Iceland, Norway and Turkey.

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

Villers, France.  
May 2011.

[www.pharmine.org](http://www.pharmine.org)



**PHARMINE**  
Pharmacy Education  
in Europe

**The PHARMINE survey of European higher education institutions  
delivering pharmacy education & training  
V2**

***If you encounter any problems when filling out this form please contact the leader of PHARMINE work program WP7:  
[jeffrey.atkinson@orange.fr](mailto:jeffrey.atkinson@orange.fr)***

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**PHARMINE**

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**Website: [www.pharmine.org](http://www.pharmine.org)**

## **Production of the PHARMINE survey V1.**

The “*PHARMINE survey of European higher education institutions delivering pharmacy education & training*” (referred to as the “PHARMINE survey”) is produced by: Prof. Jeffrey ATKINSON, Pharmacolor Consultants Nancy, 12 rue de Versigny, 54600 Villers, France.

The following persons tested a preliminary version of the PHARMINE survey and provided very useful comments for the production of V1 (Spring 2009):

Prof. Karen Marie ULSHAGEN, Universitetet i Oslo, Institutt for Farmasi, P.O. Box 1068, Blindern, 0316 Oslo, Norway

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Prof. Filiz HINCAL, Hacettepe University, Dept. of Pharmaceutical Toxicology, Faculty of Pharmacy, Hacettepe, 06100 Ankara, Turkey

## **Updates.**

The PHARMINE survey is updated as comments come in. If new questions arise from such comments and clarification, the correspondents in the different higher education institutions (HEIs) participating in this PHARMINE survey will be contacted for further information.

## **V2, May 2009 onwards.**

The V1 version was modified to produce the V2 version in function of the comments, questions and misunderstandings of those filling in the V1 survey.

**Jeffrey Atkinson, PCN, Villers, France.**

## Introduction.

### *PHARMINE*

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 the XXI century pharmacists will play an increasingly important role as partners in the efficient use of the health care resources (community and hospital pharmacists). They will also be major players in the development of the pharmaceutical industry (industrial pharmacists). Whilst abiding by the recommendations for the duration and course content for EU pharmacy education and training given in the directive 2005/36/EC on the recognition of professional qualifications, the PHARMINE consortium will examine the opportunities for the introduction of the principles of the Bologna declaration into pharmacy education and training with the aim of tuning the latter to the future needs in the three main areas of pharmaceutical expertise: community, hospital and industrial pharmacy.

The consortium will survey existing European pharmacy curricula and attempts to adapt these to the Bologna process. The project runs from 1/10/2008 through 30/9/2010. A first survey of pharmacy HEIs was carried out by the EAFP in the 1990s (P. Bourlioux, Paris, EU TEMPUS project). In order to evaluate evolution since that time, this PHARMINE survey will follow the lines of the previous survey.

The form will be sent out to at least 1 HEI in each member state (MS) of the EU as well as to at least 1 HEI in other European countries.

### *Aims and objectives of WP7*

The PHARMINE project has 7 work programmes (WP). The aims and objectives of WP7 are to produce a databank of pharmacy E&T leading to basic pharmacist qualifications and to qualifications required for specialist activities, in pharmacy HEIs of the EU.

### *Organisation*

Data for the survey will be collected by electronic means. This can be backed up by telephone calls and/or by on-site visits. Participating HEIs should first read the following forms. Any difficulties that arise may be solved by contacting: [jeffrey.atkinson@orange.fr](mailto:jeffrey.atkinson@orange.fr). An on-site visit to the participating HEI can be arranged if required.

### *Milestones*

The principal milestone will be the delivery of the data required for the production of a white paper, the publication of the first version of which is planned for the end of 2009.

### *Abbreviations*

- B bachelor level (first 3 years study at an HEI following secondary school). This may be followed by a number, e.g. B1 = first year of bachelor studies
- D doctoral (Ph.D.) level. This will start after 5 years of study at an HEI (3 years B plus 2 years M)
- EAFP European Association of Faculties of Pharmacy

- E&T education and training
- EC European Commission
- EU European Union
- HEI higher education institution
- LLL lifelong learning
- M master level (4<sup>th</sup> and 5<sup>th</sup> years of study at an HEI)
- MS member state
- PHARMINE Pharmacy Education in Europe
- R&D research and development
- S semester. This may be followed by a number, e.g. B1S1 = first semester of the first bachelor year

#### *Filling out the form*

You can fill in the form using MS WORD 97-2003 or a later version, or print out the PDF version and fill it in freehand. If you do use MS WORD, please do not alter the left-hand columns.

#### *Data*

In many sections you will be asked to provide numerical data or a “yes or no” reply to a specific question. In such cases you are provided with adequate space to add any comments you feel necessary. These are not limited in length as fields will automatically resize.

#### *Dates.*

The data provided should refer to 2007 or 2008. If data from an earlier period are given, please indicate dates.

#### *Additional documents*

You may find the documents regarding EC directive 2005/36/EC (<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2005:255:0022:0142:EN:PDF>) and the Bologna declaration (<http://www.ond.vlaanderen.be/hogeronderwijs/bologna/about/>) useful when filling out this form.

#### *References*

At the end of each chapter we would like you to add any bibliographic references that you consider helpful as well as a reference to the laws and edicts that govern professional pharmacy practice and/or pharmacy E&T in your country.

#### *Survey chapters*

The document has 7 chapters:

1. Organization of the activities of pharmacists, professional bodies
2. Pharmacy HEIs, students and courses
3. Teaching and learning methods

4. Subject areas
5. Impact of the Bologna principles
6. Impact of EC directive 2005/36/EC
7. Quality assurance.

The PHARMINE survey V2, May 2009

## Your details.

Please give the contact details for at least one person from your HEI. Considering the long-term running of the project it would be helpful in if a second name could be given. These persons will be the contacts for your HEI for the PHARMINE survey and they may be contacted in the case of updating (see above).

	First contact	Second contact
Name		
HEI		
Street		
City, zip		
Country		
Telephone (+ country code)		
Fax (+ country code)		
e-mail		
Website		

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

### Explanatory notes.

The data to be collected in this chapter is on the organization of the activities of pharmacists in your country, and on professional bodies. It represents the background pharmaceutical situation on a national level.

You may consider contacting organisations or agencies outside of your HEI for help with this section. If you do so, could you please give references at the end of the chapter?

The PHARMINE survey is interested in the competences and roles of the pharmacist in individual European countries. Before filling in this chapter, you may like to consider the following.

The basic *competences* for a pharmacist are:

1. Conversance with professional aspects of pharmacy
2. Expertise in medicines
  - a. R&D of active & safe medicines
  - b. Use of medicines by patients
  - c. Monitoring effects of treatment
3. Effective communication & management
4. Appreciation of professional & social role of pharmacist

The *roles* of a pharmacist in the healthcare system and elsewhere fall into the following broad categories:

1. Community pharmacy:
  - a. Supplying prescription medicines
  - b. Managing medicines for some ailments
  - c. Giving advice on medicines
  - d. Screening services
  - e. Services to the housebound
  - f. Services to nursing and care homes (medication reviews, advice on storage and administration of medicines)
  - g. Other (please specify)
2. Hospital pharmacy:
  - a. In wards or outpatient clinics

- b. Consultant in specialised clinical areas such as paediatrics or intensive care
  - c. Part of multidisciplinary patient-care team
  - d. Purchasing of drugs and medical material
  - e. Monitoring of drug use
  - f. Unit-dose drug distribution
  - g. Production of patient-specific medicines (e.g. cytotoxic preparations)
  - h. Other (please specify)
3. Primary care and other healthcare services:
- a. Work in GP practices
  - b. Advice to GPs on cost-effectiveness of prescribing, developing of practice formularies and patient-centred prescribing
  - c. Drug use reviews
  - d. Cholesterol monitoring
  - e. Review medication of patients on complex drug regimen
  - f. Other (please specify)
4. Industry:
- a. Synthesis and production of new chemical entities and drugs
  - b. R&D – drugs
  - c. R&D – health care products other than drugs
  - d. Preclinical drug evaluation (safety and efficacy)
  - e. Clinical drug evaluation (safety and efficacy)
  - f. Marketing
  - g. Distribution
  - h. Medical devices
  - i. Cosmetology
  - j. Drug evaluation and registration (governmental and industrial)
  - k. Other (please specify)
5. Other sectors/areas:
- a. Journalism
  - b. Forensics
  - c. Armed forces
  - d. Voluntary health organisations/non-governmental organisations
  - e. Secondary school E&T (biology, clinical chemistry...)
  - f. Universities
  - g. National health services
  - h. International health services
  - i. Institutes of clinical review (e.g. NICE UK National institute for health and clinical excellence)

- j. Agricultural and veterinary pharmacy
- k. Other (please specify)

Could you please give some indication of the numbers or percentages of pharmacists that graduate involved in the various functions and roles above?

Note that in this document a *pharmacist* is defined according to the EC directive 2005/36/EC (see above):

- E&T lasting at least 5 years
- At least 4 years full-time theoretical and practical training
- Traineeship of at least 6 months

If a person holding another type of qualification (e.g. prescriptionist, pharmacy assistant, pharmacy technician, *préparateur en pharmacie*...) is involved in pharmacy practice in your country, could you please indicate:

- Their job titles
- The number of persons holding such a qualification
- Their qualifications:
  - Organisation providing and validating the E&T
  - Duration of studies
  - Subject areas
  - Traineeship
- Their competences
- Their roles

	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:	Please provide a reference or source for your data.
Number of community pharmacies	Number:	Please provide a reference or source for your data.
Competences and roles of community pharmacists		See explanatory notes above.
Is ownership of a community pharmacy limited to pharmacists?	Y/N:	Can community pharmacies be owned by persons without a pharmacy qualification or by private organisations?
Are there rules governing the geographical distribution of community pharmacies?	Y/N:	Are community pharmacies distributed according to a certain area, a certain population size...?
Are drugs and healthcare products available to the general public by channels other than pharmacies?	Y/N:	
Are persons other than pharmacists involved in community practice?	Y/N:	
<b>Persons other than pharmacists involved in community practice</b>		
Their titles and number(s)	Number:	
Their qualifications		
Organisation providing and validating their E&T		

Their E&T: duration of studies (years)	Number:	
Their E&T: subject areas		
Their competences and roles		
Are drugs and healthcare products available to the general public by channels other than pharmacies?	Y/N:	
<b>Hospital pharmacy and pharmacists</b>		
Does such the function of "hospital pharmacist" exist in your country?	Y/N:	
If the function exists, what is the number of hospital pharmacists	Number:	
Do hospitals have separate, specific hospital pharmacies?	Number:	
Competences and roles of hospital pharmacists		What is the status of a hospital pharmacist amongst the professionals involved in treatment of patients?
<b>Pharmaceutical and related industries</b>		
Number of companies with production, R&D and distribution	Number:	Companies with production, R&D and distribution within the same country are also referred to as " <i>big pharma</i> " (e.g. GSK, Roche, Sanofi-Aventis...)
Number of companies with production only	Number:	

Number of companies with distribution only	Number:	
Number of companies producing generic drugs only	Number:	
<b>Industrial pharmacy</b>		
Number of pharmacists working in industry	Number:	Is there an official or officious professional body representing pharmacists working in industry, and possibly a member of the <i>European Industrial Pharmacists Group</i> .
Competences and roles of industrial pharmacists		
<b>Other sectors/areas</b>		
Number of pharmacists working in other sectors	Number:	
Other sectors in which pharmacists are employed		
Competences and roles of pharmacists employed in other sectors		
<b>Roles of professional organisation/body/association</b>		
Name and address of professional organisation/body/association		Is this a governmental organization?

Registration of pharmacists	Y/N:	How do pharmacists receive professional recognition? Are procedures different for nationals and foreigners (EU and non EU)?
Creation of community pharmacies and control of territorial distribution	Y/N:	How does one go about creating a pharmacy?
Ethical and other aspects of professional conduct	Y/N:	How is professional conduct imposed?
Quality assurance and validation of HEI courses for pharmacists	Y/N:	How does the professional organisation validate HEI E&T for pharmacists?
Other (please specify)		

References	
References to texts and articles of national law	

Bibliographic references (EU, national, international) that you consider useful

The PHARMINE survey V2, May 2009

## Chapter 2. Pharmacy HEIs, students and courses

### Explanatory notes.

In this section we would like to gather information on HEIs, their status (public or private), and their organisation. We would also like to have information on staff and student numbers, entry requirements, and fees.

We would also like you to indicate past and future changes in pharmacy E&T in your country.

We would like information at both a national level and at the level of your particular HEI. We are interested in whether your HEI is typical of those in the country and, if not, how HEIs differ.

We would like information on both the common curriculum (both basic and advance) and on any specialized courses (community, hospital, industry, other) that you may offer in your HEI.

As titles for teaching staff and their responsibilities vary amongst the UK, Germany, France, North America, *etc.* under “teaching staff” we would like to provide details according to the following classification:

Classification to be used	Tenure	Responsibilities	Some of the titles used in different HEIs
Attached to some HEI outside your country, holding a position in industry or in a non-pharmacy sector			
Visiting staff	No	Teaching, research	Adjunct/ <i>associé</i> /visiting professor (or lecturer)
Attached to your HEI (generally for >12 months)			
Postgraduate			
Assistant	No	Teaching, research	Teaching or research assistant/demonstrator/student teacher
Postdoctoral			
Assistant professor	No	Teaching, research	Assistant professor/lecturer/ <i>maître de conférences</i>
Associate professor	Maybe	Teaching, research, some mentorship, administration, consultancy	Senior lecturer/reader/ <i>professeur 1/2 classe</i>
Full professor	Yes	Teaching, research, mentorship, administration, consultancy	Professor/full professor/chair (department, endowed, personal)/ <i>professeur HC/1 classe</i>

Note that “visiting” in the context of this chapter refers to staff and students who are present at an HEI for more than 6 months and generally not more than 12 months. Shorter term exchange programmes (“Erasmus” and others) will be dealt with in chapter 5.

It is assumed that in most cases entrance into the pharmacy course will be at the beginning of the first semester (S1) of the first year (B1) following some form of school leaving certificate (*abitur, matura, baccalaureat, GCSE A level...*) and matriculation. The latter may be accompanied by an examination set by the HEI (before entrance or later) and/or some form of *numerous clauses*, aimed at limiting competition for available places or for services (e.g. number of employment possibilities available following registration).

“Advanced entry” refers to entry into a course that leads to a qualification as a pharmacy graduate, at a stage beyond the beginning of S1 of B1. It thus excludes Ph.D. and other postgraduate/post-registration courses. Please give the level in the “Sx of Bx” format, e.g. S2 of B2 = beginning the second semester of the second bachelor year.

If “fees per year” vary from one year to another, please indicate this.

Note that “length of course” refers to the number of years between the end of secondary school education and registration as a pharmacist and/or the start of a career as a pharmaceutical professional (e.g. in industry).

	Y/N, number or %	If you wish to expand your answer, please add your comments below.
<b>Total number of HEIs delivering E&amp;T in pharmacy in your country</b>	Number:	
Public	Number:	
Private	Number:	
<b>Organisation of HEI delivering E&amp;T in pharmacy</b>		
Independent HEI	Y/N:	
Attached to a science faculty	Y/N:	
Attached to a medical faculty	Y/N:	
Other (please specify)	Y/N:	
Do HEIs offer B + M degrees?	Y/N:	
Do HEIs offer an M. Pharm. after a B degree in another HEI?	Y/N:	
Do HEIs offer a B. Pharm. followed by an M. Pharm. in the same HEI or elsewhere?	Y/N:	

<b>On a national level</b>		
<b>Teaching staff</b>		
<b>(use the classification outlined above: assistant, assistant professor, associate professor, professor)</b>		
Number of teaching staff (nationals)	Number:	
Number of international teaching staff (from EU MSs)	Number:	
Number of international teaching staff (non EU)	Number:	
Visiting staff	Number:	
<b>Students</b>		
Number of places at traditional entry (beginning of S1 of B1, following secondary school)	Number:	
Number of applicants for entry	Number:	
Number of graduates that become registered/professional pharmacists (working in healthcare)	Number:	
Number of international students (from EU member states)	Number:	
Number of international students (non EU)	Number:	

Entry requirements (beginning of S1 of B1, following secondary school)		
Specific pharmacy-related, national entrance examination	Y/N:	
Other form of entry requirement at a national level	Y/N:	
Is there a national <i>numerus clausus</i> ?	Y/N:	
Advanced entry		
At which level?		
What are the requirements?		
Specific requirements for international students (EU or non EU).		
Fees per year		
For home students	Amount (€):	
For EU MS students	Amount (€):	Are there separate course in another language (e.g. English) for which fees are different?
For non EU students	Amount (€):	

<b>Length of course</b>	<b>Number of years:</b>	
<b>Specialization</b>		
Do HEIs provide specialized courses?	Y/N:	
In which years?	Years:	
In which specialisation (industry, hospital...) and/or subject areas?		
What are the student numbers in each specialization?	Number:	
<b>Past and present changes in E&amp;T</b>		
Have there been any major changes since 1999?	Y/N:	
Are any major changes envisaged before 2019?		Which factors may lead to change?

<b>At the level of <u>your HEI</u></b>		
<b>Teaching staff</b>		
<b>(use the classification outlined above: assistant, assistant professor, associate professor, professor)</b>		
Number of teaching staff (nationals)	Number:	
Number of international teaching staff (from EU MSs)	Number:	Which language do international staff and students use in E&T (not research)?
Number of international teaching staff (non EU)	Number:	
Visiting staff	Number:	
<b>Students</b>		
Number of places at traditional entry (beginning of S1 of B1, following secondary school)	Number:	
Number of applicants for entry	Number:	
Number of graduates that become registered/professional pharmacists (working in healthcare).	Number:	
Number of international students (from EU member states)	Number:	
Number of international students (non EU)	Number:	

Entry requirements (beginning of S1 of B1, following secondary school)		
Does your HEI have a specific pharmacy-related entrance examination	Y/N:	
<b>Advanced entry</b>		
At which level?		
What are the requirements?		
Specific requirements for international students (EU or non EU).		
Fees per year		
For home students	Amount (€):	
For EU MS students	Amount (€):	
For non EU students	Amount (€):	
<b>Length of course</b>	<b>Number of years:</b>	
Specialization		
Does your HEI provide specialized courses?	Y/N:	

In which years?	Years:	
In which specialisation (industry, hospital...) and/or subject areas?		
What are the student numbers in each specialization?	Number:	
<b>Past and present changes in E&amp;T</b>		
Have there been any major changes since 1999 at your HEI?	Y/N:	
Are any major changes envisaged before 2019 at your HEI?	Y/N:	Which factors may lead to change?
Is your HEI typical of all HEIs in the country?	Y/N:	
If your HEI is not typical, how do HEIs differ (e.g. in terms of organisation, subject areas, specialization...)?		

References	
References to texts and articles of national law	
Bibliographic references (EU, national, international)	

The PHARMINE survey V2, May 2003

## Chapter 3. Teaching and learning methods

### Explanatory notes

In this section we would like to gather information on the student hours in each year for:

1. Each of 4 types of teaching and learning in HEIs
  - a. Lectures (definition: an exposition of a given subject delivered before an audience or a class, as for the purpose of instruction)
  - b. Tutorials (definition: a highly interactive session of intensive tuition given by a tutor to an individual or to a small number of students that provides instruction in a particular area)
  - c. Practicals (definition: an examination or lesson in which something has to be made or done)
  - d. Independent project work (including field work)
2. Traineeship (definition: state of being a trainee, i.e. a person (student) who works for another person or organisation (community, hospital pharmacy, industry...) to learn a trade (that of a pharmacist))
3. Electives
  - a. "choice": teaching unit with a possibility to opt in or out (Y/N choice); choice has no impact on obtention of final diploma
  - b. "optional" choice of subject amongst several

In the boxes for "student hours" you should give the average number of hours a given student will invest. In some cases such as electives the number of hours may be very variable. In this case you may wish to add a range of hours invested.

In your comments could you please state who validates courses, traineeship and electives?

<b>Student hours</b>
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Method	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b><u>HEIs courses</u></b>						
Lecture						
Tutorial						
Practical						
Project work						
<b><u>Traineeship</u></b>						
Hospital						
Community						
Industrial (academic or industrial)						
Other (please specify)						
<b><u>Electives</u></b>						
Choice						

<b>Optional</b>						
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If you wish to expand your answer, please add your comments below.

	1	2	3	4	5	6
<b>HEI courses</b>						
<b>Traineeship</b>						
<b>Electives</b>						

The PHARMINE survey v2, Mar 2009

References	
References to texts and articles of national law	
Bibliographic references (EU, national, international)	

The PHARMINE survey V2, May 2009

## Chapter 4. Subject areas

### Explanatory notes

In this section we would like you to calculate the total number of hours per year spent in each of the following subject areas.

We have not tried to standardize exact subject titles as these are different in various countries and open to mistakes and misinterpretation in translation. Instead we would like you to calculate the numbers of hours spent studying 7 different subject areas.

These are the same subject areas as defined in the first EAFP/Boulioux survey (1994) with two exceptions. “Medicinal” - rather than “medicine” as in the Bourlioux document – is used for subject area 5. “Medicinal” refers to: *tending or used to cure disease or relieve pain*. It thus goes beyond “drugs” to therapy in a wider sense of the word. The other difference with the first survey is the inclusion in this PHARMINE survey of a chapter on generic subjects.

1. Subject area I: Chemical sciences “CHEMSCI”
  - a. General, organic & inorganic chemistry
  - b. Analytical chemistry
  - c. Pharmaceutical chemistry /pharmacopeial analysis
  - d. Medicinal physicochemistry / SAR / drug design
  
2. Subject area II: Physical and Mathematical Sciences “PHYSMATH”
  - a. Physics
  - b. Mathematics, pharmaceutical calculations
  - c. Information technology, information technology applied to community pharmacy, information technology applied to national health-care
  - d. Statistics
  - e. Experimental design & analysis
  
3. Subject area III: Biological Sciences “BIOLSCI”
  - a. Foundation biology
  - b. Cell biology
  - c. Botany
  - d. Mycology
  - e. Zoology
  - f. Biochemistry
  - g. Molecular biology
  - h. Genetics

4. Subject area IV: Pharmaceutical Technology “PHARMTECH”

- a. Galenic formulation / pharmaceuticals
- b. Drug disposition and metabolism (ADME) / pharmacokinetics
- c. Novel drug delivery systems
- d. Drug design
- e. Pharmaceutical R&D
- f. Drug production
- g. Quality assurance in production
- h. Drug/new chemical entity registration and regularization
- i. Common technical document (quality (pharmaceutical), safety (safety pharmacology and toxicology) efficacy (preclinical and clinical studies))
- j. Ophthalmic preparations
- k. Medical gases
- l. Cosmetics
- m. Management strategy in industry
- n. Economics of the pharmaceutical industry and R&D

5. Subject area V: Medicinal and therapeutical sciences “MEDISCI”

- a. Human anatomy & physiology
- b. Medical terminology
- c. Pharmacology
- d. Pharmacognosy
- e. Pharmacotherapy / therapeutics
- f. Toxicology
- g. Pathology, histology
- h. Microbiology
- i. Nutrition, non-pharmacological treatment
- j. Hematology
- k. Immunology
- l. Parasitology
- m. Hygiene
- n. Emergency therapy
- o. Clinical chemistry / bioanalysis (of body fluids)
- p. Radiochemistry
- q. Dispensing process, drug prescription, prescription analysis (detection of adverse effects and drug interactions)

- r. Generic drugs
- s. Planning, running and interpretation of the data of clinical trials
- t. Medical devices,
- u. Orthopedics
- v. OTC medicines, complementary therapy
- w. At-home support and care
- x. Skin illness and treatment
- y. Homeopathy
- z. Phytotherapy
- aa. Drugs in veterinary medicine
- bb. Pharmaceutical care, pharmaceutical therapy of illness and disease

6. Subject area VI: Law and social sciences "LAWSOC"

- a. Legislation, law relating to pharmacy
- b. Social sciences
- c. Forensic science
- d. Professional ethics
- e. Philosophy
- f. Economics, financial affairs, book keeping, economic planning and management
- g. Public health/health promotion
- h. Quality management
- i. Epidemiology of drug use (pharmaco-epidemiology)
- j. Economics of drug use (pharmaco-economics)
- k. History of pharmacy

7. Subject area VII: Generic competences "GENERIC"

- a. General knowledge
- b. Academic literacy
- c. Languages
- d. First aid
- e. Communication
- f. Management
- g. Practical skills

**Student hours**

<b>Subject area</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
<b>CHEMSCI</b>						
<b>PHYSMATH</b>						
<b>BIOLSCI</b>						
<b>PHARMTECH</b>						
<b>MEDISCI</b>						
<b>LAWSOC</b>						
<b>GENERIC</b>						

The PHARMINE survey V2, May 2019

If you wish to expand your answer, please add your comments below.

	1	2	3	4	5	6
CHEMSCI						
PHYSMATH						
BIOLSCI						
PHARMTECH						
MEDISCI						
LAWSOC						
GENERIC						

References	
References to texts and articles of national law	
Bibliographic references (EU, national, international)	

The PHARMINE survey V2, May 2003

## Chapter 5. Impact of the Bologna principles

### Explanatory notes

In this section we would like to know whether and how the principles outlined in the Bologna declaration (<http://www.ond.vlaanderen.be/hogeronderwijs/bologna/about/>) affect pharmacy E&T in your HEI:

1. Do you have easily readable and comparable degrees? Do you issue a Diploma Supplement?
2. Are courses divided into two main cycles: 3 year undergraduate (B) and graduate (M & D)? Please note that in the language of the Bologna declaration, “graduate” refers to a person who successfully finishes a B degree. We would like to know whether the degree awarded after such a bachelor, first cycle is relevant to the (European) labour market, *i.e.* whether there are job opportunities in the healthcare system of your country, or in any other area, for persons with a bachelor (B) degree obtained after 3 years of E&T. We would also like to know whether persons with a 3-year bachelor (B) degree from an HEI other than pharmacy (natural sciences, chemistry...) possibly in another country can enrol into the master (M) program and then go on to become registered pharmacists or pharmacy professionals.
3. Do you use the European system of credits (ECTS )? How are they used to promote student mobility? Does your HEI fully validate ECTSs obtained in another HEI in another European country? Can ECTS be acquired in a non-HEI context (traineeships...)? Are ECTS used in a global scheme (*i.e.* one going from pregraduate learning at the HEI to independent lifelong learning)?
4. Are efforts made to identify and remove obstacles to student and staff mobility (with language courses, additional resources (staff and finances))? Please add numbers for short-term (less than 6 months) “ERASMUS” exchange staff and students.
5. Is your HEI involved in any European co-operative program in quality assurance with attempts to develop comparable criteria and methodologies?
6. In your HEI what are the European dimensions in higher education regarding curriculum development, general inter-institutional co-operation and integrated programmes of study, training and research?

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		Does your HEI issue a Diploma Supplement?
2. Two main cycles (B and M) <u>with entry and exit at B level</u>		What are the employment possibilities for those leaving at the end of B3?
3. ECTS system of credits / links to LLL		What are the relationships between professional competences, learning outcomes, ECTS and LLL?
4. Obstacles to mobility		What are the main obstacles to movement of staff and students to and from your HEI and what measures are in place to remove them?
5. European QA		Name and address of accreditation body.

<b>6. European dimension</b>		
<b>ERASMUS staff exchange to your HEI from elsewhere</b>	Number of staff months:	From which countries do visiting staff come?
<b>ERASMUS staff exchange from your HEI to other HEIs</b>	Number of staff months:	Which countries do out-going staff visit?
<b>ERASMUS student exchange to your HEI from elsewhere</b>	Number of student months:	From which countries do visiting students come?
<b>ERASMUS student exchange from your HEI to other HEIs</b>	Number of student months:	Which countries do out-going students visit? How is their study period abroad validated within your HEI diploma <i>cursus</i> ?

References	
References to texts and articles of national law	
Bibliographic references (EU, national, international)	

The PHARMINE survey V2, May 2003

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

### Explanatory notes

In this section we would like to know how EC directive 2005/36/EC (<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2005:255:0022:0142:EN:PDF>) has affected/affects pharmacy E&T in your HEI.

We would like information on the impact of 3 main elements of directive 2005/36/EC on:

- Course length
- Course content
- Traineeship

We would also like you to consider the subjects given in annex V.6. Does this list have any impact on what is taught? Do you think that this list is useful? Do you think that this list should be modified?

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?
<p>“Evidence of formal qualifications as a pharmacist shall attest to training of at least <u>five years' duration</u>,...”</p>		
<p>“<u>...four years of full-time theoretical and practical training</u> at a university or at a higher institute of a level recognised as equivalent, or under the supervision of a university;”</p>		
<p>“<u>...six-month traineeship in a pharmacy</u> which is open to the public or in a hospital, under the supervision of that hospital's pharmaceutical department.”</p>		
<p>“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>”</p>		

Directive annex	How does / will this directive annex affect pharmacy E&T?	If you wish to expand your answer, please add your comments below. Do you consider the directive annex valid? If not how would you change it?
<p><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.</p>		

References	
References to texts and articles of national law	
Bibliographic references (EU, national, international)	

## Chapter 7. Quality assurance.

### Explanatory notes

This part of the questionnaire is based upon the US Accreditation Council for Pharmacy Education (ACPE) 2007 standards and is aimed at obtaining information on the self perception that each Faculty has of its own Quality Assurance System whether non-existing or existing and the extent of its implementation.

If a QA system is in place, please attach supporting documentation for each of the questions referencing under comments the part (page/chapter) of the documentation pertaining to each of the questions.

Further questions should be addressed to Prof. J. Morais, Lisbon ([jagmorais@ff.ul.pt](mailto:jagmorais@ff.ul.pt)) with a copy to J. Atkinson.

QUALITY ASSURANCE – 2009 (Based on ACPE – Standards 2007)

	QUESTIONS	Y/ N	COMMENTS
<b>Quality Assurance (QA)</b>	Does your High Education Institution (HEI) have a Quality Assurance (QA) system?	<input type="checkbox"/> <input type="checkbox"/>	
	Is the QA system up-to-date and implemented?	<input type="checkbox"/> <input type="checkbox"/>	
	Please indicate whether your system is (a) Internal to the HEI (b) External to the HEI (c) A combination of both	(a) <input type="checkbox"/> (b) <input type="checkbox"/> (c) <input type="checkbox"/>	
<b>Mission, Planning and Evaluation</b>			
<b>1. Mission</b>	Has your Faculty a published statement of its mission in all of the following topics: education, research, service and pharmacy practice?	<input type="checkbox"/> <input type="checkbox"/>	
<b>2. Strategic Plan</b>	Is your Faculty in the process of or has it developed, implemented and regularly reviewed a strategic plan in order to achieve the mission and goals?	<input type="checkbox"/> <input type="checkbox"/>	
<b>3. Evaluation of Achievement of Mission and Goals</b>	Does your Faculty have an official document (such as an Evaluation Plan) that comprehensively describes how the Faculty will continuously and systematically evaluate all aspects of the Faculty, including the achievement of its mission and goals?	<input type="checkbox"/> <input type="checkbox"/>	
<b>Organization and administration</b>			
<b>4. Institutional Accreditation</b>	Is your Faculty accredited by a national / international educational or professional body?	<input type="checkbox"/> <input type="checkbox"/>	
<b>5. Faculty and University Relationship</b>	Is your Faculty an autonomous unit within the university structure?	<input type="checkbox"/> <input type="checkbox"/>	
<b>6. Faculty and Administrative Relationship</b>	Does your Faculty have, within the university structure, autonomous administrative services related with academic, research and other scholarly activities?	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
<b>7. Faculty Organization and Governance</b>	Does the structure, organization and staffing of the Faculty foster the development of organizational units, allow appropriate allocation of resources and facilitate the accomplishment of the Faculty's mission and goals?	<input type="checkbox"/> <input type="checkbox"/>	
<b>8. Dean Qualifications and Responsibilities</b>	Is your Dean a chief administrative and academic officer, having direct access to the university Rector or other university officials delegated, with final responsibility for the college or Faculty?	<input type="checkbox"/> <input type="checkbox"/>	

Curriculum		
<b>9. Goal of Curriculum</b>	Does the Faculty's program curriculum prepare pharmacists for any practice setting by developing in graduates knowledge that meets the criteria of good science, professional skills, attitudes and values, and the ability to integrate and apply learning to current and future practice	<input type="checkbox"/> <input type="checkbox"/>
<b>10. Curricular Development</b>	Does your curriculum define the expected outcomes and is it developed under the collective responsibility of the academic teaching staff with attention to sequencing and integration of contents and selection of teaching methods and assessments?	<input type="checkbox"/> <input type="checkbox"/>
<b>11. Teaching and Learning Methods</b>	Does your Faculty use and integrate teaching and learning methods that have been showed through curricular assessments to produce graduates who became competent pharmacists with critical thinking, problem-solving and self-directed lifelong learning skills?	<input type="checkbox"/> <input type="checkbox"/>
<b>12. Professional Competencies</b>	Are your graduates able to promote health, provide patient care in cooperation with all partners based upon good therapeutic principles and evidence-based data that may impact therapeutic outcomes, manage and use resources of the healthcare system, and effectively provide, assess and coordinate medication distribution?	<input type="checkbox"/> <input type="checkbox"/>
<b>13. Knowledge, Skills, Attitudes and Values</b>	Does your curriculum have all the following areas: fundamental hard sciences, biomedical sciences, pharmaceutical sciences, social/behavioural/administrative sciences and clinical sciences?  Do graduates possess the required entry-level knowledge, skills, attitudes and values to practice pharmacy independently by graduation, including the training period as per Dir 2005/36?	<input type="checkbox"/> <input type="checkbox"/>  <input type="checkbox"/> <input type="checkbox"/>
<b>14. Practice Experiences</b>	Does your program curriculum include at least 6 months of training practice in community/hospital pharmacy?  Are the practice experiences within the curriculum appropriately structured and sequenced to integrate, apply, reinforce and advance the knowledge, skills, attitudes and values developed through other components of the curriculum?	<input type="checkbox"/> <input type="checkbox"/>  <input type="checkbox"/> <input type="checkbox"/>

<b>15. Assessment and evaluation of student learning and curricular effectiveness</b>	Does your Faculty use assessment measures throughout the program to evaluate the attainment of the desired educational outcomes and professional competencies, to improve student learning and to improve the curriculum and its delivery.	<input type="checkbox"/> <input type="checkbox"/>	
<b>Students</b>			
<b>16. Organization of student services</b>	Does your Faculty have organizational elements devoted to student services e.g. a confidential system of student records; and financial, academic and social support services for students?	<input type="checkbox"/> <input type="checkbox"/>	
<b>17. Admission criteria, policies and procedures</b>	Does your Faculty produce and make available to students criteria, policies, and procedures for admission to the degree program?  Does your faculty have the final responsibility for selection and enrollment (numbers) of students?	<input type="checkbox"/> <input type="checkbox"/>  <input type="checkbox"/> <input type="checkbox"/>	
<b>18. Transfer of credits</b>	Does your Faculty produce transfer credits (ECTS) based on rational procedures and defensible assessments, and makes that information available to students?	<input type="checkbox"/> <input type="checkbox"/>	
<b>19. Progression of students</b>	Does your Faculty produce and make available to students criteria, policies and procedures for academic progression?	<input type="checkbox"/> <input type="checkbox"/>	
<b>20. Students complaints policies</b>	Does your Faculty produce and make available to students a complaints policy that includes elements related to student rights and appeal mechanisms?	<input type="checkbox"/> <input type="checkbox"/>	
<b>21. Program information</b>	Does your Faculty produce and make available to students a complete and accurate description of the degree program, including its current accreditation status (if applicable)?	<input type="checkbox"/> <input type="checkbox"/>	
<b>22. Student representation and perspectives</b>	Does your Faculty involve student representatives on appropriate program committees, such as accreditation self-studies, assessment, curriculum and strategic planning?	<input type="checkbox"/> <input type="checkbox"/>	
<b>23. Professional behaviour and harmonious relationship</b>	Does your Faculty provide an environment and culture that promotes professional behaviour and harmonious relationships among students, staff and administrators?	<input type="checkbox"/> <input type="checkbox"/>	

<b>Faculty Staff</b>		
<b>24. Faculty staff quantitative factors</b>	Does your Faculty have a sufficient number of qualified full-time staff to effectively deliver and evaluate the degree program, while providing adequate time for staff development, research and other activities?	<input type="checkbox"/> <input type="checkbox"/>
<b>25. Faculty staff qualitative factors</b>	Does your Faculty have qualified staff with the required professional and academic expertise and who, individually and collectively, are committed to its mission and goals?	<input type="checkbox"/> <input type="checkbox"/>
<b>26. Faculty staff continuing professional development and performance review</b>	Does your Faculty have effective programs for performance review and continuing professional development for full-time, part-time, and voluntary faculty staff, consistent with their responsibilities in the program?	<input type="checkbox"/> <input type="checkbox"/>
<b>Facilities and Resources</b>		
<b>27. Physical facilities</b>	Does your Faculty have adequate and appropriate physical facilities and equipment to achieve its mission and goals?	<input type="checkbox"/> <input type="checkbox"/>
<b>28. Practice facilities</b>	Does your Faculty have criteria for the selection of its practice sites and work collaboratively with those sites to advance patient care services provided there?	<input type="checkbox"/> <input type="checkbox"/>
<b>29. Library and educational resources</b>	Does your Faculty ensure access for all staff and students to a library and other educational resources, sufficient to support the degree program and to provide for research and other activities in accordance with its mission and goals?	<input type="checkbox"/> <input type="checkbox"/>
<b>30. Financial resources</b>	Does your Faculty have the financial resources necessary to accomplish its mission and goals?	<input type="checkbox"/> <input type="checkbox"/>

31. Students complaints policies	Does your Faculty produce and make available to students a complaints policy that includes written documents related to student rights and appeal mechanisms?	<input type="checkbox"/> <input type="checkbox"/>	
32. Program information	Does your Faculty produce and make available to students a complete and accurate description of the degree program, including its current accreditation status?	<input type="checkbox"/> <input type="checkbox"/>	
33. Student representation and perspectives	Does your Faculty involve student representatives on appropriate program committees, such as accreditation self-studies and planning activities?	<input type="checkbox"/> <input type="checkbox"/>	
34. Professional behavior and harmonious relationship	Does your Faculty provide an environment and culture that promotes professional behavior and harmonious relationships among students, staff and administrators?	<input type="checkbox"/> <input type="checkbox"/>	
<b>Faculty Staff</b>			
35. Faculty staff quantitative factors	Has your Faculty a sufficient number of qualified full-time staff to effectively deliver and evaluate the degree program, while providing adequate time for staff development, research and other activities?	<input type="checkbox"/> <input type="checkbox"/>	
36. Faculty staff qualitative factors	Has your Faculty qualified staffs that, individually and collectively, are committed to its mission and goals?	<input type="checkbox"/> <input type="checkbox"/>	
37. Faculty staff continuing professional development and performance review	Has your Faculty an effective continuing professional development program for full-time, part-time, and voluntary faculty staff, consistent with their responsibilities?	<input type="checkbox"/> <input type="checkbox"/>	

Facilities and Resources			
<b>38. Physical facilities</b>	Have your Faculty adequate and appropriate physical facilities to achieve its mission and goals?	<input type="checkbox"/> <input type="checkbox"/>	
<b>39. Practice facilities</b>	Does your Faculty provide patient-care services either of its practice sites or collaboratively?	<input type="checkbox"/> <input type="checkbox"/>	
<b>40. Library and educational resources</b>	Does your Faculty ensure access for all staff and students to a library and other educational resources, sufficient to support the degree program and to provide for research and other activities in accordance with its mission and goals?	<input type="checkbox"/> <input type="checkbox"/>	
<b>41. Financial resources</b>	Does your Faculty have the financial resources necessary to accomplish its mission and goals?	<input type="checkbox"/> <input type="checkbox"/>	

Pharmacy education & training in

# AUSTRIA

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.

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 - AUSTRIA was produced by:

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## Summary.

There are 3 HEIs in Austria that deliver pharmacy education and training: Vienna, Graz and Innsbruck.

Studies at the university last 4.5 years; this is followed by 1 year of postgraduate traineeship that is obligatory for community pharmacists.

There is no specific pre-graduate specialisation in hospital pharmacy. There are some courses for future industrial pharmacists such as that for qualified persons in Vienna.

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

	Y/N, number or %	Comments
<b>Community pharmacy</b>		
Number of community pharmacists	5,160	As of 31.12.2009
Number of community pharmacies	1,270 community pharmacies 24 branches	
Competences and roles of community pharmacists		Competences include: <ol style="list-style-type: none"> <li>individual preparation of medicine</li> <li>dispensing of medicines</li> <li>customer counselling on application of medicinal prescriptions and on choice and use of self-medication medicines</li> <li>addictive drug substitution programs</li> <li>home delivery of urgently required medicines</li> <li>standby duty at night and weekends <i>etc.</i></li> </ol>
Is ownership of a community pharmacy limited to pharmacists?	Yes	Only a pharmacist can own and manage a pharmacy. However partnerships are possible but the pharmacist must own at least 51 %. No pharmacist is granted more than one license to operate or manage a pharmacy.
Rules governing the geographical distribution of pharmacies?	Yes	There must be a minimum distance of 500 meters to the next existing pharmacy and the requirement that each of the existing neighbouring pharmacies still has a potential of at least 5,500 people to supply
Are drugs and healthcare products available by other channels ?	No	All medicines may only be sold in pharmacies, with the exception of products in the delimitation ordinance ( <i>Abgrenzungsverordnung</i> ) (herbal teas and natural medicines) which may be sold outside the pharmacy.
Are persons other than pharmacists involved in community practice?	Yes	<ul style="list-style-type: none"> <li>Pharmaceutical-commercial assistant</li> <li>Support personnel like cleaning staff</li> </ul>
Their titles and number(s)	5,278	Number for pharmaceutical-commercial assistants
Organisation providing and validating the E&T		Community pharmacy and vocational college
Duration of studies (years)		3 years after compulsory school 2 years for a high-school graduate
Subject areas		Basic modules in chemistry and in physics, healthcare, hygienic, management, economics, bookkeeping <i>etc.</i>
Competences and roles		Commercial and pharmaceutical duties

<b>Hospital pharmacy</b>		
Number of hospital pharmacists	292	
Competences and roles of hospital pharmacists		- distribution of drugs - compounding of drugs - pharmaceutical services
<b>Roles of professional associations</b>		
Registration of pharmacists	Yes	All pharmacists working in a community or hospital pharmacy are Members of the Austrian Chamber of Pharmacists. Membership of the Chamber is compulsory by law.
Creation of community pharmacies and control of territorial distribution	Yes	Article 67-77 of the Regulation on the Operation of Pharmacies ( <i>Apothekenbetriebsordnung</i> ABO) states that pharmacies are to be checked before their start operating and after that at least every five years by the local authority. This control has to do with the pharmacy premises and equipment as well as the products manufactured and stored in the pharmacy. This way the high quality of the pharmacies themselves and the products they supply is controlled and guaranteed.
Ethical and other aspects of professional conduct	Yes	The Chamber of Pharmacists ensures the proper professional exercise and compliance with the ethical rules. Misconduct and breach of ethical rules may lead to disciplinary sanctions
QA / validation of HEI courses for pharmacists	Yes	The Chamber and its Regional Offices organise, finance and supervise the <u>practical</u> training of pharmacists.

<b>References</b>	
References to texts and articles of national law	Chamber of Pharmacist Act ( <i>Apothekerkammergesetz</i> ) Professional code of conduct ( <i>Berufsordnung</i> )

## Chapter 2. Pharmacy HEIs, students and courses

	Y/N, number or %	Comments.
<b>HEIs in Austria</b>	3	
Public	3	
<b>Organisation of HEIs</b>		
Attached to a science faculty	Yes	
Do HEIs offer B + M degrees?	No	
<b>Austria</b>		
<b>Teaching staff</b>		
Number of teaching staff (nationals)	58	Graz: 18, Wien: 26 Innsbruck: 14 without pre- and post-Docs
Number of international teaching staff (from EU MSs)		During the last years several professorial appointments have been effected, mostly of them from Germany. Honorary professorships were awarded to non-Austrian citizens. Visiting professors from several states have had time-limited teaching obligations.
Number of international teaching staff (non EU)		Visiting professors from several states have had time-limited teaching obligations. One honorary professor is Swiss citizen.
<b>Entry requirements (beginning of S1 of B1, following secondary school)</b>		
Specific pharmacy-related, national entrance examination	No	
Is there a national <i>numerus clausus</i> ?	No	
<b>Advanced entry</b>		
At which level?		Pharmacy students after examination of equivalency of their studies. Doctoral students from pharmacy and pharmacy related disciplines after examination of equivalency of their degree.
What are the requirements?		Equivalency of the study.
<b>Fees per year</b>		
EU students	(€): 0	
For non EU students	(€): 380,-	
<b>Length of course</b>	4.5 years	
<b>Specialization</b>		
Do HEIs provide specialized courses?	Yes (but not hospital)	There are is one diploma graduate program and a few doctorate graduate programs with specific profiles. The training course to qualify as qualified person is organised and held by the

	pharmacy)	University of Vienna. Vienna is partner in the IMI-JU SafeSciMed education program
In which years?	Years: from 5 <sup>th</sup> year on	Courses are thus postgraduate.
<b>Past and present changes in E&amp;T</b>		
Have there been any major changes since 1999?	Yes	
Are any major changes envisaged before 2019?	Yes	At the present stage it may be expected that Austrian pharmacists' education will not switch to the B, M education system. Nevertheless adjustment of the programmes will happen in any case.
<b>Vienna</b>		
<b>Teaching staff</b>		
Number of teaching staff (nationals)	26	
Number of international teaching staff (from EU MSs)		During the last years several professorial appointments have been effected, mostly of them from Germany. Honorary professorships were awarded to non-Austrian citizens. Visiting professors from several states have had time-limited teaching obligations.
Number of international teaching staff (non EU)		Visiting professors from several states have had time-limited teaching obligations. One honorary professor is Swiss citizen.
<b>Specialization</b>		
Does your HEI provide specialized courses?	Yes	
In which years?	Years: from year 5 on	There is one diploma graduate course and several doctorate programmes
<b>Past and present changes in E&amp;T</b>		
Have there been any major changes since 1999 at your HEI?	Yes	There is regular adaptation of the study programme organised at national level, prepared mainly by the <i>Studienkommissionen</i> in co-operation with the Austrian Pharmaceutical Society and with involvement of the Chamber of Pharmacists.
Are any major changes envisaged before 2019 at your HEI?	Yes	There will be regular adaptation of the study programme organised at national level, - as far as can be seen -prepared mainly by the <i>Studienkommissionen</i> in co-operation with the Austrian Pharmaceutical Society and with involvement of the Chamber of Pharmacists.
<b>Is your HEI typical of all HEIs in the country?</b>	<b>Yes</b>	

### Chapter 3. Teaching and learning methods

Student hours						
Method	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>HEIs courses</b>						
Lecture	26	28	30	14	-	
Tutorial						
Practical	12	20	25	32	15	
Project work						
<b>Traineeship</b>						
Hospital						Post magisterial
Community						Post magisterial (obligatory for pharmacists)

## Chapter 4. Subject areas

Student hours						
Subject area	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>CHEMSCI</b>	20	22	19	20		
<b>PHYSMATH</b>	3	-	-	-		
<b>BIOLSCI</b>	5	17	13	16		
<b>PHARMTECH</b>	2	-	15	8		
<b>MEDISCI</b>	6	9	8	7		
<b>LAWSOC</b>	-	-	-	1		
<b>GENERIC</b>	2	-	-	-		

## 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	The Austrian Universities consider the “ <i>magister der Pharmacy</i> ” as equivalent education to a Master Degree according to Bologna.
2. Two main cycles (B and M) <u>with entry and exit at B level</u>	No	
3. ECTS system of credits / links to LLL	Yes	Lectures are ECTS weighed.
4. Obstacles to mobility	No	No obstacles. Traditional involvement in Erasmus programmes
5. European QA		The University of Vienna is organising the Austrian educational course for qualified persons.
6. European dimension		

## 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> ,...”	Implemented	
“ <u>...four years of full-time theoretical and practical training</u> at a university or at a higher institute of a level recognised as equivalent, or under the supervision of a university;”	Yes	
“ <u>...six-month traineeship in a pharmacy</u> which is open to the public or in a hospital, under the supervision of that hospital's pharmaceutical department.”	At present 1 year	The post-university training programme should rather be more structured than be shortened.
“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> ”	Yes	
Directive annex	How does / will this directive annex affect pharmacy E&T?	If you wish to expand your answer, please add your comments below. Do you consider the directive annex valid? If not how would you change it?
<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.	Yes	



**PHARMINE**  
*Pharmacy Education  
in Europe*



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## PHARMINE

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

**Website: [www.pharmine.org](http://www.pharmine.org)**

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](#))

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## Summary.

Pharmacy education and training in Belgium is characterized by:

In the Flemish community there is early specialisation (at the end of the 3<sup>rd</sup> 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 6<sup>th</sup> 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
<b>Community pharmacy</b>		
Number of community pharmacists	12,000	
Number of community pharmacies	5729	From: <a href="http://www.apotheek-net.be">www.apotheek-net.be</a> (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"> <li>• specific competences for working in a community pharmacy</li> <li>• knowledge of the practical frame work of a community pharmacy</li> <li>• collaboration with other health workers (doctors, nurses...) with the notion of integrated care of an individual</li> <li>• cognizance of the medico-legal aspects of community pharmacy practice and of the workings of the social security system</li> <li>• 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</li> <li>• transfer of information and advice on drugs in an appropriate way to the patient, to health authorities and other health workers</li> <li>• ability to apply scientific methodology (collection of data through observation or experimentation with testing of hypotheses) to problems encountered</li> <li>• ability to adapt to changes in the profession and its environment through LLL and other aptitudes</li> </ul>

		<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"> <li>- population density</li> <li>- geographic repartition</li> </ul> <p>The law distinguishes 3 categories of <i>population density</i>:</p> <ul style="list-style-type: none"> <li>i) an area with a population smaller than 7500 (k = 2000)</li> <li>ii) population of 7500 - 30000 (k = 2500)</li> <li>iii) population &gt; 30000 (k = 3000)</li> </ul> <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"> <li>i) when the nearest pharmacy is located 1 km beyond the new location and this new location can accommodate for 2500 customers</li> <li>ii) similar but respectively 3 km and 2000 clients</li> <li>iii) similar but respectively 5 km and 1500 clients (2)</li> </ul> <p>(Royal decree 25/9/1974)</p> <p>In general (simplified):</p> <ul style="list-style-type: none"> <li>- country side (&lt; 100 000 citizens): 1 pharmacy/2500 citizens</li> <li>- urban area (&gt; 100 000 citizens): 1 pharmacy/1000 citizens</li> </ul>
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&amp;T of "Pharmaceutical-technical assistants".</p> <p>Erasmus hogeschool Brussel: <a href="http://www.erasmushogeschool.be">www.erasmushogeschool.be</a></p> <p>Katholieke hogeschool Leuven: <a href="http://www.katholiekehogeschool.be">www.katholiekehogeschool.be</a></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.
<b>Hospital pharmacy</b>		
Number of hospital pharmacists	500	More information at: <ul style="list-style-type: none"> <li>• BAHF (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. <a href="http://www.hospitals.be">http://www.hospitals.be</a></li> <li>• Vlaamse vereniging van ziekenhuisapothekers, VZA Secretariaat, UZ Gent Apotheek, De Pintelaan 185, B-9000 Gent <a href="http://www.bahp.be">http://www.bahp.be</a></li> <li>• Association francophone des pharmaciens hospitaliers, <a href="http://www.afphb.be">http://www.afphb.be</a></li> </ul>
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"> <li>• knowledge of the pharmaceutical and hospital legislation, and legislation in relation with the hospital pharmacy</li> <li>• financial management of a hospital pharmacy</li> <li>• processes concerning purchase, stock management and distribution of drugs in the hospital</li> <li>• tariffication of hospital pharmacy transactions</li> <li>• knowledge of the principles and practice of sterilization</li> <li>• fabrication of hospital pharmacy preparations and formulations</li> <li>• knowledge of the principles and practice of quality assurance and management</li> <li>• participation in hospital policy and decision taking concerning drugs, medical devices and implants, and hospital hygiene</li> <li>• communication with other health workers and members of the board of the hospital</li> <li>• evaluation of individual drug use in relation to pathology</li> <li>• monitoring the hospital drug budget in relation to pathology financing, year reports, etc...) in relation with the given service(s)</li> <li>• scientific research in the setting of an hospital pharmacy</li> </ul> <p>The roles of hospital pharmacists in clinical trials of drugs:</p> <ul style="list-style-type: none"> <li>- coordinating and administrative function in clinical trials: planning and follow-up</li> <li>- preparation of pharmaceutical formulations of the drug in clinical trial</li> </ul>
<b>Pharmaceutical and related industries</b>		
Companies with production, R&D and distribution		Association of the Belgian pharmaceutical industries: <a href="http://www.pharma.be">www.pharma.be</a> Federation of Belgian generic medicines firms: <a href="http://www.febelgen.be">www.febelgen.be</a>
<b>Industrial pharmacy</b>		
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"> <li>• 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"> <li>○ Quality assurance</li> <li>○ Manufacture</li> </ul> </li> </ul>

- 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)
<b>Roles of professional associations</b>		
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"> <li>1. In Flanders the NVAO accredits the HEI E&amp;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</li> <li>2. The graduate is awarded an accredited master degree</li> <li>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"</li> <li>4. The national Order of Pharmacists registers the graduate on the basis of the "diploma visa".</li> <li>5. The graduate now practices pharmacy.</li> </ol> <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) ( <a href="http://www.fagg-afmps.be">www.fagg-afmps.be</a> ) (English: <a href="http://www.fagg-afmps.be/en/">http://www.fagg-afmps.be/en/</a> )
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"> <li>1. Incapacity (withdrawal of diploma's visa)</li> <li>2. (extreme) disciplinary sanction</li> <li>3. At the request of the holder of the diploma's visa</li> </ol>
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"> <li>i) professional defence while the associations represent pharmacists at negotiations with the government</li> <li>ii) access to (scientific, economic and legal) information</li> </ol>

References	
References to texts and articles of national law	<p>Royal decrees :</p> <ul style="list-style-type: none"> <li>• 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) <a href="http://www.health.fgov.be">http://www.health.fgov.be</a></li> <li>• 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) <a href="http://www.health.fgov.be">http://www.health.fgov.be</a> <a href="http://www.fagg-afmps.be/nl/binaries/AR-KB-1974-09-25_tcm290-27164.pdf">http://www.fagg-afmps.be/nl/binaries/AR-KB-1974-09-25_tcm290-27164.pdf</a></li> <li>• 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) <a href="http://www.ordredespharmaciens.be">http://www.ordredespharmaciens.be</a></li> </ul> <p>Belgian law translating directive 2005/36/EC into national law: <a href="http://www.fagg-afmps.be/nl/binaries/AR-KB-2006-12-14_tcm290-27173.pdf">http://www.fagg-afmps.be/nl/binaries/AR-KB-2006-12-14_tcm290-27173.pdf</a> <a href="http://www.fagg-afmps.be/nl/binaries/AR-KB-2009-01-21-pharmaciens_tcm290-37379.pdf">http://www.fagg-afmps.be/nl/binaries/AR-KB-2009-01-21-pharmaciens_tcm290-37379.pdf</a></p>
Websites	<p>APB (Association Pharmaceutique Belge) <a href="http://www.apb.be">http://www.apb.be</a></p> <p>OPHACO (Organisation des Pharmacies Cooperatives) <a href="http://ophaco.nexenservices.com">http://ophaco.nexenservices.com</a></p> <p>Société Belge des Sciences Pharmaceutiques <a href="http://www.bgfw.be">http://www.bgfw.be</a></p> <p>Dynaphar (groupement de pharmaciens indépendants) <a href="http://www.dynaphar.be">http://www.dynaphar.be</a></p> <p>BAHP (Belgian Association of Hospital Pharmacists) <a href="http://www.hospitals.be">http://www.hospitals.be</a> <a href="http://www.hospitals.be/nederlands/ziekenhuizen/instellingstype.html">http://www.hospitals.be/nederlands/ziekenhuizen/instellingstype.html</a></p> <p>NVAO <a href="http://www.nvao.net/">http://www.nvao.net/</a></p> <p>Vrije Universiteit Brussel: <a href="http://www.vub.ac.be">www.vub.ac.be</a> (in English: <a href="http://www.vub.ac.be/english/index.php">http://www.vub.ac.be/english/index.php</a>)</p> <p>ECORYS “Study of regulatory restrictions in the field of pharmacy” 2007 (<a href="http://ec.europa.eu/internal_market/services/pharmacy_en.htm">http://ec.europa.eu/internal_market/services/pharmacy_en.htm</a>)</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 <a href="http://www.belgium.fgov.be/">http://www.belgium.fgov.be/</a></p> <p>Orde der Apothekers – Ordre des Pharmaciens (Belgian Order of Pharmacists): <a href="http://www.ordredespharmaciens.be/">http://www.ordredespharmaciens.be/</a></p>

## Chapter 2. Pharmacy HEIs, students and courses

	Y/N, number or %	Comments
<b>Total number of HEIs in your country</b>	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	
<b>Organisation of HEIs</b>		
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
<b>Belgium</b>		
<b>Teaching staff</b>		
Number of teaching staff	~ 185	
Professionals from outside the HEIs	~ 500	
<b>Students</b>		
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	
<b>Entry requirements (beginning of S1 of B1, following secondary school)</b>		
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)
<b>Advanced entry</b>		
At which level?		No entry at advanced level - only holders of a bachelor degree in

		pharmaceutical sciences can enter at the master level
<b>Fees per year</b>		
For home & EU	567,8 €	
For non EU students	1131,6 €	
<b>Length of course</b>	<b>5 years</b>	
<b>Specialization</b>		
Specialized courses?	Yes	
In which years?		After graduation as a pharmacist (At the level of advanced Master (6 <sup>th</sup> year)
In which specialisation (industry, hospital...)?		6 <sup>th</sup> year: Industry and hospital pharmacy (1 year) 6 <sup>th</sup> through 10 <sup>th</sup> 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
<b>Past and present changes in E&amp;T</b>		
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.
<b>VUB, Brussels</b>		
<b>Teaching staff</b>		
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)
<b>Students</b>		
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	
<b>Advanced entry</b>		
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
<b>Specialization</b>		
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](http://www.ugent.be), in English: <http://www.ugent.be/en>

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

University of Leuven: [www.kuleuven.be](http://www.kuleuven.be)

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

Université Libre de Bruxelles: [www.ulb.ac.be](http://www.ulb.ac.be)

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

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

Université de Mons-Hainaut: [www.umh.ac.be](http://www.umh.ac.be)

University of Liege: [www.ulg.ac.be](http://www.ulg.ac.be)

Facultés Universitaires Notre-Dame de la Paix: [www.fundp.ac.be](http://www.fundp.ac.be)

Flemish Interuniversity Platform [www.vlir.be](http://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
<b>HEIs courses</b>									
Lecture	314	286	290	392	360	47.5	57.5	299	225
Tutorial <sup>d</sup>	-	-	80	-	-	-	-	-	-
Practical	308	418	405	350	420	160	140	82	52.5
Project work <sup>d</sup>	40	60	110	40	20	540	540	70	870
<b>Total</b>	<b>662</b>	<b>764</b>	<b>885</b>	<b>782</b>	<b>800</b>	<b>747.5</b>	<b>727.5</b>	<b>451</b>	<b>1147.5</b>
<b>Traineeship</b>									
Hospital	-	-	-	-	-	-	-	600	-
Commun.	-	-	-	-	-	1000	1000	-	-
Industrial	-	-	-	-	-	-	-	-	1000 <sup>c</sup>
<b>Total</b>	<b>662</b>	<b>764</b>	<b>885</b>	<b>782</b>	<b>800</b>	<b>1747.5</b>	<b>1727.5</b>	<b>1051</b>	<b>2147.5</b>
<b>Electives</b>									
Optional						From 52 to 156	From 52 to 156		
<b>Total</b>	<b>662</b>	<b>764</b>	<b>885</b>	<b>782</b>	<b>800</b>	<b>1799.5 – 1903.5</b>	<b>1779.5 – 1883.5</b>	<b>1051</b>	<b>2147.5</b>

The university validates all courses, traineeship and electives.

HEI courses – 2<sup>nd</sup> 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 – 5<sup>th</sup> 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

4<sup>th</sup> and 5<sup>th</sup> 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 6<sup>th</sup> year since they can only be followed after the 5<sup>th</sup> 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: <a href="http://www.ond.vlaanderen.be">www.ond.vlaanderen.be</a></p> <p>Education in Wallonia and Bruxelles: <a href="http://www.enseignement.be/">http://www.enseignement.be/</a></p> <p>Structures of education, vocational training and adult education systems in Europe (EURYDICE)</p> <ul style="list-style-type: none"> <li>• Main website: <a href="http://eacea.ec.europa.eu/education/eurydice/eurybase_en.php">http://eacea.ec.europa.eu/education/eurydice/eurybase_en.php</a></li> <li>• Belgium – Flemish community: <ul style="list-style-type: none"> <li>○ National summary sheet: <a href="http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/national_summary_sheets/047_BN_EN.pdf">http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/national_summary_sheets/047_BN_EN.pdf</a></li> <li>○ Structure of education: <a href="http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/structures/041_BN_EN.pdf">http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/structures/041_BN_EN.pdf</a></li> <li>○ Full country description: <a href="http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/eurybase_full_reports/BN_EN.pdf">http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/eurybase_full_reports/BN_EN.pdf</a></li> </ul> </li> <li>• French speaking community: <ul style="list-style-type: none"> <li>○ National summary sheet: <a href="http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/national_summary_sheets/047_BF_EN.pdf">http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/national_summary_sheets/047_BF_EN.pdf</a></li> <li>○ Structure of education: <a href="http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/structures/041_BF_EN.pdf">http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/structures/041_BF_EN.pdf</a></li> <li>○ Full country description: <a href="http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/eurybase_full_reports/BF_EN.pdf">http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/eurybase_full_reports/BF_EN.pdf</a></li> </ul> </li> </ul>
VUB sites for courses	<p>Bachelor in pharmaceutical sciences : <a href="http://aiv.vub.ac.be/opaweb/index?page=modeltraject&amp;omaNummer=2050&amp;doelgroep=TS&amp;language=en">http://aiv.vub.ac.be/opaweb/index?page=modeltraject&amp;omaNummer=2050&amp;doelgroep=TS&amp;language=en</a></p> <p>Master in Pharmaceutical Care : <a href="http://aiv.vub.ac.be/opaweb/index?page=modeltraject&amp;omaNummer=2051&amp;doelgroep=TS&amp;language=en">http://aiv.vub.ac.be/opaweb/index?page=modeltraject&amp;omaNummer=2051&amp;doelgroep=TS&amp;language=en</a></p> <p>Master in Drug Development : <a href="http://aiv.vub.ac.be/opaweb/index?page=modeltraject&amp;omaNummer=2052&amp;doelgroep=TS&amp;language=en">http://aiv.vub.ac.be/opaweb/index?page=modeltraject&amp;omaNummer=2052&amp;doelgroep=TS&amp;language=en</a></p> <p>Hospital pharmacy : <a href="http://aiv.vub.ac.be/opaweb/index?page=modeltraject&amp;omaNummer=2062&amp;doelgroep=TS&amp;language=en">http://aiv.vub.ac.be/opaweb/index?page=modeltraject&amp;omaNummer=2062&amp;doelgroep=TS&amp;language=en</a></p> <p>Industrial pharmacy : <a href="http://aiv.vub.ac.be/opaweb/index?page=modeltraject&amp;omaNummer=2061&amp;doelgroep=TS&amp;language=en">http://aiv.vub.ac.be/opaweb/index?page=modeltraject&amp;omaNummer=2061&amp;doelgroep=TS&amp;language=en</a></p>

## Chapter 4. Subject areas

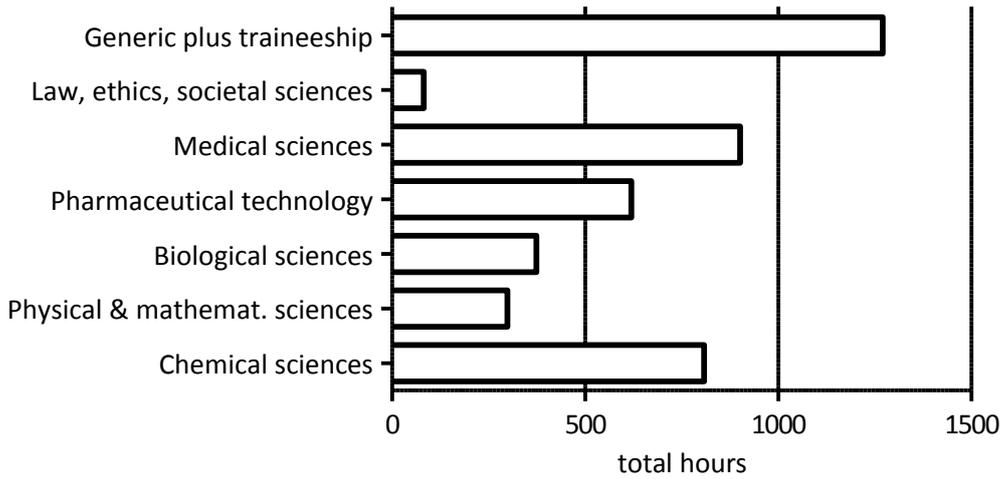
### Student hours

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

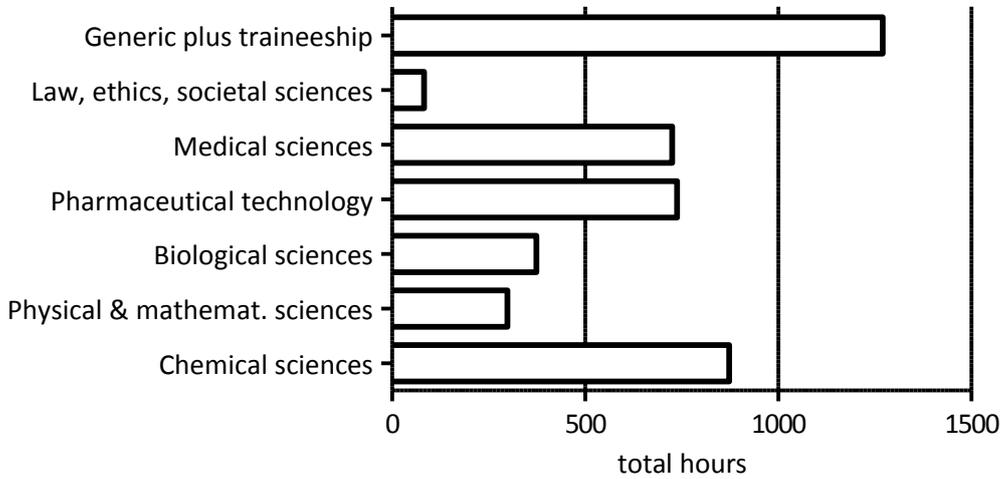
<sup>c</sup> During the 2<sup>nd</sup> Master in Pharmaceutical Care and 2<sup>nd</sup> Master in Drug Development the student has to present a Master thesis. This Master thesis is an important part of the end evaluation of the students in Pharmaceutical Sciences and must be seen as an end essay. As 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 1<sup>st</sup> 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 2<sup>nd</sup> Master Pharmaceutical Care: 540  
 Student hours Master Thesis 2<sup>nd</sup> Drug Development: 540

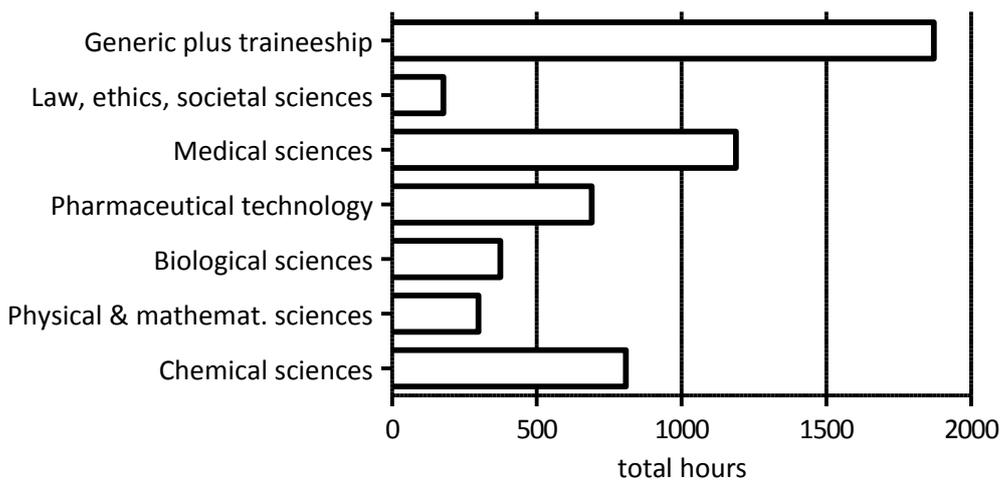
Student hours by subject area – pharmaceutical care.



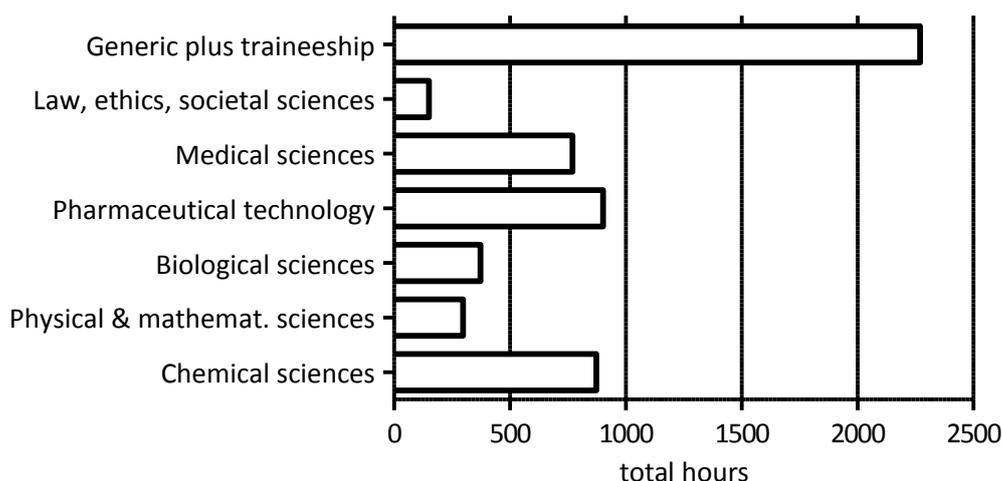
Student hours by subject area – drug development.



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](http://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](http://eacea.ec.europa.eu/education/eurydice/eurybase_en.php)
- Belgium – Flemish community:
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  - National summary sheet: [http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/national\\_summary\\_sheets/047\\_BF\\_EN.pdf](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](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](http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/eurybase_full_reports/BF_EN.pdf)

VUB sites for courses	<p>Bachelor in pharmaceutical sciences : <a href="http://aiv.vub.ac.be/opaweb/index?page=modeltraject&amp;omaNummer=2050&amp;doelgroep=TS&amp;language=en">http://aiv.vub.ac.be/opaweb/index?page=modeltraject&amp;omaNummer=2050&amp;doelgroep=TS&amp;language=en</a></p> <p>Master in Pharmaceutical Care : <a href="http://aiv.vub.ac.be/opaweb/index?page=modeltraject&amp;omaNummer=2051&amp;doelgroep=TS&amp;language=en">http://aiv.vub.ac.be/opaweb/index?page=modeltraject&amp;omaNummer=2051&amp;doelgroep=TS&amp;language=en</a></p> <p>Master in Drug Development : <a href="http://aiv.vub.ac.be/opaweb/index?page=modeltraject&amp;omaNummer=2052&amp;doelgroep=TS&amp;language=en">http://aiv.vub.ac.be/opaweb/index?page=modeltraject&amp;omaNummer=2052&amp;doelgroep=TS&amp;language=en</a></p> <p>Hospital pharmacy : <a href="http://aiv.vub.ac.be/opaweb/index?page=modeltraject&amp;omaNummer=2062&amp;doelgroep=TS&amp;language=en">http://aiv.vub.ac.be/opaweb/index?page=modeltraject&amp;omaNummer=2062&amp;doelgroep=TS&amp;language=en</a></p> <p>Industrial pharmacy : <a href="http://aiv.vub.ac.be/opaweb/index?page=modeltraject&amp;omaNummer=2061&amp;doelgroep=TS&amp;language=en">http://aiv.vub.ac.be/opaweb/index?page=modeltraject&amp;omaNummer=2061&amp;doelgroep=TS&amp;language=en</a></p>
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## 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.	
<b>1. Comparable degrees / Diploma Supplement</b>	Yes	- Readable and comparable degrees: yes - Diploma supplement: yes	
<b>2. Two main cycles (B and M) with entry and exit at B level</b>	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.	
<b>3. ECTS system of credits / links to LLL</b>	Yes	3 B -> 180 ECTS 2 M -> 120 ECTS	
<b>4. Obstacles to mobility</b>	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	
<b>5. European QA</b>	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.	
<b>6. European dimension</b>	Yes		
<b>ERASMUS staff exchange to your HEI from elsewhere</b>		Staff months: 1	2 staff members but in total 1 staff month
<b>ERASMUS staff exchange from your HEI to other HEIs</b>		Less than 1 month	
<b>ERASMUS student exchange to your HEI from elsewhere</b>		Student months: 10	
<b>ERASMUS student exchange from your HEI to other HEIs</b>		Student months: 2	

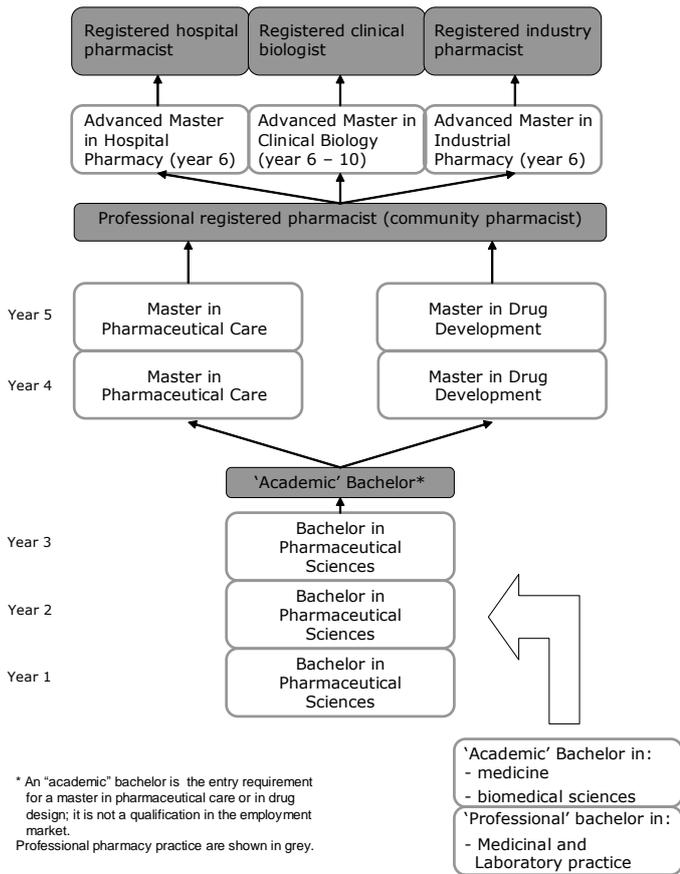
References	
References to texts and articles of national law	<ul style="list-style-type: none"> <li>* Flemish decree of 06/12/1991 (personnel) (Vlaams decreet van 12 juni 1991 betreffende de universiteiten in de Vlaamse Gemeenschap)</li> <li>* Flemish decree of 04/04/2003 (structure of HEI) (decreet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

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

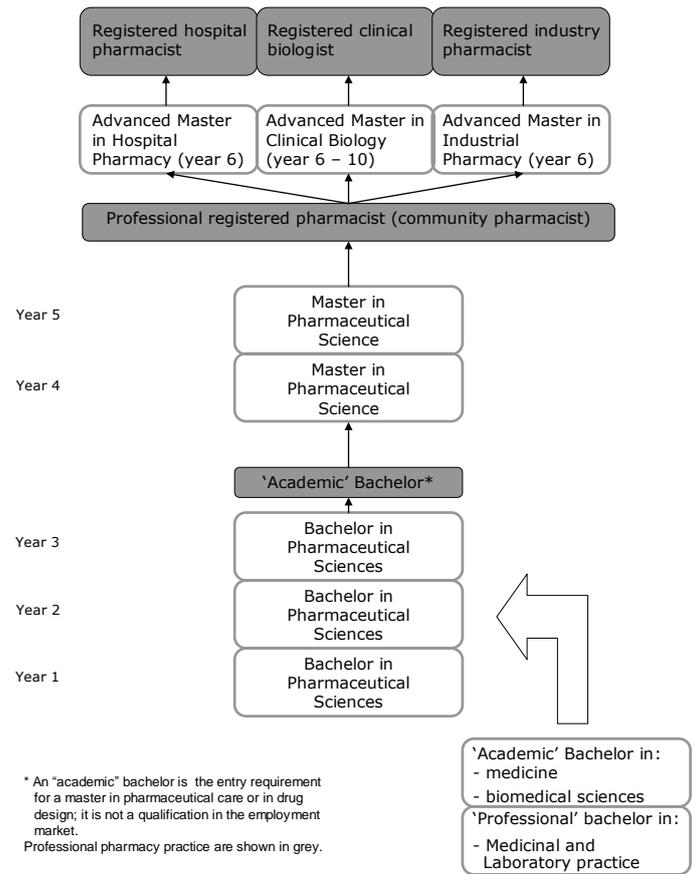
The directive states	How does / will this directive statement affect pharmacy E&T?	If you wish to expand your answer, please add your comments below. Do you consider the directive statement valid? If not how would you change it?
“Evidence of formal qualifications as a pharmacist shall attest to training 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	
<b>Directive annex</b>	<b>How does / will this directive annex affect pharmacy E&amp;T?</b>	
<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.	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"> <li>• pharmaceutical biotechnology</li> <li>• pharmaceutical care</li> </ul>	

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: <a href="http://www.fagg-afmps.be/nl/binaries/AR-KB-2009-01-21-pharmaciens_tcm290-37379.pdf">http://www.fagg-afmps.be/nl/binaries/AR-KB-2009-01-21-pharmaciens_tcm290-37379.pdf</a></p> <p>Appendix I: <a href="http://www.fagg-afmps.be/nl/binaries/AR-KB-2009-01-21-gids-BPO_tcm290-37383.pdf">http://www.fagg-afmps.be/nl/binaries/AR-KB-2009-01-21-gids-BPO_tcm290-37383.pdf</a></p> <p>Appendix II: <a href="http://www.fagg-afmps.be/nl/binaries/AR-KB-2009-01-21-bijlage-2_tcm290-37384.doc">http://www.fagg-afmps.be/nl/binaries/AR-KB-2009-01-21-bijlage-2_tcm290-37384.doc</a></p> <p>Appendix III: <a href="http://www.fagg-afmps.be/nl/binaries/AR-KB-2009-01-21-bijlage-3_tcm290-37385.doc">http://www.fagg-afmps.be/nl/binaries/AR-KB-2009-01-21-bijlage-3_tcm290-37385.doc</a></p> <p>Appendix IV: <a href="http://www.fagg-afmps.be/nl/binaries/AR-KB-2009-01-21-bijlage-4_tcm290-37386.doc">http://www.fagg-afmps.be/nl/binaries/AR-KB-2009-01-21-bijlage-4_tcm290-37386.doc</a></p> <p>Appendix V: <a href="http://www.fagg-afmps.be/nl/binaries/AR-KB-2009-01-21-bijlage-5_tcm290-37387.doc">http://www.fagg-afmps.be/nl/binaries/AR-KB-2009-01-21-bijlage-5_tcm290-37387.doc</a></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

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## PHARMINE

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

**Website: [www.pharmine.org](http://www.pharmine.org)**

Pharmacy education & training in

# BULGARIA

2010

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](#))

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Website	<a href="http://www.pharmfac.net/organiz/valentina.htm">http://www.pharmfac.net/organiz/valentina.htm</a> <a href="http://www.pharmfac.net/index_en.html">http://www.pharmfac.net/index_en.html</a>	<a href="http://pharmfac.net/">http://pharmfac.net/</a>

This document was validated by the Bulgarian Pharmaceutical Union



БЪЛГАРСКИ  
ФАРМАЦЕВТИЧЕН  
СЪЮЗ

President:.....  
Miroslav Nenchev, MSc (pharm)



<http://bphu.eu/index.php>

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## Summary.

Pharmacies in Bulgaria have a monopoly on the dispensing of medicinal products, authorised in the Republic of Bulgaria on or without medical prescription, as well as medical devices, food additives, cosmetic, and sanitary-hygienic articles.

*Aptekari*, who act as responsible pharmacists, pharmacy owners and managers follow a 5-year (M.Sc.Pharm.) degree course with a 6 months' traineeship. *Pomoshnik-farmaceuti*, who follow a 3 year degree course (also with 6 months' traineeship) can prepare medicines and can dispense OTC medicines in Bulgaria under the supervision of a pharmacist (M.Sc. Pharm.)

The first and second year of the university study for the pharmacists are devoted mainly to chemical sciences, mathematics, botany and medical sciences. Years 3 and 4 centre on pharmaceutical technology, pharmacology, pharmacognosy, pharmaco-economics and social pharmacy, year 5 on pharmaceutical care, patient counselling, pharmacotherapy and medical sciences. A six months traineeship finishes the 5th year together with preparation of a Master's thesis and the 4 state exams with which university studies typically end.

Industrial pharmacy and clinical (hospital) pharmacy are integrated disciplines at the Faculty of Pharmacy-Sofia, Bulgaria.

## Introduction.

Statistics (2006 unless indicated)

Total population: 7,693,000

Gross national income per capita (PPP international \$): 10,270

Life expectancy at birth m/f (years): 69/76

Healthy life expectancy at birth m/f (years, 2003): 63/67

Probability of dying under five (per 1 000 live births): 12

Probability of dying between 15 and 60 years m/f (per 1 000 population): 219/93

Total expenditure on health per capita (Intl \$, 2006): 741

Total expenditure on health as % of GDP (2006): 6.9

*From the WHO Statistical Information System (WHOSIS) (<http://www.who.int/whosis/en/index.html>)*

See also: [World Health Statistics 2008](#)

WHO estimates that a person born in Bulgaria in 2003 can expect to live 72 years on average: 76 years if female and 69 years if male. WHO also estimates that Bulgarian people spend 9.6% (7 years) of their lives on average with illness and disability. The infant mortality rate and both its components (neonatal and postnatal mortality rates) increased in Bulgaria between 1988 and 1997 and then decreased. Bulgaria's maternal mortality rate shows substantial variation over time. The maternal mortality rate reported may be underestimated, though; according to WHO/United Nations Children's Fund/United Nations Population Fund estimates for the year 2000, the rate in Bulgaria was about 32 maternal deaths per 100 000 live births, while the nationally reported rate was 18 maternal deaths per 100 000 live births. Between 1990 and 2002, Bulgaria's maternal mortality rate fell by 17%.

The main non-communicable diseases accounted for about 86% of all deaths in Bulgaria (of all deaths, 65% were caused by diseases of the circulatory system and 14% by cancer). External causes accounted for about 4% of all deaths and communicable diseases for less than 1%. Mortality rates place Bulgaria in the upper half of the European countries.

*From the WHP "Highlights on health in Bulgaria", 2005 (<http://www.euro.who.int/Document/E88390.pdf>)*

The economic, political and social changes in Bulgaria, since 1989 have an important impact on all aspects of social life in the country as well as on pharmaceutical activities. Until 1989, the pharmaceutical system was centralized - community pharmacies, hospital pharmacies, wholesalers, pharmaceutical works and institutes were owned by the state. The import and export of drugs were controlled by the state.

After the changes in 1989, the Bulgarian pharmaceutical system is oriented towards the private sector. Community pharmacies, wholesalers, and many drug manufacturers are all private. The first Bulgarian Law on drugs and pharmacies in human medicine was introduced in 1995. It lays out the structure for harmonization of Bulgarian drug regulatory affairs with those of the European Union. All these specific circumstances, together with – on a more global level - new drug discoveries, new pharmaceutical technologies and methodologies are a constant challenge leading reconsideration of the role of pharmacists in the Bulgarian health care system. Before these changes the Bulgarian pharmacists used their skills to manufacture drugs in the pharmacy. Now, pharmacists apply different skills that require a detailed knowledge of communications and human behaviour in order to scientifically dispense medications, to counsel patients about their health, the proper application of their prescribed and OTC drugs. They are also responsible for monitoring patients, in order to avoid adverse drug reactions and to achieve maximum benefit from the treatment. A very recent development is the implementation of the concept of “Pharmaceutical care” as a central element of pharmacy practice. The Medical University in Sofia, Bulgaria consists of three Faculties: medicine, dentistry and pharmacy.

The pharmacy faculty is the oldest in Bulgaria that educates pharmaceutical specialists. The duration of the education is 5 years for community, hospital and industrial pharmacists. All the graduates receive a “Master of Pharmacy” degree. One hundred to one hundred and twenty Bulgarian and 25-30 foreign students are accepted for training every year. There are 6 departments in the Faculty of Pharmacy:

A/ Pharmaceutical Technology and Bio-pharmacy

B/ Pharmacognosy and Pharmaceutical Botany

C/ Pharmaceutical Chemistry

D/ Chemistry

E/ Pharmacology and Toxicology

F/ Social Pharmacy

After graduation students can specialize for a further 3 years. Whilst working in a hospital or industrial environment, they follow a study program and 2 weeks per year they have courses at the Faculty of Pharmacy. After the 3rd year they pass a state examination in a given speciality.

Since 1989 there have been many changes in the curriculum of the Faculty of Pharmacy in order to tune courses and diplomas with those of the other schools in the EU. Many new aspects and study areas have been

introduced such as: bio-pharmacy, clinical laboratory testing and analysis, biology and many others. In the special case of the Department of Social Pharmacy many new study areas have been introduced such as: history of pharmacy, pharmaco-epidemiology, pharmaco-economics, pharmaceutical law, pharmaceutical marketing and pharmaceutical management. In 2000 a new course in pharmaceutical care was introduced. The lectures and seminars on this latter subject are given during the first semester of the fifth year. The lectures synthesize the knowledge gained during the 5-year pharmacy course and blend this with new communication skills and the development of the logic of pharmaceutical care. University lecturers together with the help of pharmacy practitioners, provide the training.

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

	Y/N, number or %	Comments.
<b>Community pharmacy</b>		
Pharmacists	5500-6000	1300 inhabitants / pharmacist
Pharmacies	4500	1.2 – 1.3 pharmacists per pharmacy 1700 inhabitants / pharmacy
Competences and roles of community pharmacists		After graduation from the University the pharmacists can work in a pharmacy and can perform drug preparation, dispensing of drugs and consulting patients on the proper drug treatment and pharmaceutical care plan: identifying drug-related problems, making a plan for proper drug treatment, monitoring of the treatment, <i>etc.</i>
Is ownership of a community pharmacy limited to pharmacists?	No	A natural or legal person registered as a trader under the Bulgarian legislation or under the legislation of an EU Member State, who has signed a labour contract or a contract for management of a pharmacy with a master of pharmacy, and in the cases provided under the law – with an assistant pharmacists (this is in the cases that in the settlement there is no master of pharmacy who can manage a pharmacy until the coming of master of pharmacy and there should be dispensed only OTC drugs) shall be entitled to carry out retail trade in medicinal products. One person may open not more than 4 pharmacies on the territory of the Republic of Bulgaria. <a href="http://old.bda.bg/bda_old/web_engl/main.htm">http://old.bda.bg/bda_old/web_engl/main.htm</a>
Rules on geographical distribution of pharmacies?	No	
Are drugs and healthcare products available to the general public by channels other than pharmacies?	No	Medicinal products, medical devices authorised in Republic of Bulgaria on or without medical prescription, as well as food additives, cosmetic, and sanitary-hygienic articles are sold only in pharmacies. There are no Internet or mail-order pharmacies in Bulgaria. The bargain trade with drug products shall be prohibited. The sale of medicinal products dispensed on medical prescription via internet shall be prohibited.
Are persons other than pharmacists involved in community practice?	Yes	Besides of pharmacists, assistant pharmacists are considered as professional staff at pharmacy. Article 220/3 of the Bulgarian Medicinal Products act states that “(3) An assistant pharmacist may carry out all operations under Article 219, Paragraph 1 in the presence and under the control of a master of pharmacy, with the exception of: dispensation of medicinal products under medical prescription, control and consultations.” <a href="http://old.bda.bg/bda_old/web_engl/main.htm">http://old.bda.bg/bda_old/web_engl/main.htm</a>  Assistant Pharmacist’s Code 5.7.: <i>The students graduated from that speciality can work at the clinical pharmacy, at herbal stores, sanitary and drug stores, pharmacy stores, pharmacy laboratories, science institutes and pharmaceutical factories.</i> ( <a href="http://old.mu-sofia.bg/index.php?p=166&amp;l=1">http://old.mu-sofia.bg/index.php?p=166&amp;l=1</a> ).
Their titles and number(s)		There is no official data and it varies. There is no limitation on the number, and some pharmacies work without assistant pharmacists. There is a register of the pharmacists (every regional pharmaceutical union has such a register), but not of the assistant pharmacists

Organisation providing and validating the E&T		There are four pharmaceutical colleges that provide education for assistant pharmacists in: <ol style="list-style-type: none"> <li>1. Sofia <a href="http://mu-sofia.bg/node/32">http://mu-sofia.bg/node/32</a>,</li> <li>2. Varna <a href="http://www.mu-varna.bg/muVarna/index.php?option=com_content&amp;task=view&amp;id=193&amp;Itemid=122">http://www.mu-varna.bg/muVarna/index.php?option=com_content&amp;task=view&amp;id=193&amp;Itemid=122</a>;</li> <li>3. Plovdiv <a href="http://www.medcollege-plovdiv.org/">http://www.medcollege-plovdiv.org/</a></li> <li>4. Bourgas <a href="http://www.btu.bg/bg/homebg.htm">http://www.btu.bg/bg/homebg.htm</a></li> </ol>
Duration of studies (years)	3	Studies of assistant pharmacists cannot be compared to bachelor studies at a university. There is no bachelor degree of pharmaceutical education in Bulgaria. There are unified requirements for achievement of higher education as assistant pharmacist (2008). The entrance is after participation in competition in biology, while the competition for studying pharmacy one has to compete in biology and chemistry.
Subject areas		Basic pharmaceutical sciences like pharmaceutical chemistry, pharmaceutical technology, drug legislation. <i>etc.</i> minimum 1200 hours
Competences and roles		Assist a pharmacist – no medicines dispensing function and dispensing OTC medicines under the supervision of a pharmacist.
<b>Hospital pharmacy</b>		
Does such a function exist?	Yes	The Bulgarian branch of the EAHP is the professional Organization of the hospital pharmacies ( <a href="http://ohpb.org/">http://ohpb.org/</a> )
Number of hospital pharmacists	114	Number of pharmacists registered with the Bulgarian Association of Hospital Pharmacists ( <a href="http://ohpb.org/pobfb/registar">http://ohpb.org/pobfb/registar</a> )
Number of hospital pharmacies		There 324 hospitals in Bulgaria –most of them have a hospital pharmacy.
Competences and roles of hospital pharmacists		Preparation of and dispensing drugs on the hospital wards and also: Part of multidisciplinary patient-care team Purchasing of drugs and medical material Monitoring of drug use Production of patient-specific medicines Participation in clinical studies
<b>Pharmaceutical and related industries</b>		
Number of companies with production, R&D and distribution	22	EFPIA has 22 members in Bulgaria. ( <a href="http://www.arpharm.org/en">http://www.arpharm.org/en</a> ) The Bulgarian representative is the Association of the research-based pharmaceutical manufacturers in Bulgaria.
Number of companies producing generic drugs only	9	Examples: Actavis <a href="http://www.actavis.bg/bg/default.htm">http://www.actavis.bg/bg/default.htm</a> Sopharma ( <a href="http://www.sopharma.bg/">http://www.sopharma.bg/</a> ) and more than 50 smaller generic companies now have manufacturing capacity.
<b>Industrial pharmacy</b>		
Number of pharmacists working in industry	~1000	<10% students take the industrial pharmacy option in the HEI.
Competences and roles		Drug manufacturing, control, analysis, registration, <i>etc.</i>
<b>Other sectors</b>		
Sectors in which pharmacists are employed		Academia, wholesale, medical and pharmaceutical information – Faculties of pharmacy, Bulgarian Drugs Agency, Ministry of health, representative offices of Bulgarian and foreign drug companies; drug manufacturing in the Bulgarian drug companies.
Competences and roles in other sectors		Teaching, tutoring, drug accounting, communication, advertising, <i>etc.</i>

<b>Roles of professional associations</b>		
Registration of pharmacists	Yes	<p>The Bulgarian Pharmaceutical Union (<a href="http://bphu.eu/about_us.php?id_page=1">http://bphu.eu/about_us.php?id_page=1</a>) provides a certificate of entry onto the register of the corresponding Regional College of the Bulgarian Pharmaceutical Union to every master of pharmacy who is at the head of a pharmacy.</p> <p>In order to be registered as a professional pharmacist one has to submit to the Bulgarian Pharmaceutical Union:</p> <ol style="list-style-type: none"> <li>1. Diploma for higher pharmaceutical education</li> <li>2. Diploma/s for specializations or PhD/DSc/Associate professor/Professor</li> <li>3. Document from the working place that he/she is working as a pharmacist</li> <li>4. A certificate showing no previous criminal conviction.</li> </ol> <p>After approval the pharmacist becomes a member of the Bulgarian Pharmaceutical Union and gains his unique identification number as a pharmacist; this information is published in the Bulgarian government official gazette.</p>
Creation of pharmacies and control of territorial distribution	Yes	The Minister of Health issues an authorisation for retail trade in medicinal products in a pharmacy. The Bulgarian Pharmaceutical Union controls the implementation of requirements to retail trade of medicines.
Ethical and other aspects of professional conduct	Yes	The Bulgarian Pharmacists Union has an ethical code for pharmacy practice. (pdf version in Bulgarian only)
QA and validation of HEI courses	Yes	The quality commission of the Bulgarian Pharmacists Union. <a href="http://bphu.eu/manage.php?id_page=10">http://bphu.eu/manage.php?id_page=10</a>

<b>Websites</b>	
Bulgarian Drug Agency	<a href="http://www.bda.bg">www.bda.bg</a> In English: <a href="http://www.bda.bg/index.php?lang=en">http://www.bda.bg/index.php?lang=en</a>
Bulgarian Pharmaceutical Union	<a href="http://bphu.org/">http://bphu.org/</a>

## Chapter 2. Pharmacy HEIs, students and courses

	Y/N, number or %	If you wish to expand your answer, please add your comments below.
<b>Total number of HEIs in your country</b>	3	Pharmacy HEIs: 1. University of Sofia : <a href="http://www.pharmfac.net">www.pharmfac.net</a> 2. University of Plovdiv: <a href="http://meduniversity-plovdiv.bg/index.php?lang_id=2&amp;prm=fac&amp;subprm=farf">http://meduniversity-plovdiv.bg/index.php?lang_id=2&amp;prm=fac&amp;subprm=farf</a> 3. University of Varna: <a href="http://www.mu-varna.bg/">http://www.mu-varna.bg/</a> ( accepting students in 2009)
Public	3	
<b>Organisation of HEIs</b>		
Attached to a medical faculty	Yes	The Faculties of Pharmacy in Sofia, Plovdiv and Varna are faculties of the corresponding Medical Universities.
Do HEIs offer B and M degrees?	No	Only M degree
<b>Bulgaria</b>		
<b>Teaching staff</b>		
Staff (nationals)	200	Estimate
Professionals from outside the HEIs	20	They are from the pharmacies (supervision of student traineeships), pharmaceutical companies, wholesalers, etc.
<b>Students</b>		
Number of places on entry following secondary school	334+ per year	For 2009: Sofia: 1464 students applied for the 4 specialties of the Medical University Sofia; 168 were accepted for medicine, 100 for dental medicine, 144 for pharmacy and 22 for medical rehabilitation (total 434 i.e. 3.4 applicants per place) ( <a href="http://mu-sofia.bg/">http://mu-sofia.bg/</a> )  Plovdiv: 1401 applied – 350 accepted for medicine, 242 for dental medicine and 190 for pharmacy (total 782, . i.e. 1.8 applicants per place) ( <a href="http://meduniversity-plovdiv.bg/">http://meduniversity-plovdiv.bg/</a> )  Varna; first year 2009 planning to accept 25. <a href="http://www.mu-varna.bg/">http://www.mu-varna.bg/</a>
Number of applicants for entry		Sofia: 3.4 Plovdiv: 1.8
Graduates that become registered pharmacists.	250 per year	The number of graduates during past five years was similar. The reason for the drop-outs was mainly not passing the semester exams. Drop-outs: 84 per year
Number of international students (from EU)	20 per year	Mainly from Greece and Cyprus. These are not ERASMUS exchange students but full time students.
Number of international students (non EU)	=/> 35 per year	Mainly from Macedonia, Turkey, Morocco, Tunisia and Serbia.
<b>Entry requirements following secondary school</b>		
Specific national entrance examination	Yes	National entrance examination in biology and chemistry
Other form of entry requirement at a national level	Yes	From other Universities outside EU if they follow the National requirements. No advance level entry possible.

Is there a national <i>numerus clausus</i> ?	No	
<b>Fees per year</b>		
For home students	375€	
For EU MS students	375€	
For non EU students	6000€	
<b>Length of course</b>	<b>5 years</b>	
<b>Specialization</b>		
Do HEIs provide specialized courses?	Yes	
In which years?	3, 4 and 5 <sup>th</sup> ; also post-graduate	
In which specialisation (industry, hospital...)?		Industry and clinical pharmacy after the 3-rd year .
What are the student numbers in each specialization?	15 and 12 for pre-graduate	<p>Following graduation there is a possibility to start postgraduate specialization (3 years' course) in one of 5 different areas:</p> <ol style="list-style-type: none"> <li>1. industrial pharmacy</li> <li>2. social pharmacy</li> <li>3. pharmacognosy</li> <li>4. pharmaceutical analysis</li> <li>5. pharmaceutical technology</li> </ol> <p>The last wave of pharmacists to specialize was composed as follows - social pharmacy: 25, pharmacognosy: 1, pharmaceutical analysis: 1, pharmaceutical technology: 1, industrial pharmacy: 3.</p>
<b>Past and present changes in E&amp;T</b>		
Have there been any major changes since 1999?	Yes	<p>The main changes were towards tuning with the EU requirements – more practical than theoretical subjects.</p> <p>Teaching of “new” subjects such as, pharmaceutical care, pharmaco-economics, bromatology, history of pharmacy, etc.</p> <p>Changes were made in the state exam in order to tune the final examinations with those of EU HEIs.</p>
Are any major changes envisaged before 2019?	Yes	<p>Changes in the relative number of hours of some subject areas.</p> <p>Chemical subjects will decrease while the special subjects like Pharmaceutical technology will increase the number of hours.</p>
<b>Sofia</b>		
<b>Teaching staff</b>		
Staff (nationals)	100	100 full-time, no part-time.
Professionals from outside the HEIs)	3-4	Working pharmacists who supervise traineeships.
<b>Student</b>		
Places on entry following secondary school	144	
Number of applicants for entry	NA	
Number of graduates that become registered pharmacists.	100	
Number of international students (from EU member states)	16	Greece, Cyprus. These are not ERASMUS exchange students but full-time students.

Number of international students (non EU)	20	Macedonia, Turkey, Morocco, Tunisia, Serbia.
<b>Entry requirements (beginning of S1 of B1, following secondary school)</b>		
Specific entrance examination	Yes	Same as national examination
<b>Advanced entry : No (fully integrated, seamless course)</b>		
<b>Fees per year</b>		
For home students	375€	
For EU MS students	375€	
For non EU students	6000€	
<b>Length of course</b>	<b>5 years</b>	
<b>Specialization</b>		
Do HEIs provide specialized courses?	Yes	
In which years?	3, 4 and 5; also post-graduate	
In which specialisation (industry, hospital...)?		Industry and clinical pharmacy
What are the student numbers in each specialization?	15 and 12 for pre-graduate	Following graduation there is a possibility to start postgraduate specialization (3 years' course) in one of 5 different areas: industrial pharmacy, social pharmacy, pharmacognosy, pharmaceutical analysis, pharmaceutical technology). This postgraduate diploma proffers no professional advantage and is relatively costly. The last wave pharmacists to specialize was split up as follows <ul style="list-style-type: none"> <li>• social pharmacy: 25</li> <li>• pharmacognosy: 1</li> <li>• pharmaceutical analysis: 1</li> <li>• pharmaceutical technology: 1</li> <li>• industrial pharmacy: 1.</li> </ul>
<b>Past and present changes in E&amp;T</b>		
Have there been any major changes since 1999?	Yes	The main changes were towards harmonization with the EU requirements – more practical than theoretical subjects. Teaching of “new” subjects such as, pharmaceutical care, pharmaco-economics, bromatology, history of pharmacy, etc. Changes were made in the state exam in order to tune the final exams with the EU.
Are any major changes envisaged before 2019?	Yes	Changes in the relative number of hours of some subject areas.
<b>Is your HEI typical of all HEIs in the country?</b>	Yes	

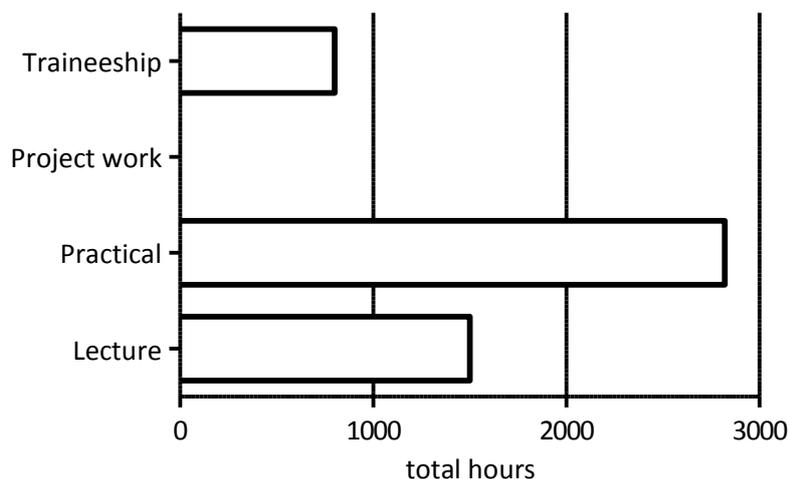
<b>Websites</b>	
Faculty of Pharmacy, University of Sofia	<a href="http://pharmfac.net/">http://pharmfac.net/</a> (in Bulgarian) <a href="http://www.pharmfac.net/index_en.html">http://www.pharmfac.net/index_en.html</a> (in English)

## Chapter 3. Teaching and learning methods

Student hours						
Method	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Lecture	210	315	330	435	210	1500
Practical	540	525	585	825	345	2820
Traineeship						
Hospital or community*					800	800
Electives			60/90	120/120		
<b>Total</b>	<b>750</b>	<b>840</b>	<b>915</b>	<b>1260</b>	<b>1355</b>	<b>5120</b>

\*: validation of traineeship: the pharmacist responsible for the trainee fills in a monthly report and a final report at the end of the 6 months and these are validated (or not) by the HEI.

Student hours by teaching method.



Websites	
Faculty of Pharmacy, University of Sofia	<a href="http://pharmfac.net/">http://pharmfac.net/</a> (in Bulgarian) <a href="http://www.pharmfac.net/index_en.html">http://www.pharmfac.net/index_en.html</a> (in English)
Details of courses	<a href="http://www.pharmfac.net/course.htm">http://www.pharmfac.net/course.htm</a>

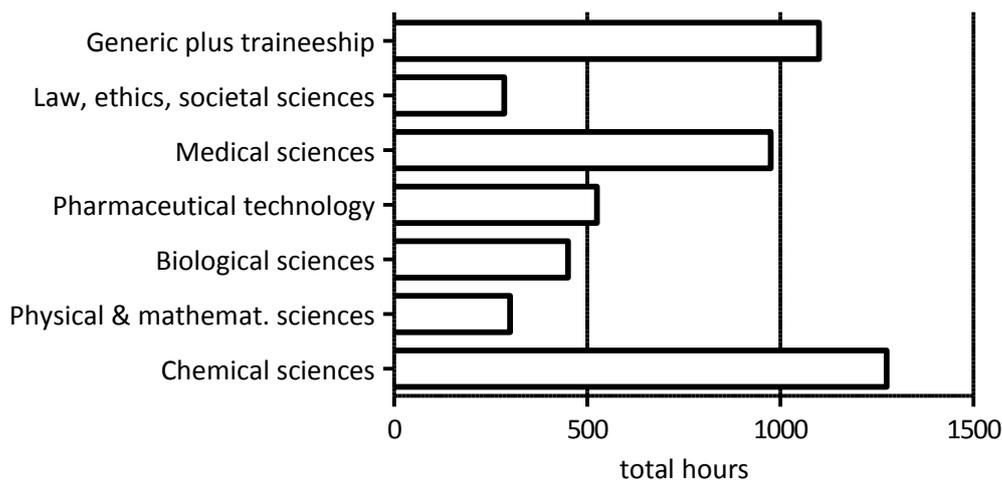
## Chapter 4. Subject areas

### Student hours

Subject area	Year 1	Year 2	Year 3	Year 4	Year 5	Total
<b>CHEMSCI</b>	165	510	225	225	150	<b>1275</b>
<b>PHYSMATH</b>	300					<b>300</b>
<b>BIOLSCI</b>	60	165	75	150		<b>450</b>
<b>PHARMTECH</b>			210	315		<b>525</b>
<b>MEDISCI</b>	45	120		690	120	<b>975</b>
<b>LAWSOC</b>	30		90	45	120	<b>285</b>
<b>GENERIC</b>	300					<b>300</b>
<b>GENERIC + TRAINEESHIP</b>	300				800	<b>800</b>
<b>Total</b>	<b>900</b>	<b>795</b>	<b>600</b>	<b>1425</b>	<b>1190</b>	<b>4910</b>

Numbers calculated according to the Uniform State Requirements of Bulgaria.

Student hours by subject area.



Faculty of Pharmacy, University of Sofia	<a href="http://pharmfac.net/">http://pharmfac.net/</a> (in Bulgarian) <a href="http://www.pharmfac.net/index_en.html">http://www.pharmfac.net/index_en.html</a> (in English)
Details of courses	<a href="http://www.pharmfac.net/course.htm">http://www.pharmfac.net/course.htm</a>

## 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.
<b>1. Comparable degrees / Diploma Supplement</b>	Yes	The comparability of degrees is achieved through calculation of the hours and comparison with other EU countries. The Diploma Supplement provided in English. With the texts of the Law on Higher Education adopted by the Bulgarian Parliament on June 4, 2004 both the system for collection and transfer of credits and the Diploma Supplement were legally introduced.
<b>2. Two main cycles (B and M) with entry and exit at B level</b>	No	
<b>3. ECTS system of credits / links to LLL</b>	Yes	The ECTS systems of credits is applied during the 5 years period of learning and after graduation in the different courses to LLL.
<b>4. Obstacles to mobility</b>	Partially	As the English language is extensively used there are language barriers for the proper usage of mobility. Financial problems do exist.
<b>5. European QA</b>	Partially	Regulated at a national level by the Ministry of education, but tuned to EU requirements
<b>6. European dimension</b>	Partially	
<b>ERASMUS staff exchange to your HEI from elsewhere</b>	Number of staff months: 0	
<b>ERASMUS staff exchange from your HEI to other HEIs</b>	Number of staff months: 1	
<b>ERASMUS student exchange to your HEI from elsewhere</b>	Number of student months: 0	
<b>ERASMUS student exchange from your HEI to other HEIs</b>	Number of student months: 72	

The faculty of pharmacy in Sofia has ERASMUS exchange programmes with:

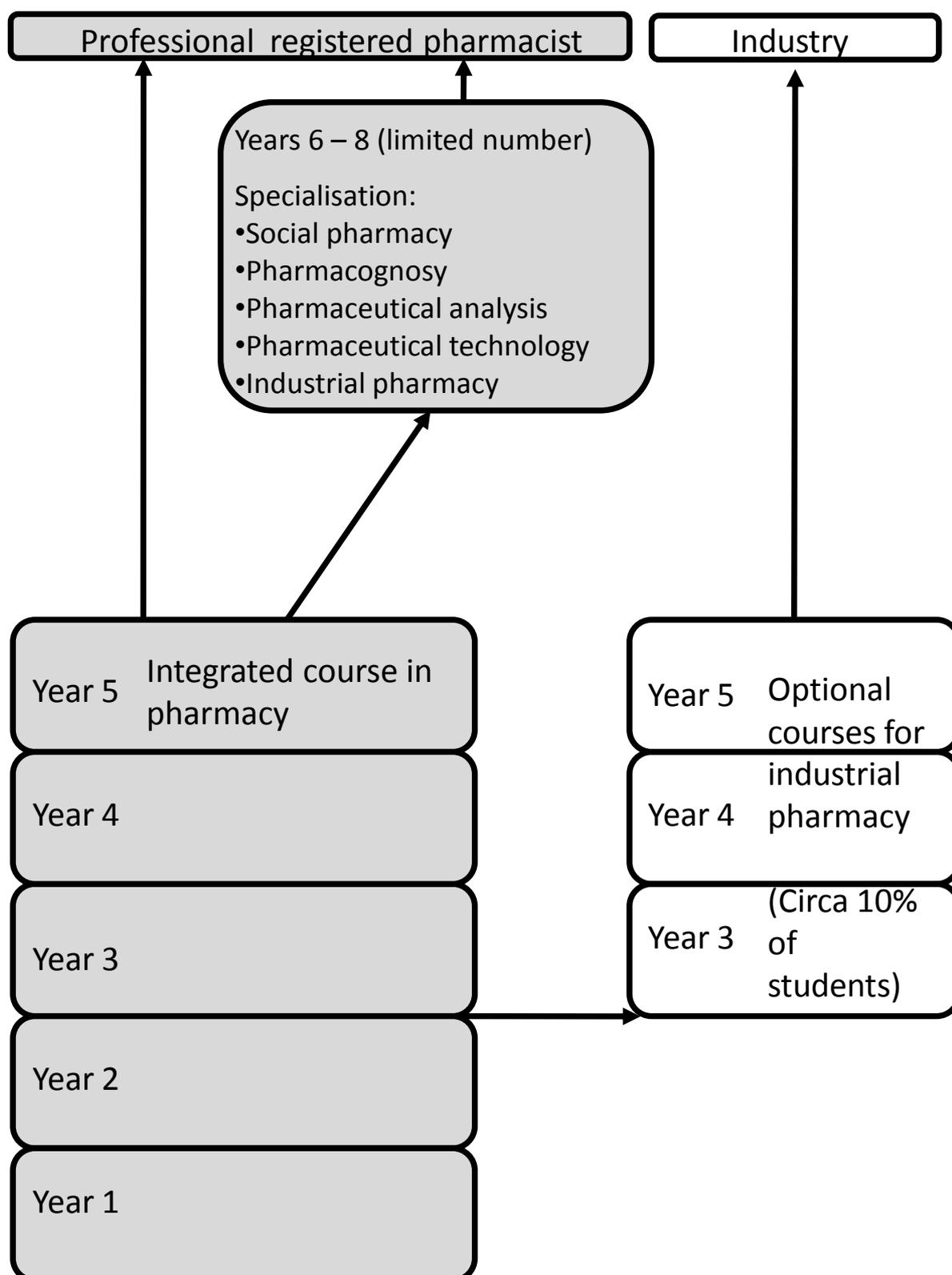
- Belgium, University of Antwerp and Vrije universiteit Brussels
- France, University Henri Poincare, Nancy and Universite de Limoges
- Germany, Ruprecht-Karls-Universität Heidelberg , Anhalt University of applied sciences Kothen and Freie universität Berlin
- Czech republic - University of veterinary and pharmaceutical sciences, Brno
- Italy - Università degli studi di Siena and Sapienza university of Rome
- Spain - University of Navarra and Universitat autonoma de Barcelona

There is also an exchange programme with Turkey- Mersin University.

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

The directive states	How does / will this directive statement affect pharmacy E&T?
“Evidence of formal qualifications as a pharmacist shall attest to training of at least <u>five years' duration</u> ,...”	The training of pharmacists MSc in Bulgaria is of 5 years duration. The curriculum covers the EU requirements
“... <u>four years of full-time theoretical and practical training</u> at a university or at a higher institute of a level recognised as equivalent, or under the supervision of a university;”	Bulgaria complies
“... <u>six-month traineeship in a pharmacy</u> which is open to the public or in a hospital, under the supervision of that hospital's pharmaceutical department.”	Bulgaria complies
“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> ”	Bulgaria complies
Directive annex	How does / will this directive annex affect pharmacy E&T?
<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 these courses are covered in the curriculum The following subjects could be added: <ul style="list-style-type: none"> <li>• Ethics, deontology</li> <li>• Communication</li> <li>• marketing and management</li> </ul>

## The Bulgarian pharmacy education and training scheme (based on the model of Sofia, Bulgaria).



Pharmacy education and training leading to professional pharmacy practice is shown on the left in grey.



Lifelong Learning Programme



Education and Culture DG

**PHARMINE**  
*Pharmacy Education  
in Europe*

**PCN**

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Consultants  
Nancy*



**UNIVERSITY OF TARTU**



Vrije  
Universiteit  
Brussel

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

**Website: [www.pharmine.org](http://www.pharmine.org)**

Pharmacy education & training in the

# CZECH REPUBLIC

2010

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: The PHARMINE paradigm.pdf)

This document was validated by the Czech Chamber of Pharmacists.  
Prague 7. 12. 2010



Signature and seal

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## Summary.

Czech Community pharmacies provide sale and counselling of Rx and OTC medicines as well as some diagnostic services (such as taking blood pressure).

Graduated pharmacists (pharmacist is *lékárník* in Czech) study for five years and graduate as Magister (Mgr., equivalent to MPharm). A Mgr. diploma is the only requirement for registration as a pharmacist. Pharmacists can own and manage community pharmacies and work as responsible pharmacists in either community or hospital pharmacies. All practising pharmacists must be registered with the Czech Chamber of Pharmacists.

The ownership of community pharmacies is not restricted to members of the pharmacy profession and the majority of pharmacies are organized in various pharmacy chains.

There are two Universities providing higher education in pharmacy in the Czech Republic: Charles University of Prague with its Faculty of Pharmacy in Hradec Králové (established in 1969) and the University of Veterinary and Pharmaceutical Sciences Brno with its Faculty of Pharmacy located in Brno (established in 1991). At both Universities the pharmacy curriculum is organized as a seamless fully integrated Master Degree course (a bachelor degree does not exist). The pharmacy curriculum comprises 6 months of university-supervised traineeship taking place in the fifth year of study. The pharmacy curriculum is organized in accordance with the EU directive 2005/36/EC.

Currently no specialization courses are available at the university level in the Czech Republic. Specialisation in various forms of pharmaceutical disciplines is organized as CPD/LLL by the Czech Chamber of Pharmacists and it is realized by the "IPVZ" (Institute of Postgraduate Education for Health Professions) at the postgraduate level.

## Introduction.

### Statistics for Czech Republic

Total population: 10,189,000

Gross national income per capita (PPP international \$): 20,920

Life expectancy at birth m/f (years): 73/80

Healthy life expectancy at birth m/f (years, 2003): 66/71

Probability of dying under five (per 1 000 live births): 4

Probability of dying between 15 and 60 years m/f (per 1 000 population): 148/67

Total expenditure on health per capita (Intl \$, 2006): 1,490

Total expenditure on health as % of GDP (2006): 6.8

Detailed information is available at: World Health Statistics 2009:

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

### Highlights on health in the Czech Republic.

(Information source: Ministry of Health of the Czech Republic, <http://www.mzcr.cz/En/#>)

The major principles underlying the pillars of the national health service of the Czech Republic are: (i) Solidarity (solidarity between healthy people and the sick is fostered in health care systems by separation between the provision of health care and its financing). Solidarity of the economically active with the economically inactive people means that every insured person pays an insurance premium as a percentage of their income regardless of what health care they receive or will receive; (ii) Multisource financing with major share of public health insurance (health care is funded from public health insurance, direct payments, the national budget and regional budgets). The public health insurance system of the Czech Republic is based on three interconnected pillars – insured person (person insured under the Act on public health insurance) – health care facility (authorized to provide health care) – health insurer (institution with which the insured person is insured); (iii) Equal availability of health care for all insured persons (the health care system strives to create conditions in which there are no differences in the availability of health care for whole population); (iv) Obligatory vaccination against infectious diseases.

Health care is provided in health care facilities. If a situation requires so, it may be provided elsewhere. Health care is provided by health personnel within the scope of their qualification. The essential condition for the provision of reimbursed health care is that it must be provided in a health care facility which has a contract with the patient's insurer. If essential and urgent health care is needed, it may be provided in exceptional circumstances by a health care facility which does not have a contract with the patient's insurer. An exception to this rule is a pharmacy because an insured person can ask for a medicament at any pharmacy regardless of the existence of its contract with the insured person's insurer. A prescription must be issued, however, in case of other than urgent health care by a

physician who has a contract with the insured person's insurer. Within the public health insurance system, health care is reimbursed by the insurer on the basis of its contract with the health care facility.

There are many procedures which insured persons co-finance. These are procedures or medical devices provided outside the legal framework. Some cases in point are dental procedures, some balneological care and some medicaments. Some medicaments are reimbursed in full by insurance companies whereas some are co-financed by the patients. In every category of medicaments there must be at least one reimbursed in full by an insurer. Costs of medicaments and medical devices during hospitalization are reimbursed in full by the insurer and the insured person does not pay directly.

An overview of the most important legislation:

- Resolution of the Presidium of the Czech National Council 2/1993 promulgating the Charter of Fundamental Rights and Freedoms as part of the Czech constitutional order
- Act 20/1966 Coll., on public health care, amending some related laws
- Act 48/1997 Coll., on public health insurance, amending some related laws
- Act 592/1992 Coll., on premiums for general health insurance, amending some related laws
- Act no. 258/2000 Coll., on public health protection and amendments to several related acts, as amended

## 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>		
Community pharmacists	6000	
Community pharmacies	2420 (+251 sub units)	Pharmacists/pharmacy: 2.1 Inhabitants/pharmacy: 3846
Competences and roles of community pharmacists		<ol style="list-style-type: none"> <li>1. Supplying prescription and OTC medicines and medical devices,</li> <li>2. Giving advice on medicines and lifestyle,</li> <li>3. Compounding of medicines,</li> <li>4. Keeping records (registration) of narcotic drugs,</li> <li>5. Ordering of medicines,</li> <li>6. Services to nursing and care homes,</li> <li>7. Blood pressure and glycaemia monitoring,</li> <li>8. Patient counselling service – individual consultations of drug-related problems</li> <li>9. Supplying prescriptions for wards in health care facilities</li> <li>10. Reporting of ADR.</li> </ol>
Is ownership of a pharmacy limited to pharmacists?	No	Any physical or juristic person has legal right to own a public pharmacy. <a href="http://portal.gov.cz/wps/portal/_s.155/701?kam=zakon&amp;c=160/1992">http://portal.gov.cz/wps/portal/_s.155/701?kam=zakon&amp;c=160/1992</a>
Rules governing the distribution of community pharmacies?	No	
Are drugs and healthcare products available to the general public by channels other than pharmacies?	Yes	Veterinary doctors, Medical devices shops, Medical emergency <a href="http://www.sagit.cz/pages/sbirkatxt.asp?sn=y&amp;hledany=o+!%E9%E8ivech&amp;zdroj=sb03269&amp;cd=3&amp;typ=r">http://www.sagit.cz/pages/sbirkatxt.asp?sn=y&amp;hledany=o+!%E9%E8ivech&amp;zdroj=sb03269&amp;cd=3&amp;typ=r</a>
Are persons other than pharmacists involved in community practice?	Yes	
Their titles and number(s)	4600	Assistant pharmacists, in Czech " <i>Diplomovaný Specialista</i> " DiS
Organisation providing and validating the E&T		Medical Colleges and Secondary Medical Schools completed by passing the final exam called the <i>Absolutorium</i>
Duration of studies (years)	3	
Subject areas		English or German, Latin, Information and Communication Technologies, Chemistry and Biochemistry, Psychology and Communication, Health Education, Anatomy and Physiology, Microbiology and Hygiene, Human Nutrition, Pharmaceutical Botany, Analysis of Drugs, Pharmacology, Compounding of Medicines, Laboratory Technology, First Aid, Pathophysiology and Pathology, Pharmacognosy, Pharmaceutical Chemistry, Basics of Radiology, Pharmacy Practice, Public Health Care, Dispensing, Medical Devices, Practical Training
Competences and roles		<ol style="list-style-type: none"> <li>1. Supplying OTC drugs,</li> <li>2. Medical devices and other health products,</li> <li>3. Compounding of medicines,</li> </ol>

		<ol style="list-style-type: none"> <li>4. Intake and storage of deliveries,</li> <li>5. Expiry and storage monitoring.</li> </ol>
<b>Hospital pharmacy</b>		
Does such a function exist?	Yes	
Hospital pharmacists	220	
Hospital pharmacies	86	
Competences and roles of hospital pharmacists		<ol style="list-style-type: none"> <li>1. Supplying of prescription medicines for wards and outpatient clinics</li> <li>2. Clinical pharmacy consulting,</li> <li>3. Compounding of medicines for wards and outpatients,</li> <li>4. Production of patient-specific medicines (e.g. cytotoxic preparations, all-in-one sterile bags),</li> <li>5. Supplying of specialised individual medical devices for patients and medical materials for wards,</li> <li>6. Supplying and check of raw materials for the pharmacy and specialised laboratories of the hospital,</li> <li>7. Supplying and evidence of narcotic drugs,</li> <li>8. Adverse effects reporting,</li> <li>9. Participation in clinical drug evaluation (safety and efficacy)</li> <li>10. Patient counselling service – individual consultations of drug-related problems</li> <li>11. Information service for healthcare professionals</li> </ol>
<b>Pharmaceutical and related industries</b>		
Number of companies with production, R&D and distribution	228	There are 228 licensed distributors in the Czech Republic. There are no reliable sources to divide the producers and distributors according to the mentioned groups.
Companies producing generic drugs only		Zentiva ( <a href="http://www.zentiva.com/default.aspx/en">http://www.zentiva.com/default.aspx/en</a> ) Teva Pharmaceutical Industries Ltd. ( <a href="http://www.tevapharm.com/">http://www.tevapharm.com/</a> )
<b>Industrial pharmacy</b>		
Number of pharmacists working in industry	15	These are only persons registered with the Czech Chamber of Pharmacists; there are possibly much more but this number is not known since they need not be registered with the Czech Chamber of Pharmacists
Competences and roles of industrial pharmacists		<ol style="list-style-type: none"> <li>1. Preclinical drug evaluation (safety and efficacy),</li> <li>2. Clinical drug evaluation (safety and efficacy),</li> <li>3. Research,</li> <li>4. Technology,</li> <li>5. Management,</li> <li>6. Marketing, Control,</li> <li>7. Production,</li> <li>8. Development,</li> <li>9. Business</li> </ol>
<b>Other sectors</b>		
Number of pharmacists working in other sectors	43	These are only persons registered with the Czech Chamber of Pharmacists; there are possibly much more but this number is not known since they need not be registered with the Czech Chamber of Pharmacists
Sectors in which pharmacists are employed		<ol style="list-style-type: none"> <li>1. Armed forces,</li> <li>2. Secondary school E&amp;T ,</li> <li>3. Universities,</li> <li>4. National health services,</li> <li>5. SUKL (State Institution of Drug Control: registration of drugs - <a href="http://www.sukl.cz">www.sukl.cz</a>),</li> <li>6. IKEM (Institute of Clinical and Experimental Medicine – clinical trials - <a href="http://www.ikem.cz">www.ikem.cz</a>),</li> <li>7. Laboratories (research, production, control, development),</li> </ol>

		8. Distribution, 9. Sales management and marketing
Competences of pharmacists employed in other sectors		Education and Training, Research, Management, Control, Production, Consulting, Drug evaluation and registration
<b>Roles of professional associations</b>		
Registration of pharmacists	Yes	Registration with the Czech Chamber of Pharmacist ( <a href="http://www.lekarnici.cz/">http://www.lekarnici.cz/</a> ) is compulsory for all practising pharmacists.
Creation of community pharmacies and control of territorial distribution	No	Territorial distribution of pharmacies is not regulated. Any physical or juristic person has legal right to open a new pharmacy but it must receive a licence from a regional District Office.
Ethical and other aspects of professional conduct	Yes	The Ethical Code of The Czech Chamber of Pharmacists is valid since 2005. <a href="http://www.lekarnici.cz/O-CLnK/Rady/Etický-kodex-Ceske-lekarnicke-komory-(H-6).aspx">http://www.lekarnici.cz/O-CLnK/Rady/Etický-kodex-Ceske-lekarnicke-komory-(H-6).aspx</a>
Quality assurance and validation of HEI courses for pharmacists	Yes	A representative of the Czech Chamber of Pharmacists is a member of the Scientific Council of the Faculty of Pharmacy that approves any changes in the Pharmacy curricula.
Other (please specify)		<p>The Czech Chamber of Pharmacists is an independent, non-political, autonomous professional organization responsible for the interests, the professionalism, the ethics and the honour of the pharmaceutical profession. The law prescribes obligatory membership in the Chamber for all pharmacists practising in pharmacies in the Czech Republic.</p> <p>The Czech Chamber of Pharmacists:</p> <ol style="list-style-type: none"> <li>1. ensures that its members exercise their profession in conformity with the highest professional standards, as well as with the principles of medical ethics and within the law;</li> <li>2. Serves as the guarantor of professionalism on the part of its members and certifies the fulfilment of the requirements for the practice of medicine;</li> <li>3. Reviews and defends the rights and the professional</li> <li>4. Defends the professional honour of its members;</li> <li>5. Maintains the register of its members.</li> </ol> <p>The Chamber is entitled to:</p> <ol style="list-style-type: none"> <li>1. Participate in negotiations concerning the price lists for pharmaceuticals;</li> <li>2. Take part in competition proceedings to fill leading positions in the health care sector;</li> <li>3. Establish requirements for practice by its members ;</li> <li>4. Investigate malpractice complaints filed against its members;</li> <li>5. Issue opinions on the conditions and forms of the Continuing Education of Pharmacists;</li> <li>6. Participate in specialisation exams.</li> </ol> <p>For more information see the web site: <a href="http://www.lekarnici.cz">http://www.lekarnici.cz</a></p>

<b>References</b>	
References to texts and articles of national law	<ol style="list-style-type: none"> <li>1. Czech Pharmacopoea 2009 and previous including the Supplements – GRADA Publishing</li> <li>2. SUKL (State Institution of Drug Control) Official Journals and Regulations - <a href="http://www.sukl.cz">www.sukl.cz</a></li> </ol>

	<ol style="list-style-type: none"> <li>3. Czech Republic Statutes at Large</li> <li>4. Czech Republic Ministry of Health Official Journals and Directives</li> <li>5. Health Insurance Institutions rules – <a href="http://www.vzp.cz">www.vzp.cz</a> for example</li> <li>6. Constitutional Code No. 1/1993</li> <li>7. Code No. 40/1964 , Civil Code</li> <li>8. Code No. 513/1991 , Business Law</li> <li>9. Code No. 65/1965 , Labour Code</li> <li>10. Code No. 140/1961 , Punity Law</li> <li>11. Code No. 378/2007, Law on Drugs</li> <li>12. Council Directive 89/105/EEC, of 21 December 1988, relating to the transparency of measures regulating the pricing of medicinal products for human use and their inclusion within the scope of national health insurance systems</li> </ol> <p>Links to all important Czech laws relevant to all aspects of Pharmaceutical care can be found at the website (<a href="http://www.lekarnici.cz/">http://www.lekarnici.cz/</a>)</p>
Bibliographic references (EU, national, international)	<ol style="list-style-type: none"> <li>1. Český lékopis, Praha, Grada Publishing, actual edition</li> <li>2. Journals – Časopis českých lékárníků, Praktické lékařství, Zdravotnické noviny</li> <li>3. Smečka V., Rusek V., Kolář J.: Lékařství I., 1. vyd., VFU, Brno 2008</li> <li>4. Kolář J., Smečka V.: Lékařství II, 1.vyd., VFU, Brno, 2008</li> <li>5. Solutio-příruční kniha pro lékárny, Praha, Medon 1996-2004</li> <li>6. Lenka Práznovcová, Ladislav Strnad: Farmakoekonomika pro lékaře, farmaceuty a manažery zdravotnických zařízení, Maxdorf, ISBN80- 7345-048-8.</li> <li>7. Lenka Práznovcová, Ladislav Strnad: Zdraví,zdravotnictví a léková politika v ČR a v zemích EU, Nakladatelství Maxdorf, ISBN 80 – 80-7345 – 075 – 5.</li> </ol>

## Chapter 2. Pharmacy HEIs, students and courses

	Y/N, number or %	If you wish to expand your answer, please add your comments below.
<b>Total number of HEIs in your country</b>	2	The two HEIs are: Charles University in Prague, Faculty of Pharmacy in Hradec Králové (FPCU) ( <a href="http://www.faf.cuni.cz">www.faf.cuni.cz</a> ) The University of Veterinary and Pharmaceutical Sciences Brno, Faculty of Pharmacy (FPVPU) ( <a href="http://faf.vfu.cz/">http://faf.vfu.cz/</a> )
Public	2	
Independent faculty	Yes	
Do HEIs offer B + M degrees?	No	Only M degree , B degree does not exist
<b>Czech Republic</b>		
<b>Teaching staff</b>		
Number of teaching staff (nationals)	190	FPCU + FPVPU
International teaching staff (from EU MSs)	7	(from Slovakia, only at FPVPU)
International teaching staff (non EU)	0	
Professionals from outside the HEIs, involved in E&T	50	Community and hospital pharmacists involved in traineeship, management persons from pharmaceutical industry, psychologists, economic experts
<b>Students</b>		
Places at entry following secondary school	430	270 FPCU, 160 FPVPU
Number of applicants for entry		890 FPCU, 940 FPVPU 4.3 applicants per place
Number of graduates that become registered/professional pharmacists.	280	Data from the acad. year 2009/10. 25 to 30% of students drop out during the five years of study and about 90% of those graduated become registered pharmacists (the remaining about 10% do not work in pharmacies and need not be registered with the Czech Chamber of Pharmacists).
International students (from EU member states)	350	210 (from Slovakia; do not have to learn Czech since Slovak and Czech languages are very similar), 140 (from Greece; Pharmacy courses in English)
Number of international students (non EU)	26	24 FPCU (USA, Canada, Kenya, Kosovo, Moldova (Pharmacy courses in English); Belarus, Croatia, Ukraine, Mongolia, Vietnam, Kazakhstan, Russia, Israel (Pharmacy courses in Czech)); 2 FPVPU (Yemen, Syria (Pharmacy courses in Czech))
<b>Entry requirements (beginning of S1 of B1, following secondary school)</b>		
Specific pharmacy-related, national entrance examination	No	Generally, secondary school students that have completed their secondary school education with General Certificate of Secondary Education are eligible to apply for admission to any University
<b>Fees per year:</b>		
For home student		No tuition fee for courses in Czech.
For EU MS students		No tuition fee for courses in Czech. 6800 EUR (FPCU) or 6700 EUR (FPVPU) for courses in English

For non EU students		No tuition fee for courses in Czech. 6800 EUR (FPCU) or 6700 EUR (FPVPU) for courses in English
<b>Length of course</b>	<b>5 years</b>	
<b>Specialization</b>		
Do HEIs provide specialized courses?	No	
Have there been any major changes since 1999?	Yes	Transfer to ECTS and introduction of 6-months practical training in the 5th year
<b>Charles University</b>		
<b>Teaching staff</b>		
Number of teaching staff (nationals)	102	16 Full Professors, 45 Associate Professors, 41 lecturers
International teaching staff (from EU MSs)	0	
International teaching staff (non EU)	0	
Number professionals from outside the HEIs, involved in E&T	32	Community and hospital pharmacists involved in traineeship, management persons from pharmaceutical industry, psychologists, economic experts
<b>Students</b>		
Number of places at traditional entry (beginning of S1 of B1, following secondary school)	270	Data from the acad. year 2010/11. Information about the admission procedure at <a href="http://www.faf.cuni.cz/studium/prijimaci_rizeni/bakalarske_magisterske/20112012/Stranky/default.aspx">http://www.faf.cuni.cz/studium/prijimaci_rizeni/bakalarske_magisterske/20112012/Stranky/default.aspx</a>
Number of applicants for entry	890	Data from the acad. year 2010/11
Number of graduates that become registered/professional pharmacists.	200	Data from the acad. year 2009/10. 25 to 30% of students drop out during the five years of study and about 90% of those graduated become registered pharmacists (the remaining about 10% do not work in pharmacies and need not be registered with the Czech Chamber of Pharmacists).
International students (from EU member states)	190	70 from Slovakia (do not have to learn Czech since Slovak and Czech languages are very similar) and 120 from Greece (Pharmacy courses in English). (Data from 2010/11)
International students (non EU)	24	(USA, Canada, Kenya, Kosovo, Moldova (Pharmacy courses in English); Belarus, Croatia, Ukraine, Mongolia, Vietnam, Kazakhstan, Russia, Israel (Pharmacy courses in Czech)); (Data from 2010/11)
<b>Entry requirements (beginning of S1 of B1, following secondary school)</b>		
Specific pharmacy entrance examination	Yes	Written tests in biology, chemistry and physics and a general IQ test
<b>Fees per year</b>		
For home students		No tuition fee for courses in Czech.
For EU MS students	Amount (€): 6800	No tuition fee for courses in Czech. 6800 EUR for courses in English.
For non EU students	Amount (€): 6800	No tuition fee for courses in Czech. 6800 EUR for courses in English.
<b>Length of course</b>	<b>5</b>	
<b>Specialization</b>		

Does your HEI provide specialized courses?	No	
<b>Past and present changes in E&amp;T</b>		
Have there been any major changes since 1999 at your HEI?	Yes	Transfer to ECTS and introduction of 6-months practical training in the 5th year
Are any major changes envisaged before 2019 at your HEI?	Yes	If required by new EU directives
Is your HEI typical of all HEIs in the country?	Yes	

<b>References</b>	
References to texts and articles of national law	Web site: <a href="http://app.edu.cz/portal/page?_pageid=33,274837&amp;_dad=portal&amp;_schema=PORTAL">http://app.edu.cz/portal/page?_pageid=33,274837&amp;_dad=portal&amp;_schema=PORTAL</a> providing: information about the educational system in the Czech Republic as well as study and educational opportunities not only in the Czech Republic but throughout the whole of Europe; links summing up the legislation regulating education in the CZ (the current wording of the School Act, Higher Education Act, Act on Pedagogical Workers and the White Book - etc.); various documents from the area of education and training; publications from the area of the school system; selected documents relating to international activities.

## Chapter 3. Teaching and learning methods

The Pharmacy curriculum is available in English at:

<http://www.faf.cuni.cz/en/study/undergraduate/pharmacy/StudyProgram/Pages/default.aspx>

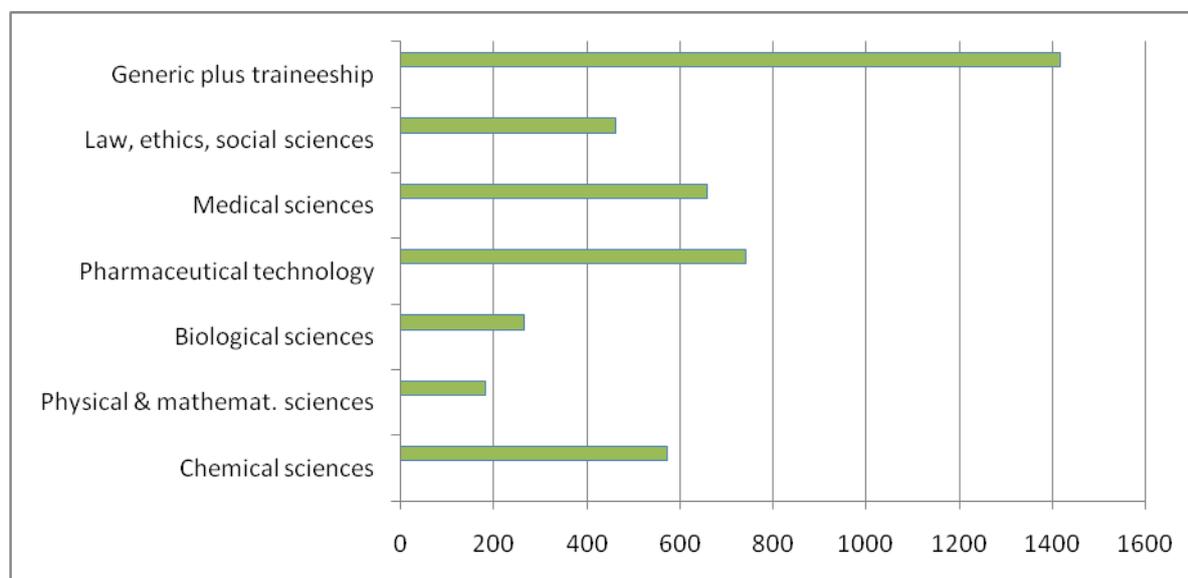
Student hours						
Method	Year 1	Year 2	Year 3	Year 4	Year 5	Total
<b>HEIs courses</b>						
Lecture	364	350	322	378	0	1414
Tutorial	84	182	154	140	0	560
Practical	280	252	196	98	0	826
Project work	0	0	0	168	252	420
<b>Traineeship</b>						
Hospital	0	0	0	0	0	
Community	40	0	0	0	960	1000
Industrial (academic or industrial)	0	80	0	0	0	80
Other (please specify)	0	0	0	0	0	
<i>Subtotal</i>	<i>768</i>	<i>864</i>	<i>672</i>	<i>784</i>	<i>1212</i>	<i>4300</i>
<b>Electives</b>						
Choice	112	56	84	0	0	252
Optional	0	0	84	64	0	148
<b>Total</b>	<b>880</b>	<b>920</b>	<b>840</b>	<b>848</b>	<b>1212</b>	<b>4700</b>

## Chapter 4. Subject areas

### Student hours

Subject area	Year 1	Year 2	Year 3	Year 4	Year 5	Total
<b>CHEMSCI</b>	168	308	42	56	0	<b>574</b>
<b>PHYSMATH</b>	168	0	14	0	0	<b>182</b>
<b>BIOLSCI</b>	168	98	0	0	0	<b>266</b>
<b>PHARMTECH</b>	0	0	406	336	0	<b>742</b>
<b>MEDISCI</b>	56	280	196	126	0	<b>658</b>
<b>LAWSOC</b>	140	28	112	182	0	<b>462</b>
<b>GENERIC</b>	196	168	28	168	856	<b>1416</b>

Hours by subject area



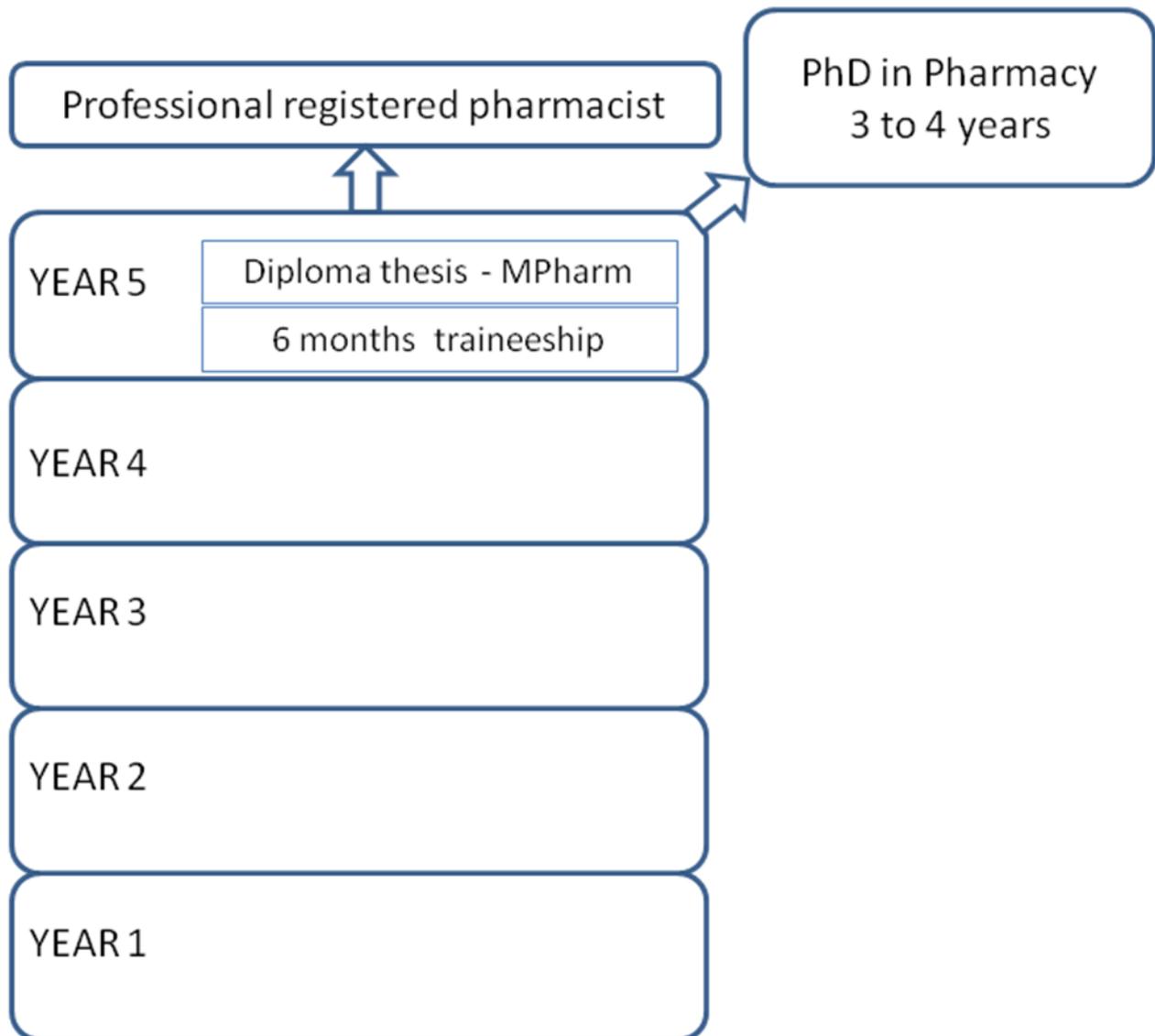
## Chapter 5. Impact of the Bologna principles

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	Yes	
2. Two main cycles (B and M) <u>with entry and exit at B level</u>	No	
3. ECTS system of credits / links to LLL	Yes	Since the academic year 2006/2007
4. Obstacles to mobility	No	We offer parallel Pharmacy study programme in English for incoming international students. Incoming Erasmus students receive certain financial support from Czech Ministry of Education to cover part of expenses for accommodation. Outgoing Erasmus students receive about 250 EUR per month financial support from the Czech Ministry of Education.
5. European QA	Yes	The University and Faculty study programmes are regularly accredited by the Accreditation Commission of Czech Republic which is a full member of ENQA.
6. European dimension	Yes	The Faculty of Pharmacy, Charles University, has an agreement on co-supervision in PhD course with Faculty of Pharmacy, University of Coimbra, Portugal.
ERASMUS staff exchange to your HEI from elsewhere	Staff months: 1	Portugal, Italy, Sweden
ERASMUS staff exchange from your HEI to other HEIs	Staff months: 2	Portugal, Spain, Germany Sweden
ERASMUS student exchange to your HEI from elsewhere	Student months: 120	Portugal, Spain, Lithuania, Italy
ERASMUS student exchange from your HEI to other HEIs	Student months: 160	Germany, Sweden, Slovenia, Italy, Portugal, Finland,. Norway, Ireland

## 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> ...”	Comply with	
“ <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> ”	Comply with	
“ <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> ”	Comply with	We would prefer compulsory 4 months in community or hospital pharmacy for all students plus 2 months either in industry (for those that plan to go to industry after graduation) or additional 2 months in a pharmacy for those planning to work in a pharmacy.
“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> ”	Comply with	
<b>Directive annex</b>		
<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.	Comply with	

## The Czech Pharmacy education and training scheme



The scheme is the same for the whole country (FPCU and FPVPU)



Education and Culture DG

Lifelong Learning Programme

**PHARMINE**  
*Pharmacy Education  
in Europe*

**PCN**

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**UNIVERSITY OF TARTU**



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

**Website: [www.pharmine.org](http://www.pharmine.org)**

*Pharmacy education & training in*

# DENMARK

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

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

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## Summary.

Denmark is characterised by a low density of community pharmacies per unit population and a high percentage of pharmacy graduates working in various branches of industry.

At the present time there is only 1 faculty (Copenhagen) but another (University of Southern Denmark) will start pharmacy courses in the fall of 2010. There are circa 170 pharmacy graduates per year.

With both HEIs the program for professional pharmacists lasts 5 years including a 6-month traineeship period.

KU's program in the 4<sup>th</sup> year and a 5<sup>th</sup> year is composed of 6 months Master thesis work and 6 months of elective studies. Courses are oriented towards industry with, for example, 27% of teaching in chemical sciences and 3% in medical sciences, in the first 4 years. Master and Ph.D. programmes are run in very close collaboration with industry.

SDU's program in the 4<sup>th</sup> and 5<sup>th</sup> year is branching into two alternative sub-programs, pharmaceuticals and clinical pharmacy, aiming at industry or hospital pharmacy, respectively. Each branch comprises a highly integrated combination of course modules and traineeship.

For both HEIs, there is a substantial international contribution both to staff (10%) and to the student population (15% primarily from Sweden and Norway). Incoming:outgoing ERASMUS exchange is 2:1.

## Introduction.

### Statistics for Denmark

Total population: 5,430,000

Gross national income per capita (PPP international \$): 36,190

Life expectancy at birth m/f (years): 75/80

Healthy life expectancy at birth m/f (years, 2003): 69/71

Probability of dying under five (per 1 000 live births): 4

Probability of dying between 15 and 60 years m/f (per 1 000 population): 111/65

Total expenditure on health per capita (Intl \$, 2006): 3,349

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

Figures are for 2006 unless indicated. Source: [World Health Statistics 2008](#)

### Highlights on health in Denmark 2004. <http://www.who.it/document/E88545.pdf>

People in Denmark are living longer – by 2030, almost a quarter of the population will be aged 65 years or over. Women continue to have higher life expectancy than men: 79.5 and 74.8 years, respectively. Yet Danish women have the third lowest life expectancy in Europe, more than two years below the average; and Danish men's life expectancy is one year below the average. Denmark's infant mortality rate is lower than the European average, while its neonatal mortality rate is higher.

Non-communicable conditions account for about 80% of all deaths in Denmark. Ischaemic heart disease is the single biggest killer. Of total deaths, 33% are due to cardiovascular diseases (CVD); 29% to cancer and about 7% to external causes (intentional and unintentional injuries). Overweight affects 40% of Danish men and slightly over 26% of Danish women; 10% of men and 9% of women are obese. Among 15-year-olds, 7% of boys are pre-obese and about 3% are obese, and about 10% of girls are pre-obese and 4% are obese.

Mortality from cancer is higher in Denmark than in Europe. The rate for men was about 50% higher than that for women in 1999. In the last 10 years, however, cancer mortality has declined among men but risen among women. Smoking prevalence among women is higher than the European average.

Neuropsychiatric conditions have the highest burden of disease in the Danish population, owing to the associated disability in daily living over the life-course. Levels of pure alcohol consumption in Denmark are about 10% higher than the European average. While the death rate from chronic liver disease and cirrhosis has fallen in Europe, it has risen in Denmark.

In 2002, the majority of newly diagnosed HIV infections in Denmark were acquired through heterosexual contact. A third of the most recent new infections involved people who were or whose partners were from countries with generalized HIV epidemics. In Denmark, limited local testing at needle exchange locations found that 75–85% of injecting drug users were infected with hepatitis C.

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

	Y/N, number or %	Comments
<b>Community pharmacy</b>		
Community pharmacists	952	Association of Danish Pharmacies <a href="http://www.apotekerforeningen.dk/default.asp?cat=13&amp;ID=28">http://www.apotekerforeningen.dk/default.asp?cat=13&amp;ID=28</a>
Community pharmacies	318	Pharmacists / pharmacy: 3.5 Inhabitants / pharmacy 17,000.
Ownership of a pharmacy limited to pharmacists?	Yes	Pharmacists can own a maximum of 4 pharmacies. Changes in ownership are dependent on obtention of an operating licence from the Interior and Health Ministry.  There are no barriers to pharmacists from the EU.  Pharmacists can provide diagnostic services (blood sugar, blood pressure...)  Pharmacy owners are members of the Association of Danish Pharmacies (Apotekerforeningen) and pharmacy employees of Pharmadanmark (the Danish union for pharmacists)
Rules governing the geographical distribution of pharmacies?	Yes	Each inhabitant must have a pharmacy within < 15 km. See: Association of Danish Pharmacies
Healthcare products available by other channels ?	Yes	Some non-prescription drugs are sold in e.g. supermarkets. There are about 1000 OTC outlets. Internet pharmacies are not allowed.
Other persons involved in community practice?	<i>Farmakonom</i> 3200	Pharmaconomist (previously called pharmacy assistant)
Organisation providing and validating the E&T		Pharmaconomist (Danish: lægemiddelkyndig) means expert in pharmaceuticals. Pharmaconomists are a pharmaceutical professional group in Denmark (including Greenland and Faroe Islands) with a 3-year higher tertiary education. Each year about 180 pharmaconomy students graduate as pharmaconomists from Pharmakon, the Danish College of Pharmacy Practice run by the Association of Danish Pharmacies. <a href="http://www.pharmakon.dk/pages/International.aspx?PageID=118">http://www.pharmakon.dk/pages/International.aspx?PageID=118</a>
Duration of studies	3 years	
Competences and roles		Bachelors in pharmacy have no competence to work at pharmacies
<b>Hospital pharmacy</b>		
Hospital pharmacists	270	
Hospital pharmacies	10-15	The pharmacists working at the hospitals are member of Pharmadanmark, while the Hospital pharmacies are represented in the Association of Danish Pharmacies.
<b>Pharmaceutical and related industries</b>		
Number of companies with production, R&D and distribution	39	The Danish Association of the Pharmaceutical Industry <a href="http://www.lifdk.dk/sw167.asp">http://www.lifdk.dk/sw167.asp</a> The pharmaceutical industry is well represented in Denmark, mainly in the Copenhagen area, both with a number of medium-sized international pharmaceutical companies and a large number of smaller pharmaceutical companies within innovative as well as generic pharmaceuticals.
Number of companies producing generic drugs	14	<a href="http://www.lifdk.dk/sw167.asp">http://www.lifdk.dk/sw167.asp</a>

<b>Industrial pharmacy</b>		
Number of pharmacists working in industry	1900	Danish union for pharmacists - Pharmadanmark <a href="http://www.pharmadanmark.dk/">http://www.pharmadanmark.dk/</a>
Competences and roles		Danish pharmacists are represented broadly in various functions within the pharmaceutical industry in Denmark. There are no specific legal requirements for job functions in the industry.  There are no specific roles and competences for industrial pharmacists. In general, pharmacists are represented broadly in various functions within the pharmaceutical industry in Denmark.
<b>Other sectors</b>		
Number of pharmacists working in other sectors	550	Danish union for pharmacists <a href="http://www.pharmadanmark.dk/">http://www.pharmadanmark.dk/</a>
Sectors in which pharmacists are employed		Biotech companies, chemical industry, medico industry, food industry, public laboratories, educational institutions (universities, technical high schools)
<b>Roles of professional associations</b>		
Registration of pharmacists	Yes	
Creation of community pharmacies and control of territorial distribution	Yes	Association of Danish Pharmacies
Ethical and other aspects of professional conduct	Yes	<a href="http://www.etiskraad.dk/sw293.asp">http://www.etiskraad.dk/sw293.asp</a>
Quality assurance and validation of HEI courses for pharmacists	Yes	<a href="http://www.acedenmark.dk/index.php?id=100">http://www.acedenmark.dk/index.php?id=100</a>

<b>Websites</b>	
Pharmakon is specialised in training, developing and counselling on pharmaceutical practice in pharmacies and in the pharmaceutical industry.	In English: <a href="http://www.pharmakon.dk/pages/International.aspx?PageID=118">http://www.pharmakon.dk/pages/International.aspx?PageID=118</a>
Association of Danish Pharmacies	<a href="http://www.apotekerforeningen.dk/default.asp?cat=13&amp;ID=28">http://www.apotekerforeningen.dk/default.asp?cat=13&amp;ID=28</a>
The Association of Danish Industrial Pharmacists. The mission of the organisation is to represent the interests of pharmacists (and people with similar background) employed in the pharmaceutical industry and related areas as well as to stimulate the professional collaboration of employees across companies.	<a href="http://www.iff.nu">http://www.iff.nu</a>
Pharmadanmark - the Danish union for Pharmacist (representing both community and industry pharmacists).	<a href="http://www.pharmadanmark.dk">http://www.pharmadanmark.dk</a>
The Danish Association of the Pharmaceutical Industry (Lif) is an association with 39 members. Lif's member companies are behind the majority of the industrial medical research carried out in Denmark.	<a href="http://www.lifdk.dk">http://www.lifdk.dk</a>
Information on Medicon Valley, the Life Science (Biotech) cluster of companies / research centres in the Greater Copenhagen and Southern Swedish area.	<a href="http://www.mediconvalley.com/">http://www.mediconvalley.com/</a>

## Chapter 2. Pharmacy HEIs, students and courses

	Y/N, number or %	Comments
HEIs in Denmark	2	<p>Copenhagen</p> <p>The faculty in Copenhagen has the following departments:</p> <ul style="list-style-type: none"> <li>• Department of Pharmaceutics and Analytical Chemistry <ul style="list-style-type: none"> <li>○ Drug techniques</li> <li>○ Drug delivery and formulation</li> <li>○ Drug oriented analytical and physical chemistry</li> <li>○ Toxicology and environmental chemistry</li> </ul> </li> <li>• Department of Pharmacology and Pharmacotherapy <ul style="list-style-type: none"> <li>○ <i>In vitro</i> and <i>in vivo</i> pharmacology</li> <li>○ Immuno pharmacology</li> <li>○ Biochemical pharmacology</li> <li>○ Cellular neuropharmacology</li> <li>○ Molecular pharmacology</li> <li>○ Clinical pharmacy</li> <li>○ Social pharmacy</li> </ul> </li> <li>• Department of Medicinal Chemistry <ul style="list-style-type: none"> <li>○ Biostructural research</li> <li>○ Pharmacognocny</li> <li>○ Natural product research</li> <li>○ Medicinal chemistry</li> <li>○ Chemical biology</li> </ul> </li> </ul> <p>University of Southern Denmark (SDU): Education is a joint venture between Faculty of Science and Faculty of Health Sciences.</p> <p>Faculty of Science:</p> <ul style="list-style-type: none"> <li>- Department of Biochemistry and Molecular Biology</li> <li>- Institute of Biology</li> <li>- Department of Mathematics and Computer Science (IMADA)</li> <li>- Department of Physics and Chemistry</li> </ul> <p>Faculty of Health Science:</p> <ul style="list-style-type: none"> <li>- Institute of Molecular Medicine</li> <li>- Institute of Public Health</li> <li>- Institute of Clinical Research</li> <li>- Institute of Sports Science and Clinical Biomechanics</li> <li>- National Institute of Public Health</li> <li>- Institute of Regional Health Services Research</li> <li>- Institute of Psychology</li> <li>- Institute of Forensic Medicine</li> <li>- Biomedical Laboratory</li> </ul>
Public	2	
<b>Organisation of HEIs</b>		
Independent faculty	Yes	
Does Copenhagen offer B + M degrees?	Yes	
Does Copenhagen offer an M. Pharm. after a B degree in another HEI?	No	Only to pharmacy bachelors

<b>Copenhagen</b>		
<b>Teaching staff</b>		
Teaching staff (nationals)	90	Permanent staff: 90. In addition, about 25 assistant professors/post docs and around 130 Ph.D. students participate in teaching
Teaching staff from EU MSs	~5	
International staff (non EU)	~12	
Number professionals from outside the HEIs	~ 50	
<b>Students</b>		
Places at entry following secondary school	230/year	
Number of applicants for entry	~400	
Graduates that become registered pharmacists.	~170/year	
International students	25 (2008)	Primarily from Sweden and Norway
<b>Entry requirements</b>		
Specific pharmacy-related entrance examination	No	
Other entry requirement	Yes	A certain average in secondary school examinations and a certain level in mathematics, chemistry and physics
Is there a national <i>numerus clausus</i> ?	Yes	Government funding for universities sets a limit to the possible number of students.
<b>Fees per year: 0 €</b>		
<b>Length of course</b>	<b>5 years including 6-month compulsory traineeship</b>	
<b>Specialization</b>		
Industry		Three postgraduate Master programmes are offered by the University of Copenhagen: - Master of Drug Management - Master of Industrial Drug Development - Master of Pharmaceutical Regulatory Affairs  The university is continuously adjusting the education it provides in accordance with the needs for the various jobs for which the pharmacist will typically apply. The University has a close collaboration with a number of pharmaceutical companies in Denmark. Ph.D. topics can be chosen by the University or by Industry if the latter is directly involved in the project thus one or several of the Ph.D. supervisors are from Industry.
Other specialized courses?	Yes	
In which years?	4 <sup>th</sup> and 5 <sup>th</sup>	
What are the student numbers in each specialization?		75 in BIOLSCI/MEDSCI/LAWSOC 50 in CHEMSCI 50 in PHARMTECH
<b>Past and present changes in E&amp;T</b>		
Have there been any major changes since 1999?	Yes	Until 2002 the University of Pharmaceutical Sciences was an independent university; it merged in 2002 with University of Copenhagen and became Faculty of Pharmaceutical Sciences

Are any major changes envisaged before 2019?	Yes	From autumn 2010 the University of Southern Denmark started a course of education of Pharmacists.
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<b>University of Southern Denmark :</b>		
Independent faculty	No	
Does SDU offer B + M degrees?	Yes	
Does SDU offer an M. Pharm. after a B degree in another HEI?	Yes	Only to pharmacy bachelors.
<b>Teaching staff</b>		
Teaching staff (nationals)		Faculty of Health Science: Professors – 57.6 full-time equivalent Academic staff – 229.4 full-time equivalent PhD. – 190.7 full-time equivalent  Faculty of Sciences: Professors – 37.1 full-time equivalent Academic staff – 233.2 full-time equivalent PhD. – 138.7 full-time equivalent
Teaching staff from EU MSs		Data not available
International staff (non EU)		Data not available
Number professionals from outside the HEIs		Faculty of Health Science: Part time academic staff – 106.7 full-time equivalent Faculty of Sciences: Part time academic staff – 14.6 full-time equivalent
<b>Students</b>		
Places at entry following secondary school	93 (2010)	
Number of applicants for entry	206 (2010)	
Graduates that become registered pharmacists.	-	Not relevant
International students	1 (2010)	Iceland
<b>Entry requirements</b>		
Specific pharmacy-related entrance examination	No	
Other entry requirement	Yes	A certain average in secondary school examinations and a certain level in mathematics, chemistry and physics.
Is there a national <i>numerus clausus</i> ?	No	
<b>Fees per year: 0 €</b>		
Length of course	<b>3+2 years including 6-month compulsory traineeship</b>	
<b>Specialization</b>		
Industry		The Master programme offers two profiles: Clinical Pharmacy and Technological Pharmacy.  <ul style="list-style-type: none"> <li>- MSc in Pharmacy (Clinical Pharmacy)</li> <li>- MSc in Pharmacy (Pharmaceutics)</li> </ul>

Other specialized courses?	Yes	See above
In which years?	4 <sup>th</sup> and 5 <sup>th</sup>	
What are the student numbers in each specialization?	-	No data available yet
<b>Past and present changes in E&amp;T</b>		
Have there been any major changes since 1999?	-	No data available yet
Are any major changes envisaged before 2019?	No	

## Chapter 3. Teaching and learning methods

Copenhagen University

### Student hours

Method	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Lecture	160	214	159	152		<b>685</b>
Tutorial	124	83	53	51		<b>311</b>
Practical	200	249	198			<b>647</b>
Project work		46	101	20		<b>167</b>
Traineeship						
Community				6 month (30 ECTS)		<b>1040</b>
Other					6 month (30 ECTS) M. Thesis project	
Electives/choice					6 month (30 ECTS)	

	1	2	3	4	5
HEI courses	60 ECTS	60 ECTS	60 ECTS	30 ECTS	
Traineeship				30 ECTS	30 ECTS
Electives					30 ECTS

University of Southern Denmark

### Student hours

Method	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Lecture	262	269	233	397	20	<b>1181 hours</b>
Tutorial	164	173	93	59	20 <sup>(2)</sup>	<b>509 hours</b>
Practical	119	109	102	67	80 <sup>(2)</sup>	<b>477 hours</b>
Project work	100		200	20		<b>320 hours</b>
Traineeship				<sup>(2)</sup> 3 months (15 ECTS)	<sup>(2)</sup> 3 months (15 ECTS) <sup>(1)</sup> 6 months (30 ECTS)	<sup>(1)</sup> 30 ECTS <sup>(2)</sup> 30 ECTS
Community						-
Other			10	8	20 6 month (30 ECTS) M. Thesis project	<b>38 hours</b> <b>30 ECTS</b>
Electives/choice						-

<sup>(1)</sup> – MSc in Pharmacy (*Clinical Pharmacy*)

<sup>(2)</sup> – MSc in Pharmacy (*Pharmaceutics*)

	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>HEI courses</b>	50	60	60	<sup>(2)</sup> 45 ECTS <sup>(1)</sup> 60 ECTS	<sup>(2)</sup> 15 ECTS 30 ECTS M. Thesis project
<b>Traineeship</b>				<sup>(2)</sup> 15 ECTS	<sup>(2)</sup> 15 ECTS <sup>(1)</sup> 30 ECTS
<b>Electives</b>	10				

<sup>(1)</sup> – MSc in Pharmacy (*Clinical Pharmacy*)

<sup>(2)</sup> – MSc in Pharmacy (*Pharmaceutics*)

## Chapter 4. Subject areas

Copenhagen University

### Student hours

Subject area	Year 1	Year 2	Year 3	Year 4	Total
CHEMSCI	327	284	94	57	762
PHYSMATH	118				118
BIOLSCI		134			134
PHARMTECH			283		283
MEDISCI		85	84	125	294
LAWSOC		72	50	41	163
GENERIC	59				59
GENERIC PLUS TRAINEESHIP	59			1040	1099

Internship: 4<sup>th</sup> year – 6 months (30 ECTS)

Elective courses: 5<sup>th</sup> year – 6 months (30 ECTS)

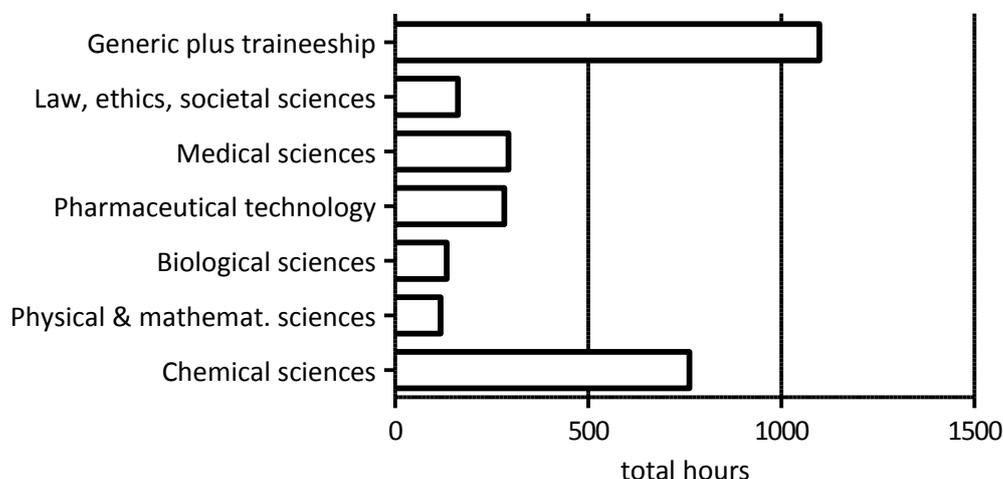
M. Thesis project: 5<sup>th</sup> year – 6 months (30 ECTS)

	1	2	3	4	Total
CHEMSCI	32½ ECTS	26½ ECTS	10 ECTS	8 ECTS	
PHYSMATH	16 ECTS				
BIOLSCI		16½ ECTS			
PHARMTECH			33½ ECTS		
MEDISCI		11½ ECTS	12 ECTS	16½ ECTS	
LAWSOC		15 ECTS		35½ ECTS	
GENERIC	6½ ECTS				

Elective courses: 5<sup>th</sup> year – 30 ECTS

M. Thesis project: 5<sup>th</sup> year – 30 ECTS

Student hours by subject area.



## Student hours

Subject area	Year 1***	Year 2	Year 3	Year 4 (1)	Year 4 (2)	Year 5 (1)	Year 5 (2)	Total
CHEMSCI	138	241	42					<b>421</b>
PHYSMATH	200			28				<b>228</b> <sup>(1)</sup> <b>200</b> <sup>(2)</sup>
BIOLSCI	95	94						<b>189</b>
PHARMTECH			136		86			<b>136</b> <sup>(1)</sup> <b>222</b> <sup>(2)</sup>
MEDISCI			181	274	194			<b>455</b> <sup>(1)</sup> <b>375</b> <sup>(2)</sup>
LAWSOC	45		20	100	40			<b>165</b> <sup>(1)</sup> <b>105</b> <sup>(2)</sup>
GENERIC	167	216	259			20 30 ECTS (M. Thesis project)	20 30 ECTS (M. Thesis project)	<b>592</b> <b>30 ECTS</b>
GENERIC PLUS TRAINEESHIP				50	50 plus 15 ECTS (Trainee- ship)	30 ECTS (Trainee- ship)	15 ECTS (Trainee- ship)	<b>50 plus</b> <b>30 ECTS</b>

(1) – MSc in *Clinical Pharmacy*(2) – MSc in *Technological Pharmacy*

	Year 1 ECTS	Year 2 ECTS	Year 3 ECTS	Year 4 <sup>(1)</sup> ECTS	Year 4 <sup>(2)</sup> ECTS	Year 5 <sup>(1)</sup> ECTS	Year 5 <sup>(2)</sup> ECTS	Total ECTS
CHEMSCI	15	25	5					<b>45</b>
PHYSMATH	20			5				<b>25</b> <sup>(1)</sup> <b>20</b> <sup>(2)</sup>
BIOLSCI	10	10						<b>20</b>
PHARMTECH			15	5	15		15	<b>20</b> <sup>(1)</sup> <b>45</b> <sup>(2)</sup>
MEDISCI			20	35	25			<b>55</b> <sup>(1)</sup> <b>45</b> <sup>(2)</sup>
LAWSOC	5		5	15	5			<b>25</b> <sup>(1)</sup> <b>15</b> <sup>(2)</sup>
GENERIC	10	25	15			30 (M. Thesis project)	30 (M. Thesis project)	<b>80</b>
GENERIC PLUS TRAINEESHIP					15 (Trainee- ship)	30 Trainee- ship)	15 (Trainee- ship)	<b>80 plus 30</b>

(1) – MSc in Pharmacy (*Clinical Pharmacy*)(2) – MSc in Pharmacy (*Pharmaceutics*)

## Chapter 5. Impact of the Bologna principles

Copenhagen University

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	
2. Two main cycles (B and M) <u>with entry and exit at B level</u>	Yes	At the present time almost all bachelors continue with an MSc. They have no role in pharmacy practice. A master in pharmacy has a career as a practising pharmacist. An MSc in pharmaceutical sciences will work in the pharmaceutical industry, with no competence in pharmacy practice.
3. ECTS system of credits / links to LLL	Yes	The ECTS system exists at pre-registration level. CPD is not compulsory.
4. Obstacles to mobility		Teaching in Danish at the bachelor level. Generally only the master level courses are aimed at international students.
5. European QA		QA is run at a national level.
6. European dimension		There are European programmes on development of common courses at the postgraduate level.
ERASMUS staff exchange to your HEI from elsewhere		Number of staff months: 0
ERASMUS staff exchange from your HEI to other HEIs		Number of staff months: 0
ERASMUS student exchange to your HEI from elsewhere		Number of student months: 110
ERASMUS student exchange from your HEI to other HEIs		Number of student months: 54

University of Southern Denmark

Bologna principle	Is the principle applied? Y/N or partially	How is it applied? Does your HEI have multilateral recognition and agreements? Other comments.
7. Comparable degrees / Diploma Supplement	Yes	
8. Two main cycles (B and M) <u>with entry and exit at B level</u>	Yes	It is expected that almost all bachelors continue with a MSc. as they have no role in pharmacy A master in pharmacy has a career as a practising pharmacist, in hospital pharmacy and in pharmaceutical industry.
9. ECTS system of credits / links to LLL	Yes	The ECTS system exists at pre-registration level.
10. Obstacles to mobility		Teaching in Danish language at the bachelor and master level unless there are foreign students in the course (English).
11. European QA		QA is run at a national level.
12. European dimension		Both students and staff participate with European postgraduate training courses.

	University of Southern Denmark:
<b>ERASMUS staff exchange to your HEI from elsewhere</b>	Number of staff weeks: 55 (TS + admin staff)
<b>ERASMUS staff exchange from your HEI to other HEIs</b>	Number of staff weeks: 27
<b>ERASMUS student exchange to your HEI from elsewhere</b>	Number of student months: 3365
<b>ERASMUS student exchange from your HEI to other HEIs</b>	Number of student months: 431

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

The directive states	How does / will this directive statement affect pharmacy E&T?
<b>“Evidence of formal qualifications as a pharmacist shall attest to training of at least <u>five years' duration</u>,...”</b>	Copenhagen complies. University of Southern Denmark complies
<b>“...<u>four years of full-time theoretical and practical training</u> at a university or at a higher institute of a level recognised as equivalent, or under the supervision of a university;”</b>	Copenhagen complies. University of Southern Denmark complies
<b>“...<u>six-month traineeship in a pharmacy</u> which is open to the public or in a hospital, under the supervision of that hospital's pharmaceutical department.”</b>	Copenhagen complies. University of Southern Denmark complies
<b>“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>.”</b>	Copenhagen complies. University of Southern Denmark complies
Directive annex	How does / will this directive annex affect pharmacy E&T?
<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.	Copenhagen complies. University of Southern Denmark complies

## Educational structure at FF

### Full-time educations

Cand.Pharm.  
(= pharmacist)

Pharmaceutical  
Candidate edu.

*Start 1. 9. 06*

Pharmaceutical  
Bachelor edu.

*Start 1. 9. 03*

Cand.Scient.  
(in pharmaceutical science)

Candidate edu.  
Pharmaceutical sciences

*Start 1. 9. 04*

Non-pharmaceutical  
Bachelor edu.

### Part-time educations

Master-educations  
(open education /  
Postgraduate)

MIND  
Master in Industrial Drug Development

MDM  
Master in Drug Management

MPRA  
Master in Pharmaceutical Regulatory Affairs

Bjarne Fjalland, 6th April 2009  
Dias 7



## Curriculum – from September 2003

<i>1<sup>st</sup> – 6<sup>th</sup> semester</i>	Chemical subjects	(67½ ECTS)	
	Math./Phys./Stat.	(16 ECTS)	
	Biological subjects	(40 ECTS)	
	Social Pharmacy etc	(21 ECTS)	
	Pharmaceutics	(20½ ECTS)	
	Bachelor project	(15 ECTS)	
	<b>Bachelor of Pharmacy</b>		→
<i>7<sup>th</sup> semester</i>	Chemical subjects	(12 ECTS)	
	Biological subjects	(12½ ECTS)	
	Other subjects	(5½ ECTS)	
<i>8<sup>th</sup> semester</i>	Internship	(30 ECTS)	
<i>9<sup>th</sup> semester</i>	Elective courses	(30 ECTS)	
<i>10<sup>th</sup> semester</i>	Master Thesis project	(30 ECTS)	
	<b>Master of Science in Pharmacy</b>		→

## Curriculum

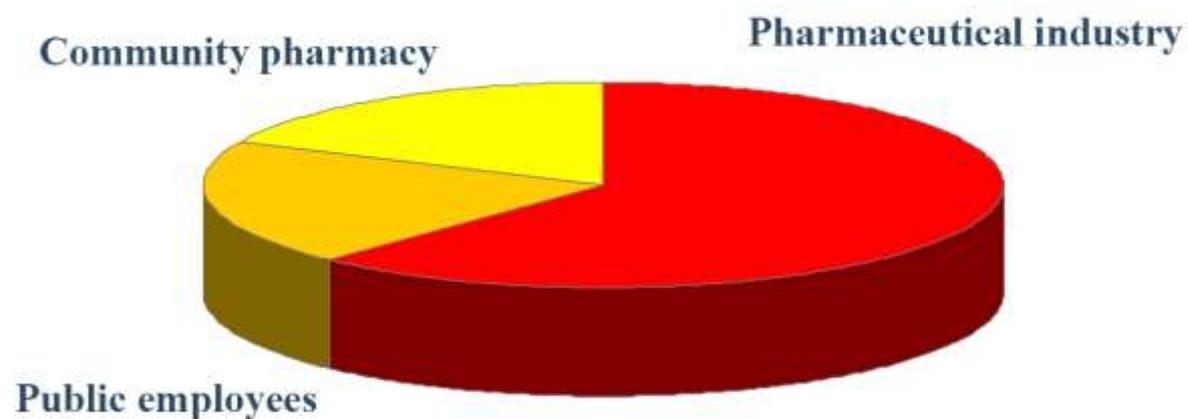
1. semester	2. semester	3. semester	4. semester	5. semester	6. semester	7. semester	8. semester	9. semester	10. semester
Introduct. course	Physics	Physical chemistry	Basic pharmacology	Organ related pharmacology		Pharmacotherapy	<b>Internship</b>	<b>Elective courses</b>	<b>Master thesis project</b>
Matematics	Pharmakopé-project	Biochemistry	Social pharmacy		Pharmacology and natural product chemistry	Toxicology			
Basic and inorg. chemistry	Quantitat. analytical chemistry	Microbiology		Drug formulation	Bachelor-project	Drug chemistry			
Organic chemistry I	Organic chemistry 2	Bioorganic chemistry	Instrument. analytical chemistry	Drug production		Bioinformatics			
Spektroskopy	Statistics	Philosophy of science	Disseminat. and method in soc phar			Drug economy			
Safety course						Ethics			

 Laboratory exercises in the course

Bjarne Fjalland, 6th April 2009  
Dias 9



## Area of employment



**Public employees includes i.e.: Hospital pharmacy and academia**

Bjarne Fjalland, 6th April 2009  
Dias 11





Education and Culture DG

Lifelong Learning Programme

**PHARMINE**  
Pharmacy Education  
in Europe

**PCN**

Pharmacolor  
Consultants  
Nancy



SYDDANSK UNIVERSITET



**UNIVERSITY OF TARTU**



Vrije  
Universiteit  
Brussel

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

Website: [www.pharmine.org](http://www.pharmine.org)

Pharmacy education & training in

# ESTONIA

2010



**PHARMINE**  
Pharmacy Education  
in Europe

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

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# EESTI APTEEKRITE LIIT

ESTONIAN PHARMACISTS' ASSOCIATION

30.04.2010 nr 24

The document “**Pharmacy education & training in ESTONIA**” was validated by the Estonian Pharmacists' Association, at their General Assembly on the March 29<sup>th</sup> 2010 in Tallinn.

*/digitally prescribed/*

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## Summary.

Community pharmacies in Estonia provide mainly traditional services (e.g. sale and counselling of Rx and OTC medicines). However, some of the diagnostic services (e.g. taking blood pressure) are available.

Pharmacists (in Estonian *proviisor*) study at University of Tartu for five years and graduate as Master of Pharmacy (MSc Pharm). Pharmacists can own and manage community pharmacies, work as responsible pharmacists in both community and hospital pharmacy. In Estonia ownership of community pharmacies is not restricted to the pharmacy profession and the majority of pharmacies have joined different pharmacy chains.

Assistant pharmacists (in Estonian *farmatseut*) study at Tallinn Health College for 3 years and after graduation are mainly employed in community pharmacies. Assistant pharmacists cannot work as pharmacy managers.

The University of Tartu is the only university in Estonia providing higher education in pharmacy. The pharmacy curriculum is organized as B+M integrated studies with no possibility of graduation with a bachelor degree after three years of studies. Curriculum is course-based and after several changes (in 1997, 2003, 2007) it is more focused on medical, clinical and pharmaceutical technology subjects supported by basic and applied sciences, drug analysis, pharmacognosy and social sciences. Currently traineeship is provided after the second year and during the 6 months practice at community and hospital pharmacy during the fifth year of studies. Currently no specialization courses are available at the University of Tartu.

## Introduction.

### Statistics for Estonia.

Total population: 1,340,000

Gross national income per capita (PPP international \$): 18,090

Life expectancy at birth m/f (years): 67/79

Healthy life expectancy at birth m/f (years, 2003): 59/69

Probability of dying under five (per 1 000 live births): 6

Probability of dying between 15 and 60 years m/f (per 1 000 population): 279/96

Total expenditure on health per capita (Intl \$, 2006): 989

Total expenditure on health as % of GDP (2006): 5.0

Detailed information is available at: World Health Statistics 2009:

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

### Highlights on health in Estonia.

Since regaining independence in 1991, the Estonian health system has undergone two major shifts: first, from a centralised, state-controlled system to a decentralised one, and second, from a system funded by the state budget to one funded through social health insurance (SHI) contributions. At the same time, there has been a growing emphasis on primary care and public health. Healthcare in Estonia is largely publicly financed. Since 1992, earmarked payroll taxes have been the main source of health care financing, accounting for approximately 76% of total expenditure on healthcare in recent years. Specific groups are covered by contributions from the state budget, including individuals on parental leave with small children, registered unemployed people (eligible for cover for up to nine months) and those caring for disabled people. Other groups, including children, retired people, those receiving a disability pension and students, are eligible for cover without any contribution, from either themselves or the State. Expenditure for the reimbursement of pharmaceuticals in out-patient care is part of the overall healthcare expenditure within the budget of the Estonian Health Insurance Fund (EHIF) but may not exceed 20% of healthcare expenditure according to the present Health Insurance Act (since October, 2002). Pharmaceuticals for in-patient care are fully reimbursed for patients, through the healthcare services.

An important characteristic of the Estonian reimbursement system is that pharmaceuticals are reimbursed on the basis of the positive reimbursement list. The criteria for inclusion of pharmaceuticals in this list also take into account the cost-effectiveness of the product and rational expenditure is a binding rule. The pharmaco-economic aspects of reimbursement are constantly assessed according to the Baltic Guidelines on Economic Evaluation of Pharmaceuticals, which were approved by Estonia, Latvia and Lithuania in September 2002.

Several measures have been applied for the control of out-patient pharmaceutical expenditure (PE) in Estonia. First, a diagnosis-based reimbursement system of pharmaceuticals (with the current reimbursement categories 100% and 75% (or 90% for "exemption") was introduced at the beginning of the 1990s (with minor changes in the year 2002). The "exemption" reimbursement category of 90% is valid for most vulnerable people (patients up to 16 years, disabled and retired patients).

There is no research-oriented pharmaceutical industry located in Estonia, but rather representative offices of approximately 18 international innovative producers, as well the representative companies of generics producers.

Regarding the distribution of pharmaceuticals at the wholesale level there is a multi-channel system, with 43 companies with a wholesale licence in place.

Pharmaceuticals are solely dispensed to the public through privately-owned community pharmacies in Estonia. A total of 80% of the community pharmacies are linked into different pharmacy chains (of which there are five altogether). Hospital pharmacies only provide pharmaceuticals for hospital use (in-patient care). The wholesalers and community pharmacies are remunerated via statutory maximum mark ups, and a discounted value-added tax (VAT) of 5% is applied for all pharmaceuticals (standard VAT 18%).

Pharmaceutical Pricing and Reimbursement Information Estonia, 2007.

[http://ppri.oebig.at/Downloads/Results/Estonia\\_PPRI\\_2007.pdf](http://ppri.oebig.at/Downloads/Results/Estonia_PPRI_2007.pdf)

Jesse, M., Habicht, J., Aaviksoo, A., Koppel, A., Irs, A., Thomson, S.: Health Care Systems in Transition: Estonia, Copenhagen, WHO Regional Office for Europe on behalf of the European Observatory on Health Systems and Policies, 2004.

<http://www.euro.who.int/document/e85516.pdf>

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

	Y/N or number	Comments.
<b>Community pharmacy</b>		
Number of community pharmacists	1165	<p>According to the information of the Estonian Health Care Board, responsible for registration of pharmacists and assistant pharmacists in March 2010 there were registered 1165 pharmacists in Estonia. This number includes both community and hospital pharmacists. The number of hospital pharmacists is approximately 100 and approximately 90% of the pharmacists working at community pharmacies are registered.</p> <p>Estonian Health Care Board: <a href="http://www.tervishoiuamet.ee/index.php?page=158">http://www.tervishoiuamet.ee/index.php?page=158</a>, <a href="http://w2.tervishoiuamet.ee/proveeb/">http://w2.tervishoiuamet.ee/proveeb/</a></p>
Number of community pharmacies	496	<p>According to the pharmacy statistics of the Estonian State Agency of Medicines in January 1, 2009 there were 496 community pharmacies including 308 general pharmacies and 188 branch pharmacies providing similar services except the compounding of extemporaneous medicines that is performed in general pharmacies only.</p> <p><a href="http://www.ravimiamet.ee/vvfiles/0/Review%20of%20pharmacies%202008.pdf">http://www.ravimiamet.ee/vvfiles/0/Review%20of%20pharmacies%202008.pdf</a></p> <p>In Estonian community pharmacies, including structural units 795 pharmacists, 552 assistant pharmacists and 495 other employees were working in the end of the year 2008.</p> <p><a href="http://www.ravimiamet.ee/vvfiles/0/Review%20of%20pharmacies%202008.pdf">http://www.ravimiamet.ee/vvfiles/0/Review%20of%20pharmacies%202008.pdf</a></p>
Competences and roles of community pharmacists		<p>In a community setting the pharmacist can be the owner, manager, responsible pharmacist; in a hospital setting, manager and hospital pharmacist.</p> <p>Professional competencies include: supplying OTC and Rx medicines, compounding/preparation of extemporaneous medicines at the pharmacy, giving advice on medicines (both OTC and Rx medicines), screening services (monitoring blood pressure is common, in some community pharmacies there is the possibility to monitor the level of blood sugar), giving advice on healthcare issues (prevention of illnesses, information concerning food supplements and herbal preparations), reporting of adverse drug reactions (pharmacists are not authorized to report, but in the case of identification of ADR they inform the physician).</p>
Is ownership of a community pharmacy limited to pharmacists?	No	<p>The activity licence of community pharmacy can be held by authorities of executive power, local governments, other legal persons in public law, self-employed persons and legal persons in private law. (Medicinal Products Act, § 41)</p> <p><a href="http://www.ravimiamet.ee/627">http://www.ravimiamet.ee/627</a></p> <p>The holder of an activity licence for a general pharmacy, hospital pharmacy or a veterinary pharmacy or a subsidiary thereof shall not be a shareholder or a member of a legal person in private law holding an activity licence for manufacture of medicinal products or wholesale trade in medicinal products. (Medicinal Products Act, § 42 (3))</p> <p><a href="http://www.ravimiamet.ee/627">http://www.ravimiamet.ee/627</a></p>
Rules for geographical distribution of pharmacies?	Yes	<p>The limitations are as follows:</p> <p>In towns 3000 inhabitants per one pharmacy.</p> <p>In rural areas no closer than 1 km.</p> <p>Medicinal Products Act §42'(1)</p> <p><a href="http://www.ravimiamet.ee/627">http://www.ravimiamet.ee/627</a></p>
Are drugs and healthcare	Drugs: No	<p>Estonian community pharmacies have a monopoly for the sale of prescription and OTC medicines.</p>

products available through other channels?	Healthcare products: Yes	Healthcare products are available in supermarkets, etc. Internet and mail-order pharmacies are not permitted in Estonia.  <a href="http://www.ravimiamet.ee/627">http://www.ravimiamet.ee/627</a>
Other persons involved in practice?	Yes	Besides the professional staff of a community pharmacy, assistant pharmacists are also present.
Their titles and number(s)	748	According to the registry of the Estonian Health Care Board in March 2010, 748 assistant pharmacists were registered in Estonia. The number includes assistant pharmacists working at community and hospital pharmacies. Estonian Health Care Board <a href="http://www.tervishoiuamet.ee/index.php?page=158">http://www.tervishoiuamet.ee/index.php?page=158</a> , <a href="http://w2.tervishoiuamet.ee/proveeb/">http://w2.tervishoiuamet.ee/proveeb/</a>
Their qualifications		
Organisation providing and validating the E&T		Tallinn Health College <a href="http://www.ttk.ee/index.php?id=29029">http://www.ttk.ee/index.php?id=29029</a>
Duration of studies	3 years	Matriculation requirements are similar to those at the university: document certifying secondary education, state examinations in biology, chemistry, Estonian language, Estonian language state exam for non-Estonians, aptitude interview <a href="http://www.ttk.ee/index.php?id=29029">http://www.ttk.ee/index.php?id=29029</a>
Subject areas		Pharmaceutical chemistry, pharmacognosy, pharmacology, pharmacotherapy, pharmaceutical technology, bio-pharmacy, social sciences (social pharmacy, history of pharmacy, pharmacy organization, languages), veterinary pharmacy, toxicology, pharmaceutical commodities, herbal products, phytotherapy.
Competences and roles		Professional competencies: supplying OTC and Rx medicines, managing/compounding medicines for some ailments, giving advice on medicines (both OTC and Rx medicines), screening services (monitoring blood pressure is common, in some community pharmacies there is the possibility to monitor the level of blood sugar), giving advice on health care issues (prevention of illnesses, information concerning food supplements and herbal preparations). As opposed to the roles of pharmacist – assistant pharmacists cannot hold the position of pharmacy manager. In comparison to pharmacy studies at the University of Tartu, the curriculum of assistant pharmacists is less focused on theory and more practice-oriented.
<b>Hospital pharmacy</b>		
Hospital pharmacists	Approximately 100	In 2008 there were 74 pharmacists, 24 assistant pharmacists and 36 other employees working in hospital pharmacies. <a href="http://www.ravimiamet.ee/vvfiles/0/Review%20of%20pharmacies%202008.pdf">http://www.ravimiamet.ee/vvfiles/0/Review%20of%20pharmacies%202008.pdf</a>
Hospital pharmacies	23	
Competences and roles of hospital pharmacists		Professional competencies: part of multidisciplinary patient-care team (in some clinics), purchasing of drugs and medical material, monitoring of drug use (in some clinics), production of patient-specific medicines (e.g. cytotoxic preparations) (in some clinics), participation in clinical studies (in some clinics) Estonian Society of Hospital Pharmacists <a href="http://www.ehas.ee/">http://www.ehas.ee/</a>  Survey of European Association of Hospital Pharmacists <a href="http://www.eahp.eu/EAHP-survey">http://www.eahp.eu/EAHP-survey</a>

<b>Pharmaceutical and related industries</b>		
Companies with production, R&D and distribution	21+47	The number 21 includes: less than full-scale manufacturers of human and veterinary medicinal products – 8; manufacturers of active substances - 1; repackaging and labelling – 12 companies. The number 47 includes wholesale companies of human and veterinary medicinal products. Activity licence register of State Agency of Medicines, <a href="http://www.ravimiamet.ee/168">http://www.ravimiamet.ee/168</a>
Companies with production only	9	12 companies have a licence for the manufacture and wholesale of medicinal products.
Companies with distribution only	35	12 companies have a licence for the manufacture and wholesale of medicinal products. Companies: Magnum Medical OÜ ( <a href="http://www.magnum.ee/est/tut.htm">http://www.magnum.ee/est/tut.htm</a> ) Tamro Eesti OÜ ( <a href="http://www.tamro.ee/index.asp?action=600&amp;id=600">http://www.tamro.ee/index.asp?action=600&amp;id=600</a> )
Companies producing generic drugs only	8	All 8 companies are not full-scale manufacturers and include human and veterinary medicinal products. Nycomed SEFA ( <a href="http://www.nycomed.ee/ee/Menu/Firmast/">http://www.nycomed.ee/ee/Menu/Firmast/</a> )
<b>Industrial pharmacy</b>		
Number of pharmacists working in industry	10-20	Official statistics are not available.
Roles of industrial pharmacists		Professional competencies: marketing, distribution, drug evaluation and registration.
<b>Other sectors</b>		
Number of pharmacists working in other sectors	Approximately 250	State Agency of Medicines -35 pharmacists; Health Insurance Fund – 5 pharmacists; Ministry of Social Affairs – 2 pharmacists; Department of Pharmacy, University of Tartu - 17 pharmacists; Other departments of University of Tartu, other HEIs in Estonia, approximately - 30-40 pharmacists; Tallinn Health College- 4 pharmacists; Wholesale companies of medicinal products approximately - 50 pharmacists; Representative offices of foreign drug companies approximately - 70-80 pharmacists; Armed forces – 2 pharmacists; Companies providing services for drug marketing, drug registration and monitoring of clinical studies – approximately - 30 pharmacists.  For wholesale companies and representative offices, the official statistics concerning the number of pharmacists are not available.
Competences and roles of pharmacists employed in other sectors		Armed forces – supply with medicines. Universities, schools of professional higher education – education of pharmacists and assistant pharmacists, conducting pharmacy research. National health services, governmental institutions dealing with medicines – development and surveillance of pharmacy legislation. Wholesale companies – distribution of medicinal products. Representative offices – introduction of medicinal products to health care professionals.

Roles of professional associations		
Registration of pharmacists	No	<p>There is a registry of pharmacists and assistant pharmacists practicing in community and hospital pharmacies in Estonia. Registration is performed by a governmental institution, the Estonian Health Care Board. To have one's name in the registry, an applicant should provide information concerning professional education and practical experience (having, during the last 5 years, at least 3 years of practice at a community or hospital pharmacy).</p> <p>Professional qualifications of pharmacists and assistant pharmacists from abroad are recognized, if the applicant presents in addition to the information described above a document certifying his or her right to work in the field of pharmacy in a Member State of the European Economic Area or Switzerland.  <a href="http://www.ravimiamet.ee/orb.aw/class=file/action=preview/id=5118/EstonianAct-10May2005.doc">http://www.ravimiamet.ee/orb.aw/class=file/action=preview/id=5118/EstonianAct-10May2005.doc</a></p> <p>Pharmacy traineeship practice for both pharmacy and assistant pharmacy students is supervised and validated by Department of Pharmacy, University of Tartu and Tallinn Health College, respectively, and no professional organizations are involved.</p>
Creation of pharmacies and control of territorial distribution	No	<p>Opening of new community pharmacies and their territorial distribution is determined by pharmacy legislation. Control of these activities is performed by a governmental institution the State Agency of Medicines.  <a href="http://www.ravimiamet.ee/orb.aw/class=file/action=preview/id=5118/EstonianAct-10May2005.doc">http://www.ravimiamet.ee/orb.aw/class=file/action=preview/id=5118/EstonianAct-10May2005.doc</a></p>
Ethics and professional conduct	Yes	<p>The Estonian Pharmacists' Association has developed the Code of Ethics for Pharmacists (based on FIP Code of Ethics for Pharmacists)  <a href="http://www.apteekriteliit.ee/eng/english.html">http://www.apteekriteliit.ee/eng/english.html</a></p>
Quality assurance and validation of HEI courses for pharmacists	Partly	<p>The quality assurance system at the University of Tartu applies to teaching and research activities. In 2007 there was established the Programme Council of the Pharmacy Master Curriculum incorporating representatives of academia and professional organizations responsible for validation of the curriculum in general, including traineeship.  <a href="http://www.med.ut.ee/farmaatsia/selfevaluation">http://www.med.ut.ee/farmaatsia/selfevaluation</a></p>
Other (please specify)		<p>Among the professional organizations in Estonia, the Estonian Pharmacists' Association (<a href="http://www.apteekriteliit.ee/eng/english.html">http://www.apteekriteliit.ee/eng/english.html</a>) and Estonian Academical Society of Pharmacy (<a href="http://www.easp.ee/index_en.php">http://www.easp.ee/index_en.php</a>) are involved in organizing and providing professional continuing education courses.</p> <p>Both organizations represent the pharmacy community of Estonia concerning matters involving contact with the general public and in discussions over changes in pharmacy legislation and future development of pharmacy profession.</p>

<b>Websites</b>	
Ministry of Social Affairs	<a href="http://www.sm.ee/">http://www.sm.ee/</a>
State Agency of Medicines	<a href="http://www.ravimiamet.ee">http://www.ravimiamet.ee</a>
Estonian Health Insurance Fund	<a href="http://www.haigekassa.ee/">http://www.haigekassa.ee/</a>
National Institute for Health Development	<a href="http://www.tai.ee/">http://www.tai.ee/</a>
WHO Estonia	<a href="http://www.who.int/countries/est/en/">http://www.who.int/countries/est/en/</a>
Highlights on health in Estonia	<a href="http://ec.europa.eu/health/ph_projects/1999/monitoring/estonia_en.pdf">http://ec.europa.eu/health/ph_projects/1999/monitoring/estonia_en.pdf</a>
Estonian Pharmacists` Association	<a href="http://www.apteekriteliit.ee/">http://www.apteekriteliit.ee/</a>
Pharmaceutical Society of University of Tartu	<a href="http://www.tyrs.ee/">http://www.tyrs.ee/</a>
Estonian Academical Society of Pharmacy	<a href="http://www.easp.ee/">http://www.easp.ee/</a>
Estonian Assistant Pharmacists` Association	<a href="http://www.hot.ee/farmatseut/">http://www.hot.ee/farmatseut/</a>
Estonian Society of Hospital Pharmacists	<a href="http://www.ehas.ee/et">http://www.ehas.ee/et</a>
Association of Pharmaceutical Manufacturers in Estonia	<a href="http://www.rtl.ee/">http://www.rtl.ee/</a>

## Chapter 2. Pharmacy HEIs, students and courses

	Y/N or number	Comments.
<b>Total number of HEIs in your country</b>	Number: 1 (+1)	In Estonia there is only one pharmacy school providing higher education in pharmacy – the University of Tartu. In addition, Tallinn Health College provides professional higher education (3 years) for assistant pharmacists. The following sections are describing only the information concerning the Department of Pharmacy, the University of Tartu
Public	1	
<b>Organisation of HEIs</b>		
Attached to a medical faculty	Yes	Department of Pharmacy: <a href="http://www.med.ut.ee/farmaatsia">http://www.med.ut.ee/farmaatsia</a> Faculty of Medicine: <a href="http://www.med.ut.ee/index.aw/set_lang_id=2">http://www.med.ut.ee/index.aw/set_lang_id=2</a>
Do HEIs offer B + M degrees?	Yes	Integrated B+M curriculum for pharmacy. It is not possible to graduate from the University of Tartu with B degree after 3 years of pharmacy studies; the pharmacy curriculum has been developed for continuous education for 5 years.  Although the education of assistant pharmacists is provided by a non-university HEI (Tallinn Health College) it could be described as education at the conventional bachelor degree level. Assistant pharmacists are mostly employed in community pharmacies.
Do HEIs offer an M. Pharm. after a B degree in another HEI?	Yes	There is a distance learning system called the “Open University” ( <a href="http://www.ut.ee/en/studies/continuing-education">http://www.ut.ee/en/studies/continuing-education</a> ) that offers to the assistant pharmacists who graduated from Tallinn Health College only, the possibility to incorporate the profession of pharmacist after a further 4 years of study.
<b>Tartu – Estonia</b>		
<b>Teaching staff</b>		
Number of teaching staff (nationals)	14	Includes 8 full-time and 6 part-time staff.
Number of international teaching staff (from EU MSs)	1+(1)	Visiting lecturer of an elective course concerning CGP, from the Utrecht University of Applied Sciences. Currently there is announced an international call for professorship in medical technology (2010-2015) financed by the EU European Social Fund. ( <a href="http://www.ut.ee/80018#2">http://www.ut.ee/80018#2</a> ).  Language barriers and financial problems are the two main reasons for the low number of international teaching staff.
Number professionals (pharmacists and others) from outside the HEIs, involved in E&T	10 plus 10-15	Professionals with a medical background are involved in teaching of courses such as bioethics, pharmaco-epideiology and pharmaco-economics. Pharmacists employed at State Agency of Medicines, community and hospital pharmacists intervene as visiting lecturers in the courses on organization of pharmacy and social pharmacy (n=10).  The main supervisor of the 6 month traineeship is Department of Pharmacy in Tartu in cooperation with the responsible pharmacists at community and hospital pharmacies (n=10-15).
<b>Students</b>		
Number of places at entry following secondary school	48	In 2009: state-commissioned places – 29, non-state-commissioned and self-financed places - 19. The quota for admission to the places financed by the state is different in every year (from 25 to 30 places) and depends on

		application of professional organizations and approval of these places by government.
Applicants per place	150	3.1 applicants for one place (state-commissioned + self-financed).
Number of graduates that become registered/professional pharmacists.	46 (26 Tartu students and 20 open university students)	Based on statistics of University of Tartu in 2008. ( <a href="http://www.ut.ee/orb.aw/class=file/action=preview/id=361398/Integreeritud_ope_2000-2008.pdf">http://www.ut.ee/orb.aw/class=file/action=preview/id=361398/Integreeritud_ope_2000-2008.pdf</a> )  During 2001-2007 approximately 73% of the pharmacy students graduated after the normal study period - 5 years. 95% of the students discontinue their studies and then graduate with 1-2 years' delay and the rest drop out.
<b>Entry requirements following secondary school)</b>		
Does Tartu have a specific pharmacy-related entrance examination	No	The entry is based on the results of state/final examinations at secondary school. Two best examination results in the subjects as biology, chemistry, mathematics or physics are considered (constitute 60% of the total score). In addition the grades in first foreign language and mother tongue of 40% of the total score.
<b>Advanced entry</b>		
At which level?		Open University studies
What are the requirements?		Graduation of Tallinn Health College, profession of assistant pharmacist. No specific entrance examination.
<b>Fees per year</b>		
For home students		For state commissioned places there is no fee. Since 2009 for non-state commissioned places for in-house students 2820€ and for Open University students 2116€ per year.
<b>Length of course</b>	<b>5 years</b>	
<b>Specialization</b>		
Does your HEI provide specialized courses?	No	Currently there is no specialization course available in pharmacy in Estonia. In 2010 it is planned to apply for funding from the EU Social Fund to organize an international postgraduate course in clinical pharmacy and pharmaceutical care.
<b>Past and present changes in E&amp;T</b>		
Have there been any major changes since 1999 at Tartu?	Yes	The pharmacy master curriculum (adopted in 1997) has been modified twice, in 2003 and 2007. Differences of 2003 curriculum compared to that of 1997: <ul style="list-style-type: none"> <li>• higher proportion of medical subjects,</li> <li>• implementation of new obligatory subjects (e.g. pharmaceutical excipients, pharmaco-epidemiology and pharmaco-economics, physics in pharmacy, drug toxicology),</li> <li>• increase the duration of in-service practice (pharmacy practice, traineeship) up to 25 weeks,</li> <li>• prolonged time for research projects</li> </ul> Differences of 2007 curriculum compared to 2003: <ul style="list-style-type: none"> <li>• decrease in formal teaching and increase in independent work,</li> <li>• implementation of clinical pharmacy subjects,</li> <li>• decreased proportion of chemistry based subjects,</li> <li>• higher proportion of pharmaceutical technology subjects</li> </ul>
Are any major changes envisaged before 2019 at your HEI?	Perhaps	A structural reform is planned within Medical Faculty in 2009-2010. No information concerning the influence of possible changes to the Department of Pharmacy and to the teaching of pharmacy in general.
<b>Is your HEI typical of all HEIs in the area?</b>	Yes	Compared to the pharmacy schools of neighbouring countries (e.g. Latvia, Finland), our HEI could be considered typical.

<b>Websites</b>	
References to texts and articles of national law	University of Tartu, Faculty of Medicine: <a href="http://www.med.ut.ee/index.aw/set_lang_id=2">http://www.med.ut.ee/index.aw/set_lang_id=2</a> Self-evaluation report of the Department of Pharmacy 2008: <a href="http://www.med.ut.ee/farmaatsia/selfevaluation">http://www.med.ut.ee/farmaatsia/selfevaluation</a>

### Chapter 3. Teaching and learning methods

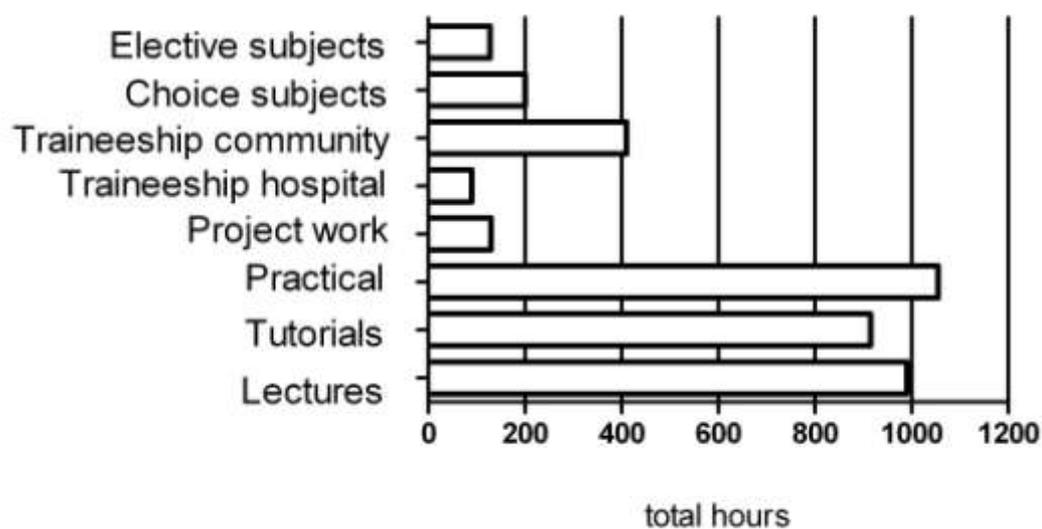
Student hours						
Method	Year 1	Year 2	Year 3	Year 4	Year 5	Total
<b>Courses in HEI:</b>						
Lecture	230	220	240	240	60	<b>990</b>
Tutorial	175	110	140	330	110	<b>915</b>
Practical	275	330	300	150	-	<b>1055</b>
Project work	-	-	-	-	130	<b>130</b>
<b>Traineeship:</b>						
Hospital	-	-	-	-	90	<b>90</b>
Community	-	See electives	-	-	410	<b>410</b>
<b>Subtotal:</b>	<b>680</b>	<b>660</b>	<b>680</b>	<b>720</b>	<b>800</b>	<b>3540</b>
<b>Electives:</b>						
Choice	40	40 It is possible to take elective course "Propaedeutical training" (48 hours) at community pharmacy	40	40	40	<b>200</b>
Optional	25	26	26	26	25	<b>128</b>
<b>Total</b>	<b>745</b>	<b>726</b>	<b>746</b>	<b>786</b>	<b>865</b>	<b>3868</b>

The calculation of the student hours presented is based on following: for obligatory subjects 1 credit point means 20 hours formal teaching and 20 hours independent work and for electives 16 hours formal teaching and 24 hours independent work. In the table only the hours for auditory work are presented.

From autumn 2009 onwards the European Credit Point System has been introduced in University of Tartu. In general of the compulsory subjects taught at the Department of Pharmacy lectures cover 32%, seminars 23% and laboratory work 45% of the formal teaching.

The curriculum in general, including courses, traineeship and electives will be validated by Programme Council of the Pharmacy Master Curriculum.

### Hours by learning methods



#### Websites

References to texts and articles of national law

Self-evaluation report of the Department of Pharmacy 2008:

<http://www.med.ut.ee/farmaatsia/selfevaluation>

B+M integrated studies curriculum 2008/2009:

[https://www.is.ut.ee/reports/rwservlet?ok\\_oppekava\\_kirjeldus.rdf+481+2008+0+0+2+0,0,0,0,0,0,0+PDF+application/pdf](https://www.is.ut.ee/reports/rwservlet?ok_oppekava_kirjeldus.rdf+481+2008+0+0+2+0,0,0,0,0,0,0+PDF+application/pdf)

## Chapter 4. Subject areas

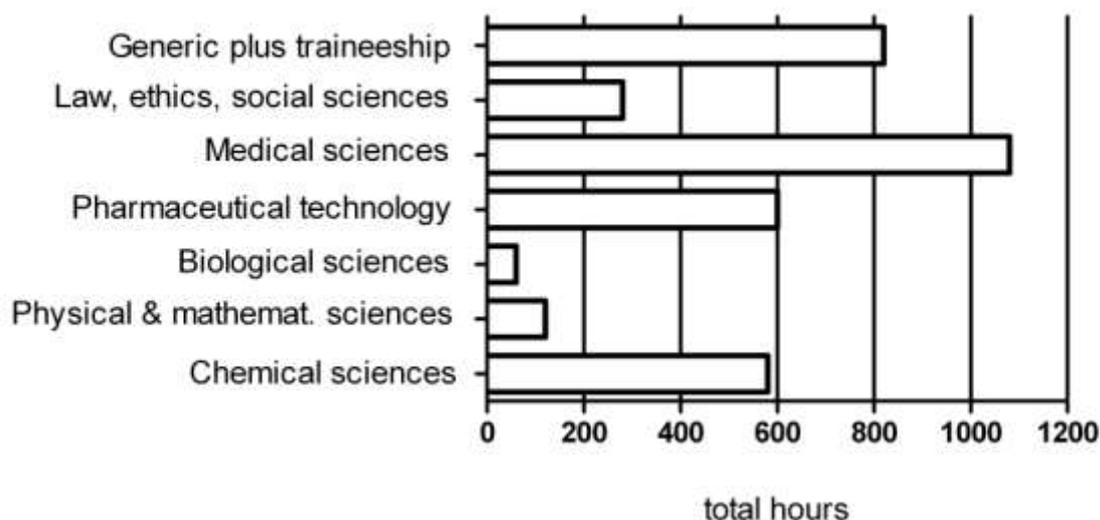
### Student hours

Subject area	Year 1	Year 2	Year 3	Year 4	Year 5	Total
CHEMSCI	180	220	100	80	-	<b>580</b>
PHYSMATH	120	-	-	-	-	<b>120</b>
BIOLSCI	-	60	-	-	-	<b>60</b>
PHARMTECH	-	60	240	300	-	<b>600</b>
MEDISCI	300	260	340	120	60	<b>1080</b>
LAWSOC	40	60	-	180	-	<b>280</b>
GENERIC (includes traineeship)	40	-	-	40	740	<b>820</b>

The calculation of the student hours presented is based on following: for obligatory subjects 1 credit point means 20 hours formal teaching and 20 hours independent work and for electives 16 hours formal teaching and 24 hours independent work.

In the table only the hours for formal teaching are presented.

Hours by subject area



### Websites

References to texts and articles of national law

Self-evaluation report of the Department of Pharmacy 2008:

<http://www.med.ut.ee/farmaatsia/selfevaluation>

B+M integrated studies curriculum 2008/2009:

[https://www.is.ut.ee/reports/rwervlet?ok\\_oppekava\\_kirjeldus.rdf+481+2008+0+0+2+0,0,0,0,0,0,0+PDF+application/pdf](https://www.is.ut.ee/reports/rwervlet?ok_oppekava_kirjeldus.rdf+481+2008+0+0+2+0,0,0,0,0,0,0+PDF+application/pdf)

## Chapter 5. Impact of the Bologna principles

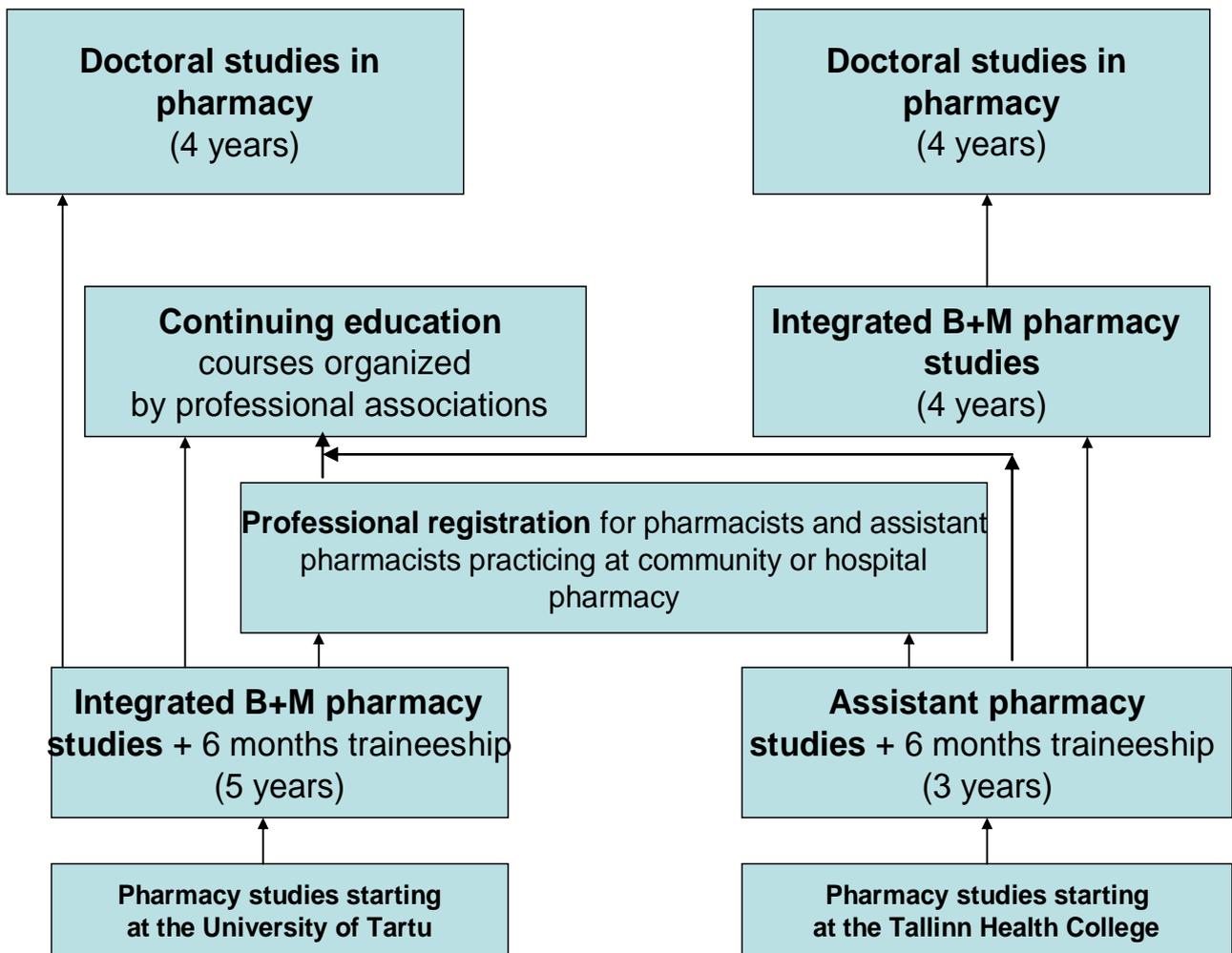
Bologna principle	Is the principle applied? Y/N or partially	How is it applied? Does your HEI have multilateral recognition and agreements? Other comments.
<b>1. Comparable degrees / Diploma Supplement</b>	Yes	The curriculum of Bachelor and Master integrated pharmacy studies at the University of Tartu received full accreditation from an international expert team in October 2008. ( <a href="http://www.med.ut.ee/440921">http://www.med.ut.ee/440921</a> ) The Diploma Supplement is issued systematically in Estonian, and if needed in English.
<b>2. Two main cycles (B and M) <u>with entry and exit at B level</u></b>	No	At the University of Tartu the pharmacy undergraduate studies are not divided into B and M cycles. However, professional higher education provided at Tallinn Health College is in principle comparable with Bachelor level of pharmacy studies at university.
<b>3. ECTS system of credits / links to LLL</b>	Partially	ECTS systems were adopted in autumn 2009. However, the ECTS system is not linked to LLL, as we do not have a systematic continuing education system supported or coordinated by governmental institution, university or some other institution.
<b>4. Obstacles to mobility</b>	Partially	The main problems could be connected with insufficient language skills and financial difficulties. In addition, the pharmacy master studies at the University of Tartu do not provide the competency in all pharmacy fields (e.g. industrial pharmacy). The department of Pharmacy at the University of Tartu has several Erasmus agreements with different pharmacy schools in Europe serving an excellent opportunity for students and pharmacy staff exchange.
<b>5. European QA</b>	Partially	The University of Tartu adheres to the Bologna process in the organisation of its studies and programmes, which implies built-in quality assurance and expert evaluations. The quality of study programmes is assured through programme-based organisation of study designed to pay more attention to the needs of society and prospective employers. To achieve this goal annual polls are conducted among graduates of the university to evaluate their initial success in the labour market. Relevant findings contribute to the development of further curricula. <a href="http://www.ut.ee/en/studies/why-tartu/worldclass-education">http://www.ut.ee/en/studies/why-tartu/worldclass-education</a>  The curriculum of Bachelor and Master integrated pharmacy studies at the University of Tartu received a full accreditation in October 2008. The accreditation is valid until January 27, 2016. The accreditation was organized by the Higher Education Accreditation Centre of Estonia, who invited an international team to evaluate pharmacy Master and Doctoral programmes.
<b>6. European dimension</b>	No	
<b>ERASMUS staff exchange to your HEI from elsewhere</b>	Number of staff: 2 months: 3	The University of Helsinki and the Utrecht University of Applied Sciences (since 2007 to present)
<b>ERASMUS staff exchange from your HEI to other HEIs</b>	Number of staff: 1 months: 1	The University of Helsinki (since 2007 to present).
<b>ERASMUS student exchange to your HEI from elsewhere</b>	Number of students: 6 months: 3	The Utrecht University of Applied Sciences (since 2008 to present). In 2009/2010 from the University of Complutense, Madrid.

<b>ERASMUS student exchange from your HEI to other HEIs</b>	Number of students: 6 months: 3-9	The Utrecht University of Applied Sciences (since 2008 to present). In 2009/2010 to the University of Helsinki.
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<b>Websites</b>	
References to texts and articles of national law	Self-evaluation report of the Department of Pharmacy 2008: <a href="http://www.med.ut.ee/farmaatsia/selfevaluation">http://www.med.ut.ee/farmaatsia/selfevaluation</a> Joint Final Report of the Accreditation Expert Team 2008: <a href="http://www.med.ut.ee/440921">http://www.med.ut.ee/440921</a>

## 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?
<p><b>“Evidence of formal qualifications as a pharmacist shall attest to training of at least <u>five years' duration</u>...”</b></p>	<p>At the University of Tartu we provide only the five year pharmacy education and we consider this time optimal to receive miscellaneous professional education could serve as good basis for high professional competency in the future.</p>	
<p><b>“...<u>four years of full-time theoretical and practical training</u> at a university or at a higher institute of a level recognised as equivalent, or under the supervision of a university;”</b></p>	<p>Within 4 years it would be complicated to cover theoretical studies and practical training.</p>	
<p><b>“...<u>six-month traineeship in a pharmacy</u> which is open to the public or in a hospital, under the supervision of that hospital's pharmaceutical department.”</b></p>	<p>It gives good opportunity for future pharmacists to implement their theoretical knowledge into practice. In Estonia more than half of the students graduating from the University of Tartu as pharmacists are employed at community pharmacies.</p>	<p>It is not relevant for Estonia, but it would be worthwhile to consider different institutions of pharmacy field as practice places, eg. pharmacy industry, wholesale companies of medicines and divide the six month period between community pharmacy and some other practice institution.</p>
<p><b>“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>”</b></p>	<p>In general the statement is acceptable. However, the skilful combination of theory linked to practice is very important tool in quality teaching process.</p>	
<p><b>The directive states</b></p> <p><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.</p>	<p><b>How does / will this directive annex affect pharmacy E&amp;T?</b></p> <p>In redesigning of pharmacy Master curriculum we have in general followed the presented course description. However, when considering the new roles of a contemporary pharmacist, too little attention is at present paid to clinical pharmacy and pharmaceutical care issues.</p>	



The Estonian scheme for pharmacy education and training.



Lifelong Learning Programme

**PHARMINE**  
*Pharmacy Education  
in Europe*

**PCN**

*Pharmacolor  
Consultants  
Nancy*



**UNIVERSITY OF TARTU**



Vrije  
Universiteit  
Brussel

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### PHARMINE

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

**Website: [www.pharmine.org](http://www.pharmine.org)**

Pharmacy education & training in

# FINLAND

2010

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.

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## Summary.

Pharmacies have a monopoly on the dispensation of medicines. They can also provide diagnostic services.

*Proviisori*, who act as responsible pharmacists, pharmacy owners and managers follow a 5-year (M.Sc. Pharm.) degree course with a 6 months' traineeship. *Farmaseutti*, who follow a 3 year (B.Sc. Pharm.) degree course (also with 6 months' traineeship) can dispense medicines and counsel patients in Finland under the responsibility of a pharmacist (M.Sc. Pharm.)

The first year of university study is devoted mainly to lectures of basic and applied sciences, while both the second and third years include 3-month traineeships. Thus traineeship comes early in the course.

Year 1 is devoted mainly to chemical and medical sciences, year 2 to generic subjects and pharmaceutical technology, year 3 to generic subjects, patient counselling and medical sciences, and year 4 to drug industry and leadership/management related subjects. Advanced level subject specific courses and six months' research period and reporting (Master's thesis) typically end the university studies.

Industrial pharmacy is an integrated discipline at Helsinki University. There are plans to introduce specialization studies in hospital pharmacy in 2010.

## Introduction.

### Statistics for Finland.

(2006 unless otherwise indicated):

Total population: 5,261,000

Gross national income per capita (PPP international \$): 33,170

Life expectancy at birth m/f (years): 76/83

Healthy life expectancy at birth m/f (years, 2003): 69/74

Probability of dying under five (per 1 000 live births): 3

Probability of dying between 15 and 60 years m/f (per 1 000 population): 132/57

Total expenditure on health per capita (Intl \$, 2006): 2,472

Total expenditure on health as % of GDP (2006): 7.6

(From the WHO Statistical Information System (WHOSIS: <http://www.who.int/whosis/en/index.html>)

See also: "World Health Statistics 2009, WHO".)

### Highlights on health in Finland.

Finland has a compulsory, tax-based health care system, which provides comprehensive coverage for the entire resident population. The central government and municipalities are the main players in the organization of health care. At the national level, the Ministry of Social Affairs and Health issues framework legislation on health and social care policy and monitors implementation. At the local level, the municipal health committee, council and executive board make decisions on the planning and organization of care. Municipalities (444 in 2004) are also responsible for health promotion and disease prevention, primary medical care, medical rehabilitation and dental care. The country is divided into 20 hospital districts, each of which is a federation of municipalities responsible for arranging and coordinating specialized care within their area.

The state and municipalities levy taxes for health care. In 2002 about 43% of total health care costs were financed by the municipalities, 17% by the state (mainly through state subsidies), 16% by the national health insurance (NHI) and about 24% by private sources. Private financing has increased in absolute and relative terms, from 20.4% of total health expenditure in 1980 to 24.3% in 2002. This is accounted for by increases in user charges for municipal services, the abolition of tax deductions for drugs and other medical treatment costs, and reductions in the reimbursement of pharmaceuticals by the NHI. In 2002, total health expenditure comprised 7.3% of the gross domestic product (GDP) in Finland: the lowest level among the Nordic countries and lower than the European average. In the same year, health expenditure accounted for US\$ 1943 (purchasing power parity) per capita. Public expenditure on health comprised 75.3% of total health expenditure."

(From the WHO "Highlights on health in Finland", 2004. (<http://www.euro.who.int/Document/E88101.pdf>))

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

	Y/N, number or %	Comments.
Community pharmacy		
Number of community pharmacists	816 staff pharmacists + 590 pharmacy owners = 1406	There are 3839 bachelor-level graduates working in community pharmacies. The total number of employees in community pharmacies is ca 8000.
Number of community pharmacies	610+195	610 pharmacies and 195 subsidiary or branch pharmacies - the same medicines and services are available from both types of pharmacies There are approximately 1 pharmacist (M.Sc.) and 4.5 bachelor pharmacists per pharmacy, and 6600 inhabitants per pharmacy.
Competences and roles of community pharmacists		Pharmacists work as pharmacy owners, managers, responsible pharmacists, specialist pharmacists (may be specialized on multiple issues). Competences include administrative issues, customer service, medication review, marketing, education of pharmacy staff, multidisciplinary co-operation with other health care professionals. Pharmacists provide services to help patients monitor the therapeutic control of blood sugar or blood pressure.  Internet pharmacies are not allowed.
Is ownership of a community pharmacy limited to pharmacists?	Yes	A licence to own a pharmacy is granted to a person having a 5-year degree on pharmacy with 6 months' traineeship. In Finnish HEIs this is the M.Sc. in pharmacy.
Are there rules governing the geographical distribution of community pharmacies?	Yes	The location of community pharmacies is based on the decision made by the National Agency for Medicines (NAM). NAM evaluates if there is a need for one (or multiple) community pharmacies in some particular area and specifies also the area where pharmacy/pharmacies should locate. In that specific area, pharmacies are free to choose their exact location. This is to assure the equal accessibility to medicines and pharmacy services for the whole population.
Are drugs and healthcare products available to the general public by channels other than pharmacies?	Usually no	In Finland, medicines are sold to the public only from pharmacies, with the exception that NRT (nicotine replacement) products may also be available in grocery shops. Veterinary drugs are also available from veterinarians.
Are persons other than pharmacists involved in community practice?	Yes	Only persons with either a B.Sc.Pharm. or a M.Sc.Pharm. degree are allowed to dispense and counsel patients on medicines. A pharmacist (M.Sc.degree) is responsible for the operation of the pharmacy.
Their titles and number(s)	3839  2627	" <i>Farmaseutti</i> " with a B. Sc. (Pharm.), corresponds to "Pharmacy Technicians".  "Technicians" with upper secondary vocational education (corresponds to "Pharmacy Assistants")

		However, only pharmacists with either B.Sc. or M.Sc. degree are aloud to dispense/sell medicines and counsel patients on medicines.
Their qualifications		
Organisation providing and validating the E&T		Three universities provide pharmacy education in Finland. University of Helsinki and University of Kuopio provide both B.Sc. and M.Sc. degrees and Åbo Academi University, Turku only B. Sc. Degrees
Duration of studies (years)	3	
Subject areas		<p>Following the Bologna process, pharmacy education is divided into two parts. All the students follow the same curriculum the first three years and graduate with a B.Sc. degree. Approximately one third of the students continue additional two years to graduate with the M.Sc. degree.</p> <p>Year 1 is devoted mainly to chemical and medical sciences, year 2 to generic subjects and pharmaceutical technology, year 3 to generic subjects and medical sciences.</p> <p>“Technicians” study logistics, accounting and IT-skills. Education consists of some theoretical studies and a great deal of in-house training.</p>
Competences and roles		<p><u>B. Pharm</u></p> <p>Similar to pharmacists, but does not involve pharmacy ownership, management or in-depth scientific issues. Main focus in customer service and patient counselling.</p> <p>In summary</p> <p>Both B.Sc. and M.Sc. graduates are involved in dispensation and counselling. Ownership of a pharmacy and/or a position of responsible pharmacist are restricted to M.Sc. graduates.</p> <p><u>Technicians</u></p> <p>Their main task is to take care of medicine storage and logistics in the community pharmacy. They also take care, for example, of invoicing and management of pharmacy IT systems.</p>
<b>Hospital pharmacy</b>		
Does such a function exist?	Yes	
Number of hospital pharmacists	545	470 (B.Sc.) + 75 (M.Sc.)
Number of hospital pharmacies	Around 224	<p>There are 24 hospital pharmacies that are in central hospitals and about 200 medicine centres which are in other hospitals or healthcare centres.</p> <p>University hospitals are the largest hospitals in Finland. There are five university hospitals that are located in the bigger cities (Helsinki, Tampere, Turku, Oulu, and Kuopio: in cities where there is a university with a medical faculty). Central hospitals are the most central and larger hospitals in some particular hospital district. Each central hospital is under the supervision of a given university hospital.</p>
Competences and roles of hospital pharmacists		<p>In most hospitals the hospital pharmacy or the medicine centre is one of the medical service departments. The manager of a hospital pharmacy is required to have a M.Sc. in pharmacy while the manager of a medicine centre is required to have a M.Sc. or B.Sc. in pharmacy. A manager of a hospital pharmacy or a dispensary is usually authorised by the medical director of the hospital.</p> <p>For more details see “Hospital Pharmacies in the EU”, European Association of Hospital Pharmacists, 2002, <a href="http://www.eahp.eu">http://www.eahp.eu</a> and European Hospital and Healthcare Federation <a href="http://www.hope.be/">http://www.hope.be/</a></p> <p>B. Sc. and M. Sc. hospital pharmacists used to have a logistic role in hospitals</p>

		and healthcare centres. The role is now starting to change and some pharmacists are working in the wards. Finland does not have clinical pharmacy services as yet because there is no education for that. A new post-graduate specialization program for hospital pharmacists will start in 2010 so they will have stronger competencies to work as clinical specialists.
<b>Pharmaceutical and related industries</b>		
Number of companies with production, R&D and distribution	4	Pharmaceutical production: 869 million€ Pharmaceutical exports: 651 million€; imports: 1457 million€ (balance -806 million€) Research and development: 239 million€ Employment in the pharmaceutical industry: 6185 Pharmaceutical market value: 1848 million€ Share of generics in market sales: 20 % The above figures are from: <i>"The Pharmaceutical Industry in Figures"</i> . European Federation of Pharmaceutical Industries and Associations, EFPIA, Key figures 2009  Expenditure on health care as % GDP: 7.4% Expenditure on medicines as % GDP: 1.2% From OECD health at: <a href="http://www.oecd.org/topic/0,3373,en_2649_37407_1_1_1_1_37407,00.html">http://www.oecd.org/topic/0,3373,en_2649_37407_1_1_1_1_37407,00.html</a>
Companies with production only	3	
Companies with distribution only	2	
<b>Industrial pharmacy</b>		
Number of pharmacists working in industry	400 M.Sc. and 400 B.Sc.	
<b>Other sectors</b>		
Number of pharmacists working in other sectors	320	This information is based on the report by Akava - Confederation of Unions for Professional and Managerial Staff in Finland in 2008. Available online (in Finnish): <a href="http://www.akava.fi/files/771/Akavalaiset_tyomarkkinat_2008.pdf">http://www.akava.fi/files/771/Akavalaiset_tyomarkkinat_2008.pdf</a>
Sectors in which pharmacists are employed		Academic sector, e.g. pharmacists working in universities and research organizations (160) Administration, e.g. pharmacists working in Finnish national authorities (National agency of medicines, Ministry of Social Affairs and Health, National Insurance Institution) (60) Other: un-specified (100)
Competences and roles of pharmacists employed in other sectors		Teaching, research, administration, management and leadership Varying roles and competencies: specialist pharmacists (pharmacists specialized in some specific issues, for example, marketing authorizations, pricing and re-imburement of medical products, IT-issues such as e-prescriptions and databases, medicines information), researchers, managers
<b>Roles of professional associations</b>		
Registration of pharmacists	Yes.  There are ca 2000 registered pharmacists in Finland.	Issued by Valvira (National supervisory authority for Welfare and Health) From the NAM ("National Agency for Medicines") website: Under section 40 of the Medicines Act, a licence from the National Agency for Medicines is needed in order to operate a retail pharmacy. According to the provisions of section 43 of the Medicines Act, a pharmacy licence may be granted to a citizen of any state belonging to the European Economic Area who is a licensed Master of Science (Pharmacy), and who has not been declared bankrupt or incompetent to manage his or her affairs. If there are several applicants for a pharmacy licence, it shall be granted to the applicant

		who may be considered best qualified to operate the pharmacy. Applicants' qualifications in this field are assessed by considering the competence and aptitude for the business that they have shown in their earlier work in pharmacies and other tasks relating to pharmaceutical services. A pharmacy licence which falls vacant is declared open to applications through a notice in the Official Gazette.
Creation of community pharmacies and control of territorial distribution	Yes	Issued by Lääkelaitos (National Agency of Medicines). From 1.11.2009 FIMEA (Finnish Medicines Agency)
Ethical and other aspects of professional conduct	Yes	There is an advisory board on ethical issues in pharmacies based on the co-operation between AFP (pharmacy owners' association) and SFL (Finnish pharmacists' association). Additionally there exists a national ethical code of conduct produced by above mentioned organizations. In order to strengthen the role of community pharmacies in health care and to support the professional development, the Association of Finnish Pharmacists established a national strategy in 1997 that concerned pharmacy services and pharmacy role in health care. This strategy highlighted the importance of medication counselling in community pharmacies: whenever medicines are dispensed, information should also be provided. National long-term programmes focusing on chronic diseases (asthma, diabetes, heart diseases) have been organized to encourage local co-operation between pharmacies and other health care professionals and to develop the competency and counselling skills of pharmacy staff.
Quality assurance and validation of HEI courses for pharmacists	No	The universities providing pharmacy education have their own quality handbooks and quality assurance procedures. In the University of Helsinki for example feedback is collected from students and both internal and external / international audits are made regularly.

Websites	
Finnish Medicines Agency (FIMEA)	<a href="http://www.fimea.fi">www.fimea.fi</a>
National Supervisory Authority of Welfare and Health (VALVIRA)	<a href="http://www.valvira.fi/en/">www.valvira.fi/en/</a>
Pharma Industry Finland	<a href="http://www.pif.fi/">www.pif.fi/</a>
Association of Finnish Pharmacies	<a href="http://www.aptekkariliitto.fi/english/sivut/default.aspx">www.aptekkariliitto.fi/english/sivut/default.aspx</a>
Finnish Association of Pharmacists (Farmasia) (represents, pharmacists, dispensers and students)	<a href="http://www.farmasialiitto.fi">www.farmasialiitto.fi</a>
The Finnish Pharmacists' Association (represents, pharmacists and students)	<a href="http://www.proviisoriyhdistys.net">www.proviisoriyhdistys.net</a>
Service Union United (PAM) Pharmacy section (represents "technicians" who work in community pharmacy)	<a href="http://www.apteekkialanosasto.fi/">www.apteekkialanosasto.fi/</a>
The EURYDICE database on education systems in Europe (Finland)	<a href="http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/national_summary_sheets/047_FI_EN.pdf">http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/national_summary_sheets/047_FI_EN.pdf</a>
ECORYS: "Study of regulatory restrictions in the field of pharmacies". ECORYS Nederland BV, 22 June 2007.	<a href="http://ec.europa.eu/internal_market/services/pharmacy_en.htm">http://ec.europa.eu/internal_market/services/pharmacy_en.htm</a>
European Federation of Pharmaceutical Industries and Associations (EFPIA)	<a href="http://www.efpia.eu/Content/Default.asp?PageID=317">www.efpia.eu/Content/Default.asp?PageID=317</a>
Pharmaceutical Group of the EU (PGEU)	<a href="http://www.pgeu.org/">http://www.pgeu.org/</a>
European Association of Hospital Pharmacists (EAHP)	<a href="http://www.eahp.eu/">http://www.eahp.eu/</a>

European Industrial Pharmacists' Group (EIPG)	<a href="http://www.eipg.eu/">http://www.eipg.eu/</a>
European Hospital and Healthcare Federation (HOPE)	<a href="http://www.hope.be/">http://www.hope.be/</a>
WHO health statistics	<a href="http://www.who.int/whosis/en/index.html">www.who.int/whosis/en/index.html</a>
WHO Finland	<a href="http://www.euro.who.int/Document/E88101.pdf">www.euro.who.int/Document/E88101.pdf</a>

## Chapter 2. Pharmacy HEIs, students and courses

	Y/N, number or %	Comments.
<b>Total number of HEIs for pharmacy</b>	3	Helsinki, Kuopio, Turku. In total, there are 20 universities in Finland.
Public	3	
<b>Organisation of HEIs</b>		
Independent faculty	Yes	University of Helsinki, Faculty of Pharmacy University of Kuopio, Faculty of Pharmacy
Attached to a science faculty	Yes	Åbo Akademi University, Faculty of Mathematics and Natural Sciences, in Turku
Other (please specify)	None	The faculty structure of the University of Kuopio will change in 2010. The Faculty of Pharmacy will be merged with the medical faculty and other institutions into a Faculty of Health
Do HEIs offer B + M degrees?	Yes	Universities of Helsinki and Kuopio
Do HEIs offer an M. Pharm. after a B degree in another HEI?	Yes	
<b>Finland</b>		
<b>Teaching staff</b>		
Number of teaching staff (nationals)		ca 260
Number of international teaching staff (from EU MSs)		ca 30
Number of international teaching staff (non EU)		ca 10
Number professionals (pharmacists and others) from outside the HEIs, involved in E&T		ca 50
<b>Students</b>		
Places on entry after secondary school	375 + 100	The numbers are rounded.
Number of applicants for entry	1300	3.5 applicants for 1 place.
Number that become professional pharmacists.	375 BSc + 100 MSc	
Number of international students (from EU member states)	ca 30	
Number of international students (non EU)	ca 10	
<b>Entry requirements following secondary school (national)</b>		
Specific pharmacy-related, national entrance examination	No	Each HEI has its own entrance examination
Entry requirement at a national level	No	Each HEI sets its individual entry requirements
Is there a national <i>numerus clausus</i> ?	No	Each institution sets its individual <i>numerus clausus</i> .
<b>Advanced entry</b>		
At which level?		In theory persons with B.Sc. in other areas, for instance chemistry, can gain entrance to the M.Sc. (Pharm.) programme, but <u>they cannot become licensed Masters in Pharmacy.</u>

Specific requirements for international students (EU or non EU).		Language requirements in Finnish and English for B. Sc. and M. Sc. The courses taught in English in Helsinki are listed at <a href="http://www.helsinki.fi/pharmacy/studying/courses.html">www.helsinki.fi/pharmacy/studying/courses.html</a>
<b>Fees per year</b>		
For home students	0	There are no tuition fees for national nor international students
For EU MS students	0	
For non EU students	0	
<b>Length of course</b>	<b>3 + 2 years</b>	
<b>Specialization</b>		
Do HEIs provide specialized courses?	Yes	
In which years?		Both after completing the Bachelor's degree and the Master's degree
In which specialisation (industry, hospital...)?		Industrial Pharmacy, hospital pharmacy
<b>Past and present changes in E&amp;T</b>		
Major changes since 1999?	Yes	Industrial pharmacy has been introduced as a discipline at the University of Helsinki
Are any major changes envisaged before 2019?	Yes	Start of specialist education of hospital pharmacy in the University of Helsinki
<b>Helsinki</b>		
<b>Teaching staff</b>		
Number of teaching staff (nationals)		ca 130
Number of international teaching staff (from EU MSs)		ca 15
Number of international teaching staff (non EU)		ca 5
Number professionals (pharmacists and others) from outside the HEIs, involved in E&T		ca 25
<b>Students</b>		
Places on entry after secondary school	170 + 50	
Number of applicants for entry	360 + 360	Three candidates per place.
Number becoming professional pharmacists.	170 + 50	
Number of international students (EU)	15	
Number of international students (non EU)	10	
<b>Entry requirements following secondary school</b>		
HEI has a specific pharmacy-related entrance examination	Yes	
<b>Advanced entry</b>		
At which level?		In theory persons with B.Sc. in other areas, for instance chemistry, can gain entrance to the M.Sc. (Pharm.) programme, but <u>they cannot become licensed Masters in Pharmacy.</u>
Specific requirements for international students (EU / non EU).		Language requirements in Finnish and English for B. Sc. and M. Sc. The courses taught in English in Helsinki are listed at <a href="http://www.helsinki.fi/pharmacy/studying/courses.html">www.helsinki.fi/pharmacy/studying/courses.html</a>
<b>Fees per year :</b> <b>Free for all students</b>		

Length of course	3 + 2 years	
<b>Specialization</b>		
Does your HEI provide specialized courses?	Yes	Industrial pharmacy has been introduced as a discipline at the University of Helsinki
In which years?		Both after completing the Bachelor's degree and the Master's degree
In which specialisation (industry, hospital...)?		<p><u>Industrial pharmacy</u></p> <p>The discipline of industrial pharmacy includes product development, manufacturing, marketing, distribution and quality assurance of all these areas. From 2008 onwards "industrial pharmacy" is a full discipline at Helsinki university <i>i.e.</i> students can specialise in industrial pharmacy during their M.Sc. (4th-5th years) and follow up with a PhD having industrial pharmacy as the major. In addition to industrial pharmacy Helsinki also proposes <u>pharmaceutical technology</u> as major discipline focusing on the manufacturing technologies and excipients.</p> <p>Level 1 (knowledge of industrial pharmacy for all pharmacists): The courses for B.Sc. students are: Obligatory: Pharmaceutical technology lectures, 8 ECTS, laboratory work, 8 ECTS Optional: Practice in pharmaceutical industry, 2-6 ECTS (1 month/2 ECTS) Market authorisation application for drug products, 3 ECTS Written report on pharmaceutical technology, 3-5 ECTS</p> <p>In addition to above, M.Sc. students have the following courses (4<sup>th</sup> year): Obligatory: Development of drug product, 4 ECTS Business economy and management, 9 ECTS</p> <p>Level 2 (knowledge of industrial pharmacy for all industrial pharmacists): For those M.Sc. students who specialise in industrial pharmacy (5th year): Obligatory studies, 15 ECTS: Formulation I (tablet formulation), 5 ECTS Biopharmacy in product development, 3 ECTS Good manufacturing practice (GMP) of drug products, 7 ECTS Master thesis, 40 ECTS</p> <p>Optional studies, 15 ECTS has to be chosen from the subjects below: Leadership of experts, 4 ECTS Formulation II (controlled release preparations), 4 ECTS Formulation III (all other drug forms), 6 ECTS Quality management and quality systems, 6 ECTS Operations of pharmaceutical industry and distribution, 4 ECTS Pharmaceutical business course, 3 ECTS Book examinations, 1- 8 ECTS Product development, laboratory course, 5 ECTS Physical pharmacy 5 ECTS Product development and experimental design, 3 ECTS Seminars and excursion, 2 ECTS Control of drug release, 3 ECTS Solid state analysis of pharmaceuticals, 3 ECTS</p>

		<p>Pharmaceutical excipients, 3 ECTS Granulation and compression technologies, 3 ECTS</p> <p>In addition to these courses, Helsinki is planning to start courses in <u>registration, clinical studies and product and technology patenting</u>. These could constitute level 3 (knowledge of specialised areas of industrial pharmacy for given sector of industry).</p> <p><u>CPD/LLL</u>: In addition to these level 1 and 2 courses above Helsinki also gives specialised studies for those who have a B. Sc. and/or M. Sc. Degree and are working full time in industry. These are free (no fees), 60 ECTS for M.Sc. and 40 ECTS for B.Sc.</p> <p><u>Hospital pharmacy</u> in the future</p>
What are the student numbers in each specialization?	8 BSc + 20 MSc	The yearly intake of Bachelors is 8, there is no <i>numerus clausus</i> for the Master level.
<b>Past and present changes in E&amp;T</b>		
Have there been any major changes since 1999 in Helsinki?	Yes	<p>New professorships were established in social pharmacy (funded by the University Pharmacy) and industrial pharmacy in 2002 and a professorship in pharmaco-economics was established in 2005, also funded by the University Pharmacy.</p> <p>Up to the end of 2003 pharmacy was a department of the Faculty of Sciences, but since the beginning of 2004 the Faculty of Pharmacy was started.</p> <p>The new curriculum according to the Bologna process was introduced from the autumn semester 2005 for Bachelor students and a year later for Master students.</p>
Are any major changes envisaged before 2019 in Helsinki?	Yes	At the moment the hospital pharmacy specialization programme is being planned. Student admission (about 8 students, not decided yet) will be accepted in spring 2010 and teaching will start in autumn 2010.
Is Helsinki typical of all HEIs in Finland?	Yes	

Websites	
University of Helsinki	<a href="http://www.helsinki.fi/university/">www.helsinki.fi/university/</a>
University of Kuopio	<a href="http://www.uku.fi/english/">www.uku.fi/english/</a>
Åbo Akademi University, Turku	<a href="http://www.abo.fi/public/?setlanguage=en">www.abo.fi/public/?setlanguage=en</a>

### Chapter 3. Teaching and learning methods

Student hours								
Method	Year 1	%	Year 2	%	Year 3	%	Year 4	Year 5
Lecture	310	54	265	30	106	14	148	44
Practical	160	28	48	5	36	5	20	40
Project work	103	18	56	6	75	10	45	15
<b>Subtotal</b>	<b>573</b>		<b>369</b>		<b>217</b>		<b>213</b>	<b>99</b>
Traineeship Community	0	0	520 (= 13 weeks)	59	520 (= 13 weeks)	71	0	0
<b>Subtotal</b>	<b>573</b>		<b>889</b>		<b>737</b>		<b>213</b>	<b>99</b>
Electives: choice	30		26		76		32	138
<b>Total</b>	<b>603</b>		<b>915</b>		<b>813</b>		<b>245*</b>	<b>237*</b>

\*: this represents only part of the M.Sc. course of the fourth and fifth years (see chapter 4).

The first year is devoted mainly to lectures and the second and third years to traineeship.

## Chapter 4. Subject areas

Student hours									
Subject area	Year 1	%	Year 2	%	Year 3	%	Year 4§	%	Year 5§
<b>Chemical sciences</b>	16 ETCS 248-260 h	38	5 ETCS 48 h	5			11 ETCS 134 h	31	
<b>Physical and mathematical sciences</b>	5 ETCS 36 h	5					4 ETCS 34 h	8	
<b>Biological sciences</b>	4 ETCS 44 h	7							
<b>Pharmaceutical technology</b>	8 ETCS 60 h	9	14 ETCS 260 h	26	1 ETCS 8 h	1	12 ETCS 150 h	35	
<b>Medical sciences</b>	14 ETCS 154 h	23	18 ETCS 118 h	12	14 ETCS 160 h	19			
<b>Law, ethics and societal sciences</b>	3 ETCS 30 h	4	4 ETCS 40 h	4	5 ETCS 42 h	5	13 ETCS 100 h	23	
<b>Generic subjects</b>	9 ETCS 95 h	14	16 ETCS 540 h*	54	26 ETCS 630 h*	75	1 ETCS 15 h	4	
<b>TOTAL</b>	<b>673</b>		<b>1006</b>		<b>236</b>		<b>433</b>		

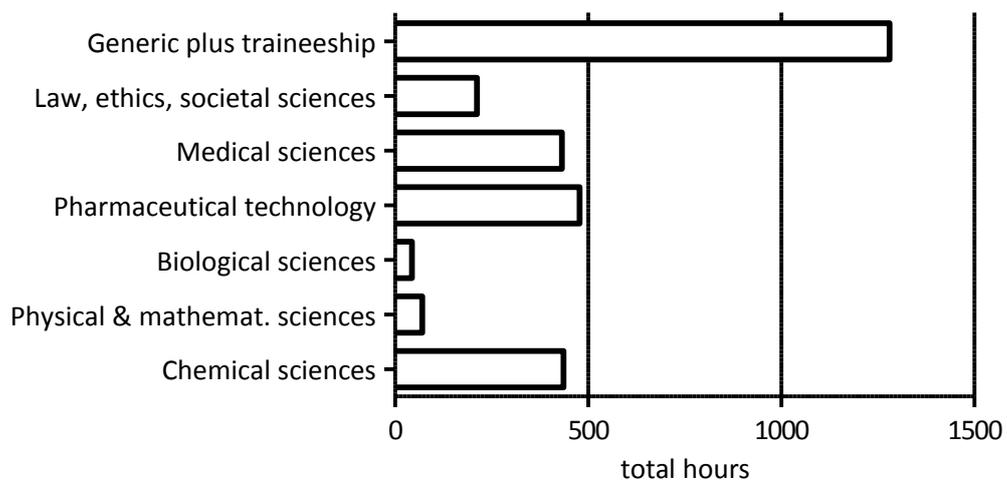
The hours calculated in every column, represent the time scheduled for lectures, assignments and group works. The time a student takes for individual work is not calculated here. Students also have to take 18 ETCS of elective studies for BSc. These hours have not been calculated here, as the hours spent vary for each student and may even be on non-pharmaceutical subjects.

§: in the MSc degree (120 ETCS) the students take 50 ETCS general studies (of which 9-16 ETCS are elective studies) and 70 ETCS major studies. The amount of hours spent in every subject area in major studies varies from student to student. Due to this it is difficult to give an average number of hours. In the 4<sup>th</sup> year studies only the 41 ETCS general studies are given.

\*: traineeship hours are counted as "generic subjects" hours.

Year 1 is devoted mainly to chemical and medical sciences, year 2 to generic subjects and pharmaceutical technology, year 3 to generic subjects and medical sciences, and year 4 to chemical sciences and pharmaceutical technology.

Total hours over the course for the various subject areas.



## Chapter 5. Impact of the Bologna principles

Bologna principle	Is the principle applied?	Comments.
1. Comparable degrees / Diploma Supplement	Yes	Each graduating student receives a diploma supplement.
2. Two main cycles (B and M) <u>with entry and exit at B level</u>	Yes	<p>We have a 3 year Bachelor and a 2 year Master programme according to the Bologna Agreement. Entrance is permitted each year for 140 students (B.Sc.) and 55 students (M.Sc.). Bachelors graduate after 3 years and Masters after 5.</p> <p>It is possible for a person with a B.Sc. (Pharm.) to gain entrance in the M.Sc. (Pharm.) programme if passing an entrance exam.</p> <p><u>In theory persons with B.Sc. in other areas, for instance chemistry, can gain entrance to the M.Sc. (Pharm.) programme, but they cannot become licensed Masters in Pharmacy.</u></p> <p>Bachelors in Pharmacy are employed in Finland and Sweden in community pharmacies, hospital pharmacies, industry <i>etc.</i> They constitute the main work force in Finnish community pharmacies. In other parts of Europe the degree is not recognized.</p>
3. ECTS system of credits / links to LLL	Yes	<p>All our courses are built according to the ECTS system based on a yearly workload of 1600 h. We accept ECTSs obtained in other European countries to the full. Our students get ECTS-points for the compulsory traineeship included in their degree. Since the traineeship is 6 months, the points given are 30, <i>i.e.</i> 5/month. All HEI in Finland use ECTS-based credit points since 2005.</p> <p>The ECTSs gained before and after graduation are comparable.</p>
4. Obstacles to mobility	Yes	<p>The biggest obstacle to student mobility is the strictly organized curriculum, which does not easily allow students to move. If they are willing to prolong their studies by a half or one year, mobility becomes much easier.</p> <p>In reality, this means, that most of our exchange students choose to do their Master's project abroad, because by this stage in their university career they have fewer compulsory courses.</p> <p>Language and financial considerations are no major obstacles to mobility.</p>
5. European QA	No	
6. European dimension	No	
ERASMUS staff exchange to your HEI from elsewhere		Number of staff months: 0,25
ERASMUS staff exchange from your HEI to other HEIs		Number of staff months: 0,25
ERASMUS student exchange to your HEI from elsewhere		Number of student months: Ca 100
ERASMUS student exchange from your HEI to other HEIs		Number of student months: Ca 50

**References to texts and articles of national law**

Valtioneuvoston asetus yliopiston tutkinnoista 794/2004 (Government Decree on University Degrees 794/2004)

[www.finlex.fi/en/laki/kaannokset/2004/20040794](http://www.finlex.fi/en/laki/kaannokset/2004/20040794)

Laki terveydenhuollon ammattihenkilöistä 559/1994 (Act on Health Care Professionals 559/1994)

[www.finlex.fi/en/laki/kaannokset/1994/19940559](http://www.finlex.fi/en/laki/kaannokset/1994/19940559)

Asetus terveydenhuollon ammattihenkilöistä 104/2008 (Decree on Health Care Professionals 104/2008)

**Other references to texts and articles of national law**

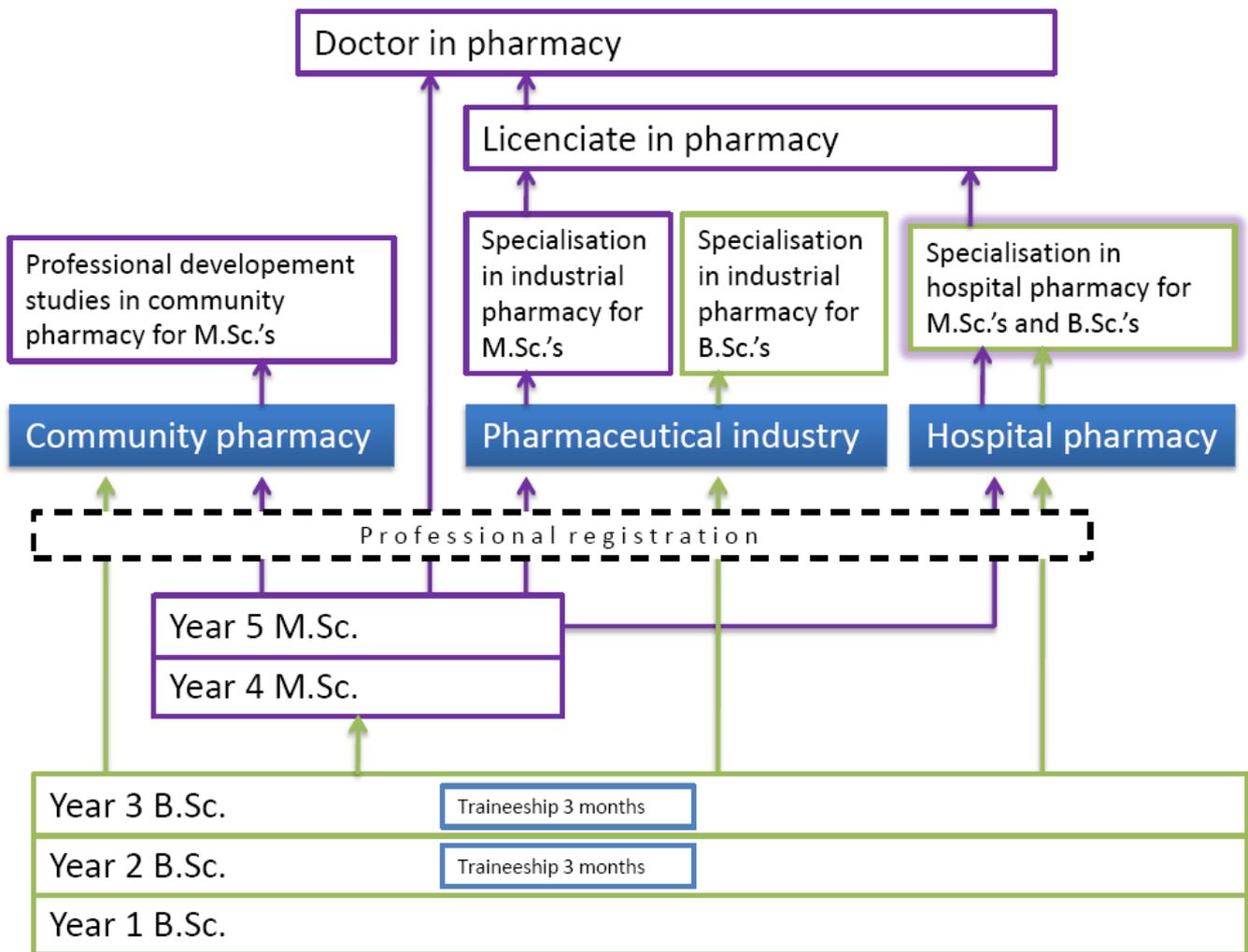
EU Directive 85/432/ETY

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

The directive states	How does / will this directive statement affect pharmacy E&T?	
“Evidence of formal qualifications as a pharmacist shall attest to training of at least <u>five years' duration,...</u> ”	This statement does not apply to the first phase of Bologna process, B. Sc. degree in Pharmacy. This statement was obviously taken into consideration when the curriculum for the M.Sc. (Pharm.) degree was developed within the concept of the Bologna principles. The new Master curriculum began autumn 2006.	
“ <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> ”	Master students study 4.5 years at the university, so this requirement is fulfilled.	
“ <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> ”	Both Bachelor and Master students perform the six-month traineeship. At least three months have to be spent in a community pharmacy and the remaining three months can be spent in a community or hospital pharmacy. The first three months of traineeship is performed in the second study year and the second three months during the third 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> ”	This point was object of intensive discussion during the degree reform according to Bologna. From the university point of view we need to place emphasis on the theoretical knowledge in order to prepare the students for further studies (Ph.D.).	
Directive annex	Comments	Subjects to be added
<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 these aspects are taken into consideration and all the subjects mentioned are taught.	Genetics and biotechnology.

Note that no barriers exist to pharmacists from other EU countries. A pharmacy licence is granted to EEA (European Economic Area) citizens only if they are M.Sc. (Pharm.) graduates (Medicines Act, section 41)

References to texts and articles of national law
Valtioneuvoston asetus yliopiston tutkinnoista 794/2004 (Government Decree on University Degrees 794/2004) Laki terveydenhuollon ammattihenkilöistä 559/1994 (Act on Health Care Professionals 559/1994) Asetus terveydenhuollon ammattihenkilöistä 104/2008 (Decree on Health Care Professionals 104/2008)



**The Finnish scheme for pharmacy education and training.  
 From: Liisa Backas at the Finnish Pharmacy Owner's Society (Suomen  
 Apteekkariliitto)**



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

**Website: [www.pharmine.org](http://www.pharmine.org)**

Pharmacy education & training in

# FRANCE

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.

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 - FRANCE was produced by:

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## Summary

According to French legislation (Article L4211-1 of the French Public Health Code (*Code de la santé publique*)), pharmacies have the monopoly on issuing, selling, preparation and dispensation of all medicines.

The main features of French pharmacy education and training (PET) are:

- The course complies with DIRECTIVE 2005/36/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 7 September 2005 on the recognition of professional qualifications (hereafter referred to as the “directive”: it is of 6 years duration with a traineeship 15 months (exceeding the 6 months stipulated in the directive)
- There is a highly selective examination at the end of the 1<sup>st</sup> year (*concours de première année*) with a limited number of places (based on a government-fixed *numerus clausus*) available in the 2<sup>nd</sup> year. The large numbers of students in the 1<sup>st</sup> year modifies the teaching methods (*e.g.* no practicals in the year).
- Recently a 1<sup>st</sup> year common course together with students in medicine, dentistry, midwifery and physiotherapy has been introduced.
- Professional experience is introduced very early in the course (2<sup>nd</sup> year) in the form of a 6-weeks traineeship in a community pharmacy. Traineeship continues in the 3<sup>rd</sup> and 4<sup>th</sup> years.
- For the first 4 years all students follow the same common course in pharmacy that centres on medical sciences, generic skills (including traineeship), biological and chemical sciences.
- In the 3<sup>rd</sup> year with the introduction of pre-specialisation courses, students receive guidance and courses on the four career possibilities (community, hospital, industry, or clinical biology). The concepts essential for community, industrial, hospital pharmacy or clinical biology are thus introduced in the 3<sup>rd</sup> and 4<sup>th</sup> years.
- Students gain professional experiences during their 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> years thus enabling them to choose amongst the four main professional practices: community, industry, biology, or hospital, but also scientific research.
- Such pre-specialisation continues in the 4<sup>th</sup> year and the choice of career is (more or less) final by the start of the 5<sup>th</sup> year.
- Specialisation from the 5<sup>th</sup> year onwards offers several possibilities:
  - There is a 2-year course of PET in community or industrial pharmacy (5<sup>th</sup> and 6<sup>th</sup> years). In both cases there is a traineeship of (at least) six months full time.
  - There is the possibility of a four-year internship for hospital pharmacists and clinical biologists beginning in the 5<sup>th</sup> year. For hospital pharmacists and clinical biologists the total length of studies (HEI and residency) is therefore 8 years. The entry requirement for internship is a (very) competitive national examination. Industrial courses and traineeship are also possibly within the internship scheme.

- There is the possibility to follow double degree courses, e.g. graduate with a pharmacy degree and a degree in chemical engineering. The entry requirements for the second degree (e.g. chemical engineering) are interviews and (possibly) a written examination.
- The HEI diploma (Doctor of Pharmacy *Diplôme d'Etat de Docteur en Pharmacie*) is accepted by the French National Council of Pharmacists (FNCP; *Conseil National de l'Ordre des Pharmaciens*) for registration with and membership of the FNCP. There is no supplementary examination besides that set by the HEI.
- To obtain the HEI diploma (Doctor of Pharmacy) the student has to submit a thesis (*thèse d'exercice*), in the form of either a bibliographic presentation or a short experimental research project.
- The doctorate (Ph.D.) is obtained after a three year research programme. This is organised by the doctoral school of the HEI (*Ecole doctorale de l'Université*) and consists of lectures, seminars and experimental research work. The Ph.D. degree is not to be mistaken with the Doctor of Pharmacy (*Diplôme d'Etat de Docteur en Pharmacie*) degree.

The pharmacy profession is subject to many (recent) changes in the roles and responsibilities of pharmacists:

- The laws on:
  - Regional organisation of healthcare: *loi "HPST: hopital-patients-sante-et-territoires*: <http://www.sante.gouv.fr/la-loi-hopital-patients-sante-et-territoires.html> and [http://www.sante.gouv.fr/IMG/pdf/Cooperation\\_entre\\_professionnels\\_de\\_sante\\_4.pdf](http://www.sante.gouv.fr/IMG/pdf/Cooperation_entre_professionnels_de_sante_4.pdf)
  - Regional healthcare boards (*Agences Régionales de Santé*): <http://www.ars.sante.fr/portail.0.html>
  - Cooperation between healthcare professionals: based on the law *article 131 de la loi n° 2004-806 du 9 août 2004* [http://www.sante.gouv.fr/IMG/pdf/Cooperation\\_entre\\_professionnels\\_de\\_sante\\_4.pdf](http://www.sante.gouv.fr/IMG/pdf/Cooperation_entre_professionnels_de_sante_4.pdf)
- The decree on the competences of pharmacists to deliver therapeutic information to patients: *Décret n° 2010-906 du 2 août 2010 relatif aux compétences requises pour dispenser l'éducation thérapeutique du patient*: <http://www.legifrance.gouv.fr/affichTexte.do;jsessionid=?cidTexte=JORFTEXT000022664557>
- The report on the roles of community pharmacists in healthcare (*Le pharmacien d'officine dans le parcours de soins*) - rapport Rioli : [http://www.uspo.fr/pharmaciens\\_votez/medias/rapport\\_rioli.pdf](http://www.uspo.fr/pharmaciens_votez/medias/rapport_rioli.pdf)

# Introduction

## Statistics for France.

Total population: 62,277,432 (2008)

Gross national income per capita (PPP international \$): 33,980

Life expectancy at birth m/f (years): 77/84

Healthy life expectancy at birth m/f (years, 2008): 71/76

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

Probability of dying between 15 and 60 years m/f (per 1 000): 124/57

Total expenditure on health per capita (Intl \$, 2007): 3,708

Total expenditure on health as % of GDP (2008): 11.2

Figures are for 2006 unless indicated. Source: World Health Statistics 2008

## Highlights on health in France.

Health is a major preoccupation for the population and government, as shown by frequent health advertising campaigns.

French women have one of the longest life expectancies in Europe (84 years), whereas men have about the Europe average (77 years). Slightly fewer babies die in their first year of life than in Europe. However, the birth rate is increasing significantly, while the Europe birth rate remains stable. By 2030, one in every four people in France will be 65 years or older.

People in France die less often from major non-communicable diseases than in the rest of Europe. They traditionally experience extremely low mortality for cardiovascular diseases although such diseases are responsible for 27% of deaths. Cancer is another major cause of death (33%). Adult men have one of the highest mortality rates for lung cancer, and this is increasing rapidly among women. The estimated incidence of lung cancer among women is 60% higher than in the rest of Europe.

Although death from injuries in France has become less frequent than in earlier decades, it is still 40% higher than the European average. One third of fatal injuries are due to suicide. Men take their own life three times more often than women.

Mortality from neuropsychiatric disorders is 40% higher than the European average. After retirement age, Alzheimer's disease and other neuro-degenerative diseases account for one third of mortality.

The French smoke 19% fewer cigarettes than their average Europe counterparts. Teenage boys have a higher prevalence than the European average. Alcohol consumption is decreasing in France but remains among the highest in Europe. The mortality related to excessive drinking has decreased faster in France than in Europe but is still higher than average. Although global consumption of alcohol is falling, massive alcoholism over a short period of time among adolescents is a subject of concern (from the institute for research and documentation in health economics,

*IRDES "Institut de recherche et documentation en économie de la santé",*

<http://www.irdes.fr/Publications/Rapports2006/rap1600.pdf>)

Excess weight is not as common in France that elsewhere in Europe, but overweight still affects 25% of adults and 10% of adolescents. The French consume substantial amounts of fruits and vegetables, but at least one third of the population has insufficient physical activity.

AIDS kills 20% more people in France than on average in Europe, especially adults. Drug abuse and heterosexual contacts with people from countries where AIDS is endemic have constituted the major contributing factors in recent years. About half a million people are infected with hepatitis C; the prevalence among high-risk groups such as injecting drug users is higher than in the general population.

Summarised from:

- WHO "Highlights on health in France", 2004. (<http://www.euro.who.int/document/E88547.pdf>) and
- OECD Health Data 2010 (<http://www.oecd.org/dataoecd/45/20/38980771.pdf>)

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

	Y/N or number	Comments
<b>Community pharmacy</b>		
Number of community pharmacists	55455	Mainland France plus overseas departments Statistics from the French National Council of Pharmacists FNCP - <i>Ordre des pharmaciens</i> , 2010
Number of community pharmacies	23133	Mainland France plus overseas departments (FNCP, 2010) On average: <ul style="list-style-type: none"> <li>• 2.5 pharmacists per pharmacy</li> <li>• 2849 inhabitants per community pharmacy</li> </ul>
Competences and roles of community pharmacists		According to the French Public Health Code: <ol style="list-style-type: none"> <li>1. Preparation of drugs for use in human medicine</li> <li>2. Preparation and sale of dressings and bandages</li> <li>3. Preparation and sale of first aid kits</li> <li>4. Sale of: <ol style="list-style-type: none"> <li>a. Drugs</li> <li>b. Medicinal plants</li> <li>c. Essential oils</li> <li>d. Dietetic milk for babies</li> <li>e. Medical devices</li> </ol> </li> <li>5. Preparation of chemicals for pharmaceutical use, for wholesale (not to be sold to the public)</li> </ol> (Article L4211-1 of the French Public Health Code ( <i>Code de la santé publique</i> ))
Ownership of a community pharmacy limited to pharmacists?	Yes	
Rules governing the geographical distribution of community pharmacies?	Yes	As of the 1 <sup>st</sup> January 2008 : <ul style="list-style-type: none"> <li>• A pharmacy can be opened on the condition that it serves a community with a population of &gt;2500</li> <li>• A supplementary pharmacy can only be opened in the same area following an additional increase in the population of &gt;3500</li> <li>•</li> </ul> Law on the Financing of the Social Security, 2008 ( <i>Loi de financement de la Sécurité Sociale 2008</i> )
Are drugs and healthcare products available to the general public by channels other than pharmacies?	No	The sale of medicines by supermarkets and on the Internet is not allowed.  The Ministry of Health is studying the possibility of the sale of non-prescription drugs on the internet by pharmacists owning a community pharmacy; there is no legislation for the moment.
Are persons other than pharmacists involved in community practice?	Yes	
Their titles and number(s)	35000	<i>Préparateur</i> with an average of 35 000 in community pharmacies ( <a href="http://www.wk-pharma.fr/annonces/html/metier-preparateur-pharmacie-officine/5,5.1/5.1/emploi-preparateur.html">http://www.wk-pharma.fr/annonces/html/metier-preparateur-pharmacie-officine/5,5.1/5.1/emploi-preparateur.html</a> ) and <i>préparateur en pharmacie hospitalière</i> in hospital pharmacies
Their qualifications		2 year diploma : <i>brevet professionnel - préparateur en pharmacie</i> Possibility to do a 3 <sup>rd</sup> year in order to become <i>préparateur en pharmacie hospitalière</i>

Organisation providing and validating the E&T		<p>Technical high school (<i>lycée professionnel</i>) and /or Centre for apprenticeship (<i>CFA – Centre de Formation d’Apprentis</i>).</p> <p>Entrance requirements: secondary school certificate (<i>BEP sanitaire et social</i>) or matriculation/general certificate of education (<i>baccalauréat</i> – that also allows access to 1<sup>st</sup> year of pharmacy in HEI) or equivalent</p> <p>See : <i>Arrêté du 24 novembre 2003 portant modification de l’arrêté du 10 septembre 1997 relatif au brevet professionnel de préparateur en pharmacie</i></p>
Duration of studies	2/3 years	
Subject areas		<p>The programme is an introduction to pharmaceutical sciences :</p> <ul style="list-style-type: none"> <li>• Chemistry</li> <li>• Biology</li> <li>• Applied science</li> <li>• Law applied to pharmacy</li> <li>• Management: stocktaking, stock keeping...</li> <li>• Reimbursement of clients/patients by the social security and assurance companies, buying and selling, billing...</li> <li>• Pharmacopeia</li> <li>• French Public Health Code</li> <li>• Pharmaceutical technology</li> <li>• Preparation of drugs</li> </ul> <p>Emphasis is placed on practical training</p>
Competences and roles		<p>The <i>préparateur</i> works under the orders of a qualified pharmacist.</p> <p>S/he can carry out:</p> <ul style="list-style-type: none"> <li>• Dispensation</li> <li>• Stock keeping and stocktaking</li> <li>• Advice to clients on para-pharmaceutical products (sun creams and other products)</li> </ul>
<b>Hospital pharmacy</b>		
Does such a function exist?	Yes	
Number of hospital pharmacists	5574	Statistics from FNCP, 2010
Number of hospital pharmacies	2594	Only mainland France – statistics from FNCP, 2010
Competences and roles of hospital pharmacists		<p>The hospital pharmacist practises within a hospital in the internal pharmacy department (<i>Pharmacie à usage intérieur (PUI)</i>)</p> <p>Their responsibilities include:</p> <ul style="list-style-type: none"> <li>• Ensure the safe, appropriate and cost-effective use of medicines. Note that some medicines are available in hospitals but not in community pharmacies.</li> <li>• Dispense drugs and advise patients about the medicines they have been prescribed.</li> <li>• Administrative control of some drugs</li> <li>• Ensure that medicinal products are stored appropriately and securely</li> <li>• Preparation and quality control of sterile medications under special conditions (<i>e.g.</i> intravenous medications, radio-pharmaceuticals, anti-cancer medications, eye drops, <i>etc.</i>)</li> </ul>

		<p>Hospital pharmacists may be involved in teaching, both within the hospital pharmacy department and more widely within the hospital. In teaching hospitals, this may include lecturing clinical staff on various aspects of drug treatment.</p> <p>The main differences between community and hospital pharmacists are:</p> <ul style="list-style-type: none"> <li>• Community pharmacists <ul style="list-style-type: none"> <li>○ work in a private pharmacy</li> <li>○ have contact with patients</li> <li>○ dispense packaged drugs</li> <li>○ are not implicated in the therapeutic choices</li> <li>○ are paid by the patient or by the insurance system.</li> </ul> </li> <li>• Hospital pharmacists <ul style="list-style-type: none"> <li>○ work in the pharmacy department of the hospital</li> <li>○ do not always have contact with the patient</li> <li>○ can dispense single-doses</li> <li>○ are involved in the therapeutic choices</li> <li>○ are not involved in the payment and billing process.</li> </ul> </li> </ul>
<b>Pharmaceutical and related industries</b>		
Number of companies with production, R&D and distribution	41	<p>There are 326 firms that produce at least one medicinal product for human use</p> <p>There are 177 biotechnological firms in the healthcare area.</p> <p>The French Pharmaceutical Industry in figures:</p> <ul style="list-style-type: none"> <li>• Pharmaceutical production: 34,276 million€</li> <li>• Pharmaceutical exports: 20,915 million€; imports: 16,468 million€ (balance + 4,447 million€)</li> <li>• Research and development: 4,169 million€</li> <li>• Employment in the pharmaceutical industry: 103,633</li> <li>• Pharmaceutical market value: 25,501 million€</li> <li>• Share of generics in market sales: 10 %</li> </ul> <p>The above figures are from: “The Pharmaceutical Industry in Figures”. European Federation of Pharmaceutical Industries and Associations, EFPIA, Key figures 2009</p> <p>Expenditure on health care as % GDP: 10.1% Expenditure on medicines as % GDP: 2.1% From OECD health at: <a href="http://www.oecd.org/topic/0,3373,en_2649_37407_1_1_1_1_37407,00.html">http://www.oecd.org/topic/0,3373,en_2649_37407_1_1_1_1_37407,00.html</a></p>
Number of companies with production only	~260	Around 260 pharmaceutical companies have a manufacture licence (see the French Medicines Agency website : <a href="http://www.afssaps.fr/">http://www.afssaps.fr/</a> )
Number of companies with distribution only	6	These include very large-scale wholesalers such as <i>Alliance</i> that do wholesale business in many parts of Europe and the world.
Number of companies producing generic drugs only	~10	Around 20 pharmaceutical companies produce generics in France, half of them produce only generics. (see the French Medicines Agency website : <a href="http://www.afssaps.fr/">http://www.afssaps.fr/</a> )
<b>Industrial pharmacists</b>		
Number of pharmacists working in industry	3454	Plus 1298 working in distribution and exportation Statistics from the FNCP, 2010 (see also the French Medicines Agency website : <a href="http://www.afssaps.fr/">http://www.afssaps.fr/</a> )
Competences and roles of industrial pharmacists		French law requires that any firm involved in the production, exploitation and /or import of pharmaceutical products <u>must employ a pharmacist who is responsible for observance of the law</u> ( <i>pharmacien responsable</i> ).

		<p>The <i>pharmacien responsable</i> in France has a statutory position (Article R-5124-36 of the French Public health code) which covers broader responsibilities than those of the EU “Qualified persons” (Directive 2001/83 EC, article 48 corr &amp; Volume IX).</p> <p>The <i>pharmacien responsable</i> position and role are defined by the French Public Health Code. S/he shares company liability with the company’s general manager or CEO. His scope of responsibilities includes public health issues and other matters related to the activities of the company.</p> <p>The <i>pharmacien responsable</i> is appointed by the company board or its equivalent. S/he is a member of the company board, reporting directly to the head of the company; s/he has a “social mandate”. S/he is responsible for quality assurance.</p> <p>The legal job description of the <i>pharmacien responsable</i> is defined in the article R-5124-36 of the fifth chapter of the Public Health Code (<i>livre V du Code de la Santé Publique</i>).</p> <p>The <i>pharmacien responsable</i> organizes, supervises and controls all pharmaceutical activities of all persons involved, in particular:</p> <ul style="list-style-type: none"> <li>○ Production : monitoring manufacturing, including batch release</li> <li>○ Follow-up, including management of complaints, potential recalls,...etc</li> <li>○ Storage</li> <li>○ Distribution, including conditions of transportation</li> <li>○ Importation and exportation</li> <li>○ Pharmacovigilance</li> <li>○ Medical information</li> <li>○ Promotion: advertising and training of the sales force</li> <li>○ Regulatory affairs</li> <li>○ Pricing</li> <li>○ Auditing</li> <li>○ S/he signs marketing authorisation applications and any other documents related to his/her responsibilities</li> <li>○ Research ; participates in R &amp; D activities (<i>i.e.</i> compliance with medical and pharmaceutical regulation, GCPs,...etc)</li> </ul> <p>(Law 92-1279 - 8<sup>th</sup> December 1992 : “<i>entreprises doivent être soit la propriété d’un pharmacien, soit d’une société à la gérance ou à la direction générale de laquelle participe un pharmacien dans les conditions fixées par décret en Conseil d’Etat.</i>”)</p>
<b>Other sectors</b>		
Number of pharmacists working in other sectors	10309	Of which 8498 are registered by the FNCP (FNCP, 2010)
Sectors in which pharmacists are employed		<ul style="list-style-type: none"> <li>● Clinical biology (8185)</li> <li>● Oxygen dispensation (287)</li> <li>● Assurance companies (152)</li> <li>● Consulting pharmacists for social insurance (“<i>Pharmacien conseil de la sécurité sociale</i>”) (152)</li> <li>● Fireman (78) and mobile units (54)</li> <li>● Family planning (76)</li> <li>● Radio-pharmacists (66)</li> </ul>

		<ul style="list-style-type: none"> <li>• Labile blood products (48)</li> <li>• Professors and teaching staff</li> <li>• Pre-clinical and clinical research workers</li> <li>• Wholesalers</li> <li>• Humanitarian aid</li> <li>• Medical devices</li> <li>• Military pharmacist (<i>Pharmacien du service des armées</i>)</li> <li>• Journalists</li> <li>• Others</li> </ul>
<b>Roles of professional associations</b>		
Registration of pharmacists	Yes	<p>According to law the FNCP groups all pharmacists working in France (article L 4231-1 of the Public Health Code).</p> <p><u>Organisation.</u> The Council is divided into seven sections. Pharmacists are registered with one or more sections according to their place and type of work:</p> <ul style="list-style-type: none"> <li>• Section A : community pharmacists that own a pharmacy</li> <li>• Section B : pharmacists working in industry</li> <li>• Section C : wholesalers</li> <li>• Section D : community pharmacists who are employed in a pharmacy or as a manager of other kinds of pharmacy</li> <li>• Section E : pharmacists in overseas departments</li> <li>• Section G : clinical biologists</li> <li>• Section H : hospital pharmacists</li> </ul> <p><u>Missions of the FNCP.</u></p> <ul style="list-style-type: none"> <li>• Control of the conditions of pharmaceutical practice</li> <li>• Ensuring the respect of the code of conduct</li> <li>• Ensuring the honour and independence of the profession</li> <li>• Ensuring the competence of pharmacists</li> <li>• Contributing to the promotion of public health and the quality of healthcare</li> <li>• Organising the keeping of pharmaceutical records</li> <li>• Representing the profession before the government and other public authorities</li> </ul>
Creation of community pharmacies and control of territorial distribution	Yes	<p>Article of Law on the Financing of the Social Security, 2008 (<i>Loi de financement de la Sécurité Sociale 2008</i>)</p> <p>See also:</p> <ul style="list-style-type: none"> <li>• <a href="http://www.assemblee-nationale.fr/13/dossiers/plfss_2011.asp">http://www.assemblee-nationale.fr/13/dossiers/plfss_2011.asp</a></li> <li>• <a href="http://www.legifrance.gouv.fr/.affichCode.do?idArticle=LEGIARTI000022055136&amp;idSectionTA=LEGISCTA000006196571&amp;cidTexte=LEGITEXT000006072665&amp;dateTexte=20110131">http://www.legifrance.gouv.fr/.affichCode.do?idArticle=LEGIARTI000022055136&amp;idSectionTA=LEGISCTA000006196571&amp;cidTexte=LEGITEXT000006072665&amp;dateTexte=20110131</a></li> </ul>
Ethical and other aspects of professional conduct	Yes	<p>Articles R4235-1 to R 4235677 of the Public Health Code (<i>Code de déontologie</i>) <a href="http://www.ordre.pharmacien.fr/fr/bleu/index1_4.htm">http://www.ordre.pharmacien.fr/fr/bleu/index1_4.htm</a></p>
Quality assurance and validation of HEI courses for pharmacists	No	

<b>References and websites</b>	
Texts and articles of national law	<p>Competences and role of industrial pharmacists: Public Health Code (<i>Code la Santé Publique</i>) : articles R 5124-34 and following</p> <p>Competences and role of hospital pharmacies: Public Health Code (<i>Code la Santé Publique</i>) : articles R-5126-8 and following</p> <p>Registration of pharmacists: Public Health Code (<i>Code la Santé Publique</i>) : article L4222-1</p>
French law	<a href="http://www.legifrance.gouv.fr">www.legifrance.gouv.fr</a>
French pharmaceutical industry ( <i>Les entreprises du médicament – LEEM</i> )	<a href="http://www.leem.org/medicament/accueil.htm">http://www.leem.org/medicament/accueil.htm</a>
French Ministry of Education	<a href="http://www.education.gouv.fr/">http://www.education.gouv.fr/</a>
National academy of Pharmacy ( <i>Académie nationale de pharmacie</i> )	<a href="http://www.acadpharm.org/">http://www.acadpharm.org/</a>
French national Council of Pharmacy ( <i>Ordre national des pharmaciens</i> )	<a href="http://www.ordre.pharmacien.fr">http://www.ordre.pharmacien.fr</a>
The EURYDICE database on education systems in Europe (Finland)	<a href="http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/national_summary_sheets/047_FI_EN.pdf">http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/national_summary_sheets/047_FI_EN.pdf</a>
ECORYS: “Study of regulatory restrictions in the field of pharmacies”. ECORYS Nederland BV, 22 June 2007.	<a href="http://ec.europa.eu/internal_market/services/pharmacy_en.htm">http://ec.europa.eu/internal_market/services/pharmacy_en.htm</a>
European Federation of Pharmaceutical Industries and Associations (EFPIA)	<a href="http://www.efpia.eu/Content/Default.asp?PageID=317">www.efpia.eu/Content/Default.asp?PageID=317</a>
Pharmaceutical Group of the EU (PGEU)	<a href="http://www.pgeu.org/">http://www.pgeu.org/</a>
European Association of Hospital Pharmacists (EAHP)	<a href="http://www.eahp.eu/">http://www.eahp.eu/</a>
European Industrial Pharmacists’ Group (EIPG)	<a href="http://www.eipg.eu/">http://www.eipg.eu/</a>
European Hospital and Healthcare Federation (HOPE)	<a href="http://www.hope.be/">http://www.hope.be/</a>
WHO health statistics	<a href="http://www.who.int/whosis/en/index.html">www.who.int/whosis/en/index.html</a>

## Chapter 2. Pharmacy HEIs, students and courses

	Y/N, number	Comments
<b>Total number of HEIs France</b>	24	<ol style="list-style-type: none"> <li>1. Amiens</li> <li>2. Angers</li> <li>3. Besançon</li> <li>4. Bordeaux</li> <li>5. Caen</li> <li>6. Clermont-Ferrand</li> <li>7. Dijon</li> <li>8. Grenoble</li> <li>9. Lille</li> <li>10. Limoges</li> <li>11. Lyon</li> <li>12. Marseille</li> <li>13. Montpellier</li> <li>14. Nancy</li> <li>15. Nantes</li> <li>16. Paris V</li> <li>17. Paris XI</li> <li>18. Poitiers</li> <li>19. Reims</li> <li>20. Rennes</li> <li>21. Rouen</li> <li>22. Strasbourg</li> <li>23. Toulouse</li> <li>24. Tours</li> </ol> <p>Click on a given name to go to HEI website.</p>
Public	24	
<b>Organisation of HEIs</b>		
Independent faculty	Yes	21/24
Attached to a medical faculty		Three faculties are mixed medicine and pharmacy faculties: <ol style="list-style-type: none"> <li>1. <i>U.F.R. de Médecine – Pharmacie de Rouen</i></li> <li>2. <i>UFR Sciences Médicales et Pharmaceutiques - Université de Franche Comté (Besançon)</i></li> <li>3. <i>Faculté de Médecine et de Pharmacie de Poitiers</i></li> </ol>
Do HEIs offer B + M degrees?	No	For the moment, the French pharmacy curriculum is not organized into two degrees B and M.  Students may follow a Master degree in the HEI during and in parallel with their Pharmacy curriculum, but this is not a M.Pharm.
<b>France</b>		
<b>Teaching staff</b>		
Number of teaching staff	N/A	
<b>Students</b>		
Places at entry following secondary school	No limit	According to French law, any student with a <i>baccalauréat</i> (matriculation/school leaving certificate) has the right to enter any university department or faculty within the <i>académie</i> (regional education authority) of her/his place of residence.

<p><i>Numerus clausus</i> (number accepted in 2<sup>nd</sup> year after competitive examination)</p>	<p>3090 (2009 – 2010)</p>	<ol style="list-style-type: none"> <li>1. Amiens : 88</li> <li>2. Angers : 75</li> <li>3. Besançon : 70</li> <li>4. Bordeaux : 137</li> <li>5. Caen : 95</li> <li>6. Clermont-Ferrand : 92</li> <li>7. Dijon : 82</li> <li>8. Grenoble : 97</li> <li>9. Lille : 205</li> <li>10. Limoges : 67</li> <li>11. Lyon : 223</li> <li>12. Marseille : 191</li> <li>13. Montpellier : 188</li> <li>14. Nancy : 126</li> <li>15. Nantes : 102</li> <li>16. Paris V : 266</li> <li>17. Paris XI : 266</li> <li>18. Poitiers : 71</li> <li>19. Reims : 90</li> <li>20. Rennes : 110</li> <li>21. Rouen : 85</li> <li>22. Strasbourg : 121</li> <li>23. Toulouse : 137</li> <li>24. Tours : 106</li> </ol> <p>A further 8% of the total number of places in the 2<sup>nd</sup> year (247) can be occupied by students from the EU, Andorra and/or Switzerland provided they pass the examination at the end of the 1<sup>st</sup> year.</p> <p>This gives a total of 3337.</p>
<p>1<sup>st</sup> year – “<i>PACES</i>”</p>	<p>As from September 2010, the 1<sup>st</sup> year of pharmacy studies is common with medicine, dentistry, midwifery and physiotherapy: first year of common studies in healthcare <i>Première Année Commune aux Etudes de Santé – PACES</i>.</p> <p>For midwifery and physiotherapy entrance into the technical high school is dependent on success in the PACES examination; for medicine and pharmacy entrance into the 2<sup>nd</sup> year of studies is dependent on success in the PACES examination.</p> <p><a href="http://www.enseignementsup-recherche.gouv.fr/cid28628/la-loi-sur-la-1ere-annee-commune-des-etudes-de-sante-en-vigueur-a-la-rentree-2010-2011.html">http://www.enseignementsup-recherche.gouv.fr/cid28628/la-loi-sur-la-1ere-annee-commune-des-etudes-de-sante-en-vigueur-a-la-rentree-2010-2011.html</a></p> <p>In many faculties it appears that the total number of students has fallen by 5 to 10% compared to previous years when the examinations for the 5 subjects were separate.</p> <p>An example of the organisation of the common first year of study (Lille) can be found at <a href="http://medecine.univ-lille2.fr">http://medecine.univ-lille2.fr</a></p> <p>The total number of students entering the 2<sup>nd</sup> year is equivalent to the <i>numerus clausus</i> of 3090 for 2011.</p> <p>See: <i>Arrêté du 21 janvier 2010 fixant le nombre des étudiants de première année du premier cycle des études pharmaceutiques autorisés à poursuivre leurs études en pharmacie à la suite des épreuves terminales de l'année universitaire</i></p>	

		2009-2010 <a href="http://www.legifrance.gouv.fr/jopdf/common/jo_pdf.jsp?numJO=0&amp;dateJO=20100127&amp;numTexte=35&amp;pageDebut=01671&amp;pageFin=01671">http://www.legifrance.gouv.fr/jopdf/common/jo_pdf.jsp?numJO=0&amp;dateJO=20100127&amp;numTexte=35&amp;pageDebut=01671&amp;pageFin=01671</a>
Number of graduates that become registered/professional pharmacists.		All graduates from a pharmacy HEI in France are pharmacists.  About 3000 students each year will become graduates/pharmacists.  Eighty-eight % of them will register with the FNCP ( <a href="http://www.ordre.pharmacien.fr/presse/pdf/communiqué-24-06-10.pdf">http://www.ordre.pharmacien.fr/presse/pdf/communiqué-24-06-10.pdf</a> )
Number of international students		Less than 5%
<b>Entry requirements following secondary school</b>		
Specific pharmacy-related, national entrance examination	No	Any student who successfully passes the <i>baccalauréat</i> (matriculation/school leaving certificate) has the <u>legal</u> right to enter any university department or faculty within the <i>académie</i> (regional education authority) of his place of residence.
<b>Advanced entry</b>		
At which level?		A restricted number of places are available at the beginning of 3 <sup>rd</sup> year for students from science faculties with (at least) a master degree.
<b>Fees per year</b>		
For all students	174 €	Fees are equal in all public faculties in France.
<b>Length of course</b>	<b>6 years</b>	
<b>Specialization</b>		
Do HEIs provide specialized courses?	Yes	
In which years?	3 through 8	
In which specialisation		Industry, Hospital, Clinical Biology, Community Pharmacy
<b>Past and present changes in E&amp;T</b>		
Major changes since 1999	Yes	<u>Staff.</u>  As from 2006, in addition to the rank of professor ( <i>PU, professeur des universités</i> ) and assistant-professor/lecturer ( <i>MCF, maître de conférences</i> ), two other ranks have been created ( <i>décret d'application du 23 mai 2006 de la loi du 17 janvier 2002</i> ):  <ul style="list-style-type: none"> <li>• <i>PU-PH</i>: University professor-hospital pharmacy practitioner (<i>professeur des universités-praticien hospitalier (PU-PH) des disciplines pharmaceutiques</i>)</li> <li>• <i>MCU-PH</i>: assistant-professor/lecturer-hospital pharmacy practitioner (<i>maître de conférences-praticien hospitalier (MCU-PH) des disciplines pharmaceutiques</i>)</li> </ul> For pharmacists wishing to teach at a university and have a position in the university teaching hospital, this law gives pharmacists the right to the same status as medical doctors.  See: <ul style="list-style-type: none"> <li>• <i>Loi de modernisation sociale n° 2002-73 du 17 janvier 2002, art. 64, 65</i></li> <li>• <i>Intégration de la Pharmacie au CHU :</i></li> </ul>

		<p><a href="http://adiph.org/acophra/r021008c.pdf">http://adiph.org/acophra/r021008c.pdf</a> and <a href="http://www.synprefh.org/documents/projet-revision-statut-ph_20100222.pdf">http://www.synprefh.org/documents/projet-revision-statut-ph_20100222.pdf</a></p> <p><u>Universities:</u> A new law on university autonomy (<i>Loi LRU : Loi relative aux libertés et responsabilités des universités publiée au Journal officiel n°185 du 11 août 2007</i>) gives more liberty and responsibilities to universities. See: <a href="http://www.nouvelleuniversite.gouv.fr/IMG/pdf/loi100807universites.pdf">http://www.nouvelleuniversite.gouv.fr/IMG/pdf/loi100807universites.pdf</a></p> <p>Albeit, the programme of Pharmacy studies remains unchanged (<i>Arrêté du 17 juillet 1987 modifié relatif au régime des études en vue du diplôme d'Etat de docteur en pharmacie</i> <a href="http://www.ordre.pharmacien.fr/fr/pdf/A170787.pdf">http://www.ordre.pharmacien.fr/fr/pdf/A170787.pdf</a></p>
Major changes envisaged before 2019	Yes	<p>One major change envisaged is the introduction of a <u>Bologna-type organisation of studies</u> (application of the so-called <i>LMD: licence-master-doctorat</i>) in health sciences together with a greater degree of <u>integration between pharmacy, medicine, dentistry and other areas</u> such as midwifery and physiotherapy.</p> <p>The first step of this process (September 2010) was the replacement of the 1<sup>st</sup> year of pharmacy studies with the <i>PACES - Première Année Commune aux Etudes de Santé</i> (see above). This has also been called the <i>L1-santé</i> (B1 health sciences) year – a precursor of the other <i>licence/bachelor</i> years (<i>L2</i> and <i>L3</i>) to come. The programme has been modified at the national level, for the first year, and the programmes of the second and third years will be introduced gradually each year, according to the new regulations</p> <p>In Lille and several other HEIs, the first common year in medicine, dentistry and midwifery studies already existed; now pharmacy has been added.</p> <p>The <i>PACES</i> involves a large number of students (in Lille about 3,000) and this requires strict organisation, and strict observance of student equality.</p> <p><i>PACES</i> answers a request by the European Pharmacy Students' Association that at some stage of their university careers pharmacy students should spend some time studying and working with their counterparts in medicine. Within the <i>PACES</i> system 90% of lectures and tutorials are common, 10% are on specifically pharmacy subjects.</p> <p>See:</p> <ul style="list-style-type: none"> <li>• “The French reform of pharmaceutical teaching” by P. Fagnoni, J-P Belon, Country Focus, <i>EJHPPpractice</i>, Vol.16, 2010/2</li> <li>• <i>Arrêté du 28 octobre 2009 relatif à la première année commune aux études de santé</i> <a href="http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000021276755&amp;dateTexte">http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000021276755&amp;dateTexte</a></li> <li>• <i>PACES</i> <a href="http://paces.univ-lille2.fr/">http://paces.univ-lille2.fr/</a> and <a href="http://paces.univ-lille2.fr/fileadmin/user_upload/organisation/livret-paces2010-2011.pdf">http://paces.univ-lille2.fr/fileadmin/user_upload/organisation/livret-paces2010-2011.pdf</a></li> </ul>

<b>Lille</b>		
<b>Students</b>		
Number of students in the 1 <sup>st</sup> year	700	<p><i>Numerus clausus</i> for Lille is 205 in 2011.</p> <p>As a consequence of the creation of the <i>PACES</i> the <i>numerus clausus</i> for Lille is divided into two parts :</p> <ul style="list-style-type: none"> <li>• 195 student place for the <i>Faculté des Sciences pharmaceutiques et biologiques de Lille 2</i></li> <li>• 10 student places for the <i>Institut catholique de Lille</i> (<a href="http://www.icl-lille.fr/">http://www.icl-lille.fr/</a> )</li> </ul> <p>The presence of pharmacy in a catholic institute is specific to Lille.</p>
Number of international students		< 3%
<b>Specialization</b>		
Student numbers in each specialization		<p>Community pharmacy : 145</p> <p>Clinical Biology: 30 (20 students/year pass the <i>Internat</i>)</p> <p>Industry : 30</p>
<b>Teaching staff</b>		
Teaching staff (nationals)	135	
International teaching staff (from EU MSs)	5	
International teaching staff (non EU)	1	
Number professionals (pharmacists and others) from outside the HEIs, involved in E&T		<p>8 part-time associate/invited assistant professors/lecturers (<i>Maitres de conférences invités</i>)</p> <p>An average of 20 professionals give from 1 to 20 lectures in their professional area, mostly industrial pharmacists and 5 community pharmacists</p>
Is Lille typical of all French HEIs?	Yes	Except the presence of the <i>Institut catholique de Lille</i>

<b>References and websites</b>	
<i>Les chiffres de la démographie pharmaceutique</i>	French Ministry of Education <a href="http://www.education.gouv.fr/">http://www.education.gouv.fr/</a>

### Chapter 3. Teaching and learning methods (Lille)

Student hours						
Method	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>HEIs courses</b>						
Lecture	448 (PACES 401)	286	342	330	50 + specialisation	According to specialisation
Tutorial	108 (PACES 45)	84	50	31	10 + specialisation	
Practical	0	253	171	185	According to specialisation	
Project work	0	0	According to specialisation			
<b>Traineeship</b>						
Hospital	0	Two months in community pharmacy <u>Compulsory</u> (320)	Two weeks in community pharmacy <u>Compulsory</u> (80)	Two weeks in community pharmacy <u>Compulsory</u> (80)	Twelve months (half- time) or six months full time in hospital <u>Compulsory</u> (960)	First year of 4 years of internship
Community	0	Two months in community pharmacy <u>Compulsory</u> (320)	Two weeks in community pharmacy <u>Compulsory</u> (80)	Two weeks in community pharmacy <u>Compulsory</u> (80)	Twelve months (half- time) or six months full time in hospital <u>Compulsory</u> (960)	Six months in a community pharmacy <u>Compulsory</u> (960)
Industrial (industry or HEI)	0	Two months in community pharmacy <u>Compulsory</u> (320)	Two weeks in community pharmacy <u>Compulsory</u> (80) and two months in Industrial Pharmacy <u>Optional</u> (320)	Two weeks in community pharmacy <u>Compulsory</u> (80)	Twelve months (half- time) or six months full time in hospital <u>Compulsory</u> (960)	Six months in a pharmaceutical industry <u>Compulsory</u> (960)

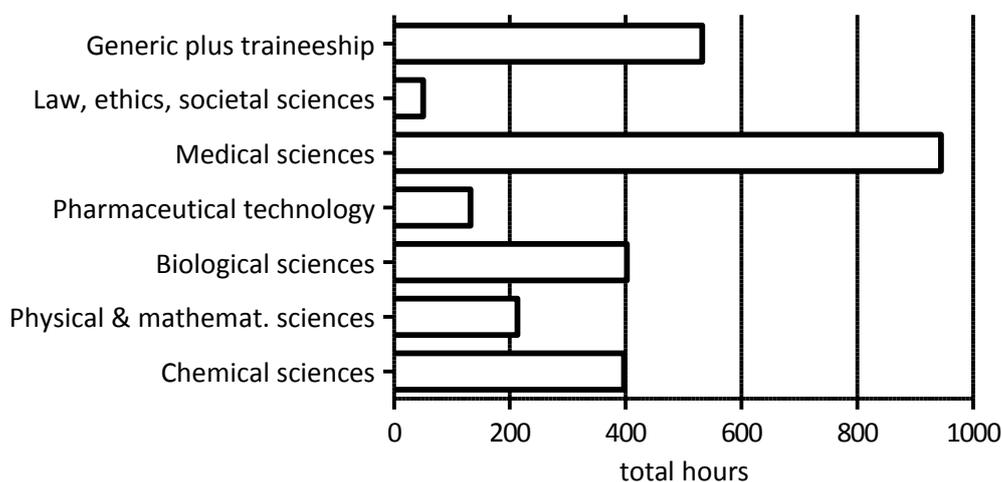
<b>References and websites</b>	
Texts and articles of national law	<p><i>Arrêté du 17 juillet 1987 modifié relatif au régime des études en vue du diplôme d'Etat de docteur en pharmacie</i></p> <p><a href="http://admi.net/jo/20031002/MENS0301923A.html">http://admi.net/jo/20031002/MENS0301923A.html</a></p> <p><a href="http://www.enseignementsup-recherche.gouv.fr/cid53276/les-etudes-de-sante.html#Les%20études%20en%20pharmacie">http://www.enseignementsup-recherche.gouv.fr/cid53276/les-etudes-de-sante.html#Les%20études%20en%20pharmacie</a></p>
Website FNCP	<a href="http://www.ordre.pharmacien.fr/fr/pdf/A170787.pdf">http://www.ordre.pharmacien.fr/fr/pdf/A170787.pdf</a>

## Chapter 4. Subject areas (Lille)

### Student hours - years 1 through 4: Common course in pharmacy (average values)

Subject area	Year 1	Year 2	Year 3	Year 4	Total
CHEMSCI	109	162	73	53	397
PHYSMATH	98	100	15	0	213
BIOLSCI	208	123	38	33	402
PHARMTECH	20	42	47	23	132
MEDISCI	96	140	337	371	944
LAWSOC	25	0	0	25	50
GENERIC	0	40	42	30	112
GENERIC + TRAINEESHIP	0	320	112	100	532
<b>Total</b>	<b>556</b>	<b>887</b>	<b>622</b>	<b>605</b>	<b>2670</b>

### Student hours - years 1 through 4: Common course in pharmacy



### Student hours - years 3 and 4 : pre-specialisation

During the years 3 and 4, students choose to follow courses (80-90 hours selected from subject areas below) as a pre-specialisation towards community pharmacy, industrial pharmacy or internship, leading to clinical biology and hospital pharmacy .

	Community pharmacy	Internship	Industrial pharmacy
CHEMSCI	0	8	80
PHYSMATH	13	7	0
BIOLSCI	0	38	0
PHARMTECH	0	14	100
MEDISCI	100	65	0
LAWSOC	0	0	0
Optional traineeship	0	0	2 months

### Student hours - years 5 and 6 : specialisation

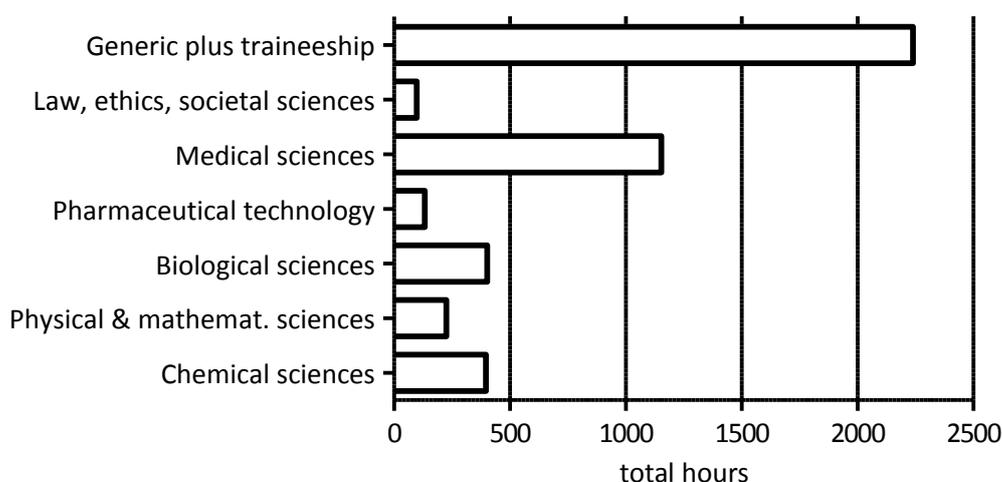
During the years 5 and 6, students choose to follow courses (320-360 hours selected from subject areas below) as a specialisation towards their chosen career : community pharmacy, industrial pharmacy, hospital pharmacy or clinical biology. For hospital pharmacy and clinical biology students need to choose the internship (see below).

	Community pharmacy	Internship	Industrial pharmacy
CHEMSCI	0	9	8
PHYSMATH	0	5	15
BIOLSCI	0	0	0
PHARMTECH	0	0	100
MEDISCI	110	105	105
LAWSOC	48	0	100
GENERIC	28	0	22

### Student hours – community pharmacy

Subject area	Years 1-4 common	Years 3 & 4	Years 5 & 6	Total
CHEMSCI	397	0	0	397
PHYSMATH	213	13	0	226
BIOLSCI	402	0	0	402
PHARMTECH	132	0	0	132
MEDISCI	944	100	110	1154
LAWSOC	50	0	48	98
GENERIC	112		28	140
GENERIC + TRAINEESHIP	532		1792	2240
<b>Total</b>	<b>2670</b>	<b>113</b>	<b>1866</b>	<b>4649</b>

### Student hours – community pharmacy, years 1 through 6



Subjects :

CHEMSCI : Chemical sciences

PHYSMATH : Physical and mathematical sciences

BIOLSCI : Biological sciences

PHARMTECH : Pharmaceutical technology

MEDISCI : Medical sciences

LAWSOC : Law, ethic and societal sciences

## Internship.

Students wishing to practice in the field of clinical biology or hospital pharmacy will choose to follow the pre-internship\_programme during the fifth year; this programme is in preparation for the competitive entrance examination to the 4-year internship. The examination is compulsory in order to follow a four year cycle of internship. This examination is based on the general programme of the first four years of pharmacy studies (*Formation commune de base*). The internship is compulsory for careers in hospital or in (private) clinical biology laboratories. The internship can lead to research and teaching at an HEI.

Internship consists of a four year practical and theoretical programme taught by hospitals and universities, leading to a Diploma of specialized studies (*Diplôme d'Etudes Spécialisées – D.E.S.*).

References and websites	
Texts and articles of national law	<p><i>Arrêté du 24 août 2009 portant organisation des concours et détermination des interrégions d'internat de pharmacie et organisation de la procédure de choix de poste :</i> <a href="http://www.legifrance.gouv.fr/./affichTexte.do?cidTexte=JORFTEXT000021089971&amp;fastPos=1&amp;fastReqId=2715289&amp;categorieLien=cid&amp;oldAction=rechTexte">http://www.legifrance.gouv.fr/./affichTexte.do?cidTexte=JORFTEXT000021089971&amp;fastPos=1&amp;fastReqId=2715289&amp;categorieLien=cid&amp;oldAction=rechTexte</a></p> <p><i>Décret n°88-996 du 19 octobre 1988 relatif aux études spécialisées du troisième cycle de pharmacie (Version en vigueur au 28 février 2011)</i> <a href="http://www.legifrance.gouv.fr/affichTexte.do;jsessionid=222174EE38C2A6401683EF0FEFF5C2ED.tpdjo11v_3?cidTexte=LEGITEXT000006066964&amp;dateTexte=20110228">http://www.legifrance.gouv.fr/affichTexte.do;jsessionid=222174EE38C2A6401683EF0FEFF5C2ED.tpdjo11v_3?cidTexte=LEGITEXT000006066964&amp;dateTexte=20110228</a> <a href="http://editions.campusfrance.org/filieres/en/pharmacie_en.pdf">http://editions.campusfrance.org/filieres/en/pharmacie_en.pdf</a></p> <p><i>Arrêté du 31 octobre 2008 réglementant les diplômes d'études spécialisées de Pharmacie :</i> <a href="http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000019917443">http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000019917443</a> <a href="http://www.nord-pas-de-calais.sante.gouv.fr/metiers/medical/internat_pharma2009/texte/arrete_31oct08.pdf">http://www.nord-pas-de-calais.sante.gouv.fr/metiers/medical/internat_pharma2009/texte/arrete_31oct08.pdf</a></p>
Lille student handbook	<a href="http://pharmacie.univ-lille2.fr/scolarite.html">http://pharmacie.univ-lille2.fr/scolarite.html</a>
Internship	
<i>Centre national des concours d'internat</i>	<a href="http://www.cnci.univ-paris5.fr/cnci_ph/">http://www.cnci.univ-paris5.fr/cnci_ph/</a>
<i>L'Internat et les Diplômes d'Etudes Spécialisées (D.E.S.)</i>	<a href="http://www-fac-pharma.u-strasbg.fr/etudes_de_pharmacie/internat.php">http://www-fac-pharma.u-strasbg.fr/etudes_de_pharmacie/internat.php</a>

## Chapter 5. Impact of the Bologna principles (Lille)

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	No	<p><i>Circa</i> 25 ERASMUS inter-HEI agreements have been signed.</p> <p>No diploma supplement is issued.</p>
2. Two main cycles (B and M) <u>with entry and exit at B level</u>	No	<p>Students may follow a science master degree in parallel with Pharmacy curricula.</p> <p>The entry at the beginning of B3 is possible in some rare cases.</p>
3. ECTS system of credits / links to LLL	Yes	<p>All courses are categorized in ECTS.</p> <p>Links to post-registration LLL/CLP are yet to be established.</p>
4. Obstacles to mobility	Partially	<p>Students ask the Lille Erasmus coordinator for mobility towards one of the European HEIs having signed an agreement with Lille. The coordinator has to approve the student project and a programme of studies and establish a learning agreement.</p> <p>Students are allowed up to a maximum of a one year mobility and of the validation of 60 ECTS. At the end of their mobility the Lille jury will decide upon the validation.</p> <p>There are adequate mobility possibilities.</p> <p>A special difficulty arises for those students wishing to pass the Internat inter-regional examination (leading to internship and careers in hospital pharmacy and clinical biology) as the programme for this examination is a unique French national programme.</p> <p>Finance: The coordinator will organize only mobility with an HEI that has signed an agreement of free exchange. If the student wishes to study in a HEI that demands that fees be paid, s/he will not receive a learning agreement. Most of students will receive a mobility grant (Erasmus grant)</p> <p>Lodging: in-coming students can ask the International office of Lille 2 for a residence: <a href="http://www.univ-lille2.fr/.../international/le-service-des-relations-internationales.html">www.univ-lille2.fr/.../international/le-service-des-relations-internationales.html</a></p> <p>Out-going students have difficulties with the high cost of lodging in some countries</p> <p>Language: in-coming students are encouraged to come for a full university year, so as to have enough time to perfect their understanding of French before examinations. The coordinator enquires about the level of the student before accepting his candidature, but no academic evaluation in French is required.</p> <p>For out-going students the level in English for those going to the UK is high.</p>

		They pass the International English Language Testing System, IELTS ( <a href="http://www.ielts.org/default.aspx">http://www.ielts.org/default.aspx</a> ) and for this they receive intensive preparation by the English teacher in the faculty of Pharmacy. The University offers courses in Spanish.	
<b>5. European QA</b>	No		
<b>6. European dimension</b>		There is some mobility of teaching staff within the Erasmus programme or various research programmes and this facilitates collaboration and gives an European dimension to Lille, especially in the programmes at the master level (years 5 and 6). Examples can be found in the pharmaceutical technology and other programmes for industry.	
<b>ERASMUS staff exchange to Lille from elsewhere</b>		Staff months: 1 to 2	Four staff members x one week and several short periods
<b>ERASMUS staff exchange from Lille to other HEIs</b>		Staff months: 1 to 2	Four staff members x one week and several short periods
<b>ERASMUS student exchange to Lille from elsewhere</b>		Student months: 180	Ca 25 ERASMUS students per year come to Lille for periods of 3 to 10 months.
<b>ERASMUS student exchange from Lille to other HEIs</b>		Student months: 90	Ca 10 Lille students go to other HEIs for 9 month periods.

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

The directive states	How does / will this directive statement affect pharmacy E&T?
“Evidence of formal qualifications as a pharmacist shall attest to training of at least <u>five years' duration</u> ,...”	This applies.
“... <u>four years of full-time theoretical and practical training</u> at a university or at a higher institute of a level recognised as equivalent, or under the supervision of a university;”	This applies.
“... <u>six-month traineeship in a pharmacy</u> which is open to the public or in a hospital, under the supervision of that hospital's pharmaceutical department.”	This applies.
“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> .”	This applies.
Directive annex	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 these aspects are taken into consideration and all the subjects mentioned are taught.

## GLOSSARY and ACRONYMS

*ARS : Agences régionales de Santé*

*DP : Dossier pharmaceutique*

*FNCP : French National Council of Pharmacists (CNOP : Conseil national de l'Ordre des Pharmaciens)*

*HEI : Higher Education Institution*

*Loi HPST : Loi Hopital Patients Santé et Territoire. Journal Officiel le 22 juillet 2009.*

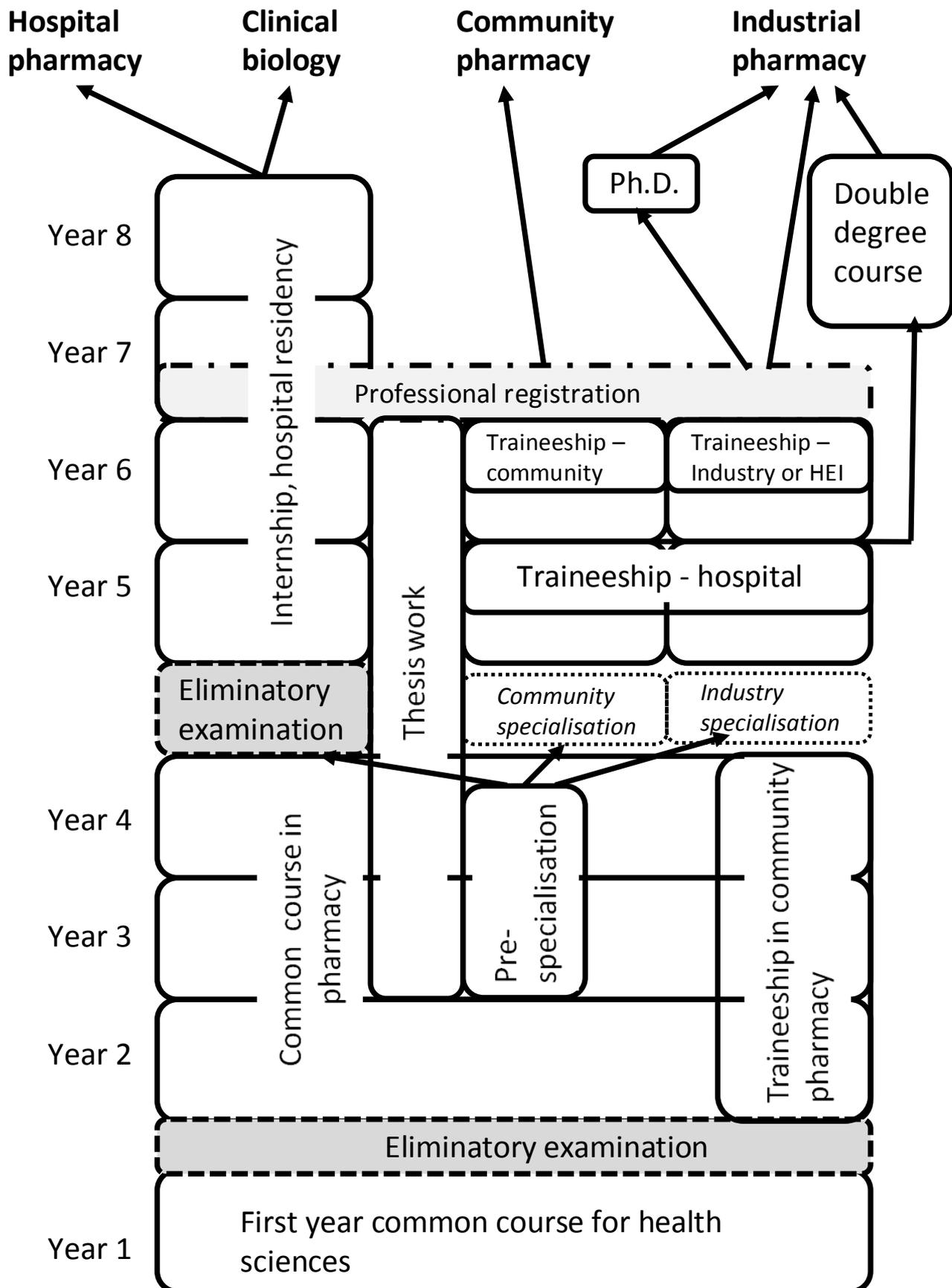
*IRDES: Institut de recherche et documentation en économie de la santé*

*MCU-PH : Assistant professor/lecturer-hospital pharmacy practitioner*

*PACES : Première Année Commune aux Etudes de Santé*

*PU-PH : University professor-hospital pharmacy practitioner*

## The French pharmacy education and training scheme





**PHARMINE**  
*Pharmacy Education  
in Europe*

**PCN**

*Pharmacolor  
Consultants  
Nancy*



Université Lille Nord de France  
Pôle de Recherche  
et d'Enseignement Supérieur



**Université Lille 2**  
**Droit et Santé**

**Nancy-Université**  
Université  
Henri Poincaré



**UNIVERSITY OF TARTU**



Vrije  
Universiteit  
Brussel

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## PHARMINE

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(142078-LLP-1-2008-BE-ERASMUS-ECDSP).

**Website: [www.pharmine.org](http://www.pharmine.org)**

Pharmacy education & training in

# GERMANY

2010

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

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## Summary.

Pharmacy education and training in Germany is characterized by:

- A large element of chemical sciences in the cursus
- The federal law (Ordinance on Recognition for Pharmacists ) fixes:
  - The organisation of studies: 4 years HEI study plus a fifth year traineeship
  - Subject areas
  - This complies with EC directive 2005/36/EC
- The B+M, 3+2 Bologna model does not apply as the system is 2+2+1 with “Staatsexamen” after the 2<sup>nd</sup>, 4<sup>th</sup> and 5<sup>th</sup> years.

## Introduction.

Total population: 82,641,000

Gross national income per capita (PPP international \$): 32,680

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

Healthy life expectancy at birth m/f (years, 2003): 70/74

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): 106/55

Total expenditure on health per capita (Intl \$, 2006): 3,328

Total expenditure on health as % of GDP (2006): 10.4

Figures are for 2006 unless indicated. Source: [World Health Statistics 2008](#)

The following link deals with health care and pharmaceuticals in Germany especially in relation to pricing policy:

[http://ppri.oebig.at/Downloads/Results/Germany\\_PPRI\\_2008.pdf](http://ppri.oebig.at/Downloads/Results/Germany_PPRI_2008.pdf)

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

	Y/N, number or %	Comments  Figures are for Baden-Württemberg (BW), Mai 2009, unless otherwise stated.
<b>Community pharmacy</b>		
Community pharmacists	6592	There are currently (end 2008) 57,353 pharmacists working in Germany. 48,030 in public/community pharmacies and 1,874 in hospitals. 7,449 are working in the group "industry, administration, authorities, health care systems, army, sciences/universities etc". The number of pharmacists in industry is around 5,200 to 5,500.
Community pharmacies	2770	1021 customers per pharmacy Germany: 21,390; 3,857 customers per pharmacy
Competences and roles of pharmacists		In Germany generally: <ol style="list-style-type: none"> <li>a. Supplying prescription medicines</li> <li>b. Managing medicines for some ailments</li> <li>c. Giving advice on medicines</li> <li>d. Information to physicians</li> <li>e. Screening services (Blood pressure, blood glucose, cholesterol, and others)</li> <li>f. Preparation of medicines on individual prescriptions</li> <li>g. Services to the housebound</li> <li>h. Services to nursing and care homes (medication reviews, advice on storage and administration of medicines)</li> <li>i. Economic supervision of the pharmacy</li> </ol>
Ownership of a pharmacy limited to pharmacists?	Yes	
Rules governing the distribution of pharmacies?	No	Number of community pharmacists is not limited.
Are drugs available to the public by other channels?	Yes	Freely available medicines are sold in drugstores and supermarkets. Pharmacy-only OTC-Medicines and prescription medicines can be purchased in internet pharmacies. OTC-Medicines are differentiated into free available medicines which can be sold also in drugstores and pharmacy-only medicines that can be sold in pharmacies with professional advice. Drugstores that sell medicine have to denominate an experienced person who is not a qualified pharmacist.
Persons other than pharmacists involved in practice?	Yes	PTA: 6704   Pharmaziepraktikanten 73   Apothekerassistenten 285   Pharmazieingenieure 130   PKA: ca. 5000  <b>PTA</b> (Pharmazeutisch technische/r Assistent/in; technical assistant): 6704 persons in BW (May 09), 51 907 persons in Germany (2008) Qualifications: Education is provided by public vocational colleges or in officially recognised schools, and can be started with a graduation of the "Realschule" (at 16 years) Duration of the education is 2 years in school and 6 months of training in a pharmacy. Contents of Education: general and pharmaceutical chemistry, galenics, botany, knowledge of drugs, teas and poisons, pharmaceutical law,

		<p>nutrition, dietetics and cosmetics          Competences: control of medicines, agents and excipients, preparation of extemporaneous products, dispensation and advice of medicines and other goods sold in pharmacies (cosmetics, dietetics, health care products, bandages etc.). Support of the pharmacist, work under his supervision</p> <p><b>Pharmaziepraktikant:</b> 73 persons in BW (May 09), 1327 persons in Germany (2008)          Qualifications: they finished the university part of the education and absolve their practical training in pharmacies          Competences: they take over all pharmaceutical tasks under the supervision of a pharmacist</p> <p><b>Apothekerassistenten/Vorexaminierte(r):</b> 285 persons in BW (May 09), 8196 persons in Germany (2008) including the Pharmazieingenieure          Qualifications: They finished their education before reformation of the pharmacy education in 1969, until then pharmacist had to absolve 2 years of practical training in a pharmacy and had to pass the pharmaceutical preliminary examination before starting the university studies. The "Apothekerassistenten" passed the preliminary exam without finishing the university studies.          Competences: they can take over all pharmaceutical tasks under the supervision of a pharmacist and they can act as a substitute for the pharmacist for max. 4 weeks a year</p> <p><b>Pharmazieingenieure:</b> 130 persons in BW (May 09), data for all Germany see above          Qualifications: they were educated in schools of engineering in the former GDR, the duration of the education was 3 years and the main focus was on the preparation of medicines. With the reunification this education was abolished.          Competences they can take over all pharmaceutical tasks under the supervision of a pharmacist and they can act as a substitute for the pharmacist for max. 4 weeks a year</p> <p><b>PKA (Pharmazeutisch kaufmännische/r Assistent/in:</b> ca. 5000 persons in BW, 36 020 persons in Germany (2008)          Qualifications: PKA are educated for 3 years in the "dual system", that means that they work full time in a pharmacy and go to school 2 days a week. Education is provided by public vocational colleges and can be started with a graduation of the "Hauptschule" or the "Realschule"          Contents of the education: merchandise management, ordering, storage of drugs, price formation, accounting, computational organisation of the pharmacy, etc.          Competences: support of the pharmacist in organization and the merchandise management of the pharmacy, ordering and storage of the drugs, accounting, presentation of the drugs and the shop window, dispensation of cosmetics and other health care products, no dispensation of medicines</p>
<b>Hospital pharmacy</b>		
Hospital pharmacists	282	Germany: 1890
Hospital pharmacies	54	Germany: 438
Competences and roles of hospital pharmacists		<ul style="list-style-type: none"> <li>• Supply of the hospital patients with medicine</li> <li>• Purchase, preparation, examination, storage and dispensation of</li> </ul>

		<p>drugs</p> <ul style="list-style-type: none"> <li>• Advice for doctors and nurses</li> </ul>
<b>Pharmaceutical and related industries</b>		
Companies		All details can be found at: "Statistics 2010 Die Arzneimittelindustrie in Deutschland", vfa <a href="http://www.vfa.de/embed/statistics-2010.pdf">http://www.vfa.de/embed/statistics-2010.pdf</a>
<b>Industrial pharmacy</b>		
Pharmacists in industry		The number of pharmacists in industry is around 5,200 to 5,500.
Competences and roles of industrial pharmacists		The legal requirements for QPs in Germany are fully in line with the EU requirements. In fact one has to be a pharmacist - as only pharmacists in Germany fulfil the requirements - and have 2 years experience in medicinal products testing to obtain QP status. In Germany it is very difficult to obtain QP status without being a pharmacist as one needs to obtain all pharmaceutical courses and exams at the university which is equivalent to a full course of pharmacy.
<b>Other sectors</b>		
Pharmacists in other sectors	1228	Germany: 6,019
<b>Roles of professional associations</b>		
Registration of pharmacists	Yes	Regional Pharmacists' Register Landesapothekerkammer Baden-Württemberg <a href="http://www.lak-bw.de/">http://www.lak-bw.de/</a> (in German)
Creation of pharmacies; territorial distribution	No	
Ethics and professional conduct	Yes	Landesapothekerkammer Baden-Württemberg
QA and validation of HEI courses	Yes	Landesapothekerkammer Baden-Württemberg

<b>Websites</b>	
Landesapothekerkammer Baden-Württemberg	<a href="http://www.lak-bw.de/">http://www.lak-bw.de/</a> (in German)
Bundesverband der Pharmazeutischen Industrie	<a href="http://www.bpi.de/Default.aspx?tabindex=0&amp;tabid=1">http://www.bpi.de/Default.aspx?tabindex=0&amp;tabid=1</a> (in German)
Bundesvereinigung Deutscher Apothekerverbände - ABDA	<a href="http://www.abda.de/">http://www.abda.de/</a> (in German)
Pharmacists' monopoly	See: Gesetz über den Verkehr mit Arzneimitteln_Arzneimittelgesetz_AMG.pdf
ECORYS EU study on pharmacy	<a href="http://ec.europa.eu/internal_market/services/pharmacy_en.htm">http://ec.europa.eu/internal_market/services/pharmacy_en.htm</a>
ADKA (Bundesverband Deutscher Krankenhausapotheker e.v.)	<a href="http://www.adka.de/">http://www.adka.de/</a> English: <a href="http://www.adka.de/index.cfm?CFID=7077832&amp;CFTOKEN=26725011&amp;pt=Verband_English">http://www.adka.de/index.cfm?CFID=7077832&amp;CFTOKEN=26725011&amp;pt=Verband_English</a>
Verband Forschender Arzneimittelhersteller eV VFA	<a href="http://www.vfa.de/en/latest-topics">http://www.vfa.de/en/latest-topics</a>

## Chapter 2. Pharmacy HEIs, students and courses

	Y/N, number or %	If you wish to expand your answer, please add your comments below.
<b>Total number of HEIs in Germany</b>	22	<ol style="list-style-type: none"> <li>1. Faculty of Pharmacy, <a href="#">Freie University of Berlin</a></li> <li>2. Institute of Pharmacy, <a href="#">Humboldt University of Berlin</a></li> <li>3. Faculty of Pharmacy, <a href="#">Friedrich Wilhelms University of Bonn</a></li> <li>4. Institute of Pharmaceutical Technology, <a href="#">Technical University of Braunschweig</a></li> <li>5. Faculty of Pharmacy, <a href="#">Heinrich Heine University of Düsseldorf</a></li> <li>6. Institute of Pharmacy and Food Chemistry, <a href="#">Friedrich Alexander University of Erlangen-Nuremberg</a></li> <li>7. Department of Pharmacy, <a href="#">Biocenter of Frankfurt University</a></li> <li>8. Faculty of Chemistry and Pharmacy, <a href="#">Albert Ludwigs University of Freiburg</a></li> <li>9. Institute of Pharmacy, <a href="#">Ernst Moritz Arndt University of Greifswald</a></li> <li>10. College of Pharmacy, <a href="#">Martin Luther University of Halle/Saale</a></li> <li>11. Pharmacy Institute, <a href="#">University of Hamburg</a></li> <li>12. Faculty of Pharmacy, <a href="#">University of Heidelberg</a></li> <li>13. Institute of Pharmacy, <a href="#">Christian Albrechts University of Kiel</a></li> <li>14. Institute of Pharmacy, <a href="#">University of Leipzig</a></li> <li>15. Institute of Pharmacy, <a href="#">Johannes Guten University of Mainz</a></li> <li>16. Department of Pharmacy, <a href="#">Philipps University of Marburg</a></li> <li>17. Institute of Pharmacy, <a href="#">Ludwig Maximilians University Munich</a></li> <li>18. Institute for Pharmaceutical Technology, <a href="#">University of Muenster</a></li> <li>19. Institute of Pharmacy, <a href="#">University of Regensburg</a></li> <li>20. Faculty of Pharmacy, <a href="#">University of Saarlandes</a></li> <li>21. Institute of Pharmacy, <a href="#">University of Tübingen</a></li> <li>22. Institute of Pharmacy, <a href="#">University of Würzburg</a></li> </ol>
Public	22	
<b>Organisation of HEIs</b>		
Attached to a science faculty	22	
Do HEIs offer B + M degrees?	2	
<b>University of Freiburg, unless otherwise stated.</b>		
<b>Teaching staff</b>		
Nationals	27	
Other EU	2	
Non-EU	1	
Non-HEI	10	
<b>Students</b>		
Places at entry following secondary school	90	German numerus clausus: 2700.
Number of applicants for entry	270	3 applicants per place
Number graduating as pharmacists.	65	
International students (EU)	6	

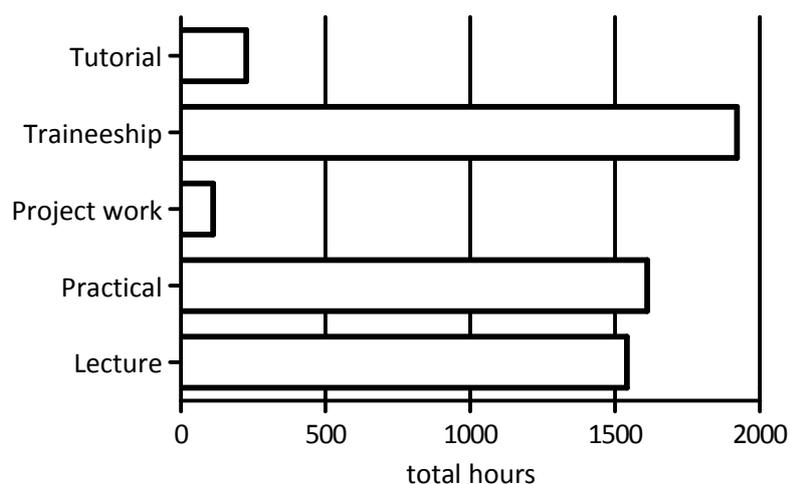
International students (non EU)	3	
<b>Entry requirements following secondary school</b>		
National pharmacy entrance examination	No	
Is there a national <i>numerus clausus</i> ?	Yes	
<b>Advanced entry</b>		
At which level?		Entry after the 1 <sup>st</sup> Staatsexamination (after 2 years in a HEI) is possible.
What are the requirements?		Equivalence of the 1 <sup>st</sup> Staatsexamination.
<b>Fees per year: 1000€ for Freiburg, Heidelberg and Tübingen</b>		
<b>Length of course</b>	4 years	4 years at the university, additional 1 year traineeship at an official pharmacy (1. Staatsexamination after 2 years, 2. Staatsexamination after 4 years, 3. Staatsexamination after 5 years)
<b>Specialization</b>		
Specialized courses?	No	
<b>Past and present changes in E&amp;T</b>		
Changes in Germany since 1999?	Yes	<p>Approbationsordnung für Apotheker, AAppO, (Ordinance on Recognition for Pharmacists) October 1st, 2001</p> <p>This act of German law states - amongst other things – that:</p> <ul style="list-style-type: none"> <li>• Pharmacy studies are of 4 years' duration at an HEI</li> <li>• There is a traineeship of 12 months with 6 months in an official community pharmacy, and 6 other months in community, hospital or industrial pharmacy environment or at the HEI</li> <li>• There is a first examination after 2 years, a second after 4 and a third after 5 (following traineeship)</li> <li>• Subject areas to be taught are described in detail</li> </ul> <p>Similar statutes deal with other health care professions such as medical doctors.</p> <p>(see: Approbationsordnung für Apotheker.pdf)</p>

<b>References</b>	
Approbationsordnung für Apotheker	Deutscher Apotheker Verlag Stuttgart 2002 ISBN 3-7692-2872-3
University of Freiburg	<a href="http://portal.uni-freiburg.de/pharmazie">http://portal.uni-freiburg.de/pharmazie</a>

## Chapter 3. Teaching and learning methods

Student hours						
Method	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Lecture	320	200	430	590	-	<b>1540</b>
Tutorial	72	28	56	70	-	<b>226</b>
Practical	400	540	320	350	-	<b>1610</b>
Project work	-	28	-	84	-	<b>112</b>
Traineeship:	320 Community, hospital or industry				1600 12 months with 6 months in an official community pharmacy, and 6 other months in community, hospital or industrial pharmacy environment or at the HEI	<b>1920</b>
Optional	-	-	-	98	-	<b>98</b>
<b>Total</b>	<b>952</b>	<b>956</b>	<b>806</b>	<b>1192</b>	<b>1600</b>	<b>5506</b>

Student hours by teaching method



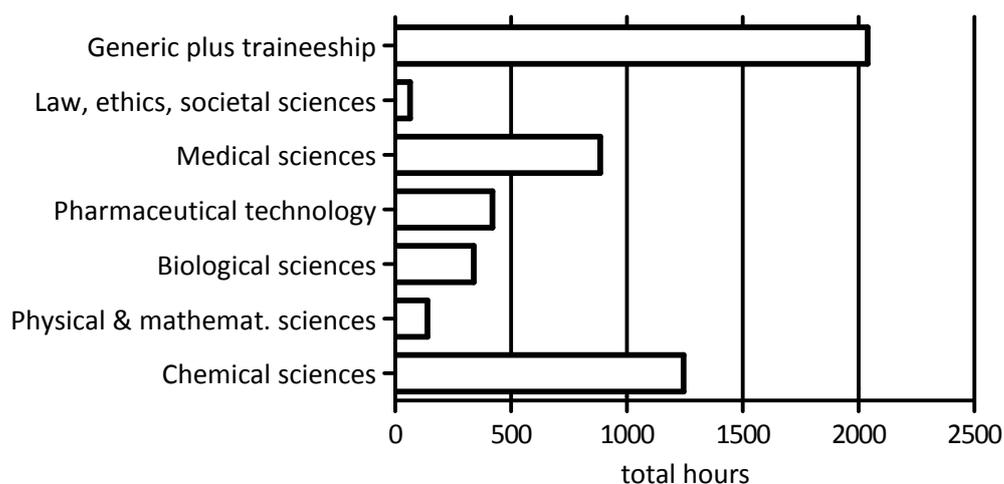
## Chapter 4. Subject areas

Student hours*						
Subject area	Year 1	Year 2	Year 3	Year 4	Year 5	Total
CHEMSCI	395	430	180	240	-	<b>1245</b>
PHYSMATH	140	-	-	-	-	<b>140</b>
BIOLSCI	90	170	50	30	-	<b>340</b>
PHARMTECH	25	80	275	40	-	<b>420</b>
MEDISCI	80	65	310	430	-	<b>885</b>
LAWSOC	15	-	25	25	-	<b>65</b>
GENERIC**	30	30	30	30	-	<b>120</b>
GENERIC + traineeship	190	190	30	30	1600	<b>2040</b>
<b>Total</b>	<b>935</b>	<b>935</b>	<b>870</b>	<b>795</b>	<b>1600</b>	<b>5135</b>

\*: hours are presence hours, not student workload hours

\*\* : generic: estimation, mostly not separate course but embedded in other courses

Student hours by subject area.



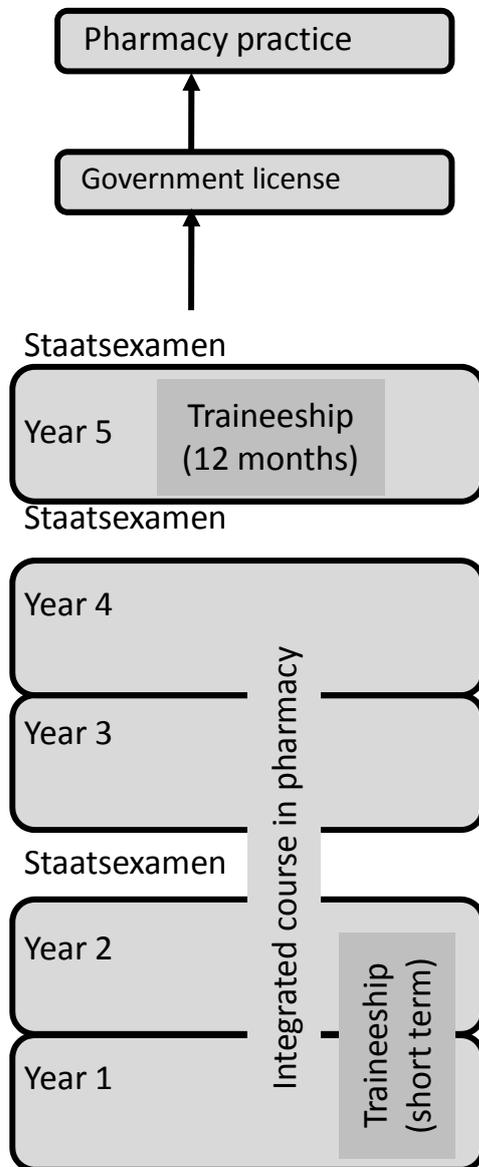
## Chapter 5. Impact of the Bologna principles

Bologna principle	Is the principle applied? Y/N or partially	Comments.
<b>1. Comparable degrees / Diploma Supplement</b>	Partially (2)	Most universities (19) do not offer bachelor/master degrees as there is the " <i>Staatsexamen</i> " (federal examination).
<b>2. Two main cycles (B and M)</b>	Partially (2)	Most universities (19) do not offer bachelor/master degrees as there is the " <i>Staatsexamen</i> " (federal examination).
<b>3. ECTS system of credits / links to LLL</b>	Partially (2)	Most universities (19) do not offer bachelor/master degrees as there is the " <i>Staatsexamen</i> " (federal examination).
<b>4. Obstacles to mobility</b>		It is difficult to have courses accepted as the regulations are very different at each university.
<b>5. European QA</b>	No	The Bologna Process it is not applied.
<b>6. European dimension</b>		
<b>ERASMUS staff exchange to Freiburg from elsewhere</b>		0
<b>ERASMUS staff exchange from Freiburg to other HEIs</b>		0
<b>ERASMUS student exchange to Freiburg from elsewhere</b>		60 student months
<b>ERASMUS student exchange from Freiburg to other HEIs</b>		48 student months

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

The directive states	How does / will this directive statement affect pharmacy E&T?
“Evidence of formal qualifications as a pharmacist shall attest to training of at least <b>five years' duration...</b> ”	This applies.
“ <b>...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;</b> ”	This applies.
“ <b>...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.</b> ”	12 months traineeship
“The balance between theoretical and practical training shall, in respect of each subject, give <b>sufficient importance to theory to maintain the university character of the training.</b> ”	This applies.
Directive annex	How does / will this directive annex affect pharmacy E&T?
<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 subjects are included in the studies; subject areas are fixed by federal decree.

## The German pharmacy education and training scheme.





**PHARMINE**  
*Pharmacy Education  
in Europe*



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

**Website: [www.pharmine.org](http://www.pharmine.org)**

Pharmacy education & training in

# GREECE

2010



**PHARMINE**  
*Pharmacy Education  
in Europe*

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

The “PHARMINE survey of European higher education institutions delivering pharmacy education & training – GREECE” was produced by:

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## Summary.

Greece has 3 public pharmacy faculties in Athens, Patras and Thessaloniki; the latter two are separate faculties within the School of Health Sciences. Athens is an independent faculty. There are no private institutions delivering pharmacy education and training.

All three faculties have a 5 year seamless programme leading to the pharmacy diploma required to work in community, hospital or industrial pharmacy. There is no specialisation at the undergraduate level. Pharmacy graduates can follow two year master courses in topics related to industrial (e.g. drug analysis) or hospital pharmacy (e.g. radio-pharmaceuticals), but entrance into such courses is not limited to pharmacy graduates.

## Introduction.

Total population: 11,123,000

Gross national income per capita (PPP international \$): 30,870

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): 4

Probability of dying between 15 and 60 years m/f (per 1 000 population): 106/44

Total expenditure on health per capita (Intl \$, 2006): 3,101

Total expenditure on health as % of GDP (2006): 9.9

Figures are for 2006 unless indicated. Source: [World Health Statistics 2008](#)

For further information, see:

Highlights on health in Greece WHO 2004, at

[http://www.euro.who.int/\\_data/assets/pdf\\_file/0008/103220/GRE\\_Highlights.pdf](http://www.euro.who.int/_data/assets/pdf_file/0008/103220/GRE_Highlights.pdf)

Pharmaceutical pricing and reimbursement information Greece OBIG 2007, at:

[http://ppri.oebig.at/Downloads/Results/Greece\\_PPRI\\_2007.pdf](http://ppri.oebig.at/Downloads/Results/Greece_PPRI_2007.pdf)

ECORYS - Study of regulatory restrictions in the field of pharmacies, at :

[http://ec.europa.eu/internal\\_market/services/docs/pharmacy/appendices\\_en.pdf](http://ec.europa.eu/internal_market/services/docs/pharmacy/appendices_en.pdf)

Eurybase - Descriptions of National Education Systems and Policies – Greece 2009, at:

[http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/national\\_summary\\_sheets/047\\_EL\\_EN.pdf](http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/national_summary_sheets/047_EL_EN.pdf)

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

	Y/N, number or %	Comments
<b>Community pharmacy</b>		
Number of community pharmacists	10,890 + 452	10,890 pharmacists as owners 452 pharmacists as employees
Community pharmacies	10,890	~1021 inhabitants per pharmacy.
Competences and roles of pharmacists		Standard dispensing of prescribed and OTC drugs.
Ownership of a pharmacy limited to pharmacists?	Yes	There is a limited number of branches in which the owner may hold a majority stake. The legal business form is limited.
Rules governing the distribution of pharmacies?	Yes	Minimum number of inhabitants per Pharmacy: 1500). A licence from the State public health authorities is required to open a pharmacy.
Are drugs available to the public by other channels?	No	
Persons other than pharmacists involved in practice?	Yes	The presence of a pharmacist at all time is required.
Their titles and number(s)	4032	Pharmacy Assistants
Their qualifications		
Organisation providing and validating the E&T		Providers : Private non-academic institutions Validation : Ministry of Health
Duration of studies	2 years	
Competences and roles		Supporting the pharmacist's activities. The presence of a pharmacist at all time is required.
<b>Hospital pharmacy</b>		
Number of hospital pharmacists	302	Requirements to work as a hospital pharmacist: pharmacy degree and registration from the Ministry of Health (no pre- or post-graduate specialisation). The number of hospital pharmacists per bed is low and in a typical 200-400 bed hospital may be only one or two.
Hospital pharmacies	115	
Competences and roles of hospital pharmacists		Competences : Registered Pharmacists Roles : as in other European Countries (handling of sterile products, medical devices and disposables, preparation of special preparations, etc) Hospital pharmacists may also be involved in the teaching of nurses. See also: Hospital Pharmacy in Greece, Tzimis L, Makridaki D, Eur J Hosp Pharm, 2005: <a href="http://www.eahp.eu/EJHP/EJHP-Practice/Issue-4-2005/Country-focus/Hospital-pharmacy-in-Greece">http://www.eahp.eu/EJHP/EJHP-Practice/Issue-4-2005/Country-focus/Hospital-pharmacy-in-Greece</a>
<b>Pharmaceutical and related industries</b>		
Companies: production, R&D and distribution	5	
Production only	44	
Distribution only	268	

Generic drugs only	32	4 manufacturing sites for contract manufacturing only Contacts: - Association of Greek Pharmaceutical companies – SFEE ( <a href="http://www.sfee.gr">www.sfee.gr</a> ) - Pan-Hellenic association of Pharmaceutical industry ( <a href="http://www.pef.gr">www.pef.gr</a> )
<b>Industrial pharmacy</b>		
Pharmacists in industry	144	
Competences and roles of industrial pharmacists		Competences :Registered Pharmacists Roles: as in other European countries (Production, QC/QA ,R&D ,Marketing etc)  After 1 year of working in industry a qualified pharmacist with an M.Sc. can become a qualified person; this takes 2 years for graduates from other areas (chemistry...)
<b>Other sectors</b>		
Pharmacists in other sectors	1250	
Sectors in which pharmacists are employed		Public Sector (e.g. Auditing Prescriptions and their costs) National Authority for Medicines Evaluation Public Health Care Insurance providers
Competences and roles of pharmacists in other sectors		Competences : Registered Pharmacists Roles: as in other European countries
<b>Roles of professional associations</b>		
Registration of pharmacists	Yes	The State Health Authorities register and licence pharmacists.  Requirements for licensing: <ul style="list-style-type: none"> <li>• One year traineeship</li> <li>• Pharmacy Board Examination by the Central Health Council</li> </ul> The licence and membership do not expire. The licence can be revoked in case of: <ul style="list-style-type: none"> <li>• Violation of pharmaceutical laws and regulations</li> <li>• Age &gt; 70 years</li> <li>• Resignation</li> </ul>
Quality assurance and validation of HEI courses for pharmacists	No	In process

<b>Websites</b>	
National Organisation for Medicines	<a href="http://www.eof.gr">http://www.eof.gr</a>
Ministry of Health and social solidarity	<a href="http://www.yyka.gov.gr">http://www.yyka.gov.gr</a>
Pan-Hellenic association of pharmacists	<a href="http://www.pepharm.gr">http://www.pepharm.gr</a> & <a href="http://www.pepharm.org">www.pepharm.org</a>
Pan-Hellenic Pharmaceutical Association	<a href="http://www.pfs.gr">http://www.pfs.gr</a>
Greek Ministry of Education	<a href="http://www.minedu.gov.gr">http://www.minedu.gov.gr</a>
ECORYS EU study on pharmacy	<a href="http://ec.europa.eu/internal_market/services/pharmacy_en.htm">http://ec.europa.eu/internal_market/services/pharmacy_en.htm</a>

## Chapter 2. Pharmacy HEIs, students and courses

	Y/N, number or %	If you wish to expand your answer, please add your comments below.
<b>Total number of HEIs in Greece</b>	3	<ol style="list-style-type: none"> <li>1. Department of Pharmacy, <a href="#">University of Athens</a></li> <li>2. Department of Pharmacy, <a href="#">University of Patras</a></li> <li>3. Department of Pharmacy, <a href="#">Aristotle University of Thessaloniki</a></li> </ol>
Public	3	
<b>Organisation of HEIs</b>		
Independent faculty	1	Athens
Attached to a medical faculty	2	Patras: Faculty within the School of Health Sciences Thessaloniki : Faculty within the School of Health Sciences
Do HEIs offer B + M degrees?	No	Not within the framework of the Bologna Process: graduation occurs after a 5 years seamless curriculum
<b>Greece</b>		
<b>Teaching staff</b>		
Teaching staff (nationals)	~ 90	
<b>Students</b>		
Places at entry following secondary school	~ 400	Number fixed annually at the national level.
Number of applicants for entry	NA	Number cannot be estimated since the entry process is organised at national level for all health care disciplines.
% graduating as pharmacists.	85-90%	
International students (EU)	~20	
International students (non EU)	~15	
<b>Entry requirements following secondary school</b>		
National pharmacy entrance examination	Yes	Subjects : Biology, Chemistry, Physics, Mathematics, Assay
Other form of entry requirement	Yes	Students with special health problems (5%), minorities (3%) foreigners (~10%) are accepted in agreement with Ministry of Education and Ministry of Foreign Affairs
Is there a national <i>numerus clausus</i> ?	Yes	Maximum number of places defined by the HEI and the Ministry of Education each year.
<b>Advanced entry</b>		
At which level?		Second Year
What are the requirements?		Graduates with a University degree in Chemistry, Biology, etc., through examinations in Chemistry, Biology and Physics..
<b>Fees per year</b>		
Home and EU students	None	
Others	493€ / y	
<b>Length of course</b>	<b>5 years</b>	
<b>Specialization</b>		
Do HEIs provide specialised courses?		Not within the 5 years undergraduate curriculum. There is no formal specialization but elective courses are offered in all undergraduate years. However specialised courses are provided within separate MSc programs leading to independent MSc degrees.

In which years		<p>After graduation from Pharmacy or other similar Faculties (Chemistry, Biology, Chem. Engineering, etc) students can be accepted through a specific selection process within the offered MSc programs.</p> <p>Masters degree for graduates other than Pharmacists cannot lead to professional registration and license in Pharmacy</p>
Specialized courses?	No	<p><u>At the postgraduate level</u>, several 2-year <u>M.Sc. courses</u> are offered from each Faculty or on a collaborative basis. These courses are open to Pharmacists, Chemists, Biologists, Medical Doctors, Dentists, Veterinarians, Agriculture specialists, Chemical Engineers. The curricula are generally divided into 2 semesters of courses assessed by written exams and reports, followed by 2 semesters of research project resulting in a written report and a public dissertation.</p> <p>The Postgraduate Diploma Specialisations (MSc.) for each Faculty of Pharmacy in Greece are presented below</p> <p><u>Athens</u> ( <a href="http://www.pharm.uoa.gr">http://www.pharm.uoa.gr</a> )  <u>Postgraduate specialisation</u> (2 years) is possible in the following areas:</p> <ol style="list-style-type: none"> <li>1. Industrial Pharmacy</li> <li>2. Clinical Pharmacy</li> <li>3. Synthetic Pharmaceutical Chemistry</li> <li>4. Pharmaceutical Analysis - Quality Control</li> <li>5. Pharmacognosy and Natural Product Chemistry</li> <li>6. Radiopharmaceutical Chemistry</li> </ol> <p>This can be followed by doctoral studies (&gt; 4 semesters)</p> <p><u>Thessaloniki</u> ( <a href="http://www.pharm.auth.gr">http://www.pharm.auth.gr</a> )  <u>Postgraduate Educational Program Master's Degree in Pharmaceutical Sciences</u>  Areas:</p> <ol style="list-style-type: none"> <li>1. Medicinal Chemistry, Development of Pharmaceutical Compounds</li> <li>2. Pharmaceutical Technology</li> <li>3. Pharmaceutical Biotechnology - Molecular diagnostics</li> <li>4. Pharmacology and therapeutics</li> <li>5. Pharmacognosy - Plant pharmaceutical products</li> </ol> <p><u>Patras</u> <a href="http://www.pharmacy.upatras.gr/">http://www.pharmacy.upatras.gr/</a>  <u>Postgraduate Diploma of Specialization</u>  Currently there are five specializations available:</p> <ol style="list-style-type: none"> <li>1. Industrial Pharmaceutics and Drug Analysis</li> <li>2. Pharmaceutical Chemistry-Natural Products: Design, Synthesis and Analysis of Bioactive Compounds</li> <li>3. Molecular Pharmacology - Clinical Pharmacy</li> <li>4. Pharmaceutical Biotechnology and Biomedicine</li> <li>5. Pharmaceutical Marketing</li> </ol>
<b>Athens</b>		
<b>Teaching staff</b>		
Number of teaching staff (nationals)	40	
<b>Students</b>		
Entry following	150	

secondary school		
% graduating as pharmacists.	~ 90%	
International students (EU)	~ 10	
International students (non EU)	~ 5	
<b>Advanced entry</b>		
At which level?		Second Year
What are the requirements?		Graduates with a University degree in Chemistry, Biology, etc., through examinations in relevant subjects (Chemistry, Biology and Physics).
<b>Fees per year</b>		
Home and EU students	None	
Others	493€ / y	
<b>Length of course</b>	<b>5 years</b>	
<b>Specialization</b>		
Specialized courses?	No	Not within the 5 years undergraduate curriculum. There is no formal specialization but elective courses are offered in all undergraduate years. However specialised courses are provided within separate MSc programs leading to independent MSc diplomas. (see above)
<b>Past and present changes in E&amp;T</b>		
Major changes since 1999?	Yes	Minor changes in the curriculum have been implemented. New Laboratory Practice has been implemented. Optimisation of elective courses.
Major changes envisaged before 2019?	Yes	Several ideas are under discussion, e.g. Diploma Thesis is still elective in Faculty of Pharmacy (UoA) and it is planed to be compulsory.
<b>Is Athens typical of HEIs in Greece?</b>	Yes	

<b>Websites</b>	
Athens School of Pharmacy	<a href="http://www.pharm.uoa.gr">http://www.pharm.uoa.gr</a>
Thessaloniki School of Pharmacy	<a href="http://www.pharm.auth.gr">http://www.pharm.auth.gr</a>
Patras Departmnt of Pharmacy	<a href="http://www.pharmacy.upatras.gr/">http://www.pharmacy.upatras.gr/</a>

## Chapter 3. Teaching and learning methods

Student contact hours for lectures, tutorials, practicals:

- 1<sup>st</sup> through 4<sup>th</sup> year ~660 contact hours/year
- 5<sup>th</sup> year:
  - 65 contact hours plus diploma thesis or 4 elective courses
  - Traineeship:
    - 6 months community
    - 3 months hospital
    - 3 months in community, or hospital
    - Final examination and validation of traineeship for Pharmacist registration is controlled by the Ministry of Health at a national level.

For this and the following chapter 4 see:

<http://www.pharm.uoa.gr>

<http://www.pharm.auth.gr>

<http://www.pharmacy.upatras.gr/>

## Chapter 4. Subject areas

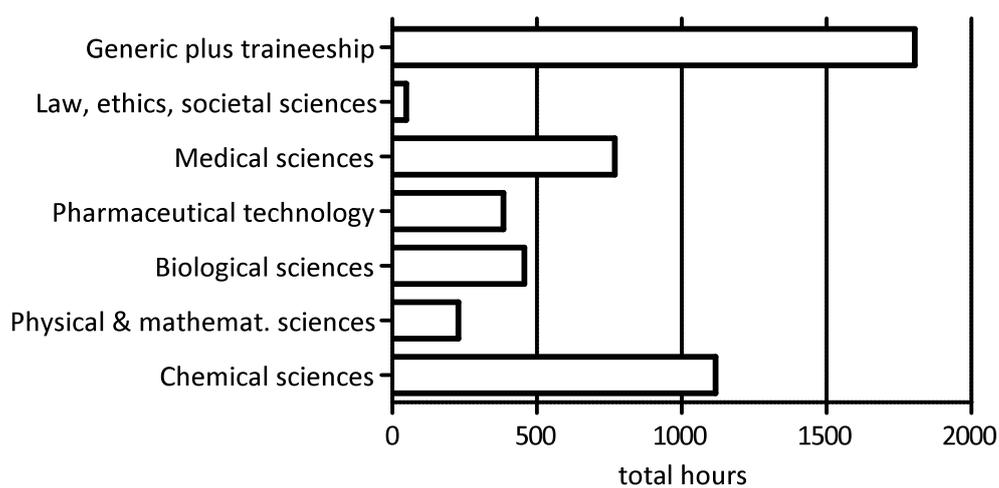
### Athens.

Subject area	Year 1	Year 2	Year 3	Year 4	Year 5	Total
CHEMSCI	182	510	193	260	-	<b>1145</b>
PHYSMATH	169	-	-	-	-	<b>169</b>
BIOLSCI	108	67	153	86	-	<b>414</b>
PHARMTECH	-	-	120	120	-	<b>240</b>
MEDISCI	156	66	156	56	29	<b>463</b>
LAWSOC	39	-	-	-	39	<b>78</b>
GENERIC	18	39	39	156	156	<b>408</b>
GENERIC + TRAINEESHIP					1800	<b>1800</b>

Subject area	Total hours
CHEMSCI	<b>1145</b>
PHYSMATH	<b>169</b>
BIOLSCI	<b>414</b>
PHARMTECH	<b>240</b>
MEDISCI	<b>463</b>
LAWSOC	<b>78</b>
GENERIC	<b>408</b>
GENERIC + TRAINEESHIP	<b>1800</b>

## Patras.

Subject area	Year 1	Year 2	Year 3	Year 4	Year 5	Total
CHEMSCI	168	420	360	168	-	1116
PHYSMATH	168	-	-	-	60	228
BIOLSCI	216	168	-	72	-	456
PHARMTECH	-	-	108	252	24	384
MEDISCI	36	168	252	312	-	768
LAWSOC	-	-	-	-	48	48
GENERIC	132	72	-	-	-	204
GENERIC + TRAINEESHIP	132	72	-	-	1600	1804



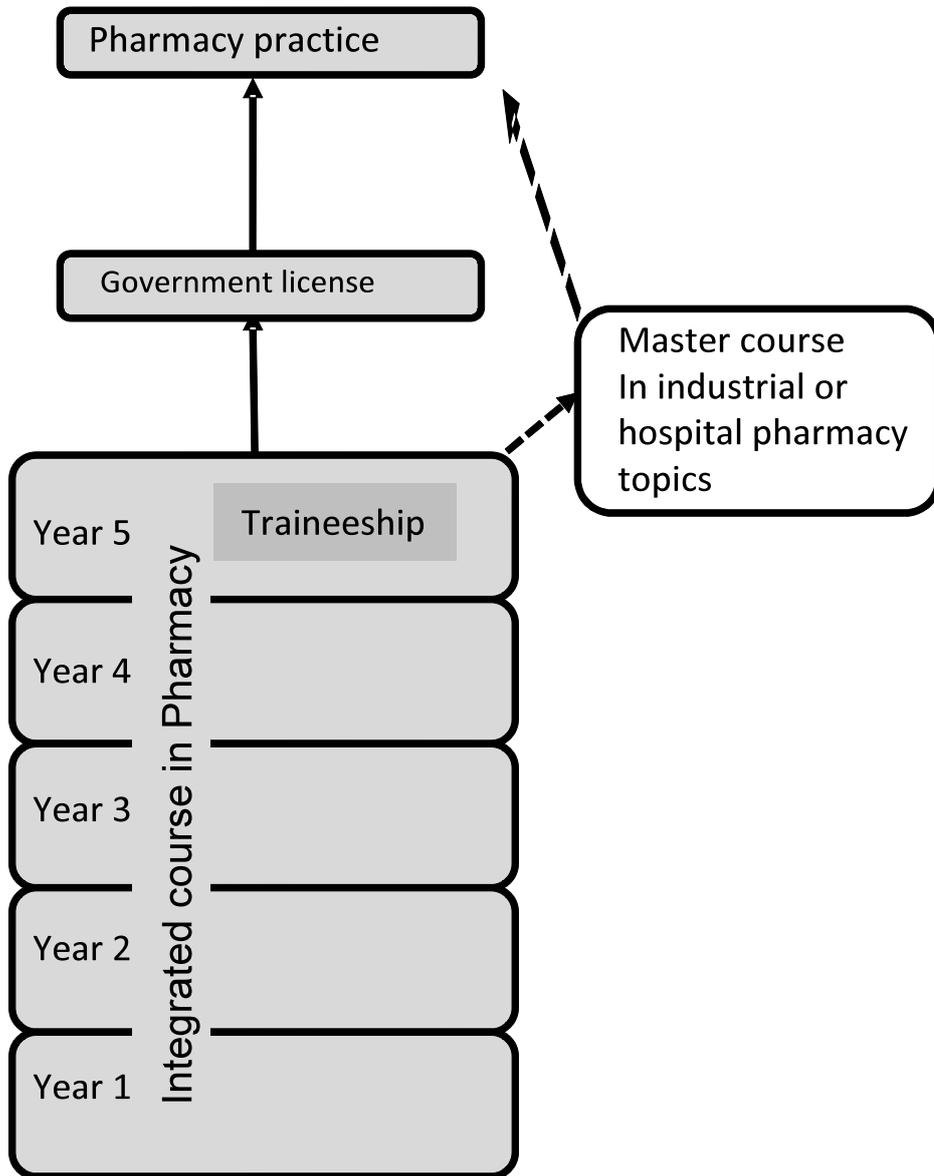
## Chapter 5. Impact of the Bologna principles

Bologna principle	Is the principle applied? Y/N or partially	How is it applied? Does Athens have multilateral recognition and agreements? Other comments.
<b>1. Comparable degrees / Diploma Supplement</b>	Yes	Within ERASMUS framework several bilateral agreements have been established with many European Faculties of Pharmacy. Within this context mutual ECTS recognition is compulsory
<b>2. Two main cycles (B and M)</b>	No	
<b>3. ECTS system of credits / links to LLL</b>	ECTS: Yes LLL: No	
<b>4. Obstacles to mobility</b>		<p>General obstacles to mobility are:</p> <ul style="list-style-type: none"> <li>• Language</li> <li>• Lodging</li> <li>• Finances</li> </ul> <p>The Faculty of Pharmacy UoA considers language the major obstacle for incoming students. However, the Faculty orients the students to courses which can be examined in English and principally towards research project and/or traineeships in hospital pharmacies</p>
<b>5. European QA</b>	Not yet	QA in process at the National level
<b>6. European dimension</b>		The Faculty of Pharmacy UoA participates in the European Ph.D. in Medicinal Chemistry.
<b>ERASMUS staff exchange to Athens from elsewhere</b>		1 member-month per year
<b>ERASMUS staff exchange from Athens to other HEIs</b>		1 member-month per year
<b>ERASMUS student exchange to Athens from elsewhere</b>		48 student months: 8 students x 6 months
<b>ERASMUS student exchange from Athens to other HEIs</b>		72 student months: ~12 students x 6 months

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

The directive states	How does / will this directive statement affect pharmacy E&T?
“Evidence of formal qualifications as a pharmacist shall attest to training of at least <b>five years' duration...</b> ”	This applies.
“ <b>...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;</b> ”	5 year curriculum
“ <b>...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.</b> ”	12 months traineeship
“The balance between theoretical and practical training shall, in respect of each subject, give <b>sufficient importance to theory to maintain the university character of the training.</b> ”	25% practice and 75% theory
Directive annex	How does / will this directive annex affect pharmacy E&T?
<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.	This applies.  Newer topics should be considered, for example: pharmaco-economics, logistics and biotechnological production and control (monoclonal antibodies etc)

## The Greek pharmacy education and training scheme.





Education and Culture DG

Lifelong Learning Programme

**PHARMINE**  
*Pharmacy Education  
in Europe*

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**NATIONAL AND KAPODISTRIAN  
UNIVERSITY OF ATHENS**

**FACULTY OF PHARMACY**



**UNIVERSITY OF TARTU**



Vrije  
Universiteit  
Brussel

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

**Website: [www.pharmine.org](http://www.pharmine.org)**

Pharmacy education & training in

# HUNGARY

2010

The PHARMINE or PHARMacy education IN Europe project is 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 others 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 optional activities such as industrial and hospital pharmacy.

The PHARMINE consortium consists of university 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 the 7<sup>th</sup> PHARMINE WP (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 optional activities such as industrial and hospital pharmacy
3. Survey to what extent the model for pharmacy education and training based on the principles enumerated in the Bologna declaration, and that based on the "Sectoral profession" directive of the EU (2005/36/EC), 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 WP7 survey of European higher education institutions delivering pharmacy education & training - HUNGARY" was produced by:

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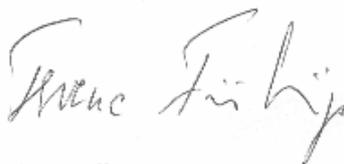
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This document was validated by the prof. F. Fulop dean of Pharmaceutical Faculty, University of Szeged,

Signature and seal



09/06/2010.

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*The original PHARMINE WP7 Survey questionnaire can be found [HERE](#)*

## Summary.

There are 4 higher education institutions (HEIs) delivering pharmacy education and training in Hungary. Two of them – Budapest and Szeged – have existed for over 200 years. The other two – Debrecen and Pécs – are of much more recent origin.

The pharmacy degree course is a fully integrated 5-year university course with 32 weeks of HEI-supervised traineeship spread over the 2<sup>nd</sup> through the 5<sup>th</sup> year and taking place mainly in the 10<sup>th</sup> semester.

The main subject areas taught – besides generic subjects (including traineeship) – are medical sciences, chemical sciences and pharmaceutical technology. There are plans for a decrease in the teaching of chemistry-related subjects, and an increase in the weight of the biomedical and clinical subject matters.

Specialisation in hospital and various forms of industrial pharmacy occurs at the postgraduate level and is organised by the HEIs, as is CPD/LLL. The latter is mandatory for renewal of a government license to practice pharmacy (every 5 years).

## Hungarian health and healthcare.

### Statistics for Hungary.

(2006 unless otherwise indicated):

Total population: 10,058,000

Gross national income per capita (PPP international \$): 16,970

Life expectancy at birth m/f (years): 69/78

Healthy life expectancy at birth m/f (years, 2003): 62/68

Probability of dying under five (per 1 000 live births): 7

Probability of dying between 15 and 60 years m/f (per 1 000 population): 249/104

Total expenditure on health per capita (Intl \$, 2006): 1,382

Total expenditure on health as % of GDP (2006): 7.6

(From the WHO Statistical Information System (WHOSIS: <http://www.who.int/whosis/en/index.html>)

See also: "World Health Statistics 2009, WHO".)

### Highlights on health in Hungary.

Infant mortality has declined substantially in Hungary. By 2003, the rate was 7 per 1000 live births. In 2003, the main non-communicable diseases accounted for about 87% of all deaths in Hungary, external causes for almost 8%, and communicable diseases for 0.4%. In total, 57% of all deaths were caused by diseases of the circulatory system and 25% by cancer. The death rates from diseases of the digestive system are also high, following mortality from chronic liver disease and cirrhosis. As the length of life increases, health care systems shift towards more geriatric care, the prevention and management of chronic diseases and long-term care.

(From the WHO "Highlights on health in Hungary", 2005. (<http://www.euro.who.int/document/E88736.pdf>)

Further information can be found at: Health Care Systems in Transition, Gaäl, P and Riesberg, A, 2004 at:

[http://www.euro.who.int/\\_data/assets/pdf\\_file/0008/80783/E84926.pdf](http://www.euro.who.int/_data/assets/pdf_file/0008/80783/E84926.pdf)

The following link deals with health care and pharmaceuticals in Hungary especially in relation to pricing policy:

[http://ppri.oebig.at/Downloads/Results/Hungary\\_PPRI\\_2007.pdf](http://ppri.oebig.at/Downloads/Results/Hungary_PPRI_2007.pdf)

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

	Y/N, number or %	Comments
<b>Community pharmacy</b>		
Number of community pharmacists	4900	
Number of community pharmacies	2380	On average: 5033 inhabitants / pharmacy 2 pharmacists / pharmacy; 2.3 pharmacy assistants / pharmacy. At least one of the owners of a pharmacy must be a pharmacist. A pharmacist may collaborate with other pharmacists, druggists, general practitioners and insurance companies.
Competences and roles of community pharmacists		<ol style="list-style-type: none"> <li>1. Supplying prescription medicines</li> <li>2. Managing medicines for some ailments</li> <li>3. Giving advice on medicines</li> <li>4. Screening services</li> <li>5. Services to the housebound</li> <li>6. Services to nursing and care homes (medication reviews, advice on storage and administration of medicines)</li> </ol> <p>Management of the pharmacy Pharmacists can provide diagnostic services (measurement of blood sugar or blood pressure). Internet pharmacies can sell OTC drugs only.</p>
Is ownership of a community pharmacy limited to pharmacists?	No	Anybody and all kinds of economic organisations can be pharmacy owners. However, the pharmacist who has professional responsibility for the pharmacy has to be a partial owner of the same pharmacy. Thus In principle ownership of community pharmacies is free. However, pharmacist has to be a partial owner of the pharmacy. Hungarian Act 98/2006 74.§
Are there rules governing the geographical distribution of community pharmacies?	Partially	5000 inhabitants /pharmacy; 275 m distance between two pharmacies. Since 2007 these limitations can be avoided if a new pharmacy provides special services. In the practice the limitations are not strictly adhered to since 2007, and the opening of pharmacies has been substantially liberalised Hungarian Act 98/2006 48-57.§
Are healthcare products available by other channels ?	Yes	Special OTC drugs only ( <i>circa</i> 400 preparations) are distributed from closed shelves in petrol stations, post offices, perfumeries, supermarkets, <i>etc.</i>  Internet and mail order pharmacies exist in Hungary. Decree Ministry of Health 44/2004 21/A§
Are persons other than pharmacists involved in community practice?	Yes	The total number of employees in community pharmacies is 12981. Only pharmacy assistants are involved in practice.
Their titles and number(s)	5400	Pharmacy assistant
Their qualifications		Middle level healthcare professional

Organisation providing and validating the E&T		Different professional schools, with a centralised examination organised by the government. The schools for pharmacy assistants are independent from the pharmacy HEIs. <a href="http://www.gytk.sote.hu">www.gytk.sote.hu</a> <a href="http://www.pharm.u-szeged.hu">www.pharm.u-szeged.hu</a> <a href="http://www.pharmacol.dote.hu/pharmacy/">www.pharmacol.dote.hu/pharmacy/</a> <a href="http://www.gytsz.pte.hu">www.gytsz.pte.hu</a> Every school has own, independent curriculum ; outcome demands are legally declared and harmonised with EU requirements. The Hungarian Accreditation Committee validates the activity of schools .
Duration of studies (years)	2	
Subject areas		The same areas as for a pharmacist, but at a more superficial level.
Competences and roles		To help in all pharmacist's activities, especially supplying prescription and OTC medicines, contributing to drug compounding, help in managerila and financial activities.
<b>Hospital pharmacy</b>		
Does such a function exist?	Yes	They are members of the hospital section of the Hungarian Society of Pharmaceutical Sciences which is a member of the European Association of Hospital Pharmacists (EAHP) since 1991
Hospital pharmacists	350	
Hospital pharmacies	115	
Competences and roles of hospital pharmacists		Acquisition, storage, distribution of medicines and some medicinal products, clinical services all within a quality ensured system. In the previous phrase, "clinical" means personalised services: daily dose drug supply, bed side counselling, and production of individual sterile preparations: mixed infusions
<b>Pharmaceutical and related industries</b>		
Number of companies with production, R&D and distribution	Number: 39+105	Industrial pharmacists in Hungary are represented by the industrial pharmacist section (Association for the Pharmaceutical industry (API)) of the Hungarian Society of Pharmaceutical Sciences; this section is an official member of the EIPG since 2009.  Pharmaceutical exports: 1837 million€; imports: 1852 million€ (balance 185 million€) Pharmaceutical market value: 1955 million€ The above figures are from: " <i>The Pharmaceutical Industry in Figures</i> ". European Federation of Pharmaceutical Industries and Associations, EFPIA, Key figures 2009 <a href="http://www.efpia.eu/Content/Default.asp?PageID=317">www.efpia.eu/Content/Default.asp?PageID=317</a>  Examples of company websites: G.Richter Co ; <a href="http://www.richter.hu">www.richter.hu</a> Sanofi- Aventis Co <a href="http://www.sanofi-aventis.hu">www.sanofi-aventis.hu</a>
Number of companies with production only	39	TEVA Magyarország Kft. <a href="http://www.teva.hu">www.teva.hu</a>
Number of companies with distribution only	105	4 companies cover 85% of the turnover. HungaroPharma Zrt. <a href="http://www.hungaropharma.hu">www.hungaropharma.hu</a> Phoenix Pharma Zrt <a href="http://www.phonix.hu">www.phonix.hu</a> Euromedic Pharma Zrt <a href="http://www.euromedic-hungary.com">www.euromedic-hungary.com</a>
Number of companies producing generic drugs	?	Examples: PannonPharma Gyógyszergyártó Kft <a href="http://www.pannonpharma.hu">www.pannonpharma.hu</a> Meditop Gyógyszeripari Kft. <a href="http://www.meditop.hu">www.meditop.hu</a>

<b>Industrial pharmacy</b>		
Number of pharmacists working in industry	~1200	The Association for the Pharmaceutical industry (API) of the Hungarian Society for Pharmaceutical Sciences has approximately 300 members; it is a member of EIPG since 2009.
Competences and roles of industrial pharmacists		Whole spectra of R & D, regulatory affairs and marketing
<b>Other sectors</b>		
Number of pharmacists working in other sectors	~ 1300 - 1400	
Sectors in which pharmacists are employed		Education, regulatory & authorities
<b>Roles of professional associations</b>		
Registration of pharmacists	Not since 2006	The Act (issued the end of 2006) for the liberalisation of the drug market reduced at the functions of the Chamber of Pharmacist. The government re-registers pharmacists every 5 years following acquisition of 250 ECTS (see <a href="http://www.eekh.hu">www.eekh.hu</a> ). Pharmacists educated in other EU or EEA countries are barred from owning, managing or supervising a pharmacy that is less than 3 years old (3-year clause). They must speak Hungarian.
Creation of pharmacies, territorial distribution	No	This is the responsibility of the Hungarian National Public Health and Medical Officer Service (ÁNTSZ) – which is a governmental body. There is a minimum number of customers (5000) and a minimum distance (275 metres) between pharmacies.
Ethical and other aspects of professional conduct	Yes	The Code of Ethics was developed by the Hunarian Chamber of Pharmacists.
Quality assurance and validation of HEI courses for pharmacists	No	
Other comments		The Hungarian Society for Pharmaceutical Sciences ( <a href="http://www.mgyt.hu/index.php?option=com_content&amp;task=view&amp;id=322&amp;Itemid=17">http://www.mgyt.hu/index.php?option=com_content&amp;task=view&amp;id=322&amp;Itemid=17</a> (in Hungarian)) dates back to 1924. Members of the society include HEI staff, pharmacists working in industry, heads of pharmacy administration and pharmacist involved in the treatment of in- and out-patients. It has over 5000 members. This society places special interest in the relationships between pharmacy practice and science. The Society also protects the professional interests of pharmacists.

<b>References</b>	
References to texts and articles of national law	Act CXL (2004) on the General Rules of Administrative Proceedings and Services: <a href="http://net.jogtar.hu/jr/gen/getdoc.cgi?docid=a0400140.tv&amp;dbnum=62">http://net.jogtar.hu/jr/gen/getdoc.cgi?docid=a0400140.tv&amp;dbnum=62</a> (in English) Act XCVIII (2006) on the General Provisions Relating to the Reliable and Economically Feasible Supply of Medicinal Products and Medical Aids and on the Distribution of Medicinal Products:

	<a href="http://net.jogtar.hu/jr/gen/getdoc.cgi?docid=a0600098.tv&amp;dbnum=62">http://net.jogtar.hu/jr/gen/getdoc.cgi?docid=a0600098.tv&amp;dbnum=62</a> (in English) See also: <a href="http://www.ogyi.hu/laws_and_regulations/">www.ogyi.hu/laws_and_regulations/</a> (in English)
<b>Websites</b>	
ECORYS: “ <i>Study of regulatory restrictions in the field of pharmacies</i> ”. Report for the European Commission, Internal Market and Services DG, ECORYS Nederland BV, Dr. Bjørn Volkerink, Patrick de Bas, Nicolai van Gorp ; in cooperation with: Dr. Niels Philipsen (METRO – University of Maastricht). Rotterdam, 22 June 2007.	<a href="http://ec.europa.eu/internal_market/services/pharmacy_en.htm">http://ec.europa.eu/internal_market/services/pharmacy_en.htm</a>
European Federation of Pharmaceutical Industries and Associations (EFPIA)	<a href="http://www.efpia.eu/Content/Default.asp?PageID=317">www.efpia.eu/Content/Default.asp?PageID=317</a>
Pharmaceutical Group of the EU (PGEU)	<a href="http://www.pgeu.org/">http://www.pgeu.org/</a>
European Association of Hospital Pharmacists (EAHP)	<a href="http://www.eahp.eu/">http://www.eahp.eu/</a>
European Industrial Pharmacists’ Group (EIPG)	<a href="http://www.eipg.eu/">http://www.eipg.eu/</a>
European Hospital and Healthcare Federation (HOPE)	<a href="http://www.hope.be/">http://www.hope.be/</a>
WHO	<a href="http://www.euro.who.int/countryinformation/CtryInfoRes?COUNTRY=HUN">http://www.euro.who.int/countryinformation/CtryInfoRes?COUNTRY=HUN</a>
Hungarian Society for Pharmaceutical Sciences	<a href="http://www.mgyt.hu/index.php?option=com_content&amp;task=view&amp;id=322&amp;Itemid=17">http://www.mgyt.hu/index.php?option=com_content&amp;task=view&amp;id=322&amp;Itemid=17</a> (in Hungarian)

## Chapter 2. Pharmacy HEIs, students and courses

	Y/N, number or %	Comments.
<b>Number of HEIs in Hungary</b>	4	1. Semmelweis: <a href="http://www.gytk.sote.hu">www.gytk.sote.hu</a> 2. Szeged: <a href="http://www.pharm.u-szeged.hu">www.pharm.u-szeged.hu</a> (English: <a href="http://www.pharm.u-szeged.hu/index.php?link=startpage&amp;language=en&amp;topic_id=351">http://www.pharm.u-szeged.hu/index.php?link=startpage&amp;language=en&amp;topic_id=351</a> ) 3. Debrecen: <a href="http://www.pharmacol.dote.hu/pharmacy/">www.pharmacol.dote.hu/pharmacy/</a> 4. Pecs: <a href="http://www.gytsz.pte.hu">www.gytsz.pte.hu</a>
Public	4	
<b>Organisation of HEIs</b>		
Independent faculty	3	Budapest, Szeged, Debrecen
Attached to a medical faculty	1	Pécs
Do HEIs offer B + M degrees?	No	Only a 5-year fully integrated, master degree program
Do HEIs offer an M. Pharm. after a B degree in another HEI?	Exceptional situations	It is possible for a student who comes from abroad, but no HEI in Hungary has a B. Pharm. course.
Do HEIs offer a B. Pharm. followed by an M. Pharm. in the same HEI or elsewhere?	No	
<b>Entry requirements following secondary school</b>		
Specific pharmacy-related national entrance examination	No	
Is there a national <i>numerus clausus</i> ?	Yes	This is based on finances. HEIs are financially dependent on the national government so the resources are limited by the national budget
<b>Advanced entry</b>		
	No	All students have to start at the beginning of the first year, no other possibility is allowed
<b>Fees per year</b>		
For home students	2500€ / year	
For EU MS students	4300€	
For non EU students	4300€	
<b>Length of course</b>	<b>5 years</b>	Although the course lasts 5 years and is this equivalent to a Master level, from 2009 onwards, graduating pharmacists will have the right to use the title of "doctor".
<b>Specialization</b>		
Do HEIs provide specialized courses?	Yes	All HEIs offer specialised <u>postgraduate</u> courses. This consists of two years' residency with obligatory and optional courses.  The types of qualifications are as follows: <ul style="list-style-type: none"> <li>• pharmaceutical technology</li> <li>• quality control</li> <li>• pharmacodynamics</li> <li>• pharmaceutical chemistry</li> <li>• social pharmacy</li> <li>• pharmacognosy and phytotherapy</li> <li>• clinical laboratory diagnostics</li> </ul>

		<ul style="list-style-type: none"> <li>• community pharmacy</li> <li>• pharmaceutical administration and management</li> <li>• radiopharmacy</li> <li>• hospital pharmacy*</li> <li>• clinical pharmacy</li> <li>• pharmaceutical microbiology</li> <li>• toxicology</li> <li>• quality assurance</li> </ul> <p>*The general structure of the <u>hospital pharmacy postgraduate programme</u> is as follows:  Theoretical courses:  A. <i>Obligatory (200 hours)</i></p> <ul style="list-style-type: none"> <li>• Therapeutics (100 hours)</li> <li>• Compounding (25 hours)</li> <li>• Hospital pharmacy management (50 hours)</li> <li>• Quality assurance (25 hours)</li> </ul> <p>B. <i>Optional (80 hours)</i></p> <ul style="list-style-type: none"> <li>• Biopharmacy</li> <li>• Special field of therapeutics</li> <li>• Interactions</li> <li>• Clinical laboratory investigations</li> <li>• Clinical Toxicology</li> <li>• Pharmaco-economics</li> <li>• Drug marketing</li> </ul> <p>Practice:  General hospital pharmacy practice and specialised training in the preparation of large volume parenterals and intravenous admixtures.</p> <p>Ph.D. programmes consist of theoretical courses and practical research and can be followed on a full-time or part-time (for those already working in industry, for example) basis.</p>
In which years?		Postgraduate
In which specialisation ?		Hospital pharmacy and others (see above).
What are the student numbers ?		Hospital pharmacy: <i>circa</i> 20 / year
<b>Past and present changes in E&amp;T</b>		
Have there been any major changes since 1999?		
Are any major changes envisaged before 2019?	Yes	The strategic reorganisation of the Hungarian healthcare system will involve a reduction in the budget of the Ministry of Health and therefore of the degree of financing of postgraduate specialisation.
<b>Szeged</b>		
<b>Teaching staff</b>		
Number of teaching staff (nationals)	45	
Number of international teaching staff	0	
Number professionals from outside the HEIs, involved in E&T	150-200 pharmacist	Tutors in pharmacies for summer and preregistration practice. Traineeship is under the supervision of the HEI.

<b>Students</b>		
Number of places on entry following secondary school	320	320 are state commissioned places, plus about 10% self-financed students start in the 1 year
Number of applicants for entry	800-900	3 applicants per place. University statistics at <a href="http://www.felvi.hu">www.felvi.hu</a>
Number that become professional pharmacists.	250-280	40-50 low achievers drop out. They are lost to the pharmacy profession; they change careers.
Number of international students (from EU member states)	<5	From Germany, Cyprus and Greece mainly.
Number of international students (non EU)	100-120	Mainly from Iran, Israel, Syria or Turkey.
<b>Entry requirements following secondary school</b>		
Specific entry requirement	Yes	Szeged has the right to select students. The general results (certificate of "maturation") and the records of biology and physics or chemistry are taken into consideration mainly, but there are some other factors involved.
<b>Fees per year</b>		
For home students	2500€ / yr	
For EU MS students	4300€	
For non EU students	4300€	
<b>Length of course</b>		
	<b>5</b>	
<b>Specialization</b>		
Does Szeged provide specialized courses?	No (post-graduate only)	The hospital pharmacist receives his/her special training at the postgraduate level. Albeit 4 weeks hospital pharmacy practice is obligatory during the pre-registration training (since 1998).
<b>Past and present changes in E&amp;T</b>		
Have there been any major changes since 1999?	Yes	ECTSs were implemented into the curriculum (since 2002). This allows students to draw up individual practical programs, and timetables.
Are any major changes envisaged before 2019?	Yes	<u>Decrease the teaching in chemistry-related subjects, and increase the weight of the biomedical, clinical subject matters.</u>
<b>Past and present changes in E&amp;T</b>		
<b>Is your HEI typical of all HEIs in the country?</b>	Yes	There are some minor but no major differences amongst the four faculties.

<b>References</b>	
References to texts	I. Antal, P. Mátyus, S. Marton, Z. Vincze (2002). Developing the Pharmacy Curriculum in a Hungarian Faculty. <i>Pharmacy Education</i> , 1: 241-246.

## Chapter 3. Teaching and learning methods

Student hours (28-30 weeks per year)										
Method	Year 1	%	Year 2	%	Year 3	%	Year 4	%	Year 5	%
<b>Lecture</b>	15 hours / week = 450*	46.9	17 hours / week = 510	46.4	15 hours / week = 450	40.9	16 hours / week = 480	43.6	20 hours / week = 600	37.5
<b>Practical</b>	17 hours / week = 510	53.1	15 hours / week = 450	46.9	17 hours / week = 510	46.4	16 hours / week = 480	43.6	10 hours / week = 300	18.8
<b>Project work</b>	0		0		0		Thesis work**		Thesis work**	
<b>Subtotal</b>	960		960		960		960		900	
<b>Traineeship</b>	<b>Year 1</b>		<b>Year 2</b>		<b>Year 3</b>		<b>Year 4</b>		<b>Year 5</b>	
<b>Hospital</b>					Summer 35 hours / week = 140 Or		Summer 35 hours / week = 140 Or		4 weeks 35 hours / week In 10 <sup>th</sup> semester = 140	
<b>Community</b>			Summer (4 weeks) 35 hour / week = 140		35 hours / week = 140 Or		35 hours / week = 140 Or		16 weeks 35 hours / week In 10 <sup>th</sup> semester = 560	
<b>Industrial</b>					35 hours / week = 140		35 hours / week = 140			
<b>Total traineeship</b>			140	112.7	140	12.7	140	12.7	700	43.8
<b>Total</b>	960		1100		1100		1100		1600	

\*: hours calculated on basis of 30 weeks / year

\*\* : duration is variable. Students are given 10 ECTSs for their work on their thesis.

### Summary:

Year	Teaching and learning methods
1	Equal split between lectures and practicals
2	Equal split between lectures and practicals. Traineeship starts with 4 weeks community pharmacy
3	Equal split between lectures and practicals. Traineeship continues with 4 weeks in community, hospital or industry.
4	Equal split between lectures and practicals. Traineeship continues with 4 weeks year in community, hospital or industry. Thesis commences.
5	Twice more lectures than practicals. Traineeship period of 20 weeks mainly in community pharmacy. Traineeship occupies 10 <sup>th</sup> semester. Thesis finalised.

## Chapter 4. Subject areas

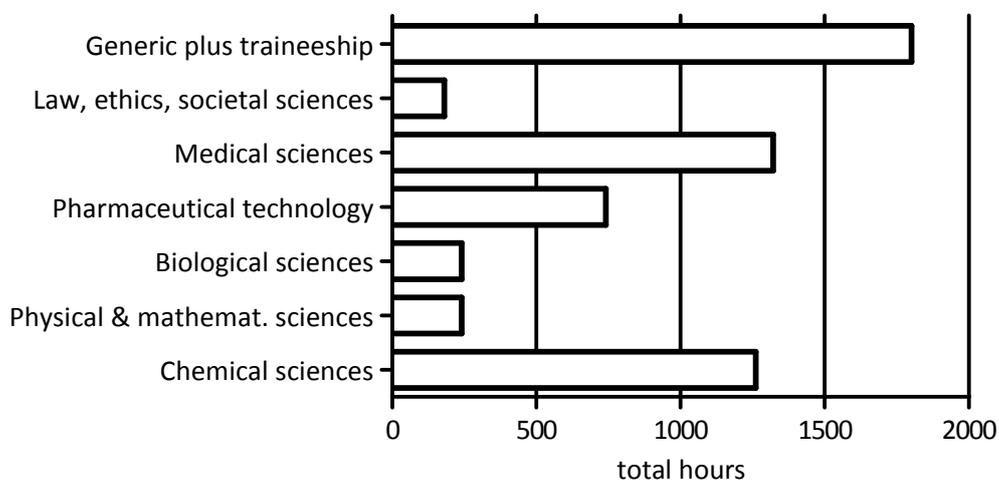
### Student hours (per week/per year (30 weeks per year))

Subject area	Year 1	%	Year 2	%	Year 3	%	Year 4	%	Year 5	%
Chemical sciences	11/330	34.4	16/480	43.6	10/300	27.3	4/120	10.9	1/30	1.9
Physical and mathematical sciences	8/240	25.0	-		-		-		-	
Biological sciences	2/60	6.3	5/150	13.6	-		-		1/30	1.9
Pharmaceutical technology	-		1/30	2.7	14/320	38.2	11/330	30.0	2/60	3.8
Medical sciences	3/90	9.4	6/180	16.4	8/240	21.8	9/270	24.5	18/540	33.8
Law, ethics and societal sciences	2/60	6.3	-		-		4/120	10.9	-	
Generic subjects	6/180		4/120		-		4/120		8/240	
Generic subjects plus traineeship	-/180	18.8	-/260	23.6	-/140	12.7	-/260	23.6	-/960	58.8
<b>Total</b>	<b>32</b>		<b>32</b>		<b>32</b>		<b>32</b>		<b>30</b>	

Summary:

Year	Main subject areas
1	Chemical sciences, Physical and mathematical sciences, Generic subjects plus traineeship
2	Chemical sciences, Generic subjects plus traineeship, Medical sciences
3	Pharmaceutical technology, Chemical sciences, Medical sciences
4	Pharmaceutical technology, Medical sciences, Generic subjects plus traineeship
5	Generic subjects plus traineeship, Medical sciences

Total hours over the 5-year course for the various subject areas.



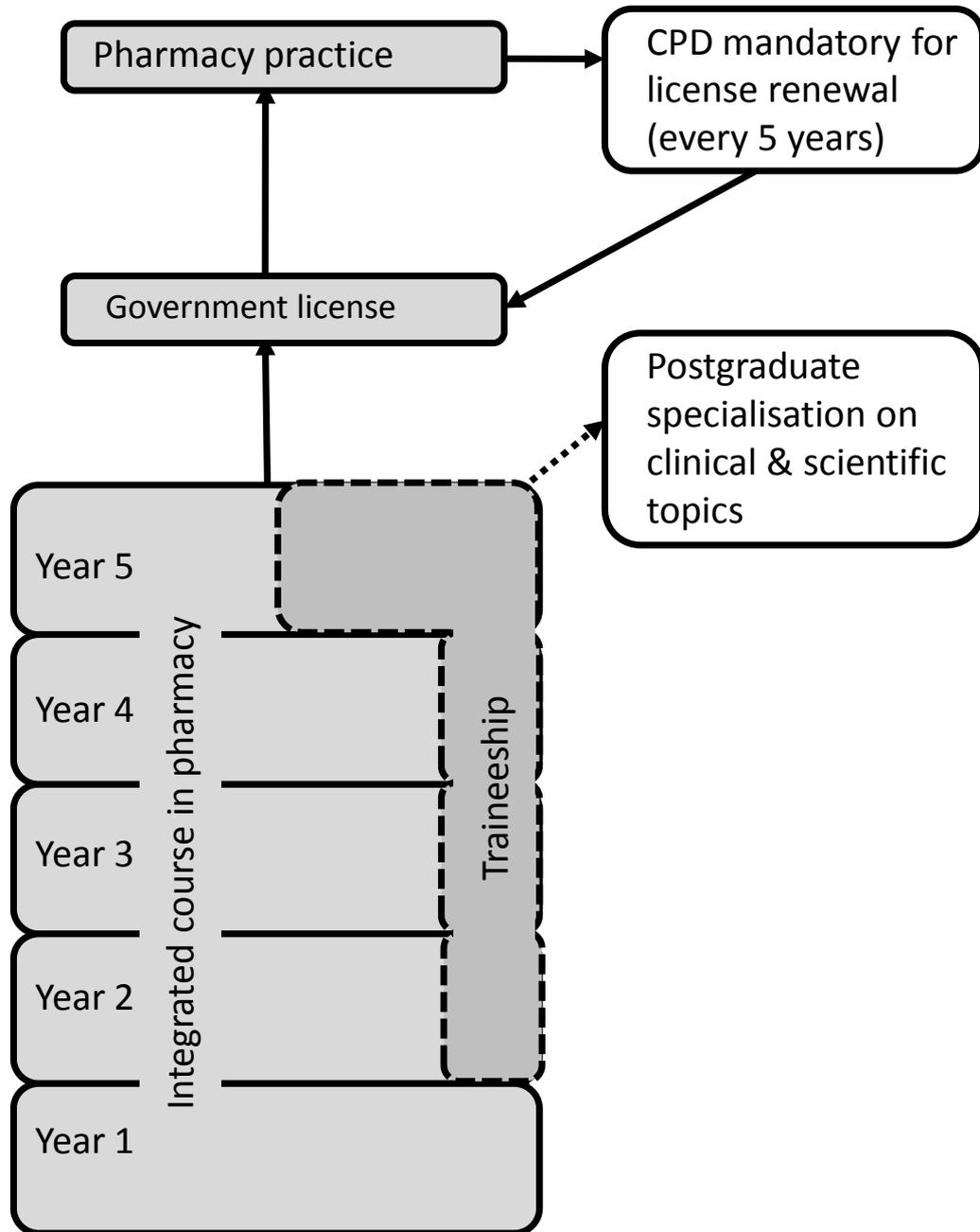
## Chapter 5. Impact of the Bologna principles

Bologna principle	Is the principle applied?	Comments.
<b>1. Comparable degrees / Diploma Supplement</b>	Partially	Students receive a diploma supplement in Hungarian and English, at the end of the 5-year degree course.
<b>2. Two main cycles (B and M) with entry and exit at B level</b>	No	
<b>3. ECTS system of credits / links to LLL</b>	Yes	CPD is run by the HEIs, and “credits” are used for evaluation to measure the activity in LLL. Every working pharmacist is obliged to collect 250 HEI-accredited points (1 credit point = <i>circa</i> 1 hour of study) over 5 years in order to renew his/her licence to practice. A limited number of credits can be obtained by distance learning. Other CPD courses are organised by the HEIs on the instigation of the Ministry of Health, pharmaceutical companies and scientific associations.
<b>4. Obstacles to mobility</b>	Yes	Language barrier: the Hungarian language is far removed in its grammar and pronunciation from other European languages. It is difficult to learn for the majority of the Hungarians. There is a improvement and the situation is more favourable regarding the new in-coming students.
<b>5. European QA</b>	Yes	Following a Hungarian initiative, the Central and Eastern European Network of Quality Assurance Agencies in Higher Education was set up in 2000. The Hungarian Accreditation Committee (HAC) was set up under Hungary's first Higher Education Act in 1993 with a mandate for accreditation of all higher education institutions The HAC joined the European Network for Quality Assurance in Higher Education in 2000.
<b>6. European dimension</b>		Our HEI takes into consideration the main European traditions. An official, long-term student exchange agreement has been signed with Toledo University in the USA.
<b>ERASMUS staff exchange to your HEI from elsewhere</b>		Number of staff months: 1-2 / year – with the University of Ljubjana
<b>ERASMUS staff exchange from your HEI to other HEIs</b>		Number of staff months: 1-2 / year – with the University of Ljubjana
<b>ERASMUS student exchange to your HEI from elsewhere</b>		Number of student months: 0
<b>ERASMUS student exchange from your HEI to other HEIs</b>		Number of student months: 0

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

The directive states	How does / will this directive statement affect pharmacy E&T?	
“Evidence of formal qualifications as a pharmacist shall attest to training of at least <u>five years' duration...</u> ”	The Hungarian curriculum is an integrated 5 years' course	
“ <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> ”	This applies.	
“ <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> ”	This applies. There is at least 6 months' pharmacy traineeship before the final examination.	
“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> ”	As it can be seen above, the weight of theoretical courses is predominant.	
Directive annex	Comments	Subjects to be added
<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 these courses are present in the Szeged and Hungarian programs.	Immunology Applied biotechnology (drug development) Clinical microbiology & infectious diseases Therapeutics Management and marketing

**The Hungarian pharmacy education and training scheme  
(based on the model of Szeged, Hungary), December 2009.**



Pharmacy education and training leading to community pharmacy is shown in grey.

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Lifelong Learning Programme

PHARMINE  
Pharmacy Education  
in Europe

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

Website: [www.pharmine.org](http://www.pharmine.org)

Pharmacy education & training in

# ICELAND

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.

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](#))

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## Summary.

### Pharmacy practice

About 1/3 pharmacists work in community pharmacy, about 1/3 in industry (which is mainly generics pharmaceuticals manufacturing and representation of international pharmaceutical companies), and 1/3 in government, hospitals, research, and teaching.

In 2010 there were 411 practicing pharmacists in Iceland. There are about 60 pharmacies in Iceland, most of them are only manned by one pharmacist at any given time. Legislation nr. 93/1994 is the law on pharmaceuticals. Parts of it did not come into effect until 1996 dealing with ownership of community pharmacies. Before 1996 ownership was reserved to the profession of pharmacy, but thereafter opened up to other parties. Pharmacists in industry are mostly involved in marketing activities, and a few in manufacturing. The largest employer of pharmacists is the generics producer Actavis.

### Regulation of pharmacy practice and pharmacists

Pharmacy practice is regulated by law nr. 93/1994 with associated regulations. The main chapters are:

I: Medicines Agency

II: Definitions

III: Pharmacopeias (Ph.Eur.)

IV: Product licencing and clinical testing of drugs

V: Prescribing, filling prescriptions, and labelling drugs

VI: Advertising and representing of drugs. Pharmacovigilance

VII: Establishing community pharmacies and licence to run pharmacies (Almost no drugs allowed to be sold outside pharmacies in Iceland). (Pharmacies have to be run by a licensed pharmacist, but ownership is open, except to medical doctors)

VIII: Community pharmacy operations (Pharmaceutical Care is written into the law here, although no regulation follows on carry it out)

IX: Databases (two databases are generated by the pharmacy prescription filling information, one is with personal identifiers and one without for administrative purposes)

X: Practical training of pharmacy students and pharmacy technicians (about the responsibility of pharmacies to train these students)

XI: Prescription filling (Pharmacists are responsible for filling prescriptions. There is a rule about 2 pharmacists per pharmacy, but it opens to a possible exception if a pharmacy's operation is small)

XII: Import, wholesale and parallel import of drugs

XIII: Production / compounding of drugs (Pharmacist has to head a production facility)

XIV: Pharmacy services in hospitals and other health care institutions (Pharmacist has to lead a hospital pharmacy)

XV: Drug pricing (Price setting on OTCs is unregulated, price setting and reimbursement for prescription drugs is in the hands of the Drug Pricing and Reimbursement Committee).

In addition to clauses in the law nr. 93/1994, pharmacists are regulated according to law nr 35/1978. This law is getting old and there is a proposal pending in the parliament which will cover all health care practitioners in Iceland. A new regulation covering pharmacists will be drafted in the wake of this new law, hopefully by mid-2011.

The main characteristic of the law is that pharmacists hold certain privileges: they are the only profession allowed to head a pharmacy and hospital pharmacy, in addition to pharmaceutical production facilities. The training of pharmacists is also set down in this law as 9 months practical training, 6 months pre-graduation and 3 months post-graduation.

### Basic pharmacy course

According to Bologna agreement, the pharmacy course at the University of Iceland is 3+2 years. Master of Science degree required for registration as pharmacist.

The first 2 years are mainly basic science subjects such as chemistry, math, physics, and statistics and some biological sciences such as physiology, microbiology, and molecular biology. Many of the basic courses are taught by the School of Engineering and Natural Sciences where students from other science disciplines are taught together with

pharmacy students. Parts of the 2nd year and the 3rd year are pharmacy specific topics such as physical pharmacy, pharmaceuticals, medicinal chemistry, pharmacoepidemiology, and natural products chemistry. The didactic teaching is mainly done by lectures and lab exercises in the first years, but as students move towards the masters level, they increasingly have project based learning. The last semester of the masters level consists of thesis project work which ends in a defence of a thesis typically in May of the graduation year.

### **Specialisation in practice**

In the law nr. 35/1978 there is a clause that a pharmacist can seek recognition as a specialist in a sub-field of pharmacy. Not many pharmacists have sought such recognition. A few pharmacists, mainly employed at the university hospital have done a masters course in clinical pharmacy in the UK. Other official specialisation is not common, but many have done MBAs and a few have PhDs.

## Introduction.

Total population: 298,000

Gross national income per capita (PPP international \$): 33,740

Life expectancy at birth m/f (years): 79/83

Healthy life expectancy at birth m/f (years, 2003): 72/74

Probability of dying under five (per 1 000 live births): 3

Probability of dying between 15 and 60 years m/f (per 1 000 population): 68/49

Total expenditure on health per capita (Intl \$, 2006): 3,319

Total expenditure on health as % of GDP (2006): 9.3

Figures are for 2006 unless indicated. Source: [World Health Statistics 2008](#)

For further information, see:

Directorate of Health [www.landlaeknir.is](http://www.landlaeknir.is)

Icelandic Medicines Agency <http://www.imca.is>

The Pharmaceutical Society of Iceland

[http://www.lfi.is/index.php?option=com\\_content&task=view&id=215&Itemid=126](http://www.lfi.is/index.php?option=com_content&task=view&id=215&Itemid=126)

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

	Y/N, number or %	Comments
<b>Community pharmacy</b>		
Community pharmacists	137	<a href="http://www.lfi.is">www.lfi.is</a>
Community pharmacies	56	
Competences and roles of community pharmacists		<p>Legally/professionally responsible for community pharmacies:</p> <ol style="list-style-type: none"> <li>Supplying prescription medicines</li> <li>Managing medicines for some ailments</li> <li>Giving advice on medicines</li> <li>Screening services</li> <li>Services to the housebound</li> <li>Services to nursing and care homes (medication reviews, advice on storage and administration of medicines)</li> <li>Other</li> </ol> <p>Pharmacists provide blood pressure and lipid measurements. They have not been involved much in health campaigns.</p>
Is ownership of a community pharmacy limited to pharmacists?	No	Parties that may have a conflict of interest, most notably MDs are not. Chains are allowed and insurance companies (not health insurance) have been owners.
Rules on geographical distribution of pharmacies?	Yes	The community councils can veto a new pharmacy's proposed location, but this has only happened once since the change in the legislation in 1996.
Drugs and healthcare products available by channels other than pharmacies?	Yes	Only possible to buy nicotine products outside pharmacies. There are a few places in scarcely populated areas where medicines are dispensed either in the doctor's office or in a shop owned by the pharmacy, but staffed with unskilled staff.
Are persons other than pharmacists involved in community practice?	Y/N: Yes	Pharmacy technicians and unskilled staff.
Their titles and number(s)	400 <i>Lyfjatæknir</i> ( <i>pharmacy technician</i> )	Pharmacy technicians are trained in a 3 year programme on a secondary technical school level.
Organisation providing and validating the E&T		<p>Medical Directorate of Iceland</p> <p>The Directorate of Health is a government agency headed by the Medical Director of Health. Its five divisions are responsible for administration, public health and clinical quality, infectious disease control, health statistics, and finance.</p> <p>From their website: <a href="http://www.landlaeknir.is/?pageid=945">http://www.landlaeknir.is/?pageid=945</a></p>
Duration of studies (years)	Number: 3	Secondary school level, , Traineeship in pharmacies for 4 months in the 3-year programme
Competences and roles		Regulation nr. 199/1983 states that their competences and roles are within the realm of drug dispensing and manufacturing under the guidance and responsibility of a licensed pharmacist.
<b>Hospital pharmacy</b>		
Does such a function exist?	Yes	Hospital pharmacy as a function is officially recognised by the government as seen in law nr. 93/1994 Chapter XIV. Regulation nr. 241/2004 further details

		the function of hospital pharmacies. However, no official definition and recognition of a hospital pharmacist as a specific profession exists. Consequently, no registration or examination is required to exercise this function.
Hospital pharmacists	19	17 work at the Landspítali University Hospitals and 2 in Akureyri Hospital.
Hospital pharmacies	2	
Competences and roles of hospital pharmacists		As above for community pharmacists plus provision of a medication information centre.
<b>Pharmaceutical and related industries</b>		
Companies distributing drugs	2	
Companies producing generic drugs	1	
<b>Industrial pharmacy</b>		
Number of pharmacists working in industry	154	The status of qualified person (QP) exists and is restricted to pharmacists.
Competences and roles of industrial pharmacists		<ul style="list-style-type: none"> <li>a. Preclinical drug evaluation (safety and efficacy)</li> <li>b. Marketing</li> <li>c. Distribution</li> <li>d. Medical devices</li> <li>e. Cosmetology</li> <li>f. Drug evaluation and registration (governmental and industrial)</li> <li>g. generic drug formulation, bio-equivalency studies</li> </ul>
<b>Other sectors</b>		
Number of pharmacists working in other sectors	80	Univ.of Iceland: 17 Government authorities: 21 Other sectors/not employed: 42
Sectors		Authorities (Medicines Agency, Ministry of Health, Social Insurance Institute), Univ.of Iceland, Secondary school E&T (biology, clinical chemistry...)
<b>Roles of professional associations</b>		
Lyfjafraeðingafélag Íslands (Icelandic Pharmaceutical Society) <a href="http://www.lfi.is">www.lfi.is</a>		
Registration of pharmacists	No	The Directorate of Health registers pharmacists on the basis of a pharmacy degree from a recognized institution with 6 months practical training period. In addition there has been a clause in the law on pharmacists that they should train 3 months post graduation, but this requirement is likely to be revoked when a new law on health care practitioners comes into force.
Creation of pharmacies and control of distribution	No	The Icelandic Medicines Agency has oversight by law.
Ethics/professional conduct	Yes	
QA and validation of HEI courses	No	The Ministry of Education validates the whole programme.

<b>References and websites</b>		
National law	Law nr. 93/1994 on Pharmaceuticals (Lyfjalög) Law nr 35/1978 on Pharmacists Law nr 41/2007 on the Directorate of Health Law nr 112(2008 on health insurance (Lög um sjúkratryggingar)	
EU, international	Directives: 92/109/EBE, 65/65/EBE, 75/319/EBE, 89/105/EBE, 92/25/EBE, 92/28/EBE, 93/41/EBE, 2002/98/EB, 2004/27/EB, 2004/28/EB, and 2004/33/EB	

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## Chapter 2. Pharmacy HEIs, students and courses

	Y/N, number or %	Comments below
<b>Number of HEIs in Iceland</b>	1	Only one public HEI educating pharmacists in Iceland Faculty of Pharmaceutical Sciences University of Iceland, Reykjavik
<b>Organisation of HEIs</b>		
Independent faculty	Yes	Within the School of Health Sciences
Attached to a science faculty	No	Collaboration regarding teaching of some BS courses
Attached to a medical faculty	No	Medical faculty is also administratively in the School of Health Sciences
Do HEIs offer B + M degrees?	Yes	B. Sc. Pharm. students can leave the pharmacy faculty and find a job after only 3 years of study but they will not be licensed after 3 years. They can choose to go for a job that does not require licensure or a master's programme elsewhere, in pharmacy or other subject. Does the pharmacy faculty accepts B. Sc. graduates from other areas (chemistry, pharmacology) into their M. Sc. Pharm. programme at the beginning of their 4 <sup>th</sup> year? No, they have to have a B.S. in pharmacy.
<b>Reykjavik</b>		
<b>Teaching staff</b>		
Number of teaching staff (nationals)	22	Permanent: 9; Adjunct teachers: 6; Ph.D.students and Postdocs: 7
Number of international teaching staff (from EU MSs)	3	Only Ph.D.students
Number of international teaching staff (non EU)	4	Only Ph.D.students/post-docs
Number professionals (pharmacists and others) from outside the HEIs, involved in E&T	Around 20	
<b>Students</b>		
Number of places at traditional entry (beginning of S1 of B1, following secondary school)	Unlimited	UI is required to accept all applicants with required secondary school education (usually 40-50 entering S1 of B1).
Number of applicants for entry	About 45	
Number of graduates that become registered/professional pharmacists.	About 17	45-17=28 students drop out, since we allow all who fulfil minimum requirements to enter the programme. This applies to most faculties/programmes offered at the University of Iceland.
Number of international students (EU)	1 (2009)	This is unusually low. We get about 5 from Europe each year.
Number of international students (non EU)	1 (2009)	

<b>Advanced entry</b>		
At which level?		1) MS 2) S2 of B1, S1 or S2 of B2, S1 or S2 of B3
What are the requirements?		1) BSc in Pharmacy 2) Coursework corresponding to required coursework for these semesters
Specific requirements for international students (EU or non EU).		No

<b>Fees per year</b>		
For home students	Amount (€): 0	
For EU MS students	Amount (€): 0	
For non EU students	Amount (€): 0	
<b>Length of course</b>	<b>5 years</b>	

<b>Specialization</b>		
Do HEIs provide specialized courses?	No	Only the MSc thesis is a specialization

<b>Past and present changes in E&amp;T</b>		
Have there been any major changes since 1999?	Yes	In 2002 and again in 2006 The weight of basic subjects has been lessened in the BS programme to allow more space for pharmaceutically specific topics. More clinical pharmacy and pharmacy practice has been put into the MS programme where there is more space after some of the pharmacy topics such as physical pharmacy and pharmaco-epidemiology have moved down to BSc.
Are any major changes envisaged before 2019?	No	

<b>References and websites</b>	
National law	Lög um opinbera háskóla, nr. 85/2008 Law on public universities Lög um breytingu á lögum nr. 85/2008 um opinbera háskóla, nr. 50/2010, changes in law nr.85/2008 Lög um háskóla, nr. 63/2006 Law on universities Reglur um eftirlit með gæðum kennslu og rannsókna í háskólum, nr. 321/2009, Regulation on quality monitoring of teaching and research in Universities Reglur um viðurkenningu háskóla á grundvelli 3. gr. laga nr. 63/2006 um háskóla, nr. 1067/2006, Regulation on recognition of universities based on law nr.63/2006
EU, international	Iceland is a member of the European Economic Area and all the EU directives regarding HEIs are adopted by Iceland, as well as the Bologna principles.

### Chapter 3. Teaching and learning methods

	1	2	3	4	5
<b>HEI courses</b>	60 ECTS	60 ECTS	60 ECTS	50 ECTS	30 ECTS
<b>Traineeship</b>				10 ECTS Students can choose between Hospital or Community pharmacy traineeship or a combination of the two.	
<b>Electives</b>					30 ECTS = 4 month Master's thesis Study trip (4 ECTS)

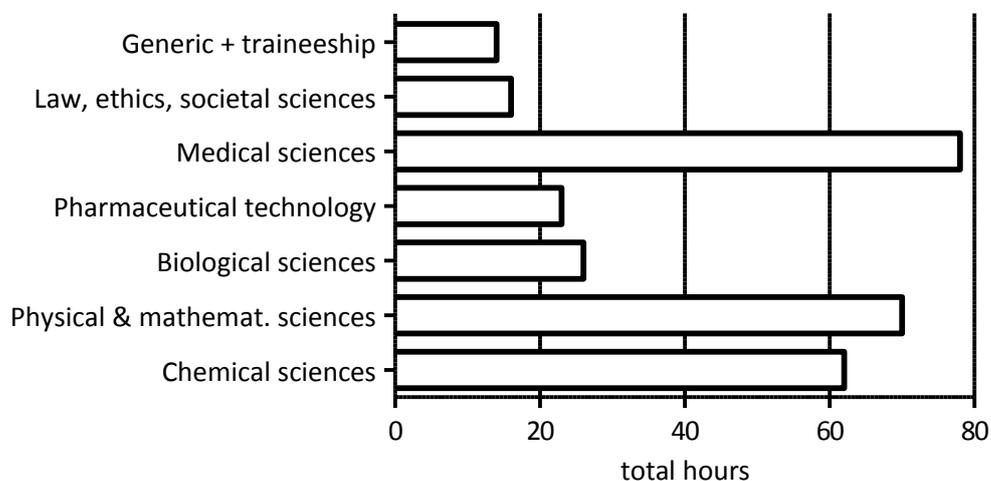
## Chapter 4. Subject areas (ECTS)

	1	2	3	4	5	Total
<b>CHEMSCI</b>	22	40				62
<b>PHYSMATH</b>	20					20
<b>BIOLSCI</b>	14	12				26
<b>PHARMTECH</b>			16	8		24
<b>MEDISCI</b>		8	38	32		78
<b>LAWSOC</b>			6	10		16
<b>GENERIC</b>	4			*	**	
<b>GENERIC + TRAINEESHIP</b>	4			10	**	14

\*Traineeship 10 ECTS.

\*\*The distribution of elective versus compulsory courses has not been published for the new programme (30 ECTS), Master thesis 30 ECTS.

### ECTS by subject area (years 1 through 4)



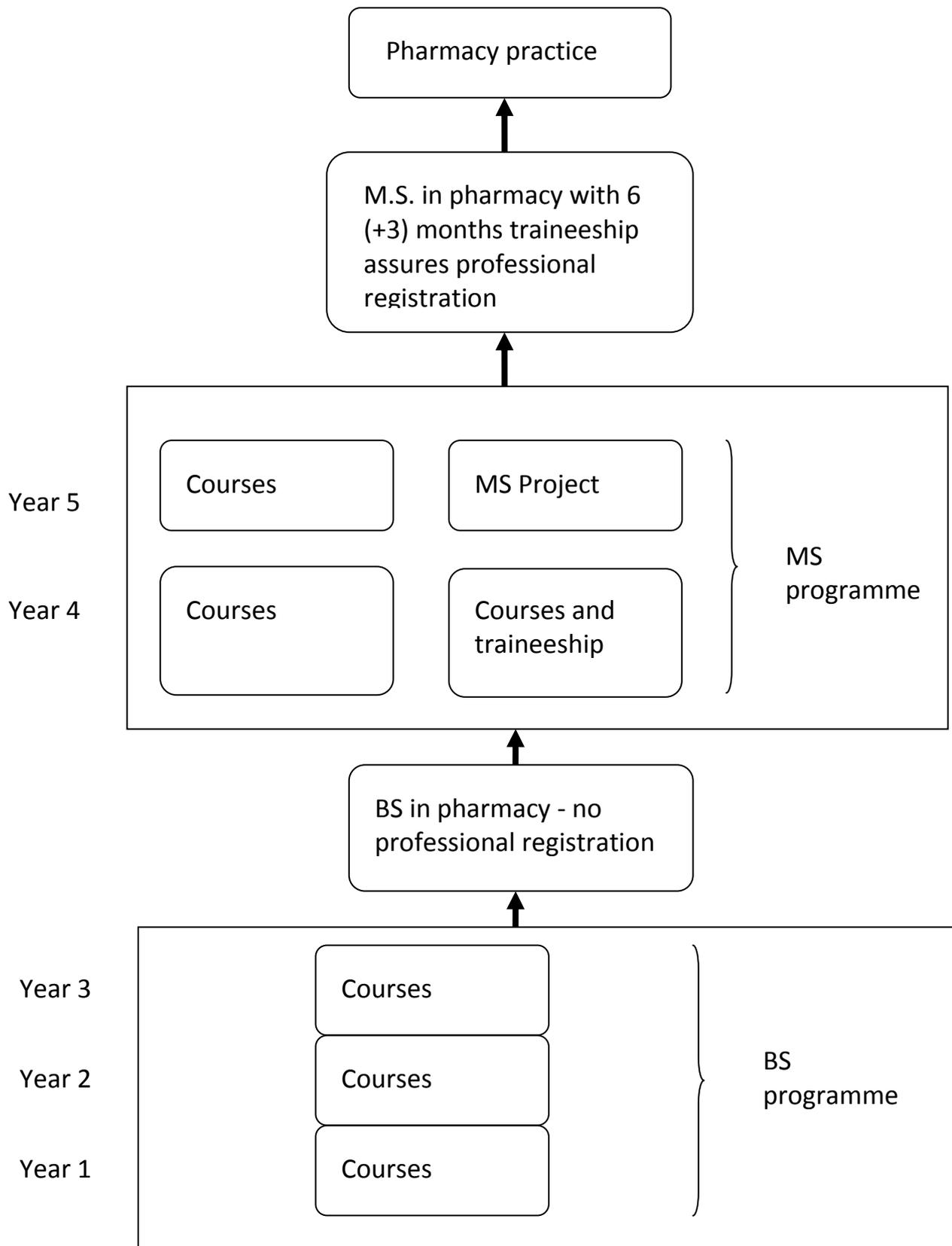
## Chapter 5. Impact of the Bologna principles

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	The DS is in English.
2. Two main cycles (B and M) <u>with entry and exit at B level</u>	Yes	BSc Pharm degree can lead to an MSc degree other than pharmacy, but in order to study to become a licensed pharmacist, (to enter the MSc programme in pharmacy) a student has to have a BS degree in pharmacy.
3. ECTS system of credits / links to LLL	Yes	LLL/CPD is not compulsory for renewal of licence to practice. The ECTS systems used at pre- and post-graduate levels are linked only if the post-graduate takes recognized university courses will the ECTS system apply.
4. Obstacles to mobility	Yes	Teaching in Icelandic in most courses.
5. European QA	No	
6. European dimension		We have Erasmus agreements with a number of institutions.
ERASMUS staff exchange to Reykjavik	Staff months: 0,5	Two short visits in 2009
ERASMUS staff exchange from Reykjavik	Staff months: 0	
ERASMUS student exchange to Reykjavik	Student months: 3	
ERASMUS student exchange from Reykjavik	Student months: 5	

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

The directive states	Does this 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> ”	Yes	
“ <u>...four years of full-time theoretical and practical training</u> at a university or at a higher institute of a level recognised as equivalent, or under the supervision of a university;”	Yes	
“ <u>...six-month traineeship in a pharmacy</u> which is open to the public or in a hospital, under the supervision of that hospital's pharmaceutical department.”		Iceland has a 9 month requirement (3 months after graduation in addition to 6 months during coursework). University of Iceland and Pharmaceutical Society of Iceland have asked for this to be revoked. UI is involved partially in the six month training (10 ECTS)
“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> ”	Yes	
Directive annex	Does this affect pharmacy E&T?	If you wish to expand your answer, please add your comments below. Do you consider the directive annex valid? If not how would you change it?
<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.	OK	This list is useful for maintaining pharmacists' authority/competency definition vis-a-vis regulations of who should be responsible for certain pharmaceutical functions.

**The Icelandic pharmacy education and training scheme for students entering 2008 or later in the BS programme or in 2011 in the MS programme**





Education and Culture DG

Lifelong Learning Programme

**PHARMINE**  
*Pharmacy Education  
in Europe*

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Vrije  
Universiteit  
Brussel

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

**Website: [www.pharmine.org](http://www.pharmine.org)**

Pharmacy education & training in

# IRELAND

2010

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: The PHARMINE paradigm.pdf)

The “PHARMINE survey of European higher education institutions delivering pharmacy education & training – IRELAND” was produced by:

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## Summary.

Pharmacy education is provided for in Ireland by three Higher Education Institutions; The Royal College of Surgeons in Ireland (RCSI), University of Dublin, Trinity College (TCD), and University College Cork (UCC). TCD was the sole provider of the undergraduate programme from 1977 until 2002 when the School of Pharmacy RCSI opened. The Schools educate approximately 150 students per annum. Applications to study pharmacy are far in excess of the places available as demand is high, and the profession is therefore fortunate to attract students of high calibre.

There have been a number of recent developments which have transformed the landscape of pharmacy education and training in Ireland. The Bologna declaration, for instance, prompted curriculum reform in the Schools with RCSI completely reforming in 2005 to be fully compliant.

One of the main drivers for development has been the Pharmacy Act 2007, which conferred responsibility on the Pharmaceutical Society of Ireland (PSI), the pharmacy regulator, for overseeing education, training and lifelong learning in pharmacy.

The PSI recently commissioned The Review of Pharmacy Education and Accreditation (PEARs) Project, a Review of International CPD Models, a review of competency frameworks and a baseline survey of standards in practice. These are intended to inform undergraduate curriculum development and a strategy for lifelong learning. The primary recommendation of the PEARs report ([http://www.pharmaceuticalsociety.ie/Education/upload/File/Accreditation/PEARs\\_Project\\_Report.pdf](http://www.pharmaceuticalsociety.ie/Education/upload/File/Accreditation/PEARs_Project_Report.pdf)) is that “the current 4+1 model of pharmacy education to first registration should be replaced by a five year fully integrated programme of education, training and assessment as the basis for application for registration as a pharmacist.” This report will instigate major curriculum reform in the Higher Education Institutions imminently.

The Review of International CPD Models

([http://www.pharmaceuticalsociety.ie/News/upload/File/Publications/PSI\\_International\\_Review\\_of%20CPD\\_Models.pdf](http://www.pharmaceuticalsociety.ie/News/upload/File/Publications/PSI_International_Review_of%20CPD_Models.pdf)) set forth a vision for continuing professional development provision that will be implemented by 2014, as mandated by the Pharmacy Act 2007.

The PSI also prioritised reform of the pre-registration year – the year of training between the undergraduate programme and registration. The National Pharmacy Internship Programme, a globally unique programme, was developed on behalf of the PSI by the School of Pharmacy of the Royal College of Surgeons in Ireland. Successful completion of the programme results in the award of a Masters of Pharmacy (M.Pharm) and entitlement to apply for registration as a pharmacist in Ireland and for subsequent free movement within the EU/EEA under the Professional Qualification Directive (2005/36/EC). The programme is a 12 month, full-time, blended-learning programme, attracting 90 European Credit Transfer and Accumulation System (ECTS) credits on completion. The basis for the

curriculum is a competency framework that describes the knowledge, skills and attitudes required of a newly-registered pharmacist, consistent with international norms.

It is envisaged that improvements in the education and training of pharmacists will allow for significant enhancements to be made to the delivery of pharmacy services that capable of being benchmarked against the best internationally.

## Introduction.

### Statistics:

Total population: 4,221,000

Gross national income per capita (PPP international \$): 34,730

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

Healthy life expectancy at birth m/f (years, 2003): 68/72

Probability of dying under five (per 1 000 live births): 4

Probability of dying between 15 and 60 years m/f (per 1 000 population): 88/56

Total expenditure on health per capita (Intl \$, 2006): 3,082

Total expenditure on health as % of GDP (2006): 7.5

Figures are for 2006 unless indicated. Source: World Health Statistics 2008

For further information on organisation of pharmacies in Ireland, see:

[http://ppri.oebig.at/Downloads/Results/Ireland\\_PPRI\\_2007.pdf](http://ppri.oebig.at/Downloads/Results/Ireland_PPRI_2007.pdf)

[http://ec.europa.eu/internal\\_market/services/docs/pharmacy/appendices\\_en.pdf](http://ec.europa.eu/internal_market/services/docs/pharmacy/appendices_en.pdf)

The most comprehensive information on pharmacy education in Ireland is the recently launched Pharmacy Education and Accreditation Reviews (PEARs) report and the vision for an Irish model for CPD – see links below

[http://www.pharmaceuticalsociety.ie/Education/upload/File/Accreditation/PEARs\\_Project\\_Report.pdf](http://www.pharmaceuticalsociety.ie/Education/upload/File/Accreditation/PEARs_Project_Report.pdf)

[http://www.pharmaceuticalsociety.ie/News/upload/File/Publications/PSI\\_International\\_Review\\_of%20CPD\\_Models.pdf](http://www.pharmaceuticalsociety.ie/News/upload/File/Publications/PSI_International_Review_of%20CPD_Models.pdf)

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

	Y/N, number or %	Comments.
<b>Community pharmacy</b>		
Number of community pharmacists	3400	
Number of community pharmacies	1616	
Competences and roles of community pharmacists	As defined opposite	<ol style="list-style-type: none"> <li>1. Supplying prescription medicines</li> <li>2. Managing medicines for some ailments</li> <li>3. Giving advice on medicines</li> <li>4. Screening services</li> <li>5. Services to the housebound</li> <li>6. Services to nursing and care homes (medication reviews, advice on storage and administration of medicines)</li> </ol> <p>Specific competencies are under development by the Pharmaceutical Society of Ireland (PSI) – the Pharmacy Regulator</p>
Is ownership of a pharmacy limited to pharmacists?	No	
Rules on distribution of pharmacies?	No	
Are drugs and healthcare products available to the general public by channels other than pharmacies?	Yes	<p>There is a General Sales List – the medicines available to the general public by channels other than pharmacies.</p> <p>GSL medicines can be sold by a wide range of shops, such as newsagents, supermarkets and petrol stations. Often, only a small pack size or low strength of the medicine may be sold.</p> <p>Internet Pharmacists are not permitted under the Medicinal Products (Prescription and Control of Supply) Regulations 2003 SI No 540 of 2003, as amended</p>
Are persons other than pharmacists involved in community practice?	Yes, pharmaceutical assistants (see Register of Pharmaceutical Assistants on the PSI website) (Also pharmacy technicians – see note)	<p>Note: pharmacy technicians are also members of the pharmacy team but are not regulated in Ireland and therefore there is no data available..</p> <p>There is no legal standing for pharmacy technicians.</p>
Number	539	
Their qualifications		
Organisation providing and validating the E&T		<p>The pharmacy assistant qualification is no longer awarded in Ireland and the original register has closed. Those previously on the register have acquired rights under the Pharmacy Act 2007.</p> <p>Pharmacy technician training is conducted via City and Guilds through</p>

		the Irish Pharmacy Union, or via the Dublin, Carlow or Athlone Institutes of Technology.
Duration of studies (years)	Number:	N/A
Subject areas		N/A
Competences and roles		N/A
<b>Hospital pharmacy</b>		
Does such a function exist?	Yes	
Number of hospital pharmacists	474	
Number of hospital pharmacies	76	
Competences and roles of hospital pharmacists	As defined	Specific competencies are under development by the Pharmaceutical Society of Ireland (PSI) – the Pharmacy Regulator
<b>Pharmaceutical and related industries</b>		
Companies with production, R&D and distribution	10	This number is approximate
Companies with production only	80	This number is approximate. The authorised manufacturers list for Ireland can be found at: <a href="http://www.imb.ie/EN/Medicines/Manufacturing/Authorised-Manufactures-List.aspx">http://www.imb.ie/EN/Medicines/Manufacturing/Authorised-Manufactures-List.aspx</a>
Companies with distribution only	50	This number is approximate. The authorised wholesalers list for Ireland can be found at: <a href="http://www.imb.ie/EN/Medicines/Wholesale-Distribution/Authorised-Wholesalers-List.aspx">http://www.imb.ie/EN/Medicines/Wholesale-Distribution/Authorised-Wholesalers-List.aspx</a>
Companies producing generic drugs only	10	This number is approximate
<b>Industrial pharmacy</b>		
Pharmacists working in industry	85	
Competences and roles of industrial pharmacists	As defined opposite	<p>7. Synthesis and production of new chemical entities and drugs</p> <p>8. R&amp;D – drugs</p> <p>9. R&amp;D – health care products other than drugs</p> <p>10. Preclinical drug evaluation (safety and efficacy)</p> <p>11. Clinical drug evaluation (safety and efficacy)</p> <p>12. Marketing</p> <p>13. Distribution</p> <p>14. Medical devices</p> <p>15. Cosmetology</p> <p>16. Drug evaluation and registration (governmental and industrial)</p> <p>Specific competencies are under development by the Pharmaceutical Society of Ireland (PSI) – the Pharmacy Regulator</p> <p>The requirements for QP are provided for in the Medicinal Products (Control of Manufacture) Regulations 2007 (SI no 593) and 2009 (SI no 4) These Regulations enforce the European Directive 2001/83/EC Directive.</p>
<b>Other sectors</b>		

Pharmacists working in other sectors	83	
Sectors in which pharmacists are employed		Regulatory, Academic, Health Services (Department of Health and Children, Health Services Executive), National Pharmacoeconomics Centre, National Medicines Information Centre. Of note in Ireland there are no Primary Care/Health Services Pharmacists as defined in section 3 of the introduction above.
Competences and roles of pharmacists employed in other sectors		Specific competencies are under development by the Pharmaceutical Society of Ireland (PSI) – the Pharmacy Regulator
<b>Roles of professional associations</b>		
Registration of pharmacists	Yes Register of Pharmacists	Statutory register held by the PSI under the Pharmacy Act 2007
Creation of community pharmacies and control of territorial distribution	Yes Register of Retail Pharmacy Businesses	Community and hospital pharmacies must be registered in the Register of Retail Pharmacy Business held by the PSI under the Pharmacy Act 2007.
Ethical and other aspects of professional conduct	Yes	Statutory code of conduct under the Pharmacy Act 2007
Quality assurance and validation of HEI courses for pharmacists	Yes	Duty of PSI under the Pharmacy Act 2007 to ‘determine, approve and keep under review programmes of education and training suitable to enable persons applying for registration to meet those criteria and pharmacists to comply with those codes.’

<b>References and websites</b>		
Texts and articles of national law	Pharmacy Act 2007 and related regulations and rules <a href="http://www.pharmaceuticalsociety.ie/Home/upload/File/Pharmacy_Act_2007/Pharmacy%20Act%202007.pdf">http://www.pharmaceuticalsociety.ie/Home/upload/File/Pharmacy_Act_2007/Pharmacy%20Act%202007.pdf</a>	
Irish Medicines Board	<a href="http://www.imb.ie/default.aspx">http://www.imb.ie/default.aspx</a>	
Pharmaceutical Society of Ireland	<a href="http://www.pharmaceuticalsociety.ie/">http://www.pharmaceuticalsociety.ie/</a>	

## Chapter 2. Pharmacy HEIs, students and courses

	Y/N, number or %	If you wish to expand your answer, please add your comments below.
<b>Total number of HEIs in Ireland</b>	3	Royal College of Surgeons in Ireland (RCSI), Trinity College Dublin (TCD), University College Cork (UCC)
Public	2	TCD and UCC
Private	1	RCSI
<b>Organisation of HEIs</b>		
Attached to a medical faculty	Yes	Medical and Health Sciences Faculty
Do HEIs offer B + M degrees?	Yes	2 offer B (TCD), (UCC). 1 offers B + M (RCSI) TCD offers a B.Sc. and UCC offers a B.Pharm. RCSI offers a B.Sc. and an M.Pharm. The majority of job opportunities are for those who are registered as Pharmacists with the PSI. This occurred in the past at B level with one year's pre-registration training, and the vast majority of students undertook this. Since 2009/10 the National Pharmacy Internship programme has replaced the pre-registration training and all graduates of the programme will have an M level degree. In effect from now on, all B undergraduates are likely to proceed to the M degree course.
Do HEIs offer an M. Pharm. after a B degree in another HEI?	Yes	1 offers an M.Pharm. at present (RCSI) for students graduating with a B degree in Pharmacy from RCSI, TCD or UCC. This is an interim arrangement, pending the recommendations of a Review of Pharmacy Education and Accreditation (PEARs) Project (see the PSI website).
<b>Ireland</b>		
<b>Teaching staff</b>		
Teaching staff (nationals)	83%	The recent Review of Pharmacy Education and Accreditation (PEARs) Project indicated that there were 19 staff at RCSI, 53 at TCD and 19 at UCC. Questionnaires were sent and there was a response rate of 60%. The findings were that 46% were female and 83% were Irish Citizens. The remainder were all EU/EEA citizens. The job titles were as follows. Professors 3%, Associate Professor 5%, Adjunct Professor 3%, Senior Lecturer 28%, Lecturer 54% and Teacher Practitioner 5%. 54% were registered as a pharmacist in an EU country.
International teaching staff (from Europe)	17%	
Number professionals (pharmacists and others) from outside the HEIs, involved in E&T	200	There are approximately 200 pharmacists who tutor MPharm students in their training establishments.
<b>Students</b>		
Number of places at traditional entry (beginning of S1 of B1, following secondary school)	150	
Number of applicants for entry	2042	Total number of applicants in 2009 was 2042. Total number of applicants in 2010 was 1828

Number of graduates that become registered pharmacists.	Usual maximum number is 170 in any given year	This includes graduates, mature and non-EU students trained at RCSI.
Number of international students (from EU member states)	Usual maximum 5 in any given year	
Number of international students (non EU)	Usual maximum is 10 in any given year	The process to have a third country qualification recognised and then registered has just commenced in March 2009 in Ireland under the Pharmacy Act 2007 and therefore there are no current data available for numbers outside the national process.
<b>Entry requirements (beginning of S1 of B1, following secondary school)</b>		
Specific pharmacy-related, national entrance examination	No	
Other form of entry requirement at a national level	Yes	There are specific requirements for admission to the undergraduate programmes outlined through the Central Applications Office (CAO – <a href="http://www.cao.ie">www.cao.ie</a> )
Is there a national <i>numerus clausus</i> ?	Yes	Yes – in effect. There are 150 places funded by the Government following secondary school
<b>Advanced entry</b>		
At which level?		N/A
<b>Fees per year</b>		
For home students	Amount (€): 0	There are 150 places provided for under the Department of Education's Free Fees Scheme at present.
For EU MS students	Amount (€): unknown	Unknown for all institutions
For non EU students	Amount (€): unknown	Unknown for all institutions
<b>Length of course</b>	<b>4 years</b>	
<b>Specialization</b>		
Do HEIs provide specialized courses?	No	
<b>Past and present changes in E&amp;T</b>		
Have there been any major changes since 1999?	Yes	Since 1999 there have been 2 new Schools of Pharmacy (RCSI and UCC). The Bologna Agreement has impacted on the curricula of all schools. The Pharmacy Act 2007 and related rules and regulations is a driver for major changes in E&T. The National Pharmacy Internship Programme (M.Pharm.) commenced in 2009.
Are any major changes envisaged before 2019?	Yes	The Review of Pharmacy Education and Accreditation (PEARs) Project and a Review of International CPD Models have been published by the PSI. These reports along with other commissioned work in developing competency frameworks and baseline survey of standards in practice, will bring major changes to E&T .
<b>Royal College of Surgeons in Ireland</b>		
<b>Teaching staff</b>		
Number of teaching staff (nationals)	16	These are the number employed by the School of Pharmacy directly. It does not include teachers from the School of Medicine which is also part of the same Faculty of Medicine and Health Sciences
Number of international teaching staff (from EU MSs)	2	

Number of international teaching staff (non EU)	1	
Number professionals (pharmacists and others) from outside the HEIs, involved in E&T	200	There are approximately 200 pharmacists who tutor MPharm students in their training establishments.
<b>Students</b>		
Number of places at entry	30 per annum	
Number of graduates that become registered pharmacists.	Number: 50 per annum	
Number of international students (from EU member states)	1 per annum	
Number of international students (non EU)	5 per annum	
<b>Entry requirements (beginning of S1 of B1, following secondary school)</b>		
Your HEI has a specific pharmacy-related entrance examination	No	
<b>Advanced entry</b>		
<b>Fees per year</b>		
For home students	Amount (€): 0	
For EU MS students	Amount (€): €8000 per annum	
For non EU students	Amount (€): €14000 per annum	
<b>Length of course</b>	<b>4 years</b>	
<b>Past and present changes in E&amp;T</b>		
Have there been any major changes since 1999 at your HEI?	Yes	School opened in 2002. Curriculum reform to comply with the Principles of the Bologna Agreement in 2005. Commencement of the National Pharmacy Internship Programme (MPharm) in 2009
Are any major changes envisaged before 2019 at your HEI?	Yes	The Review of Pharmacy Education and Accreditation (PEARs) Project and a Review of International CPD Models, competency frameworks and baseline survey of standards in practice, will inform major curriculum reform, including an integrated 5 year MPharm programme, and other changes.
<b>Is your HEI typical of all HEIs in the country?</b>	Yes/No o	RCSI is a private HEI. RCSI follows the same indicative syllabus, which will be reviewed now re PEARs. All institutions have autonomy over curriculum design.

<b>References</b>	
References to texts and articles of national law	Pharmacy Act 2007 and related regulations and rules

### Chapter 3. Teaching and learning methods

Student hours						
Method	Year 1	Year 2	Year 3	Year 4	Year 5	Total
<b><u>HEIs courses</u></b>						
Lecture	225	260	200	150	N/A	<b>835</b>
Tutorial	65	40	80	65	N/A	<b>250</b>
Practical	170	210	155	50	N/A	<b>585</b>
Project work	30	30	50	50	N/A	<b>160</b>
<b>Subtotal</b>	<b>490</b>	<b>540</b>	<b>485</b>	<b>315</b>	<b>0</b>	<b>1830</b>
<b><u>Traineeship*</u></b>						
Hospital					6 or 12 months 40 hours/week	
Community					6 or 12 months 40 hours/week	
Industrial (academic or industrial)					6 months 40 hours/week	
<b>Total</b>	<b>490</b>	<b>540</b>	<b>485</b>	<b>315</b>	<b>2000**</b>	<b>3830</b>

All courses are validated by the PSI.

\* Traineeship is now a National Pharmacy Internship Programme, delivered on behalf of the PSI by an HEI (RCSI). This programme is validated by the National University of Ireland and the PSI. All students must undertake at least 6 months in a clinical training establishment (either community or hospital). The other 6 months can be in community, hospital, industry or academia to meet the requirements of the Education and Training Rules.

\*\* 40 hours per week x 50 weeks. There is a provision under the Pharmacy Act for a part-time option, but this only permitted under exceptional circumstances.

References	
References to texts and articles of national law	European Council. Directive 2005/36/EC of the European Parliament and of the Council on the recognition of professional qualification. Brussels: European Community 2005

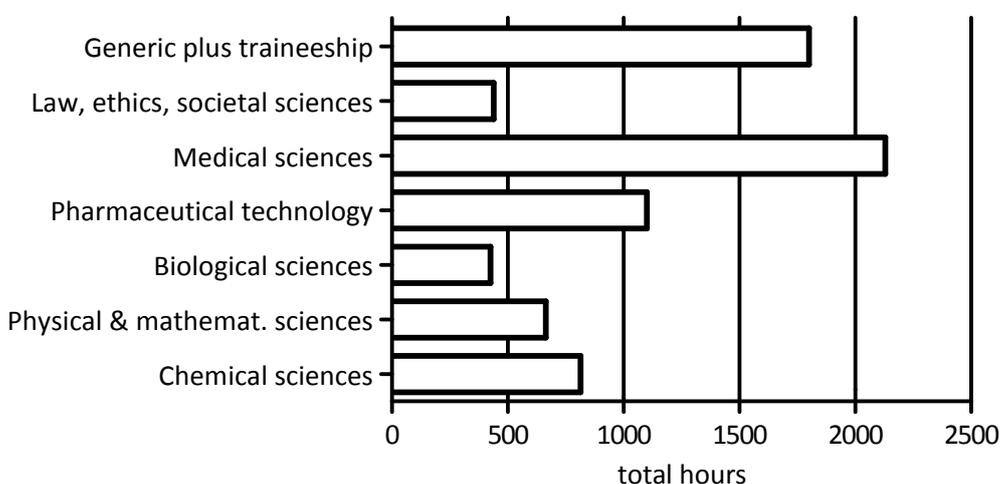
## Chapter 4. Subject areas

### Student hours

Subject area	Year 1	Year 2	Year 3	Year 4	Year 5	Total
<b>CHEMSCI</b>	<b>275</b>	<b>350</b>	<b>65</b>	<b>125</b>		<b>815</b>
<b>PHYSMATH</b>	125	100	65	375		<b>665</b>
<b>BIOLSCI</b>	125	250	50	0		<b>425</b>
<b>PHARMTECH</b>	250	450	250	150		<b>1100</b>
<b>MEDISCI</b>	500	250	880	500		<b>2130</b>
<b>LAWSOC</b>	125	50	65	200		<b>440</b>
<b>GENERIC</b>	100	50	125	150		<b>425</b>
<b>GENERIC ° TRAINEESHIP</b>	100	50	125	150	1760	<b>1760</b>
<b>Total</b>	<b>1500</b>	<b>1500</b>	<b>1500</b>	<b>1500</b>	<b>1760</b>	<b>7760</b>

The above figures were calculated based on of the content of the RCSI curriculum and an approximation of how this would divide into the subject areas as defined above. The figures in chapter 3 give the contact hours (total 1830), which combined with directed study (1170) give a total of contact and directed study of 3000 hours for the programme. This is in keeping with the PSI requirements and EU directive. The Subject area hours were calculated on the basis of the contact hours, directed study hours and private study hours. Each year has a total of 1500 representing 60 ECTS (at 25 hours per credit) and 240 ECTS for the 4 year Bachelors level cycle.

Hours by subject area.



### References

References to texts and articles of national law	European Council. Directive 2005/36/EC of the European Parliament and of the Council on the recognition of professional qualification. Brussels: European Community 2005
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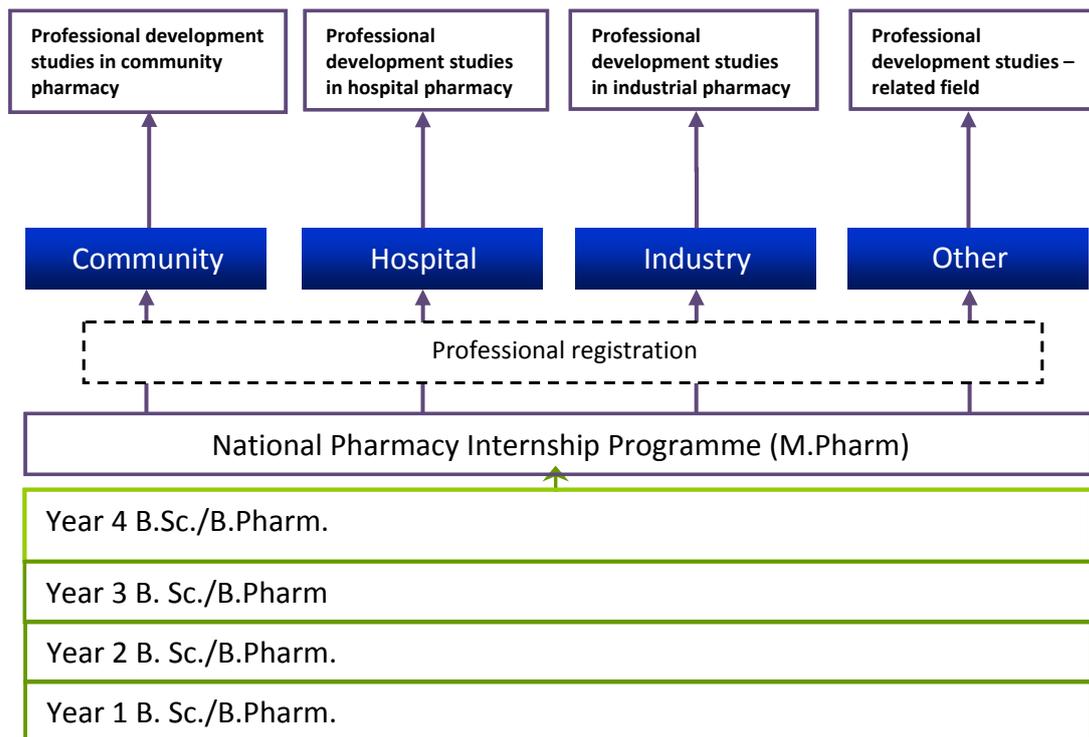
## Chapter 5. Impact of the Bologna principles

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	RCSI has multilateral recognition and agreements with several EU HEIs Diploma Supplement is provided
2. Two main cycles (B and M) <u>with entry and exit at B level</u>	Yes	Exit at B level does not fulfil requirements for professional qualification – this is achieved after exit at M level
3. ECTS system of credits / links to LLL	Yes	There is a new framework for CPD and formal activity under this framework will be linked to ECTS. CPD is mandatory, under the Pharmacy Act 2007, and this requirement will be implemented by 2014
4. Obstacles to mobility	Yes	Language, spiral curricula and an integrated approach to education can be obstacles to mobility. All modules are provided in English. Language support is provided in general, but not specifically for ERASMUS students.
5. European QA	No	
6. European dimension		RCSI has an Erasmus University Charter, (STANDARD) granted in 2007 under the framework of the Lifelong Learning Programme <i>Call for Proposals 2007, EAC/61/2006</i> . The Charter number is 2007-1-IE-ERASMUS-EUC-1 and the Erasmus ID code is IRLDUBLIN03. There are no collaborative programmes in teaching at present.
ERASMUS staff exchange to RCSI from elsewhere	Staff months: 0	The main obstacle is linguistics
ERASMUS staff exchange from RCSI to other HEIs	Staff months: 0	
ERASMUS student exchange to RCSI from elsewhere	Student months: 48	
ERASMUS student exchange from RCSI to other HEIs	Student months: 6	

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

The directive states	How does / will this directive statement affect pharmacy E&T?
“Evidence of formal qualifications as a pharmacist shall attest to training of at least <u>five years' duration...</u> ”	Directive fully implemented
“... <u>four years of full-time theoretical and practical training</u> at a university or at a higher institute of a level recognised as equivalent, or under the supervision of a university;”	Directive fully implemented
“... <u>six-month traineeship in a pharmacy</u> which is open to the public or in a hospital, under the supervision of that hospital's pharmaceutical department.”	Directive fully implemented
“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> ”	Directive fully implemented
Directive annex	If you wish to expand your answer, please add your comments below. Do you consider the directive annex valid? If not how would you change it?
<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.	This annex should be reviewed in light of the changing roles of pharmacists across the EU, and the focus on outcomes and competency based curricula. I would like to see the professional elements strengthened with particular reference to professionalism, ethics, collaborative practice (and potentially Interprofessional education), behavioural science, management and leadership. I also believe that the clinical side could be strengthened with particular reference to clinical pharmacy, therapeutics and patient safety.

## The Irish system of pharmacy education and training.





Education and Culture DG

Lifelong Learning Programme

**PHARMINE**  
*Pharmacy Education  
in Europe*

**PCN**

*Pharmacolor  
Consultants  
Nancy*



**RCSI**

ROYAL COLLEGE OF SURGEONS IN IRELAND  
COLÁISTE RÍOGA NA MÁINLEÁ IN ÉIRINN



Vrije  
Universiteit  
Brussel

**Nancy-Université**  
*Université  
Henri Poincaré*

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**PHARMINE**

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

Pharmacy education & training in

**ITALY**

**2010**

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

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

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## Conference of Deans of Italian Faculties of Pharmacy

*The President*

To: Prof. Carlo Rossi

Università di Perugia (I)

Dear Carlo

This is to confirm that the Italian Conference of Deans on March 18, 2010 approved the document you proposed for the PHARMINE project.

Giuseppe Ronisvalle  
President

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## Summary

Pharmacy education and training in Italy provides:

1. A deep interdisciplinary knowledge that is fundamental for the comprehension of drug structure and activity with reference to its interaction with bio-molecules at both cellular and systemic level.
2. A deep chemical and biological knowledge, integrated with elements of drug economy and drug utilization, along with the knowledge of national and community laws that regulate the different activities in the field.
3. A deep knowledge useful for the professional fulfilment of the pharmaceutical service in the general framework of the National Health Service.

## Introduction

### *Statistics*

Total population: 58,779,000

Gross national income per capita (PPP international \$): 28,970

Life expectancy at birth m/f (years): 78/84

Healthy life expectancy at birth m/f (years, 2003): 71/75

Probability of dying under five (per 1 000 live births): 4

Probability of dying between 15 and 60 years m/f (per 1 000 population): 83/44

Total expenditure on health per capita (Intl \$, 2006): 2,623

Total expenditure on health as % of GDP (2006): 9.0

See also: [World Health Statistics 2008](#)

### *From the WHO "Highlights on health in Italy"*

In 2002, Italians had the seventh highest life expectancy in Europe, equivalent to that in France. Women in Italy continue to have a higher life expectancy than men: 82.5 versus 76.8 years. Italians have one of the highest estimates of healthy life expectancy in Europe.

Between 1980 and 2001, Italy reduced both infant and neonatal mortality rates by about two thirds, more rapidly than the average for the Europe. In 2001, Italy's infant mortality rate was slightly lower than the European average, whereas neonatal mortality was slightly higher.

Non-communicable conditions account for 81% of all deaths in Italy; this includes cancer, which causes 31% of deaths; and external causes (intentional and unintentional injuries) cause about 6%. Thirty-eight per cent of total deaths in Italy in 2001 were due to cardiovascular diseases, with ischemic heart disease being the single biggest killer, causing 12% of all deaths. The mortality rate due to diseases of pulmonary circulation and other heart disease among people 15–29 years of age was the highest in Europe in 2001.

Almost half the men and one-third of women in Italy are overweight. About 10% of both men and women are obese. About 17% of 15-year-old boys in Italy are pre-obese; about 3% are obese. About 7% of 15-year-old girls are pre-obese and 1% are obese.

In 2000, people in Italy consumed almost 8% more cigarettes per person than the European average. Between 1995 and 2000, per capita consumption increased by almost 13% in the country, whereas the European trend was downward. Between 1994 and 2001, surveys found that smoking prevalence among men and women had decreased. Cancer of the trachea, bronchus and lung accounted for almost 7% of all deaths in Italy in 2001.

Neuropsychiatric conditions have the highest burden of disease in the Italian population due to the associated disability in daily living. The burden is greater among females than males.

In 2001, Italians consumed about 16% less alcohol per capita than the European average. Since the late 1980s, consumption in Italy has dropped by 27%. Italy has a decreasing trend in deaths from chronic liver disease, following the pattern in Europe, but in 2001, the mortality rate for the population was 7% above the European average.

In 2000 almost 79% of injecting drug users were infected with hepatitis C. Known to be particularly vulnerable are prison populations. In 2003, Italy had a 134.5% occupancy level in its prisons based on official capacity.

### *National Health Care System.*

The Italian National Health Care System (SSN) was founded in 1978 (L.833/78, see Dalla L. 833/78 istituzione del servizio sanitario nazionale 1978.pdf) to guarantee access equity and uniform provision of comprehensive care throughout the country. Responsibility for healthcare is shared between central government and the regions, as a decentralized system. The national government now sets the “essential levels of care”: hospitalization and primary care are free, including life-saving drugs. For tests and diagnostic procedures, other drugs, a copayment (ticket) has been established ( about 30%). However about 40% of the population (e.g. children, pregnant women, elderly people) are exempt from these tickets.

Italian SSN, second in the world, according WHO, ensures equal access to primary care, although regional disparities persist concerning specialist care.

SSN funding is based on a regressive payroll tax. The rest of the founding comes from national and regional general taxation. The regions are financed from SSN according to a formula based on weighted capitation and past spending. Then the regions allocate these funds to Local Health Units, delivering care to citizens.

In Italy private health insurances are not common and is not possible to opt out of SSN. Physicians are paid via capitation , whereas hospitals by DRG (diagnosis-related group).

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

	Y/N, number	Comments.
<b>Community pharmacy</b>		
Number of community pharmacists	40346	
Number of community pharmacies	17617	Data from <i>Federfarma</i> (Italian Pharmacist Federation) Pharmacists per pharmacy: from 1 to 20. For towns with less than 12500 inhabitants there is one pharmacy for every 5000 inhabitants. For communes with more than 12500 inhabitants, there is one pharmacy for every 4000 inhabitants. Additional pharmacies are exceptionally opened in very isolated locations. In such a fashion the National Health Care System provides medicines in every part of the territory. The mean number of inhabitants per pharmacy is around 3300.
Competences and roles of community pharmacists		Pharmacists are allowed to suggest or advise medicines only in case of OTC and generic substitution of specialities. In addition, pharmacists book medical examination, perform blood pressure and sugar testing without writing any diagnosis, make galenic preparations, provide in some cases home drug dispensing (D.l. 3/10/2009 n° 153; see <a href="http://www.gazzettaufficiale.it/">http://www.gazzettaufficiale.it/</a> ).
Is ownership of a community pharmacy limited to pharmacists?	Yes	
Rules governing the distribution of pharmacies?	Yes	Limited to a minimum number of customers (4500) with >200 m minimum distance between pharmacies (ECORYS/E.C. Single Market)
Are drugs and healthcare products available to the general public by channels other than pharmacies?	Yes	Internet pharmacists are not allowed. OTC drugs are also marketed in some supermarket in Italy (Coop) Exceptions foreseen by the article 83 of the Italian law n. 193 of April 6, 2006 allow veterinarians to use drugs only for "out patient" treatment or to hand drugs to owners of animals to start the pharmacological treatment
Are persons other than pharmacists involved in community practice?	No	Only pharmacists are allowed to dispense prescription and OTC drugs to the general public. Pharmacists are assisted by employees/assistants.
Their titles and number(s)		Assistants are not HEI graduates, they have only a secondary school education and their number varies according to the size of the pharmacy.
Competences and roles		They organize drugs in the storage shelves and control drug expiration dates. They take care of maintenance of equipments and glassware.
<b>Hospital pharmacy</b>		
Number of pharmacists	2745	Data provided by the SIFO (Italian Society of Hospital Pharmacy) (2006)
Number of pharmacies	297	Data provided by the SIFO (Italian Society of Hospital Pharmacy) (2006)
Competences and roles of hospital pharmacists		Dispensing medicines, medical devices, galenic preparations, parenteral nutrition solutions and cytotoxic preparations. Aseptic manufacturing. Pharmaceutical care, pharmacovigilance. Diagnostic services: blood sugar, blood pressure. Directing the pharmacy, the director of the pharmacy distributes and takes

		care of the appropriate quantity of medicines needed by wards. Only in very rare occasion and in an experimental way they prescribe medicines together with MDs.
<b>Pharmaceutical and related industries</b>		
Number of companies	324	<p>Including companies producing medicinal products and pharmaceutical raw materials. Data from <i>Farmindustria</i> (Pharma industry)</p> <p>Data from EFPIA (2006 or estimate)</p> <p>Pharmaceutical industry research &amp; development M€ 1180</p> <p>Pharmaceutical production M€ 22455</p> <p>Employment in the pharmaceutical industry 72000</p> <p>Pharmaceutical market value (at ex-factory prices) M€ 16734</p> <p>Share (estimate - in %) accounted for by generics in pharmaceutical market sales value (at ex-factory prices) (2007) 20.3</p> <p>Pharmaceutical exports M€ 11340</p> <p>Pharmaceutical imports M€ 13054</p> <p>Pharmaceutical trade balance M€ -1714</p> <p>Total spending (public and private) on healthcare as a percentage of GDP at market prices 9.0</p> <p>Payment for pharmaceuticals by compulsory health insurance systems and national health services (ambulatory care only) M€ 11493</p>
<b>Industrial pharmacy</b>		
Pharmacists working in industry	4300	.
Competences and roles		Regulatory affairs, production, analytical divisions, marketing, research and development.
<b>Other sectors</b>		
Pharmacists working in other sectors		There are pharmacists in the parliament. Pharmacists are present in the armed forces. Pharmacists are employed in the Military Pharmaceutical Institute (Istituto Chimico Farmaceutico Militare, <a href="http://www.farmaceuticomilitare.it">www.farmaceuticomilitare.it</a> ), that produces medicines for the armed forces.
<b>Roles of professional associations</b>		
Registration of pharmacists	Yes	<p>Registration with and membership of <i>Fofi (Federazione Ordini Farmacisti Italiani)</i>.</p> <p>The state qualification test is compulsory to become registered pharmacist and to gain the condition necessary to Fofi membership. The state qualification test has one written exam, three practical exams and one final oral exam.</p> <p>Fofi stimulates continuous professional development and acts as an intermediary with the Italian government.</p> <p>There is a compulsory training period for pharmacists from other EU member states. Pharmacists coming from EU countries must pass the state qualification test before practicing the profession and apply for professional recognition to the Ministry of Health.</p>
Creation of community pharmacies and control of territorial distribution	No	<p>Creation of community pharmacies is provided by national law according to demographic, topographic and urban rules.</p> <p>Pharmacy ownership is limited to pharmacists, cooperatives of pharmacists and local government (1200 pharmacies are owned by local government and managed by pharmacists).</p>
Ethical aspects of professional conduct	Yes	Revocation in case of malpractice or non-compliance with ethical code.

Quality assurance and validation of HEI courses for pharmacists	No	Fofi may suggest to add and/or to remove some classes but has no decisional power.
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References and websites	
<b>References to texts and articles of Italian law</b>	Italian Pharmacopeia (F.U. XII), D. L.vo April 24, 2006, n. 219 <a href="http://www.foram.org/media/1649/dl219_240406.pdf">http://www.foram.org/media/1649/dl219_240406.pdf</a>
<b>Italian references</b>	
<i>Fofi (Federazione Ordini Farmacisti Italiani)</i>	<a href="http://www.fofi.it/cont/home/">http://www.fofi.it/cont/home/</a>
<i>Federazione nazionale dei titolari di farmacia italiani (Federpharma)</i>	<a href="https://www.federfarma.it/">https://www.federfarma.it/</a>
<i>Farindustria (Italian pharmaceutical industry)</i>	<a href="http://www.farindustria.it/Farindustria/html/index.asp">http://www.farindustria.it/Farindustria/html/index.asp</a>
<i>SIFO (Societa Italiano de Farmacia Ospedaliari):</i>	<a href="http://www.sifoweb.it/index.asp">http://www.sifoweb.it/index.asp</a>
<b>EU references</b>	
PHARMWEB:	<a href="http://www.pharmweb.net/">http://www.pharmweb.net/</a>
The EURYDICE database on education systems in Europe (Finland)	<a href="http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/national_summary_sheets/047_FI_EN.pdf">http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/national_summary_sheets/047_FI_EN.pdf</a>
ECORYS: "Study of regulatory restrictions in the field of pharmacies". ECORYS Nederland BV, 22 June 2007.	<a href="http://ec.europa.eu/internal_market/services/pharmacy_en.htm">http://ec.europa.eu/internal_market/services/pharmacy_en.htm</a>
EFPIA (The European Federation of Pharmaceutical Industries and Associations): "The Pharmaceutical Industry in Figures"	<a href="http://www.efpia.eu/Content/Default.asp?PageID=317">www.efpia.eu/Content/Default.asp?PageID=317</a>
Pharmaceutical Group of the EU (PGEU)	<a href="http://www.pgeu.org/">http://www.pgeu.org/</a>
European Association of Hospital Pharmacists (EAHP)	<a href="http://www.eahp.eu/">http://www.eahp.eu/</a>
European Industrial Pharmacists' Group (EIPG)	<a href="http://www.eipg.eu/">http://www.eipg.eu/</a>
European Hospital and Healthcare Federation (HOPE)	<a href="http://www.hope.be/">http://www.hope.be/</a>
<b>WHO</b>	
WHO health statistics	<a href="http://www.who.int/whosis/en/index.html">www.who.int/whosis/en/index.html</a>

## Chapter 2. Pharmacy HEIs, students and courses

	Y/N or number	Comments.
<b>Total number of pharmacy HEIs in Italy</b>	32	<ol style="list-style-type: none"> <li>1. Faculty of Pharmacy, University of Bari</li> <li>2. Faculty of Pharmacy, University of Bologna</li> <li>3. Faculty of Pharmacy, University of Cagliari</li> <li>4. Faculty of Pharmacy, University of Camerino</li> <li>5. Faculty of Pharmacy, University of Catania</li> <li>6. Faculty of Pharmacy, University of Chieti</li> <li>7. Faculty of Pharmacy, University of Ferrara</li> <li>8. Faculty of Pharmacy, University of Florence</li> <li>9. Faculty of Pharmacy, University of Genova</li> <li>10. Faculty of Pharmacy, University of Messina</li> <li>11. Faculty of Pharmacy, University of Milan</li> <li>12. Faculty of Pharmacy, University of Modena</li> <li>13. Faculty of Pharmacy, University of Naples Federico II</li> <li>14. Faculty of Pharmacy, University of Padova</li> <li>15. Faculty of Pharmacy, University of Palermo</li> <li>16. Faculty of Pharmacy, University of Parma</li> <li>17. Faculty of Pharmacy, University of Pavia</li> <li>18. Faculty of Pharmacy, University of Perugia</li> <li>19. Faculty of Pharmacy, University of Pisa</li> <li>20. Faculty of Pharmacy, University of Rome La Sapienza</li> <li>21. Faculty of Pharmacy, University of Salerno</li> <li>22. Faculty of Pharmacy, University of Sassari</li> <li>23. Faculty of Pharmacy, University of Siena</li> <li>24. Faculty of Pharmacy, University of Trieste</li> <li>25. Faculty of Pharmacy, University of Turin</li> <li>26. Faculty of Pharmacy, University of Urbino</li> <li>27. Faculty of Pharmacy, University of Calabria</li> <li>28. Faculty of Pharmacy, University of Piemonte Orientale</li> <li>29. Faculty of Pharmacy, University of Catanzaro</li> <li>30. Faculty of Pharmacy, University of Basilicata</li> <li>31. Course in Pharmacy, Second University of Naples</li> <li>32. Course in Pharmacy, University of Rome Tor Vergata</li> </ol>
Public	32	
<b>Organisation of HEIs</b>		
Independent faculty	30 / 32	
Attached to a science faculty	Yes	The course in Pharmacy of the University of Rome Tor Vergata is attached to the Faculty of Sciences, while the course in Pharmacy of the Second University of Naples is attached to both the Faculty of Science and the Faculty of Medicine
Attached to a medical faculty	Yes	
HEIs offer seamless B + M degrees	Yes	<p><u>Uni. Perugia, Pharmacy:</u> <a href="http://facolta.unipg.it/farmacia/">http://facolta.unipg.it/farmacia/</a> 5-year seamless degree courses</p> <ol style="list-style-type: none"> <li>1. Pharmaceutical biotechnology</li> <li>2. Pharmacy <ol style="list-style-type: none"> <li>a. Chemistry and pharmaceutical technology</li> <li>b. Pharmacy</li> </ol> </li> </ol>

Italy		
<b>Teaching staff</b>		
Number of teaching staff (nationals)	1354	This number corresponds to the equivalent teaching staff. In Italy, a full professor has a value of 1, an associate professor a value of 0.7 and an assistant professor a value of 0.5. The total number of people is actually >1354.
International teaching staff	?	Exceptional.
Professionals other than HEIs	?	In Perugia (see later) outsiders make up 14% of overall staff numbers.
<b>Students</b>		
Places at entry following secondary school	No	Any student coming from any kind of high school is allowed to enter to university  There is no national <i>numerus clauses</i> in Italy. When the student population increases too much, Faculties may decide for a programmed number
Number of applicants for entry	32889	Data from the Ministry of Universities and Research for 2008 <a href="http://www.miur.it/0002Univer/index_cf2.htm">http://www.miur.it/0002Univer/index_cf2.htm</a>
Graduates that become registered pharmacists.	1507	Data from national FOFI (Italian Federation of Pharmacist Orders), 2008
International students (from EU member states)	?	Perugia : 28 out of a total student population of 1707 (1.6%) (No national data)
International students (non EU)	?	Perugia : 81 out of a total student population of 1707 (4.7%) (No national data)
<b>Entry requirements following secondary school)</b>		
Specific pharmacy-related entrance examination	Yes	Some Faculties of Pharmacy have a specific written entrance examination.
<b>Advanced entry</b>		
At which level?	Yes for pharma. technology	Yes, students may come to do a second level (master).
What are the requirements?		In Perugia the Faculty of Sciences runs the Pharmaceutical biotechnology bachelor course. In other universities, the bachelor + master course in Pharmaceutical biotechnology is given by a dedicated independent faculty.
Specific requirements for international students (EU or non EU).		Normally, they are accepted only after examination of their curriculum and providing they know Italian. If not, they have to attend Italian intensive courses at the CLA (University Linguistic Center, <a href="http://www-b.unipg.it/clateneo/home.php?res=h">http://www-b.unipg.it/clateneo/home.php?res=h</a> )
<b>Fees per year</b>		
For all students	1891 € (average)	The fee varies according to the family income
<b>Length of course</b>	5	There is an obligatory 6-month traineeship with a university examination and a certain failure rate.
<b>Specialization</b>		
Specialized courses	Yes	Hospital pharmacy in Perugia
Year (s)	> 5 <sup>th</sup> year	Postgraduate specialisation.

Student numbers	5-10	In Perugia, the student number in hospital pharmacy specialization is 5 that corresponds to around 10% of the graduated students. In Italy, the number of students in hospital pharmacy can vary from 5 to 10.
<b>Past and present changes in E&amp;T in Italy</b>		
Major changes since 1999	Yes	1) The ECTS has been applied 2) The curricula have been harmonized 3) The third level of instruction has been improved 4) Student/teacher ratio is controlled
Major changes envisaged before 2019	Yes	The English knowledge should be improved among students and teachers. Some classes will be given in English.
<b>Perugia</b>		
<b>Teaching staff</b>		
Teaching staff (nationals)	65 (persons)	Data as of December 31, 2009
Number of international teaching staff (from EU MSs)	1	
Professionals other than HEI	11	14% of total staff
<b>Students</b>		
Places at entry following secondary school		Any student coming from any kind of high school is allowed to enter to university
Number of applicants for entry	150 average	
Graduates that become registered pharmacists.	55 average	Data from regional FOFI-2008 The drop-out is very high, around 63%.
International students (from EU member states)		Data from regional FOFI-2008, students from EU over 5 years: 28.
International students (non EU)		Data from regional FOFI-2008, international students from non EU over 5 years : 81.
<b>Entry requirements (beginning of S1 of B1, following secondary school)</b>		
Specific pharmacy-related entrance examination	Yes	Written examination
<b>Fees per year</b>		
For all students	1700 € (maximum)	2009 data from the administration of Perugia university. The fee varies according to the family income and can be as low as 440
<b>Is your HEI typical of all HEIs in the country?</b>	Yes	T here is a basic common curriculum fixed by the Italian government. The basic curriculum takes into account the European directive 85/433/CEE

<b>References</b>	
References to texts and articles of national law	Italian Pharmacopeia (F.U. XII); D. L.vo April 24, 2006, n. 219
Bibliographic references (EU, national, international)	European Pharmacopeia (VI): <a href="http://online.edqm.eu/entry.htm">http://online.edqm.eu/entry.htm</a>
Websites	University of Perugia: <a href="http://www.unipg.it/">http://www.unipg.it/</a> In English : <a href="http://www.unipg.it/comunica/guide/frame1.html">http://www.unipg.it/comunica/guide/frame1.html</a> Pharmacy :! <a href="http://www.unipg.it/comunica/guide/frame1.html">http://www.unipg.it/comunica/guide/frame1.html</a> Pharmacy degree courses : <a href="http://www.unipg.it/comunica/guide/frame1.html">http://www.unipg.it/comunica/guide/frame1.html</a>

### Chapter 3. Teaching and learning methods

#### Student hours

Method	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Lecture	364	336	350	336	147	<b>1533</b>
Practical	45	90		105		<b>240</b>
Project work					375	<b>375</b>
<i>Running total</i>	<i>409</i>	<i>426</i>	<i>350</i>	<i>441</i>	<i>522</i>	<b>2148</b>
Traineeship						
Hospital				250	500	<b>750</b>
OR Community				250	500	
OR Industrial				250	500	
<i>Running total</i>	<i>409</i>	<i>426</i>	<i>350</i>	<i>691</i>	<i>1022</i>	<b>2898</b>
Choice courses			70		35	<b>105</b>
Optional courses	21				14	<b>35</b>
<b>Grand total</b>	<b>430</b>	<b>426</b>	<b>420</b>	<b>691</b>	<b>1071</b>	<b>3038</b>

#### Websites

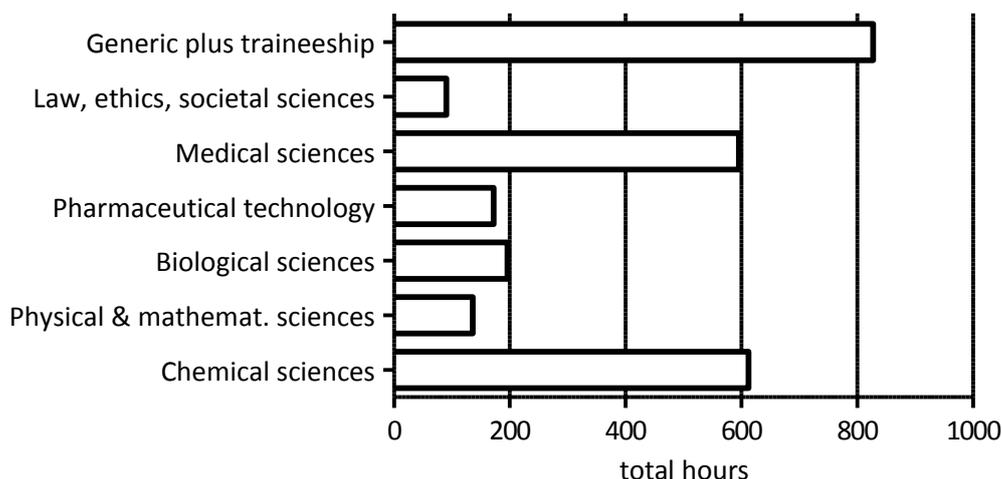
Faculty of Pharmacy, University of Perugia	Pharmacy : <a href="http://www.unipg.it/comunica/guide/frame1.html">http://www.unipg.it/comunica/guide/frame1.html</a> Pharmacy degree courses : <a href="http://www.unipg.it/comunica/guide/frame1.html">http://www.unipg.it/comunica/guide/frame1.html</a>
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## Chapter 4. Subject areas

### Student hours

Subject area	Year 1	Year 2	Year 3	Year 4	Year 5	Total
CHEMSCI	91	230	70	186	35	612
PHYSMATH	136					136
BIOLSCI	70	91		35		196
PHARMTECH				95	77	172
MEDISCI	70	105	280	105	35	595
LAWSOC			70	20		90
GENERIC plus TRAINEESHIP	42			250	535	827
<b>Grand total</b>	<b>409</b>	<b>426</b>	<b>420</b>	<b>691</b>	<b>682*</b>	<b>2628*</b>

Hours by subject area



\*: not including project work

### Websites

Faculty of Pharmacy,  
university of Perugia

Pharmacy :! <http://www.unipg.it/comunica/guide/frame1.html>

Pharmacy degree courses : <http://www.unipg.it/comunica/guide/frame1.html>

## Chapter 5. Impact of the Bologna principles

Bologna principle	Is the principle applied? Y/N or partially	Comments.
<b>1. Comparable degrees / Diploma Supplement</b>	Yes	Multilateral recognition of all EU degrees if the length of the course is 5 years. Italian faculties issue a diploma supplement In English.
<b>2. Two main cycles (B and M) with entry and exit at B level</b>	No	Pharmacy studies are of 5 years' duration (seamless cycle).
<b>3. ECTS system of credits / links to LLL</b>	Yes	<p>ECTS credits can be awarded for various types of activity from taking an exam or completing a presentation or piece for coursework to carrying out research or a laboratory experiment. Therefore, given that both theoretical and practical work is recognised, a connection is made between the more theoretical pre-graduate education and the more practical or research oriented post-graduate education/training. In addition, the ECTS credits gained during pre-graduate education are recognised and may be used for access to postgraduate education or training, therefore creating an dispensable bond between the two levels of education.</p> <p>The framework adopted from the Bologna process was that of a three cycle higher education system and a concurring Credit Accumulation system. The reform provided for: the 1st cycle (typically 180–240 ECTS credits, usually awarding a Bachelor's degree), the 2nd cycle (typically 90–120 ECTS credits, usually awarding a Master's degree) and the 3rd cycle (Doctoral degree - No ECTS limits given). The Credit Accumulation System, being learner-centred, allows credits to be accumulated in the three cycles with a view to individuals obtaining qualifications, Credits awarded in one programme may be transferred into another programme, offered by the same or another institution.</p>
<b>4. Obstacles to mobility</b>	No	A language program for students is provided by the CLA (University Linguistic Center, <a href="http://www-b.unipg.it/clateneo/home.php?res=h">http://www-b.unipg.it/clateneo/home.php?res=h</a> ) and it is free. Lodging is helped by scholarships given by the University and ADISU (Agency for the University Education Rights, <a href="http://www.adisupg.it/">http://www.adisupg.it/</a> This is the Umbria website but this Agency exists in other regions) Normally, in this way students may afford the majority of the mobility expenses.
<b>5. European QA</b>	No	Perugia University organizes QA through a Quality Committee, whose responsible is Prof. Paolo Fantozzi ( <a href="mailto:paolofan@unipg.it">paolofan@unipg.it</a> ; tel. +390755857910; fax +390755857943), which takes care of management system application and assures quality policy.
<b>6. European dimension</b>		The only initiatives in collaboration with other European partners are those coming from staff mobility and self promoted research collaborations.
<b>ERASMUS staff exchange to your HEI from elsewhere</b>		Number of staff months: 0.75
<b>ERASMUS staff exchange from your HEI to other HEIs</b>		Number of staff months: 0.75
<b>ERASMUS student exchange to your HEI from elsewhere</b>		Number of student months: 329*
<b>ERASMUS student exchange from your HEI to other HEIs</b>		Number of student months: 107

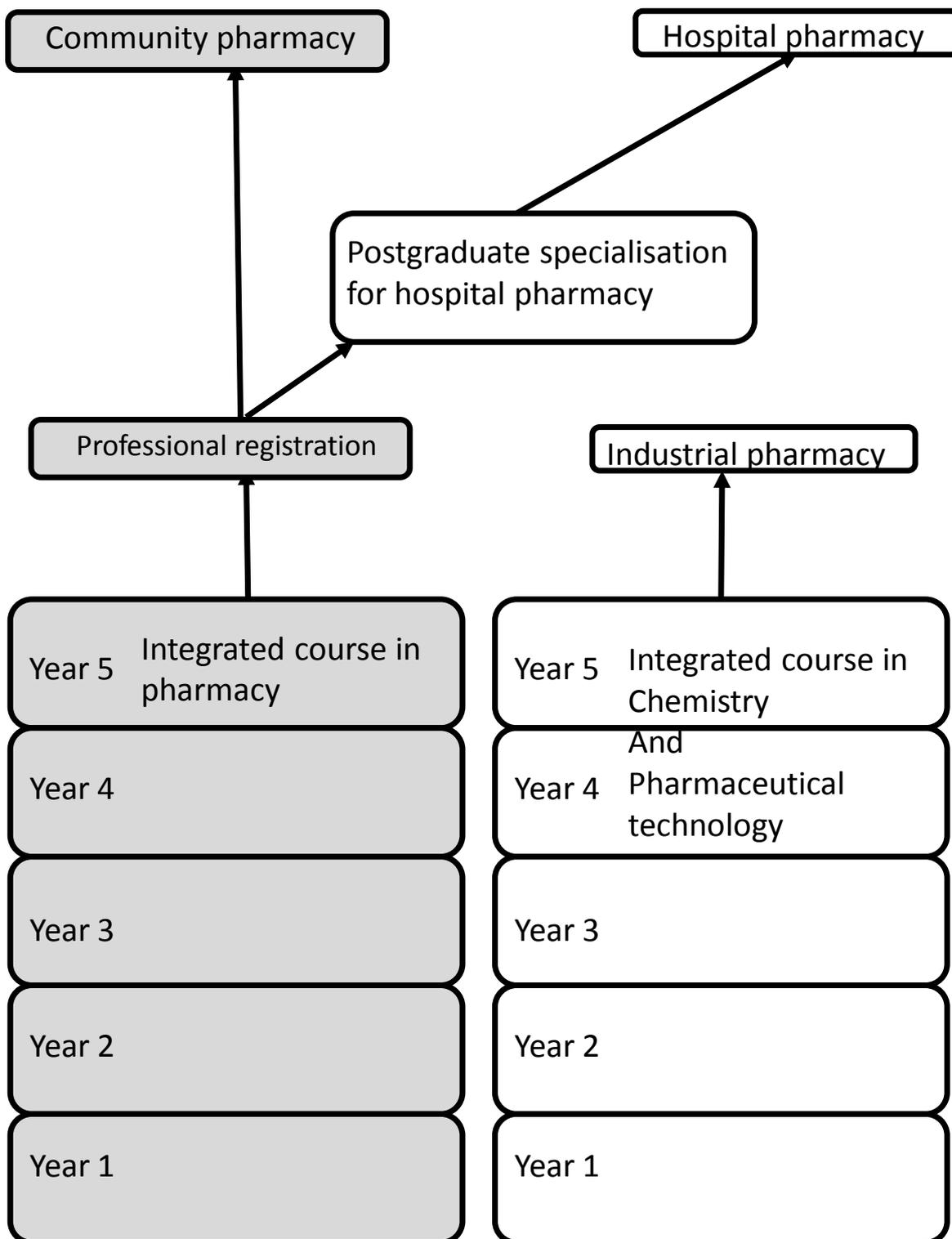
Data from the Department for International Relations , European community programmes and International cooperation office - University of Perugia-2008-2009

\*: 50% of these students are coming from Spain and often spend one year (12 months) in the Faculty. The University of Perugia registered a 20% increase of the incoming students this year. This is a peculiarity of the University of Perugia since the national average increase is 2% (2009/10).

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

The directive states	How does / will this directive statement affect pharmacy E&T?
“Evidence of formal qualifications as a pharmacist shall attest to training of at least <u>five years' duration</u> ,...”	Pharmacy education and training in the faculty of Pharmacy in Italy lasts 5 years and includes the practical traineeship.
“... <u>four years of full-time theoretical and practical training</u> at a university or at a higher institute of a level recognised as equivalent, or under the supervision of a university;”	Yes
“... <u>six-month traineeship in a pharmacy</u> which is open to the public or in a hospital, under the supervision of that hospital's pharmaceutical department.”	Traineeship is supervised and examined by the HEI not by the Italian Order of Pharmacists (Fofi)? Traineeship is evaluated by Pharmacists who supervise students. The evaluation is accepted and validated by the HEI.
“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> .”	Yes
Directive annex	How does / will this directive annex affect pharmacy E&T?
<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.	These topics are already part of the curriculum. Carlo Rossi believes that the analysis of medicinal products part should be reduced in Italy. At the moment three/four (depending from the Faculty) exams on this topic are included in the curriculum. Carlo Rossi strongly believes that elements of Pathology should be included in the list.

**The Italian pharmacy education and training scheme  
(based on the model of Perugia, Italy).**



Pharmacy education and training leading to professional pharmacy practice is shown on the left in grey.



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## PHARMINE

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(142078-LLP-1-2008-BE-ERASMUS-ECDSP).

**Website: [www.pharmine.org](http://www.pharmine.org)**

*Pharmacy education & training in*

# LATVIA



Lifelong Learning Programme

**PHARMINE**  
*Pharmacy Education  
in Europe*

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 qualification, 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 – LATVIA” was produced by:

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## Summary.

Community pharmacies in Latvia sell Rx and OTC medicines, and provide consulting and diagnostic services.

Pharmacists study five years at one of two universities – the University of Latvia (UL) and Riga Stradins University (RSU).

At UL the program is based on a B+M, 3+2 years system and graduates receive a health sciences bachelor degree in pharmacy and health sciences master degree in pharmacy. At RSU after a seamless 5-years' program graduates receive pharmacist's degree.

After three years of practice, university graduates receive a pharmacist's certificate. Pharmacists may own and manage community pharmacies or work at community and hospital pharmacies. The Pharmacy Law of Latvia states that new pharmacies may be opened only by pharmacists but in practice new pharmacies are not being opened and the majority of existing pharmacies now belong to pharmacy chains. Recent amendments of Pharmacy Law determine that a general pharmacy may be established in the form of a pharmacist's practice, a joint practice (a Civil Law company) or a capital company. If the owner is not a pharmacist, he/she must to conclude a contract with a certified pharmacist providing pharmaceutical care. If the pharmacy takes the form of a capital company either a pharmacist must be a shareholder of not less than 50% of the capital, or certified pharmacists must compose not less than half of the board members.

At the Riga 1<sup>st</sup> college assistant pharmacists study 2.5 years and are employed at community or hospital pharmacies. Assistant pharmacists are not allowed to manage a pharmacy.

The pharmacy curriculum is organized according to the EU directive 2005/36/EC and has the required courses in medical, biological and pharmaceutical subjects, as well as courses in physics, languages, and social science. The bachelor thesis lasts 2.5 months or 15 ECTS, and the master degree thesis 5 months or 30 ECTS. There is a six months' traineeship in a pharmacy at the master level, following the end of theoretical courses.

Individual specialization is possible during the bachelor and master degree theses by choosing a specific laboratory for a thesis in an appropriate topic, and also by choosing the appropriate elective courses. There is no formal specialization. Specialization is not obligatory, and students may choose more practical pharmacy or clinical courses. Pharmacists are primarily employed in community pharmacies.

## Introduction.

### Statistics for Latvia.

Total population: 2,289,000

Gross national income per capita (PPP international \$): 14,840

Life expectancy at birth m/f (years): 65/76

Healthy life expectancy at birth m/f (years, 2003): 58/68

Probability of dying under five (per 1 000 live births): 9

Probability of dying between 15 and 60 years m/f (per 1 000 population): 323/123

Total expenditure on health per capita (Intl \$, 2006): 974

Total expenditure on health as % of GDP (2006): 6

Figures are for 2006 unless indicated. Source: [World Health Statistics 2008](#)

See also: <http://www.who.int/countries/lva/en/>

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

### Highlights on pharmacy in Latvia.

#### **Current challenges**

The main challenges of pharmaceutical system in Latvia are listed here.

- Continuous growth of pharmaceutical expenditure (PE) and limited public resources to cover the growth.
- Pharmaceutical products are marketed at EU prices, and at the same time GDP per capita is 6-7 times less than the EU average, thus increasing affordability and equity problems.
- Analysis of the cost-effectiveness of newly introduced pharmaceuticals in cases in which the new products fail to prove therapeutic added value, but the treatment costs are considerably higher than currently available therapies.
- There are difficulties in assessing the relative effectiveness of new pharmaceutical products using data from clinical trials, because:
  - there is a lack of point-by-point comparisons in clinical trials;
  - follow-up is insufficiently detailed, leading to frequent use of modelling techniques based on assumptions or retrospective data;
  - “surrogate outcomes” used in clinical trials do not provide evidence on improvement in health status.
- There have been cases of irrational use of pharmaceuticals, based on the marketing activities of pharmaceutical companies.
- Limited independent information is available for health care professionals and patients.

## **Future developments**

Future developments in long-term pharmaceutical policy in Latvia (under implementation) include:

- Further development of reference pricing system;
- Further development of economic evaluation of pharmaceuticals and broadening the scope to the hospital system, applying economic evaluation to the pharmaceuticals used in hospitals;
- Promotion of rational use of pharmaceuticals;
- Providing independent and unbiased information on therapeutic value and cost-effectiveness of pharmaceuticals to the public and to health care professionals;
- Participation in international collaboration on assessment of the relative effectiveness of pharmaceuticals.

See country file of PPRI Pharma Profile, for Latvia at:

[http://ppri.oebig.at/Downloads/Results/Latvia\\_PPRI\\_2008.pdf](http://ppri.oebig.at/Downloads/Results/Latvia_PPRI_2008.pdf)

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

	Y/N, number or %	Comments.
<b>Community pharmacy</b>		
Number of community pharmacists	1624	In August, 2010 there were registered 1624 pharmacists and 1481 assistant pharmacists. Register of Pharmacists Society of Latvia ( <a href="http://www.farmaceutubiedriba.lv">www.farmaceutubiedriba.lv</a> ) - 09 August, 2010.
Number of community pharmacies	810	There were 810 licensed pharmacies in Latvia on 01.01.2009. Pharmacy department of Ministry of Health: <a href="http://www.farmacija-mic.lv">www.farmacija-mic.lv</a> Register of community pharmacies is available at: <a href="http://www.zva.gov.lv/doc_upl/A-02032010.pdf">http://www.zva.gov.lv/doc_upl/A-02032010.pdf</a>  There are 1.9 pharmacists per pharmacy. There are 2800 customers per pharmacy.
Competences and roles of community pharmacists		Competencies of community pharmacists: <ul style="list-style-type: none"> <li>a. Supplying prescription medicines</li> <li>b. Managing medicines for some ailments</li> <li>c. Giving advice on medicines</li> <li>d. Screening services (cholesterol, glucose, blood pressure, etc.).</li> </ul>
Is ownership of a community pharmacy limited to pharmacists?	No	Currently ownership is not limited to pharmacists.  According to The PharmacyLaw a pharmacy may be established in the form of a pharmacist's practice, a joint practice (a Civil Law company) or a capital company. In respect of the performance of pharmaceutical care in a pharmacy owned by a local government or another person who is not a pharmacist, the respective person shall enter into a contract with a certified pharmacist. An in-patient medical treatment institution or a daytime hospital may open a closed type of pharmacy.  <b>A pharmacy in the form of a capital company may operate if at least one of the following conditions has been complied with:</b>  1) no less than 50 per cent of the shares in the capital company are owned by a pharmacist;  2) no less than one half of the members of the management board (executive body) of the capital company are certified pharmacists.  (see attached changes in separate file). <a href="http://www.likumi.lv">www.likumi.lv</a> , <a href="http://www.eahp.eu/content/download/24963/162601/.../CountryFocus40-41.pdf">www.eahp.eu/content/download/24963/162601/.../CountryFocus40-41.pdf</a>
Rules governing the geographical distribution of community pharmacies?	Yes	1 pharmacy per 2000 inhabitants; at least 500 m between each pharmacy that has extemporaneous dispensing and/or a twenty-four hours on-duty pharmacy service.  An affiliate cannot be nearer than 5 km from the main pharmacy. <a href="http://www.likumi.lv/doc.php?id=60589&amp;from=off">http://www.likumi.lv/doc.php?id=60589&amp;from=off</a>
Are drugs and healthcare products available to the general public by channels	No	It is possible to buy food supplements, hygiene products, medical devices (in special shops) outside of pharmacies. All medicines, bandages, specific plasters (silicon etc.) are available only in pharmacies.

other than pharmacies?		There is one e-pharmacy in Latvia: <a href="http://www.pilsapteika.lv/">http://www.pilsapteika.lv/</a>
Are persons other than pharmacists involved in community practice?	Yes	Assistant pharmacists. College education; in Latvia – regulated profession; diploma governed with Second General System Directive 92/51/EEC.
Their titles and number(s)	1481	Assistant pharmacists Pharmacy assistants have a college education. Theirs is a regulated profession with a diploma based on Council Directive 92/51/EEC of 18 June 1992 on a second general system for the recognition of professional education and training to supplement Directive 89/48/EEC. Pharmacy students, medical students, nurses who have not completed their HEI course, can be employed as <u>technicians</u> , i.e. supportive staff at pharmacy. The technicians are not registered and their number is not known.
Organisation providing and validating the E&T		Assistant pharmacists are trained at Riga 1 <sup>st</sup> Medical college. They study for 2.5 years. It is the only HEI offering the diploma of assistant pharmacist. All programs are recognized by the Latvian Accreditation Centre (Higher Education Quality Evaluation Centre (HEQEC)) and evaluated by national and foreign experts.  The accredited programs are listed at: <a href="http://www.aiknc.lv/">http://www.aiknc.lv/</a> <a href="http://www.aiknc.lv/lv/prog_view.php?id=5517">http://www.aiknc.lv/lv/prog_view.php?id=5517</a>
Subject areas		CHEMISCI 240 hours PHYSMATH 0 BIOLSCI 274 hours PHARMTECH 440 hours MEDISCI 840 hours LAWSOC 200 hours GENERIC 760 (including practice in pharmacy) ELECTIVE 200 hours  The average traineeship lasts 1686 hours with theoretical courses standing at 1268h, and personal work at 1046 h.  The program is available at: <a href="http://www.aiknc.lv/lv/prog_view.php?id=5517">http://www.aiknc.lv/lv/prog_view.php?id=5517</a>
Competences and roles		Extemporaneous drug preparation, Dispensing of non-prescription medicines under the guidance of a pharmacist Dispensing of hygiene and cosmetic products.
<b>Hospital pharmacy</b>		
Does such a function exist?	Yes	There are approximately 38 hospital pharmacies in Latvia.  Pharmacists working in hospitals have the same status as those working in community pharmacies. In general, hospital pharmacists do not have a special education but are simply pharmacists who work at hospital pharmacies.  Only 2 or 3 clinical pharmacists are at present working in hospital pharmacies. They receive a special education and are graduates of the clinical pharmacy master degree program at Riga Stradins University.
Number of hospital pharmacists	94	Pharmacists working at hospital pharmacies and those working at community pharmacies are registered in one single register. All together there are approximately 1516 registered pharmacists and among these 94 work in hospital pharmacies.

		There is a specific section for Hospital Pharmacists within the Latvian Pharmacists` Society, and approximately 140 persons are members of this section: 94 pharmacists and 46 pharmacy assistants. The Latvian Pharmacists` Society is a member of EAHP.
Competences and roles of hospital pharmacists		<ul style="list-style-type: none"> <li>• Purchasing of drugs and medical material</li> <li>• Unit-dose drug distribution</li> <li>• Production of patient-specific medicines (e.g. cytotoxic preparations)</li> </ul>
<b>Pharmaceutical and related industries</b>		
Number of companies with production, R&D and distribution	52	On 01.01.2009 approximately 100 representative offices of foreign drug manufacturers were registered in Latvia, together with 14 local drug manufacturers and 36 drug wholesalers in Latvia.  (State Agency of Medicines, <a href="http://www.zva.gov.lv">www.zva.gov.lv</a> ; <a href="http://www.farmacija-mic.lv">www.farmacija-mic.lv</a> )
Number of companies with production only	14	Approximately 14 local drug producers: see Latvian State Agency of Medicines: <a href="http://www.zva.gov.lv/index.php?setlang=en&amp;large=www.farmacija-mic.lv">http://www.zva.gov.lv/index.php?setlang=en&amp;large=www.farmacija-mic.lv</a>
Number of companies with distribution only	36	36 drug wholesalers, but the 5-6 larger companies have a licence to repack medicines or to do labelling according to GMP.
Number of companies producing generic drugs only	2	The biggest local generic producers are:  Grindex: <a href="http://www.grindex.lv/en">http://www.grindex.lv/en</a> Olainfarm: <a href="http://www.olainfarm.lv/eng/">http://www.olainfarm.lv/eng/</a> together with LMP: <a href="http://www.lmp.lv/eng/products.php">http://www.lmp.lv/eng/products.php</a> <a href="http://www.pharmidea.lv/en/home/">http://www.pharmidea.lv/en/home/</a> <a href="http://www.silvanols.lv/">http://www.silvanols.lv/</a> etc. Olainfarm and Grindex are also licensed to produce and export original medicines –by the State Agency of Medicines: <a href="http://www.zva.gov.lv">www.zva.gov.lv</a> ; <a href="http://www.farmacija-mic.lv">www.farmacija-mic.lv</a>
<b>Industrial pharmacy</b>		
Number of pharmacists working in industry	200-300	Approximately 200-300 pharmacists are working in industry but there are no statistics in Latvia as registration is not required. Industrial pharmacists are represented by the Industrial Pharmacists` Society (IPS) section of the Pharmacists Society of Latvia.  IPS is a member of EIPG (since 2007). At the moment (October, 2010) 69 pharmacists are members of IPS.
Competences and roles of industrial pharmacists		Industrial pharmacists are working together with health authorities in: <ul style="list-style-type: none"> <li>• drug laboratories</li> <li>• agencies (registration, expertise, etc.)</li> <li>• production (qualified person (QP), etc.)</li> <li>• representative offices</li> <li>• drug wholesalers (QP, responsible persons, etc.)</li> </ul> <p>Researchers with a doctoral degree working in drug laboratories are not included in the register of pharmacists and are not called industrial pharmacists.</p> <p>A pharmacy degree is not obligatory for employment in R&amp;D laboratories. Albeit some pharmacy graduates may work in preclinical research, but again they are not registered and certified pharmacists.</p>

		<p>Generally pharmacists in industry have one of the following posts:</p> <ol style="list-style-type: none"> <li>Pre-clinical drug evaluation (safety and efficacy)</li> <li>(exceptionally) clinical drug evaluation</li> <li>Marketing</li> <li>Distribution</li> <li>Medical devices</li> <li>Cosmetology</li> <li>Drug evaluation and registration (governmental and industrial)</li> </ol>
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#### Other sectors

Sectors in which pharmacists are employed		<p>An unknown number of pharmacists are employed by the national health authorities and in public sector agencies (e.g. the drug pricing agency working with compensated drug list, state agency of medicines working with expertise of medicine dossiers and registration, in veterinary and agriculture departments, in forensics, etc.).</p> <p>Others are employed in the private sector in different areas (laboratories, representative offices for foreign drug firms, medical journalism, etc.).</p> <p>Some are employed by the HEIs.</p>
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#### Roles of professional associations

Registration of pharmacists	Yes	<p>The Pharmacists' Society of Latvia or PhSL is the only professional organisation in Latvia and is responsible for registration of pharmacists and assistant pharmacists. The Latvian government also authorises the PhSL to perform certification and re-certification of pharmacists. This is obligatory for pharmacy managers but voluntary for other pharmacists.</p> <p>PhSL website: <a href="http://www.farmaceutubiedriba.lv">www.farmaceutubiedriba.lv</a></p>
Creation of community pharmacies and control of territorial distribution	No	<p>Creation of community pharmacies is under the responsibility of the licensing section of the State Agency of Medicines; territorial distribution of pharmacies is according to rules of Cabinet of Ministers, mentioned above, controlled by Health Inspectorate.</p>
Ethical and other aspects of professional conduct	Yes	<p>There is an Ethical Codex of pharmacists issued by PhSL. The society organises an Ethical Commission that maintains actions and their decision is irrevocable. PhSL also certifies pharmacists together with the informed authorities; for the pharmacy manager and owner this implies penalties. Sanctions are: instruction, notification or annulment of pharmacist certificate.</p>
Quality assurance and validation of HEI courses for pharmacists	Yes	<p>During program accreditation and re-accreditation by LATAK (Latvian National Accreditation Bureau) (standard EN ISO/IEC 17024:2003) an expert representative of Latvian Pharmacists Society is invited.</p> <p>The Latvian Pharmacists Society has an educational section.</p> <p>They collaborate with both universities – University of Latvia and Riga Stradins university.</p>

#### References

State Statistical Board: [www.vm.gov.lv](http://www.vm.gov.lv)  
Ministry of Health, laws and regulations: [www.likumi.lv/](http://www.likumi.lv/)  
Latvian Pharmacists Society: [www.farmaceutubiedriba.lv](http://www.farmaceutubiedriba.lv)  
Ministry of Education and Science: [www.izm.gov.lv](http://www.izm.gov.lv)  
State Agency of Medicines: [www.zva.gov.lv](http://www.zva.gov.lv)  
The Centre of health Economics: [www.vec.gov.lv](http://www.vec.gov.lv) (), etc.  
Medicine Information Centre MIC: [www.farmacija-mic.lv](http://www.farmacija-mic.lv)

## Chapter 2. Pharmacy HEIs, students and courses

	Y/N, number or %	Comments
<b>Total number of HEIs in Latvia</b>	3	Riga Stradins University (RSU) University of Latvia (UL)  (Riga Medical College No.1 (pharmacy assistants, see above))
Public	3	
<b>Organisation of HEIs</b>		
Independent faculty		RSU has a separate Faculty of Pharmacy
Attached to medicine		UL
Do HEIs offer B + M degrees?	Yes	UL: B + M. Albeit the master degree program in pharmacy is a continuation of the pharmacy bachelor program.  RSU: two courses are related to pharmacy <ol style="list-style-type: none"> <li>1. Professional study programme in Pharmacy (5 years). Following the professional programme students acquire a pharmacist's degree equivalent to a master's degree allowing them to work in a pharmacy</li> <li>2. Academic study programme for Master's degree in Health Care (subdivision - <i>clinical pharmacy</i>).</li> </ol>
Do HEIs offer an M. Pharm. after a B degree in another HEI?	Yes	UL: recognises pharmacy bachelor degrees obtained in other HEIs.  RSU: following the 2 years master degree programme in "Clinical Pharmacy" students with a pharmacist's degree from UL or RSU obtain a master's degree in pharmacy health care.
<b>University of Latvia (UL)</b>		
<b>Teaching staff</b>		
Number of teaching staff (Latvian nationals)	26	The Faculty of Medicine teaching staff is composed of 72 persons with 5 FT persons in pharmacy: Professor: 1 Assistant professors: 3 Lecturer: 1  Other members of the teaching staff in the pharmacy programme come from various other faculties (the medical department of the Faculty of Medicine, and from Chemistry, Biology, Physics, Economics, Modern Languages, etc.). Professors: 8 Associated professors: 13 Assistant: 1 Lecturers: 4
Number professionals (pharmacists and others) from outside the HEIs, involved in E&T	3 lecturers 50-60 as practice trainees	Pharmacists from community pharmacies, the Latvian State Health agency and from hospital pharmacy.  These 3 are invited lecturers for academic courses.  All certificated pharmacists from community or hospital pharmacies may act as tutors for pharmacy student trainees in pharmacy practice. Students have

		<p>a free choice of the pharmacy for their traineeship. A three-part agreement is then signed:</p> <ol style="list-style-type: none"> <li>1. Student</li> <li>2. Tutor / head of pharmacy</li> <li>3. Responsible person from UL</li> <li>4.</li> </ol> <p>Usually tutors for trainees are from the main pharmacies in the capital city of Riga.</p> <p>Approximately 50-60 certified pharmacists have been trainees for students during last six years.</p>
<b>Students</b>		
Number of places at entry following secondary school	15 places paid by the State budget	The number of State budget-financed places is limited but the number of student-financed places is not limited. Given the existing academic staff and installations a maximum of 50-60 students per year can be accommodated. Due to the present economical situation, however, a big decrease in the number of students is expected.
Number of applicants for entry	200	There are 6-9 Latvian applicants for one study place in pharmacy ( <a href="http://www.lu.lv">www.lu.lv</a> ). All study programmes are provided only in Latvian.
Graduates that become registered/professional pharmacists.	60-70%	In the Pharmacists register we have found approximately 60-70% of our graduates. Others are presumably not registered but this does not mean that they do not work in various fields of pharmacy.
<b>Entry requirements</b>		
Pharmacy-related, entrance examination	No	
Other form of entry requirement	Yes	Centralized examinations at secondary school in Latvian, chemistry, biology and foreign language. These (and other entrance examinations) are organized by the Ministry of Education and Science.
Is there a <i>numerus clausus</i> ?	No	The number accepted depends upon the capacity of the faculty (teaching staff, finances, laboratories etc.).
<b>Fees per year</b>		
For home students	2000 - 3000 €	
For EU MS students	2000 - 3000 €	
For non EU students	4000 €	
<b>Length of course</b>	<b>5 years</b>	<b>3+2</b>
<b>Specialization</b>		
Specialized courses?	Yes	Albeit not in industry or hospital pharmacy.
In which years?	Starting from 2nd	
In which specialisation (industry, hospital...)?		<p>In Latvia it is impossible to provide separate specialisation programmes. Only a few graduates find jobs in industry (1-2 persons per year). In hospital pharmacies graduates from both universities UL and RSU find employment.</p> <p>Pharmacists obtain the specific knowledge during life-long learning courses and practice.</p> <p>In elective courses students may choose more medicinal, science- or chemistry-oriented courses. They use ERASMUS exchange programs. They specialize during bachelor and master degree theses. Very often graduates find their jobs during the master thesis in industry or at scientific institutes.</p>

Numbers in each specialization?	Not defined	Courses are elective and are not taught if the number of students choosing the course is less than 25.
<b>Past and present changes in E&amp;T</b>		
Have there been any major changes since 1999?	No	The Pharmacy Program at University of Latvia opened in 2000 and following the Bologna declaration was immediately implemented as a 3+2 programme, and credit points (ECTS), diploma supplements <i>etc.</i> were introduced.
<b>Riga Stradins University (RSU)</b>		
<b>Teaching staff</b>		
Number of teaching staff (Latvian nationals)	89	The teaching staff (89) is composed of professors, lecturers <i>etc.</i> , involved in the programme. The teaching staff comes from the Faculty of Medicine, Language Centre and others.  The Faculty of Pharmacy has two departments 1. Department of Pharmaceutical Chemistry 2. Department of Technology of Drug Dosage Forms. The two departments employ 23 specific teachers (3 Professors, 10 Assistant professors, 10 lecturers and assistants)
Number professionals (pharmacists and others) from outside the HEIs, involved in E&T	5	Specialists from Latvian Society of Pharmacists, Clinical pharmacist, Community pharmacists, specialists from clinical research area, chemists from pharmaceutical industry, specialists from Laboratory of Pharmaceutical Pharmacology of Latvian Institute of Organic Synthesis. Certified pharmacists are involved in managing of students' traineeship as tutors receiving points for recertification. Each student during his study may have 3-5 certified pharmacists responsible for his traineeships.
<b>Students</b>		
Number of places at entry following secondary school	36	2009: <ul style="list-style-type: none"> <li>• 36 full-time places - 28 financed by the state budget , 8 financed by private or legal persons</li> <li>• 20 part-time places (following pharmacist's assistant education) financed by private or legal persons.</li> </ul>
Number of applicants for entry	117	2008 <ul style="list-style-type: none"> <li>• 117 applicants for full-time studies</li> <li>• 16 for part-time studies</li> </ul> 2009 <ul style="list-style-type: none"> <li>• 121 applicants for full-time</li> <li>• 12 for part-time studies.</li> </ul>
Graduates that become registered/professional pharmacists.	29	In the year 2008: 29 full-time graduates and 21 part-time graduates; 3 graduates with prior medical education after individual study plan. In questionnaires all graduates of 2008 answered that their work is connected with field of study.  Those graduates who are working in pharmacies must register in Pharmacists register. About 90% of our graduates are working in pharmacies. Our part-time students were registered like pharmacist assistants, after graduating – as pharmacists.
<b>Entry requirements</b>		
Specific pharmacy-related entrance examination	No	We require General Certificate of Secondary Education with good results in the centralised national examination in chemistry (A – D level), Latvian and foreign languages. Assessment in chemistry is the determinant.  In year the 2008 we also required a high mark in physics.
<b>Advanced entry</b>		

At which level?		Entrance at B2, moving from one HEI to another. The details of the study programme, study courses, credit points acquired the first HEI are evaluated.
What are the requirements?		HEI compares the content and volume of the master study courses with appropriate study courses in the RSU pharmacy programme and decides which courses could be accepted and which courses need additional examinations.
<b>Fees per year</b>		
For home students		For students enrolled in year 2009 and not receiving budgetary subsidy: 1 <sup>st</sup> year – 4176 €, 2 <sup>nd</sup> year – 4594 €, 3 <sup>rd</sup> year – 5052 €, 4 <sup>th</sup> year – 5558 €, 5 <sup>th</sup> year – 6113 €  For part-time students fees per year are lower, because these students have only 40 % contact hours.
<b>Length of course</b>	<b>5 years</b>	
<b>Specialization</b>		
Specialized courses?	Yes	RSU has only one specialization – pharmacy and pharmaceutical care. RSU teaches courses in subjects such as Hospital pharmacy, Industrial technology of drug forms, Clinical pharmacy, but these do not lead to a recognised specialization diploma.
<b>Past and present changes in E&amp;T</b>		
Have there been any major changes since 1999 at your HEI?	No	The pharmacy course was constructed with a credit point system, a diploma supplement satisfying <i>UNESCO/CEPES</i> developed standard, traineeship of 6 months in the 5 <sup>th</sup> year of studies, compulsory subjects, combined state examination, student's research work.  The number of contact hours has been reduced. Until year 2009 our credit point system comprised 70 % of contact hours per 1 credit point (1 CP was equal to 40 hours and 70 % of them were in contact with teaching staff). Now for 1 CP we have only 20 contact hours.
Major changes envisaged before 2019	Yes	Introduction of outcomes-based pharmaceutical education; improvement of the assessment system.

<b>References to texts and articles of national law</b>		
<a href="http://www.izm.gov.lv">www.izm.gov.lv</a> (Ministry of Education and Science) <a href="http://www.lu.lv">www.lu.lv</a> (University of Latvia). Law On Institutions of Higher Education ( <i>The Saeima 02.11.1995.</i> ) Regulations issued by the Cabinet of Ministers No. 846 (10.10.2006.) Entry requirements, <i>criteria and procedure in study programmes.</i> Regulations issued by the Cabinet of Ministers No. 932 (16.11.2004.) Procedure in study entry in latest study stages. Regulations issued by the Cabinet of Ministers No. 656 (02.10.2007.)		

## Chapter 3. Teaching and learning methods

### University of Latvia (UL)

Student hours					
Method	Year 1	Year 2	Year 3	Year 4	Year 5
Lecture	350	400	300	400	-
Tutorial	50	50	50	50	-
Practical	400	350	250	350	-
Project work	The bachelor thesis provides 15 ECTS and corresponds to 2.5 calendar months. It is an individual research project and how many hours one needs to work depends on the chosen topic. Approximately 40 h per week, total =400 h			The master thesis cannot be calculated in hours. It provides 30 ECTS and corresponds to 5 calendar months or 1 semester. It is an individual research project. In Latvia an average person works 160h per month, 8h per day, 40h per week., total =800 h	
Traineeship					6 months in community pharmacy or 3 months in community pharmacy + 3 months in hospital pharmacy  = 648 h (27 h per week).
<b>Subtotal</b>	<b>800</b>	<b>800</b>	<b>600</b>	<b>800</b>	-
Choice	200	200	200	200	100
Optional	200	200	200	200	-
<b>Total</b>	<b>1200</b>	<b>1200</b>	<b>1000</b>	<b>1200</b>	-

#### Comments

1 <sup>st</sup> year	2 <sup>nd</sup> year	3 <sup>rd</sup> year	4 <sup>th</sup> year	5 <sup>th</sup> year
Pharmacy program obligatory and elective courses include lectures, seminars, presentation of self-studies reports, practicals, presentation of research projects	Pharmacy program obligatory and elective courses include lectures, seminars, presentation of self-studies reports, practicals, research projects	Pharmacy program obligatory and elective courses include lectures, seminars, presentation of self-studies reports, practicals, research projects Bachelor thesis is an independent research project under guidance of	Pharmacy program obligatory and elective courses include lectures, seminars, presentation of self-studies reports, practicals, research projects	Pharmacy program obligatory and elective courses include lectures, seminars, presentation of self-studies reports, practicals, research projects as well as include invited lectures by lecturers from industry and community

		academic staff.		<p>pharmacies, medical doctors and foreign visiting professors.</p> <p>Master thesis are independent research project under guidance of academic staff.</p>
				<p>Practice is at the end of program before Master thesis and are carried out at community pharmacies or 3 months in community pharmacy + 3 months at hospital pharmacy or 3 months at foreign pharmacy in ERASMUS training program + 3 months in Latvia pharmacies.</p>
Electives are of 2 kinds – courses offered by academic staff working in pharmacy program and courses offered for whole university by different staff or foreign visiting scientists, professors, professionals <i>etc.</i>				

### Teaching and learning methods – UL (contact hours)

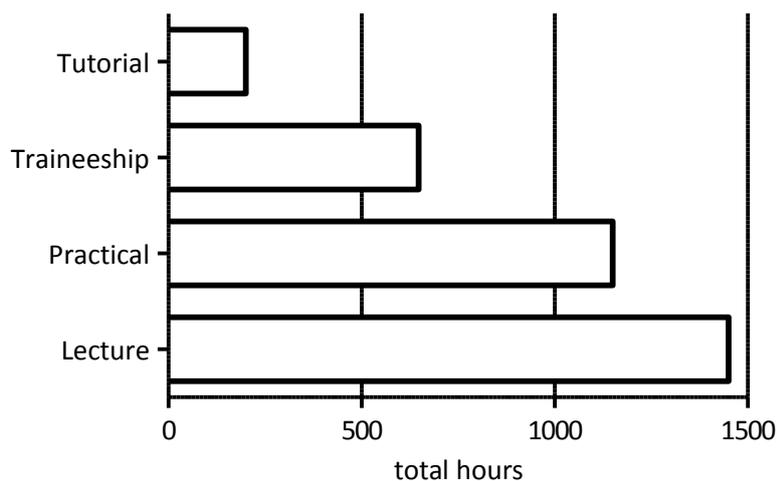


Fig. Number of rs.

According to the Latvian law a 3+2 years or 5 years program volume is (120+ 80=200) 200 credit points or 8000 h, and not more than 4000 h may be contact hours.

#### Law On Institutions of Higher Education

Contact lesson - the direct communication of academic staff and students, which is implemented for the achievement of the goals and tasks of a study programme in accordance with the study programme plan and the duration of which is one academic hour;

Credit point – an accounting unit of studies which corresponds to a student’s work load of 40 academic hours (one week of studies) in which up to 50 per cent of the academic hours are intended for contact lessons

<http://izm.izm.gov.lv/laws-regulations/2095.html>

## Riga Stradins University (RSU)

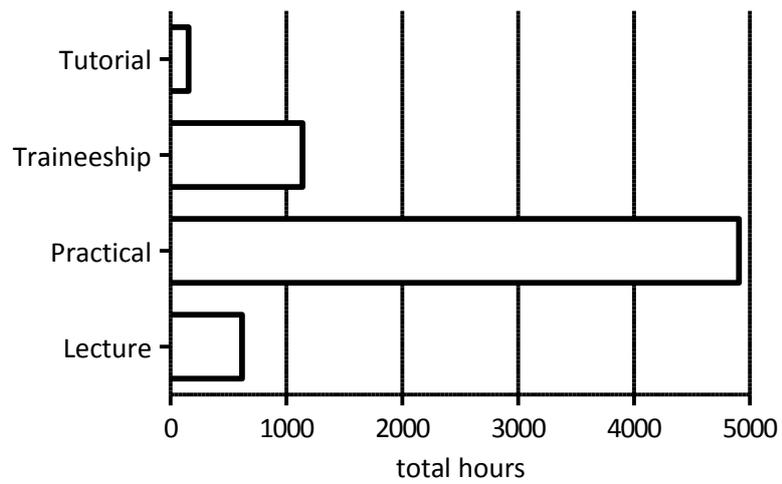
### Student hours

Method	Year 1	Year 2	Year 3	Year 4	Year 5
Lecture	194	147	175	101	-
Tutorial	50	37	44	25	
Practical	510 +704	531+640	544+719	619 +720	-
Project work					400
Traineeship					
Hospital					20
Community		40			1040 (26 CP, 6 months)
Other Pharmacognosy		80			
<b>Subtotal</b>	<b>1458</b>	<b>1355</b>	<b>1482</b>	<b>1465</b>	<b>1460</b>
Optional	160	160	160	160	160
<b>Total</b>	<b>1474</b>	<b>1515</b>	<b>1642</b>	<b>1625</b>	<b>1620</b>

### Comments.

1	2	3	4	5
<p>Practical hours consist of practical work in contact with teaching staff and student's individual work.</p> <p>Courses, traineeship, and electives are validated at a session of the Faculty's Department and then by the University Senate.</p>				<p>In 5<sup>th</sup> year of studies there are no obligatory subjects.</p>

Teaching and learning methods – RSU (hours)



**References:** Procedure of Riga Stradins University No.34: Development of study programmes and study subjects programmes.

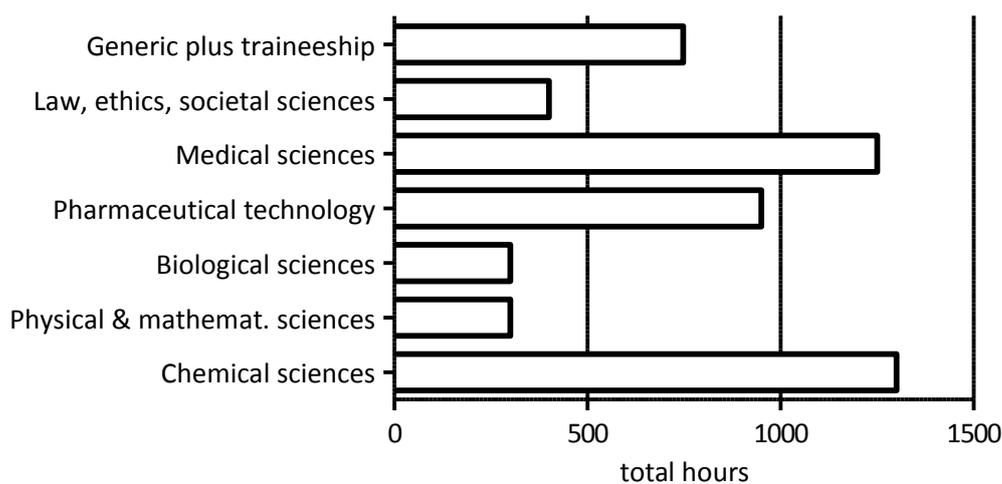
## Chapter 4. Subject areas

### University of Latvia (UL)

#### Student hours

Subject area	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
CHEMSCI	400	400	300	200	-	<b>1300</b>
PHYSMATH	-	100	-	200	-	<b>300</b>
BIOLSCI	100	200	-	-	-	<b>300</b>
PHARMTECH	50	100	600	200	-	<b>950</b>
MEDISCI	350	400	300	200	-	<b>1250</b>
LAWSOC	100	-	-	300	-	<b>400</b>
GENERIC	200	-	-	100	-	<b>300</b>
GENERIC + TRAINEESHIP	-	-	-	100	648	<b>748</b>
<b>TOTAL</b>	<b>1200</b>	<b>1200</b>	<b>1200</b>	<b>1200</b>	<b>648</b>	<b>5448</b>

Subject areas – UL (hours)



#### References

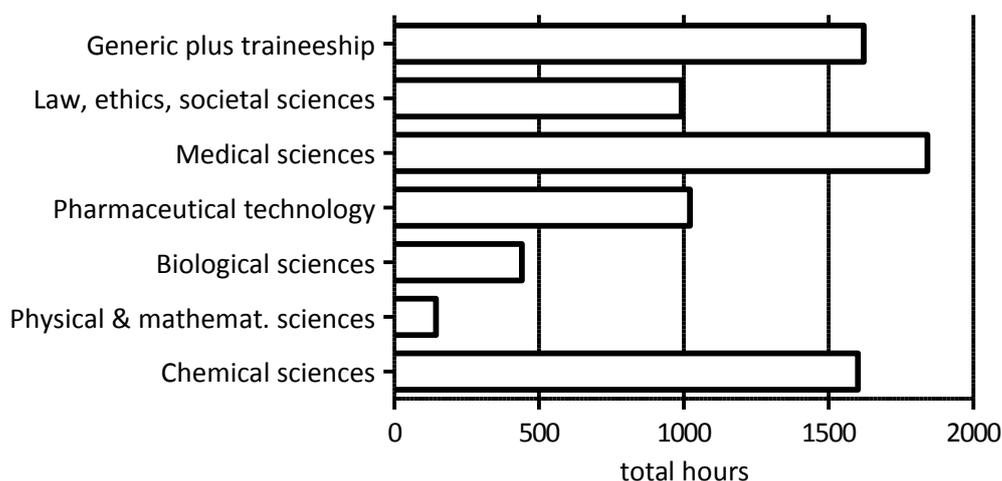
[www.aiknc.lv](http://www.aiknc.lv) Lists of accredited study programs and universities in Latvia.

## Riga Stradins University (RSU);

### Student hours

Subject area	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
<b>CHEMSCI</b>	400	480	360	160	200	<b>1600</b>
<b>PHYSMATH</b>	144	-	-	-	-	<b>144</b>
<b>BIOLSCI</b>	240	120	80	-	-	<b>440</b>
<b>PHARMTECH</b>	20	40	400	400	160	<b>1020</b>
<b>MEDISCI</b>	200	560	600	400	80	<b>1840</b>
<b>LAWSOC</b>	32	80	-	360	520	<b>992</b>
<b>GENERIC</b>	160	80	-	120	80	<b>440</b>
<b>GENERIC + TRAINEESHIP</b>	160	200	-	120	1140	<b>1620</b>
<b>TOTAL</b>	<b>1196</b>	<b>1480</b>	<b>1440</b>	<b>1440</b>	<b>2100</b>	<b>7656</b>

Subject areas – RSU (hours).



In each year of studies students have the opportunity to choose elective courses (2 courses with 2 CP for each). These subjects are from several subject areas (I – VII) and the hours spent for each area depends on the student's choice. For example, a student can increase his/her PHARMTECH area by choosing "Drug registration" or his/her BIOLSCI area by choosing "Pharmacogenetics".

## Chapter 5. Impact of the Bologna principles

Bologna principle	Is the principle applied?	Comments
<b>1. Comparable degrees / Diploma Supplement</b>	Yes	<p>UL Since 2004. Students receive a DS delivered according to <a href="http://www.enic-naris.net/documents/THE_DIPLOMA_SUPPLEMENT.pdf">www.enic-naris.net/documents/THE_DIPLOMA_SUPPLEMENT.pdf</a></p> <p>RSU Together with their pharmacy diploma graduates also receive a Diploma Supplement in Latvian and English, according to regulations issued by the Cabinet of Ministers No. 656 (02.10.2007.) Procedure for state acknowledged higher education attesting education documents issue.</p>
<b>2. Two main cycles (B and M) <u>with entry and exit at B level</u></b>		<p>UL Ninety-eight % of all bachelor students continue studies in mainly with a pharmacy master (or in other master study programmes).</p> <p>RSU No</p>
<b>3. ECTS system of credits / links to LLL</b>	Yes	<p>UL National credit points are linked to ECTS and 1 national CP corresponds to 1.5 ECTS in whole country. All universities use the same system. ECTS are given to all courses and shown in UL course catalogue. Also, ECTS are given in Diploma supplement. Program is opened in year 2000, and since then ECTS are used. ERASMUS exchange students receive ECTS and UL validates ECTS obtained in other countries. Persons who are not HEI students, but are registered as course auditors after course pass exam and receive certificate in national CP and ECTS. CPD Credit Point System for Medical Officers, Dental Officers &amp; Pharmacists are not used in full-time university study programs. Officially CPD CP are not calculated, but similar system is developed for life long studies and pharmacists for certification receive points from conferences, publications, seminars etc.</p> <p>RSU The credit point system is linked to the ECTS system, 1 RSU CP is equal to 1.5 ECTS. The total ECTS amassed in the various subject areas is given in the Diploma Supplement. Riga Stradins University completely validates ECTS obtained in other HEI in any European country. ECTS can also be acquired in a non-HEI context – two students at the moment have a traineeship in Netherlands in community pharmacies and the traineeship will be assessed in ECTS. HEI offers courses to persons not enrolled at the HEI. Such persons upon passing an examination receive a certificate with course amount expressed in CP.</p>
<b>4. Obstacles to mobility</b>	Yes	<p>LU Mobility is organized within the framework of ERASMUS exchange or ERASMUS training program or with different fellowships. Non ERASMUS mobility is possible if it is the student's wish to study abroad, by obtaining fellowships such as the Fulbright fellowship, fellowships from other universities, support from sponsors, etc. University International office and ERASMUS exchange responsible persons at</p>

		<p>faculties help with housing and information, language courses are available, finances are fellowships.. Every year 7-8 pharmacy students (0,04%) can receive ERASMUS fellowships. Number of incoming students in pharmacy program from other countries is irregular.</p> <p>For UL students the main mobility problem is finance and fact that our students work in parallel to studies. Teacher mobility problem is big workloads and lack of substitutes. For incoming students problem is Latvian language. Language courses are offered but Latvian language is language of small country and thus not popular.</p> <p>RSU RSU is part of ERASMUS since 2004. The HEI centrally notifies each member of teaching staff about the possibilities for participation in exchange programmes. ERASMUS seminars, information days. Language courses for students are also organised. The students' interest in taking part in ERASMUS increases every year. In the academic year 2008/2009 there were no pharmacy students in ERASMUS. In 2009/2010 RSU has three students in the Netherlands and Germany and two are planning to go to Portugal. The teaching staff has difficulties with language and finding free time for such activities.</p> <p>Department of Academic and Foreign affairs organize language courses and help with housing. Financial support - fellowship depends from students' study results. Approximately 5 pharmacy students have opportunity to receive ERASMUS fellowship every year.</p>
<p><b>5. European QA</b></p>	<p>Yes</p>	<p>LU The programme is internationally evaluated. For program accreditation International accreditation bodies are not invited, but international experts are, and it involves site visits. The accreditation body is Higher Education Quality Evaluation Centre (HEQEC) <a href="http://www.aiknc.lv">www.aiknc.lv</a> (in English) <a href="http://www.aiknc.lv/en/about.php">http://www.aiknc.lv/en/about.php</a></p> <p>The HEQEC invites international and national experts to site visits and after that experts write their evaluation report. The final decision lies with the Council of Higher Education and the Accreditation Commission.</p> <p>The University of Latvia study programs were evaluated by the European University Association (EUA: UNIVERSITY OF LATVIA AT RIGA - EVALUATION REPORT, August 2009. Team: Jürgen Kohler, chair, Bente Kristensen, Sergio Machado dos Santos, Jon Olafur Valdimarsson, John L. Davies, team coordinator</p> <p><a href="http://www.lu.lv/fileadmin/user_upload/lu_portal/dokumenti/parskati-un-zinojumi/University%20of%20Latvia%20Final%20Report.pdf">http://www.lu.lv/fileadmin/user_upload/lu_portal/dokumenti/parskati-un-zinojumi/University%20of%20Latvia%20Final%20Report.pdf</a></p> <p>RSU Higher Education Quality Evaluation Centre (HEQEC) organises accreditation of HEI and Programmes of Higher education.</p> <p>RSU Pharmacy programme is accreditate by Accreditation Commission of Higher Education programmes since 2000. In 2000 there were five international experts evaluating the programme (Juozas Stanaitis; Lembit Allikmets; Ingrid Thorell-Ekstrand; Mare Saag; Aleksandras Kriščiūnas).</p> <p><a href="http://www.aiknc.lv/en/prog_view.php?id=4432">http://www.aiknc.lv/en/prog_view.php?id=4432</a></p> <p>In 2006 programme were evaluated by Head of Department of Pharmacy of the Ministry of Health.</p> <p>RSU was evaluated in 2001 and international experts were Eric A.E. van Marck</p>

		(chair); Lembit Allikmets, Kestutis Kriščiūna. In 2002 team of experts from EU Member States evaluated Faculty of Pharmacy (TAIEX experts – Christine Gaudisch, Stephanie Maurice, Hans Wolfgang Schramm)
<b>6. European dimension</b>	Yes	<p>UL</p> <p>The Faculty of Medicine has experience to teach foreign students in General Medicine program, where 20% of program is in English, some of these students change program and are enrolled in pharmacy program. Every year new ERASMUS exchange contracts between universities are signed. Academic staff is involved in international multidisciplinary research projects and bi-directional projects.</p> <p>Students attend summer schools if financially it is possible e.g. year 2010 three students attended toxicology courses at Coimbra university (Portugal). Visiting researchers are invited to give lectures (recently from Canada and The Netherlands). Some of our students continue studies at master degree programs in EU countries (Germany, Italy, The Netherlands). Goal is to increase number of incoming ERASMUS students and facilitate teacher exchange.</p> <p>RSU</p> <p>Vision of RSU is a modern, prestigious university acknowledged in Europe and the world in the fields of healthcare and social sciences, with the human being at its centre of attention. Mission of RSU is to train highly qualified experts in the fields of healthcare and social sciences, so that they can serve the society of Latvia, the European Union, as well as the world. One of priorities of action is enlargement of international co-operation with decreasing a number of foreign students, enlargement of international teaching staff, and ensuring mobility of at least 10 % of students and academic staff.</p>
<b>ERASMUS staff exchange to LU from elsewhere</b>	1 staff month	<p>Each year there is exchange with Germany, Netherlands, Bulgaria, Italy</p> <p>LU also has contracts with several other universities but ERASMUS exchange is not used every year.</p>
<b>ERASMUS staff exchange from LU to other HEIs</b>	2 staff months	Each year there is exchange with Italy, Hungary, Bulgaria, France.
<b>ERASMUS student exchange to LU from elsewhere</b>	8 student months	As studies are in Latvian foreign students mainly do research and come with an ERASMUS fellowships ( from Germany, Netherlands, Sweden).
<b>ERASMUS student exchange from LU to other HEIs</b>	240 student months	<p>Each year students go to Finland, Italy, Portugal, Netherlands, Bulgaria, Estonia, or Sweden.</p> <p>Courses that do not correspond to our program are accepted as elective courses or research projects and validated according to credit points obtained abroad.</p>
<b>ERASMUS staff exchange to RSU from elsewhere</b>	11	In academic year 2008./2009. 11 teachers visited RSU Health care programmes.
<b>ERASMUS staff exchange from RSU to other HEIs</b>	2 staff months	One professor has improved his skills and experience in Island.
<b>ERASMUS student exchange to RSU from elsewhere</b>		RSU: All courses in Faculty of Pharmacy at the moment are in Latvian, but RSU accepts students to do research work within the framework of the ERASMUS programme.

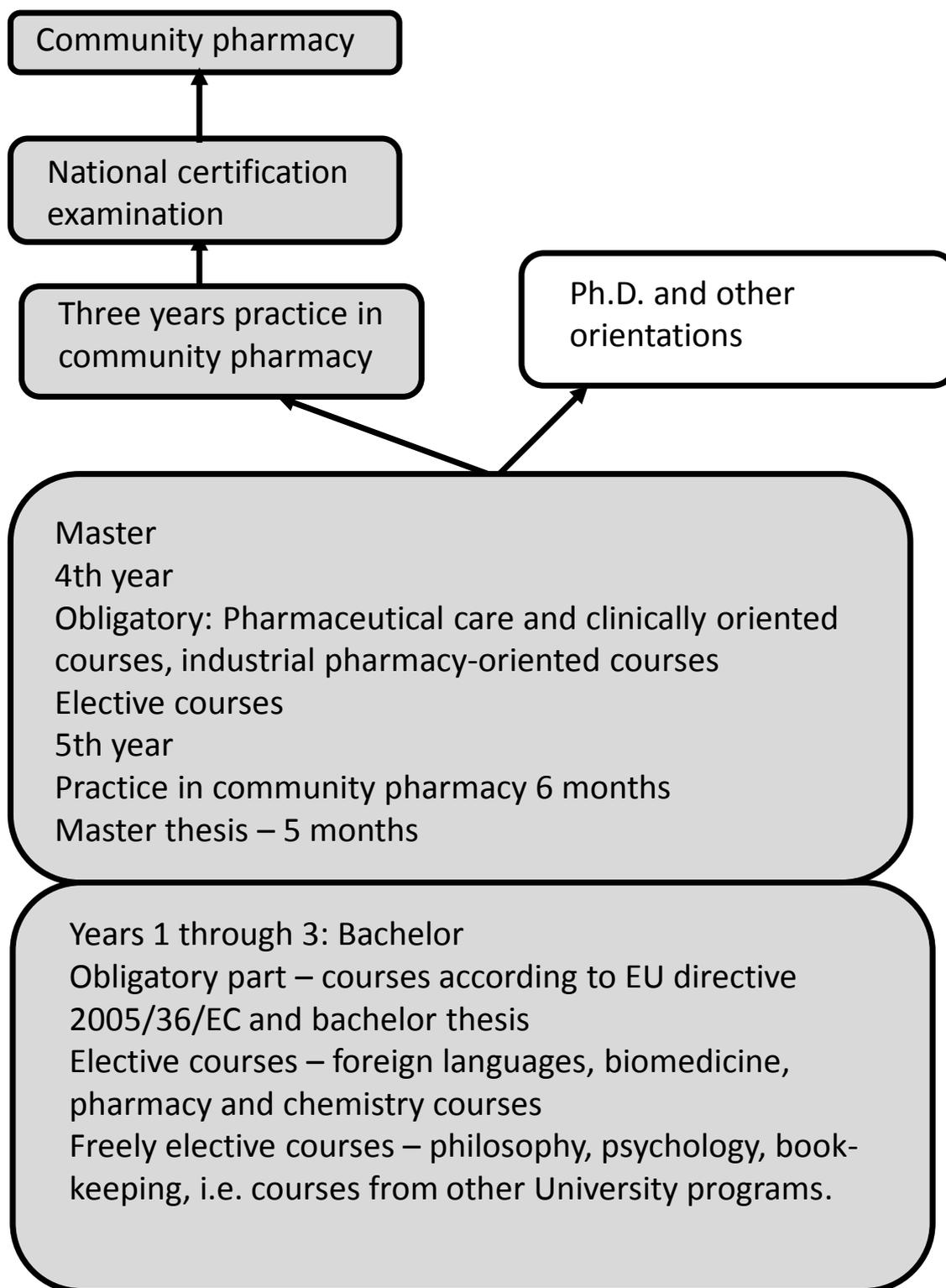
<b>ERASMUS student exchange from RSU to other HEIs</b>	240 student months	In 2009/2010 two pharmacy students are in ERASMUS exchange for 1 semester in the Netherlands and Germany. RSU also has experience with Finland and France.
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## Chapter 6. Impact of EC directive 2005/36/EC

The directive states	How does / will this directive statement affect pharmacy E&T? Do you consider the directive statement valid? If not how would you change it?
<p><b><u>“Evidence of formal qualifications as a pharmacist shall attest to training of at least five years' duration...”</u></b></p>	<p>LU It is acceptable. Albeit in some countries graduates with a bachelor degree from a pharmacy faculty work as pharmacists' assistants and the directive gives no indication on this point.</p> <p>RSU Five years' education is absolutely necessary for the pharmacists' professionalism. Like other health care specialists a pharmacist must work alongside medical specialists in patients' care.</p> <p>A pharmacist must be able to perform research in chemical, biological areas.</p> <p>Although a long 5 year's duration makes a pharmacists' education expensive and this is important in economical terms, quality and professionalism, and the ability to keep up with the latest developments are the most important.</p>
<p><b><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></b></p>	<p>LU A 4 year program is too short because with a study year of 10 months duration and 6 months training, plus 2.5 months bachelor thesis, and 5 months master thesis, this leaves only 26.5 months for theoretical and laboratory training courses.</p> <p>RSU Pharmacists must have the knowledge, skills and competences in many areas. It may be possible to provide a theoretical basis in four years, but not in a shorter time.</p>
<p><b><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></b></p>	<p>LU It is acceptable but 5 months would correspond better with the length of a semester.</p> <p>RSU Six-month traineeship in a pharmacy allows to apply theoretical knowledge and synthesize the own decision in real life.</p>
<p><b><u>“The balance between theoretical and practical training shall, in respect of each subject, give sufficient importance to theory to maintain the university character of the training.”</u></b></p>	<p>LU It is acceptable</p> <p>RSU HEI tasks give an opportunity to obtain theoretical knowledge which later could be applied in traineeship. The first question is why, then how. Theory is the most important thing, the foundation on which the pharmacists' skills, attitude will be built.</p>
Directive annex	How does / will this directive annex affect pharmacy E&T? Do you consider the directive annex valid? If not how would you change it?

<p><b>V.6. PHARMACIST</b></p> <p><b>5.6.1. <i>Course of training for pharmacists</i></b>  <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.</b></p>	<p>LU It is acceptable</p> <p>RSU The list of subjects must be adapted to the modern situation, because pharmacy has changed. Subjects as pharmacogenetics, clinical pharmacology, medical chemistry, molecular biology must be included.</p>
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## The University of Latvia pharmacy education and training scheme.



Pharmacy education and training leading to professional pharmacy practice is shown on the left in grey.

## The Riga Stradins University pharmacy education and training scheme.



Pharmacy education and training leading to professional pharmacy practice is shown on the left in grey.



Education and Culture DG

Lifelong Learning Programme

**PHARMINE**  
*Pharmacy Education  
in Europe*

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ANNO 1919



**RĪGAS STRADIŅA  
UNIVERSITĀTE**



**UNIVERSITY OF TARTU**



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

**Website: [www.pharmine.org](http://www.pharmine.org)**

*Pharmacy education & training in*

# LITHUANIA

**2010**

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

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## Summary.

Community pharmacies in Lithuania provide mainly traditional services (sale and counselling of Rx and OTC medicines, counselling of self-medication). Pharmacists can own and manage community pharmacies, work as responsible pharmacists in both community and hospital pharmacy. In Lithuania ownership of community pharmacies is not restricted to the pharmacy profession and the majority of pharmacies have joined different pharmacy chains.

Assistant pharmacists study at the Kaunas University of Applied Sciences and after graduation are mainly employed in community pharmacies. Assistant pharmacists cannot be pharmacy managers.

There is only one HEI providing higher education in pharmacy in Lithuania – the Lithuanian University of Health Sciences. At the Lithuanian University of Health Sciences the pharmacy curriculum is organized as an integrated course with no possibility of graduation with a bachelor degree after three years of studies. Currently traineeship is provided during the 6 months' practice at community and hospital pharmacies during the fifth year of studies. Post-graduate training for pharmacists is offered by the faculty for postgraduate training at the Lithuanian University of Health Sciences. The post graduate training programs include both clinical pharmacy, social aspects of pharmacy, and pharmacology subjects – the proportions depend on the specific chosen course as few are available.

## Introduction.

*From the WHO Statistical Information System (WHOSIS) (<http://www.who.int/whosis/en/index.html>)*

Statistics (2006 unless indicated)

Total population: 3,408,000

Gross national income per capita (PPP international \$): 14,550

Life expectancy at birth m/f (years): 65/77

Healthy life expectancy at birth m/f (years, 2003): 59/68

Probability of dying under five (per 1 000 live births): 9

Probability of dying between 15 and 60 years m/f (per 1 000 population): 333/113

Total expenditure on health per capita (Intl \$, 2006): 1,041

Total expenditure on health as % of GDP (2006): 6.2

See also: [World Health Statistics 2008](#)

### Highlights on health in Lithuania

The health system of the Republic of Lithuania is regulated by the following legal acts: the Law on Health System of 19 July 1994, the Law on Health Insurance of 21 May 1996, and the Law on Pharmacy of 22 June 2006. The principles of the Lithuanian health care system, its relevant institutions and their responsibilities are set out in the Law on the Health System.

The Law on Health Insurance establishes the types of health insurance in Lithuania, and the compulsory health insurance system: people covered by compulsory health insurance; principles of the Compulsory Health Insurance Fund formation; and compensation of individual health care service costs with Compulsory Health Insurance Fund resources, etc. It is a state-established system of individual health care and economic measures which guarantees the provision of individual health care services to people covered by compulsory health insurance, and reimbursement of the costs of the services provided, including pharmaceuticals and medical aids in the case of insured events.

Health expenditure (HE) is financed primarily through health insurance contributions but also through VHI and out-of pocket payments (OPP). The budget for the Compulsory Health Insurance Fund is drawn up each calendar year by the State Patient Fund (SPF). Compulsory health insurance revenue consists of: (1) compulsory health insurance contributions from and for the covered persons; (2) national budget contributions for the covered persons insured with public funds; (3) earnings of the institutions providing compulsory health insurance; (4) additional allocations from the national budget; (5) voluntary contributions from natural and legal persons, etc.

There are two main types of outpatient clinic in Lithuania: independent GPs and integrated practices (where GPs and first-level specialists are working together). The number of integrated clinics has progressively reduced. All

people have access to primary pharmaceutical care by GPs. GPs decide on any further consultations with specialists. Care for some patient groups (oncology, haematological) can be carried out by specialists. The patient is free to choose the family doctor and s/he is always free to change doctor. The family doctor (GP) refers the patient to the specialist.

Inpatient care institutions are mostly organised as public institutions. There are only few private inpatient care institutions; public non-profit-making health care institutions dominate. There are three different levels of inpatient care services. The highest (third) level of health care services is provided in the biggest hospitals (university and some municipal hospitals). Second-level in-patient care services are provided in major cities offering specialist care in different medical departments. First-level inpatient care services – the simplest services – can be given in all inpatient health care institutions. Hospitals are spread throughout the country. They have no specialisation, excluding specific hospitals, e.g. tuberculosis treatment hospitals. All inpatient services covered by compulsory health insurance are fully reimbursed. Out-of-pocket payments are only paid for services which are not covered by compulsory health insurance, e.g. cosmetic surgery. Doctors are employees of inpatient health care institutions and are paid by hospitals.

Source: [http://ppri.oebig.at/Downloads/Results/Lithuania\\_PPRI\\_2008.pdf](http://ppri.oebig.at/Downloads/Results/Lithuania_PPRI_2008.pdf)

Pharmacists participate in the efficient functioning system of safe and efficient use of pharmaceuticals and in delivering specific medicinal and pharmaceutical information and services to society. The training of pharmacists ensures their adequate competencies to create necessary prerequisites for adequate use of pharmaceuticals at healthcare institutions and by patients themselves. The volume of studies in clinical pharmacy, pharmacotherapy, communication skills and social pharmacy is increasing during last few years. Similar topics are included in post-graduate training programs.

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

	Y/N, number or %	Comments.
<b>Community pharmacy</b>		
Number of community pharmacists	2947	1200 inhabitants per pharmacist
Number of community pharmacies	1320 - main and branch	2.2 pharmacists per pharmacy 2600 inhabitants per pharmacy
Competences and roles of community pharmacists		<ol style="list-style-type: none"> <li>1. Supplying prescription medicines</li> <li>2. Managing medicines for some ailments</li> <li>3. Giving advice on medicines</li> <li>4. Diagnostic services – sometimes pharmacies offer services of blood pressure measurement</li> <li>5. Health campaigns (smoking cessation...) – sometimes (healthy nutrition, antismoking etc)</li> <li>6. Substitution by generic drugs – regulated issue: the patient must receive information on available generics and the lowest price product in the group (monitors at the counters in the pharmacies)</li> </ol>
Is ownership of a community pharmacy limited to pharmacists?	No	<a href="http://www3.lrs.lt/pls/inter3/dokpaieska.showdoc_l?p_id=364795">http://www3.lrs.lt/pls/inter3/dokpaieska.showdoc_l?p_id=364795</a> ) - Law on pharmacy.
Rules governing the distribution of pharmacies?	No	
Drugs and healthcare products available to the general public by channels other than pharmacies?	No	Food supplements are available via internet.
Are persons other than pharmacists involved in community practice?	Yes	
Their titles and number(s)	1890	Assistant pharmacists
Their qualifications		
Organisation providing and validating the E&T		Colleges (non-university) Health care faculty: <a href="http://www.kauko.lt/kolegija.php?id=170">http://www.kauko.lt/kolegija.php?id=170</a> ; Department of pharmacotechnics of Kaunas College : <a href="http://www.kauko.lt/kolegija.php?id=124">http://www.kauko.lt/kolegija.php?id=124</a> .
Duration of studies (years)	3	Entrance requirements are based on school leaving certificate results. The national computerized system is used for rating of graduates.
Subject areas		Chemistry, biology, biochemistry, anatomy, physiology, pathology and disease science, microbiology, pharmacology, botany, emergency medicine, social sciences (basic law, economics and management, organization of business in pharmacy), pharmaceutical technology, pharmaceutical chemistry, pharmaceutical care, phytotherapy, pharmacotherapy, clinical pharmacy, pharmacognosy, and pharmacy practice.  The studies are more practically oriented in comparison to pharmacy studies at the university.

Competences and roles		Pharmaceutical compounding, delivery of medicinal goods (pharmaceuticals – under control of pharmacist), delivery of information on use of pharmaceuticals, use of IT in pharmaceutical practice.
<b>Hospital pharmacy</b>		
See: <a href="http://www.eahp.eu/content/search?SearchText=lithuania&amp;SearchButton=Search">http://www.eahp.eu/content/search?SearchText=lithuania&amp;SearchButton=Search</a>		
Does such a function exist?	Yes	No legal status of hospital pharmacist exists.
Number of hospital pharmacists	Number not applicable	There are specialized hospital pharmacies in hospitals but these are not staffed by specialized hospital pharmacists.
Number of hospital pharmacies	54	Of the 54, 28 prepare medicines.
Competences and roles of hospital pharmacists		<p>Competences not defined formally. Each establishment defines according their own needs.</p> <p>Preparation of and dispensing drugs on the hospital wards Part of multidisciplinary patient-care team – in some cases Purchasing of drugs and medical material Monitoring of drug use – in some cases Production of patient-specific medicines– in some cases Participation in clinical studies – in some cases</p>
<b>Pharmaceutical and related industries</b>		
Companies with production, R&D and distribution	3	UAB Sicor Biotech: <a href="http://www.sicor.lt/">http://www.sicor.lt/</a> UAB Aconitum: <a href="http://www.aconitum.lt/">http://www.aconitum.lt/</a> UAB Valentis: <a href="http://www.valentis.lt/">www.valentis.lt/</a>
Companies with production only	2	UAB Norfachema: <a href="http://www.pharmedus.com/norfachema">http://www.pharmedus.com/norfachema</a>
Companies with distribution only	> 10	UAB Armila: <a href="http://www.armila.com/">http://www.armila.com/</a> UAB Limedika: <a href="http://www.limedika.lt/">http://www.limedika.lt/</a> UAB Tamro: <a href="http://www.tamro.lt/">http://www.tamro.lt/</a>
Companies producing generic drugs only	5	AB Sanitas: <a href="http://www.sanitas.lt/lt/main/index">http://www.sanitas.lt/lt/main/index</a>
Roles of industrial pharmacists		<p>Manufacturing, R&amp;D, QC &amp; QA, regulatory affairs, business development, control, analysis, registration, etc. Industrial pharmacists are not officially recognized as qualified persons.</p>
<b>Industrial pharmacy</b>		
Number of pharmacists working in industry	85	The figure is approximate based on information available from main/biggest pharmaceutical manufacturers. Only those, who are licensed for carrying out pharmaceutical activities, are included in official registry.
<b>Other sectors</b>		
Number of pharmacists working in other sectors	120	The figure is approximate based on information available from state institutions and biggest manufacturing companies in related branches (e.g., cosmetics), representation offices of multinational pharmaceutical companies, CROs, etc.
Sectors in which pharmacists are employed		Regulatory and official institutions, representation offices of multinational pharmaceutical companies, service providing companies (CRO)
Competences and roles of pharmacists employed in other sectors		Defined by specific activities

<b>Roles of professional associations</b>		
Registration of pharmacists	No	The Lithuanian pharmacist association is the professional organisation for pharmacists
Creation of community pharmacies and control of territorial distribution	No	
Ethical and other aspects of professional conduct	Yes	A Code of Ethics has been developed by the Lithuanian pharmacist association.
Quality assurance and validation of HEI courses for pharmacists	No	
Other (please specify)		Business projects and activities - develop applications for getting funding for post-graduate training

<b>References</b>	
Agencies, texts and articles of national law	Pharmacy law (2006-06-22, X-709) Regulation of pharmacy studies (2008) MoH: <a href="http://www.sam.lt/go.php/eng/MINISTRY_OF_HEALTH_OF_THE_REPUBLIC_OF_LI">http://www.sam.lt/go.php/eng/MINISTRY_OF_HEALTH_OF_THE_REPUBLIC_OF_LI</a>
References (EU, international)	Valid EU directives such as directive 2005/36/EC.

## Chapter 2. Pharmacy HEIs, students and courses

	Y/N, number or %	Comments.
<b>Total number of HEIs in Lithuania</b>	1+1 (public)	<p>University type HEI Lithuanian university of health sciences: <a href="http://naujas.kmu.lt/index.php">http://naujas.kmu.lt/index.php</a> In English: <a href="http://naujas.kmu.lt/index.php?set_lang=en">http://naujas.kmu.lt/index.php?set_lang=en</a> This is where the <u>registered pharmacists</u> are trained.</p> <p>College (also considered as an HEI by Lithuanian law) training professional bachelors : Kaunas College: <a href="http://www.kauko.lt/college.php?id=1">http://www.kauko.lt/college.php?id=1</a> Kauno Kolegija/ Kaunas University of Applied Sciences is a state - owned institution providing higher education in the areas of technologies, social sciences, biomedicine, pharmacy, humanities and arts. This is where the <u>assistant pharmacists</u> are trained.</p>
<b>Organisation of HEIs</b>		
Attached to a medical or science faculty	No	The pharmacy department is one of the 5 departments of the Lithuanian university of health sciences, the other 4 being: medicine, dentistry, nursing and public health.
Are there B + M degrees in pharmacy?	No	Only a 5 year seamless M degree
<b>Kaunas – Lithuania</b>		
<b>Teaching staff</b>		
Number of teaching staff (nationals)	185	Part of the staff belongs to other faculties of KUM: medical faculty, public health.
Number of international teaching staff	4	Visiting, no constant number
Number professionals (pharmacists and others) from outside the HEIs)	2 (from industry etc.)	Number of persons, taking care of trainees in the pharmacies is not a constant figure for each year
<b>Students</b>		
Places on entry following school	96	2008 statistics <a href="http://trc.kmu.lt/index.php">http://trc.kmu.lt/index.php</a>
Number of applicants for entry	232	2009 statistics <a href="http://www.lamabpo.lt/foreign.html">http://www.lamabpo.lt/foreign.html</a>
Number of graduates that become registered pharmacists.	101	2009 statistics, drop out is up to 3%
Number of international students (from EU member states)	2	For 2009-2010 – Germany
Number of international students (non EU)	23	Lebanon, Israel
<b>Entry requirements following secondary school</b>		
Specific pharmacy-related, national entrance examination	No	General graduation exams
Other form of entry requirement at a national level	Yes	Graduation exams in National language, Biology, Chemistry and/or Mathematics

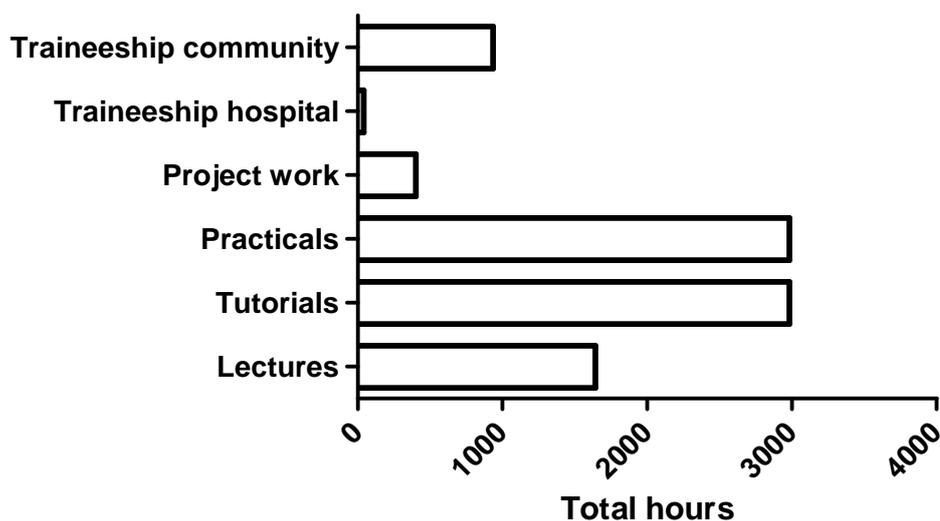
Is there a national <i>numerus clausus</i> ?	Yes	Limitation based on state-financed studies and university decision to accept to paid studies
<b>Advanced entry</b>		
Anyone from other university program can enter through normal/classical entrance procedure into the 1 <sup>st</sup> year of studies, but then he/she can advance to the higher course due to the fact that he/she has completed similar volume studies of specific subjects (analytical chemistry, biology, etc.) in recognized university, and in fact in 2010 4 students advanced to the higher courses as they have studied in veterinary, chemistry, biology programs in other universities.		
At which level?		Any if studies at other university type institution confirmed
What are the requirements?		Successful studies
Specific requirements for international students (EU or non EU).		A level or 12 year secondary education, entrance exam, SAT test
<b>Fees per year</b>		
For home students	3000€	
For EU MS students	5200€	
For non EU students	5200€	
<b>Length of course</b>	<b>5 years</b>	
<b>Specialization</b>		
Does the HEI provide specialized courses?	No	Special courses are provided to graduated pharmacists by Faculty of post-graduate training. The post graduate training programs include both clinical pharmacy, social aspects of pharmacy, and pharmacology subjects – the proportions depend on the specific chosen course as few are available.
<b>Past and present changes in E&amp;T</b>		
Have there been any major changes since 1999?	Yes	Implementation of pharmacy studies regulation. The document sets objectives and learning outcomes of the pharmacy studies at HEI
Are any major changes envisaged before 2019?	Yes	Specialization: clinical pharmacy, industrial pharmacy, etc.

## Chapter 3. Teaching and learning methods

The pharmacy program is in the process of transition to ECTS, and the volumes will not necessary correspond to the student hours of the courses, those will be used for accounting purposes mainly

Student hours						
Method	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Lecture	360	360	360	280	280	1640
Tutorial	620	620	620	560	560	2980
Practical	620	620	620	560	560	2980
Project work	n/a	n/a	n/a	200	200	400
Traineeship					975	975
Hospital	n/a	n/a	n/a	n/a	40	40
Community	n/a	n/a	n/a	n/a	935	935
Electives						
Choice	Not less than 15%					
Optional	Not less than 5%					
<b>Total</b>	<i>1600</i>	<i>1600</i>	<i>1600</i>	<i>1600</i>	<i>1600</i>	<b>8000</b>

### Hours by learning methods

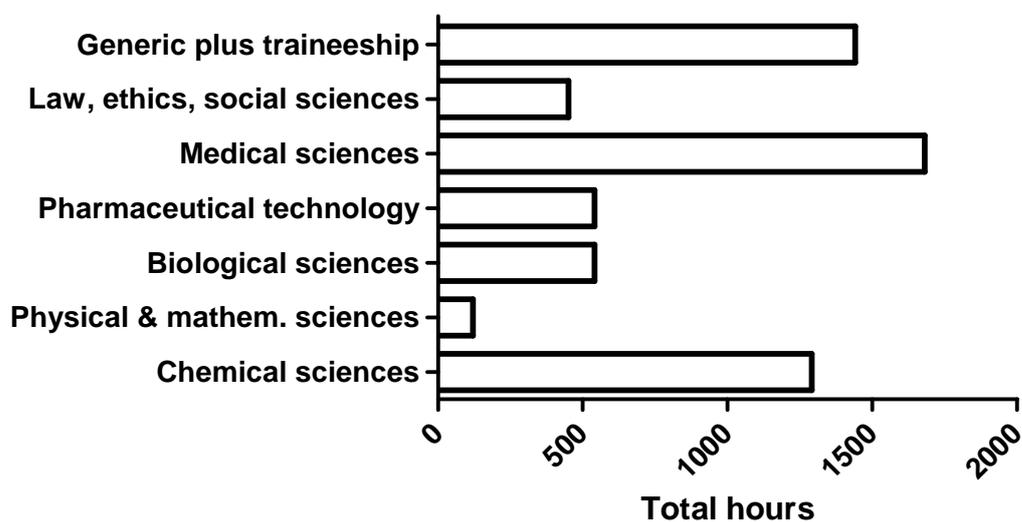


## Chapter 4. Subject areas

### Student hours

Subject area	Year 1	Year 2	Year 3	Year 4	Year 5	Total
CHEMSCI	390	480	210	210	0	1290
PHYSMATH	120	0	0	0	0	120
BIOLSCI	300	120	0	0	120	540
PHARMTECH	0	120	210	210	0	540
MEDISCI	60	300	450	690	180	1680
LAWSOC	120	0	210	0	120	450
GENERIC	210	180	120	90	840	1440

### Hours by subject area



The calculations are based on valid training hours for the current academic year, and the relatively large total of hours is due to the method of calculation of academic load in this case. This method was already changed for the next year pharmacy program at the university level.

## 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.
<b>1. Comparable degrees / Diploma Supplement</b>	Yes	Diploma Supplement is provided in English.
<b>2. Two main cycles (B and M) <u>with entry and exit at B level</u></b>	No	
<b>3. ECTS system of credits / links to LLL</b>	Yes	ECTS is to be implemented till 2011-2012 Participation in CPD/LLL system is necessary for prolongation of Pharmacy license.
<b>4. Obstacles to mobility</b>	No	Differences in study program. Mobility mainly due to ERASMUS program. Language does not create any problems, as many students study foreign languages at secondary school, university and individually. Mobility is financed mainly through the ERASMUS program, and in special cases through university funds for short term visits, or from research projects.
<b>5. European QA</b>	Yes	Evaluated by international experts. We are currently preparing self-evaluation report, that will be submitted till 2010-10-30.
<b>6. European dimension</b>	Yes	Common preparation of master thesis projects.
<b>ERASMUS staff exchange to your HEI from elsewhere</b>		Number of staff months: 2
<b>ERASMUS staff exchange from your HEI to other HEIs</b>		Number of staff months: 3
<b>ERASMUS student exchange to your HEI from elsewhere</b>		Number of student months: 6
<b>ERASMUS student exchange from your HEI to other HEIs</b>		Number of student months: 48

Erasmus exchange exists with Poland, Czech Republic, Finland, Germany, Netherlands, France, Italy, Spain, and Portugal.

## 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> ,...”	Five years training	
“ <u>...four years of full-time theoretical and practical training</u> at a university or at a higher institute of a level recognised as equivalent, or under the supervision of a university;”	4.5 years training	
“ <u>...six-month traineeship in a pharmacy</u> which is open to the public or in a hospital, under the supervision of that hospital's pharmaceutical department.”	6 month practical traineeship in a public or hospital pharmacy. Students fill in a traineeship diary (internet version available), visits on site, training at the university pharmacy, report presentation after 6 month traineeship.	Traineeship in industry should be considered.
“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> ”	Practice includes training in Pharmaceutical Analysis, Social Pharmacy, Pharmaceutical Technology, thus ensuring balance between theory and practice	Minimal competences and skills to be achieved should be set.
Directive annex	How does / will this directive annex affect pharmacy E&T?	If you wish to expand your answer, please add your comments below. Do you consider the directive annex valid? If not how would you change it?
<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.	The topics are present in pharmacy program	Products originating from advanced technologies



Education and Culture DG

Lifelong Learning Programme

**PHARMINE**  
*Pharmacy Education  
in Europe*

**PCN**

*Pharmacolor  
Consultants  
Nancy*



**UNIVERSITY OF TARTU**



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

**Website: [www.pharmine.org](http://www.pharmine.org)**

Pharmacy education & training in

# Luxembourg

2011



**PHARMINE**  
*Pharmacy Education  
in Europe*

There is no complete degree course for pharmacists in Luxembourg.

The University of Luxembourg runs a bachelor course in life sciences, during which the students can also attend a first year course of pharmacy or of medicine. In pharmacy, this is a so-called "*Certificat d'Etudes Supérieures*" degree (graduate certificate); it is not accepted for employment in a sectoral profession such as pharmacy.

[http://www.uni.lu/formations/fstc/bachelor\\_en\\_sciences\\_de\\_la\\_vie\\_pharmacie\\_academique/%28language%29/fre-FR](http://www.uni.lu/formations/fstc/bachelor_en_sciences_de_la_vie_pharmacie_academique/%28language%29/fre-FR)

The course is open to bilingual (French and German) students and an official C1 language certificate (European Framework) is requested for registration. It runs since 2005 and offers a general education as preparation for further studies. The course includes studies on biology, chemistry, mathematics and physics and various medical and pharmaceutical topics. Generic skills such as capacity for synthesis and constructive criticism as well as IT are also taught.

Following this 1-year course students can continue their studies in the second year of a pharmacy course in either Belgium (Bruxelles, Liège, Louvain la Neuve) or France (Nancy, Strasbourg or Paris). Restrictions however apply: in Belgium an unlimited number of places are available, but only for students having passed their graduation in Luxembourg; in France the number is limited to 10 per year.

Pharmacists are represented in Luxembourg by the "*Collège Médical*" (Medical Academy):

<http://www.collegemedical.lu/>

Pharmacy education & training in

# MALTA

2010

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

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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.uhp-nancy.fr](mailto:jeffrey.atkinson@pharma.uhp-nancy.fr)

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## Summary.

Pharmacy education and training in Malta is characterized by:

- A seamless 5 year course
- As it should be in a course for a sectoral profession such as pharmacy, traineeship starts early and plays a central role in the course representing (as percentage of the student workload) 6% in the 1st and 2nd years, 11% in the 3rd, 35% in the 4th and 67% in the 5th
- The possibility to specialise in industrial or clinical pharmacy from the 3rd year onwards
- A substantial amount of time (15% of student workload) spent on project work, with traineeship plus project work representing 40%
- A substantial amount of time on medical sciences (35% of student workload on taught courses) with chemical sciences and pharmaceutical technology coming equal second (18% each)
- Specialised postgraduate courses for industrial and clinical pharmacy exist in the pharmacy and chemistry faculties, the latter for industrial aspects.

## Introduction.

Total population: 405,000

Gross national income per capita (PPP international \$): 20,990

Life expectancy at birth m/f (years): 77/81

Healthy life expectancy at birth m/f (years, 2003): 70/73

Probability of dying under five (per 1 000 live births): 6

Probability of dying between 15 and 60 years m/f (per 1 000 population): 75/47

Total expenditure on health per capita (Intl \$, 2006): 1,825

Total expenditure on health as % of GDP (2006): 8.3

Figures are for 2006 unless indicated. Source: [World Health Statistics 2008](#)

WHO Malta health profile August 2010: <http://www.who.int/gho/countries/mlt.pdf>

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

	Y/N, number or %	Comments.
<b>Community pharmacy</b>		
Community pharmacists	281	
Community pharmacies	204	
Competences and roles of community pharmacists		Generally, competences in Malta are similar to those elsewhere in Europe. Pharmacists can provide diagnostic services (blood sugar, pressure).
Is ownership of a community pharmacy limited to pharmacists?	No	
Rules governing the distribution of pharmacies	Yes	
Drugs and healthcare products available by other channels	No	Internet pharmacies are not allowed.
Are persons other than pharmacists involved in community practice?		Support staff: Pharmacy Technicians: 71. Pharmacy technicians are registered by the Pharmacy Council of Malta. Salesperson: 113
<b>Pharmacy Technician</b>		
Organisation providing and validating the E&T		Malta College of Arts, Science and Technology (MCAST) <a href="http://www.mcast.edu.mt/default.asp">http://www.mcast.edu.mt/default.asp</a>  The sub-committee on Pharmacy Technicians' Education and Recognition of the Maltese Pharmacy Council monitors courses throughout the year and also monitors examination papers and students' answers.  The final aim is to obtain BTEC recognition (Edexcel - BTEC), a Pearson company, is the UK's largest qualifications awarding body, offering academic and vocational qualifications and testing to more than 25,000 schools, colleges, employers and other places of learning in the UK and in over 100 countries worldwide).
Duration of studies (years)	2 full-time	Entry Requirements: 6 SEC/O-Level passes - Compulsory: Chemistry, Mathematics, English Language (from the MCAST website)
Subject areas		"Biological Sciences, Chemical Sciences and Microbiology, Physiology, Action and Use of Drugs (A), Action and Use of Drugs (B), Action and Use of Drugs (C), Action and Use of Drugs (D), Action and Use of Drugs (E), Pharmaceutics, Pharmacy Law and Ethical Practice, Scientific Method, Pharmacy Practice, Pharmacy Production, Organisation and Procedures and Practices, Chemistry for Pharmacy, Pharmacy Work Place Practice, English within the Pharmacy Environment." (from the MCAST website)
Competences and roles		"The course is designed to provide students with the skills and knowledge necessary for a career as a Pharmacy Technician. Students will be trained in scientific and pharmaceutical principles including hands-on experience. The programme will offer opportunities in the hospital pharmacy sector and in the pharmaceutical industry." (from the MCAST website)

<b>Hospital pharmacy</b>		
Does such a function exist?	Yes	Hospital Pharmacy services are provided in the 8 hospital pharmacies with the Mater Dei Hospital Pharmacy being the central Government Services. Services provided include dispensing to out-patient and in-patients, drug information, extemporaneous preparations and clinical pharmacy services.
Hospital pharmacists	120	
Number of hospital pharmacies	8	
Competences and roles of hospital pharmacists		The sub-committee on pharmacy specialities of the Pharmacy Council is working on the definition of specialist(s) in pharmacy and the identification of activities that have the potential to develop into specialities. At present there is no official recognition of the hospital pharmacy specialist.
<b>Pharmaceutical and related industries</b>		
Companies with production, R&D and distribution	9	Manufacturing sites for Active Pharmaceutical Ingredients (APIs) and finished products (generic products) that include specialised dosage forms such as modified release preparations
Number of companies with distribution only	1	
Companies producing generic drugs only	4	
<b>Industrial pharmacy</b>		
Pharmacists working in industry	71	In the Pharmaceutical Industry, pharmacists are employed in Quality Control, Quality Assurance, Production and Regulatory Areas.
Competences and roles of industrial pharmacists		
<b>Other sectors</b>		
Pharmacists working in other sectors	152	
Sectors		Marketing, sales and drug registration
Competences and roles of pharmacists employed in other sectors		Communication skills Quality system Regulatory affairs Patient safety
<b>Roles of professional associations</b>		
Registration of pharmacists	Yes	Pharmacy Council of the Ministry of Health, the Elderly and Community Care whose main function is to regulate the Pharmacy Profession in the interests of the general public. The Pharmacy Council administers the register and the list of licences. Licences must be renewed every two years.
Creation of community pharmacies and control of territorial distribution	No	There are no restrictions on the ownership of pharmacies or on the business model followed.  The presence at all times of a qualified pharmacist is required by law.
Ethics / professional conduct	Yes	Pharmacy Council
Quality assurance and validation of HEI courses for pharmacists	No	Education sector Quality Assurance is run through a Centralised University Administration Structure.

<b>References, websites</b>	
References to texts and articles of national law	Health Care Professions Act Medicines Act (see PDFs in the country profile for Malta)
Ministry for Health, the Elderly and Community Care	<a href="https://ehealth.gov.mt/HealthPortal/default.aspx">https://ehealth.gov.mt/HealthPortal/default.aspx</a>
Medicines Authority	<a href="http://medicinesauthority.gov.mt/index.htm">http://medicinesauthority.gov.mt/index.htm</a>

## Chapter 2. Pharmacy HEIs, students and courses

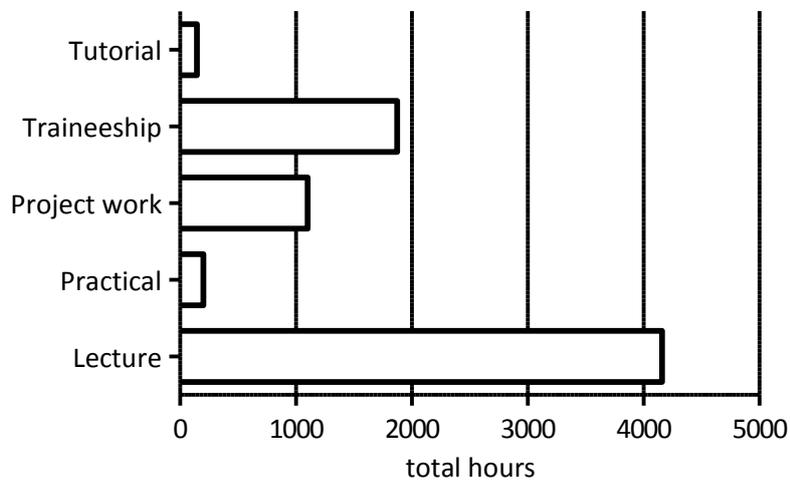
	Y/N, number or %	If you wish to expand your answer, please add your comments below.
<b>Number of HEIs in Malta</b>	1	Msida: <a href="http://www.um.edu.mt/ms/pharmacy/">http://www.um.edu.mt/ms/pharmacy/</a>
Public	1	
<b>Organisation of HEIs</b>		
Attached to a medical faculty	Yes	Faculty of medicine & surgery: <a href="http://www.um.edu.mt/ms">http://www.um.edu.mt/ms</a>
Do HEIs offer B + M degrees?	No	
<b>Msida</b>		
<b>Teaching staff</b>		
Number of teaching staff (nationals)	7 + equivalent of 3 staff from servicing departments	
Number professionals (pharmacists and others) from outside the HEI	20	
<b>Students</b>		
Number at entry following secondary school	Unlimited	2009-10: Eligible Applicants 48, drop-out 5
Number of applicants for entry	Varies	
Number of graduates that become registered pharmacists.	31 (2010)	31 out of 31 (2010)
Number of international students (from EU member states)	1 (per year)	
<b>Entry requirements (beginning of S1 of B1, following secondary school)</b>		
Pharmacy-related, national entrance examination	No	
Other form of entry requirement at a national level	University exam entry requirement	
<b>Advanced entry</b>		
At which level?		Advanced Candidates with a bachelor degree in another subject can enter the course of pharmacy provided they satisfy the special course requirements and will join the course at the beginning.
What are the requirements?		Chemistry and another science subject, a choice of three subjects at Intermediate level from language, sciences and social sciences
<b>Fees per year</b>		
For home students	Amount (€): 0	
For EU MS students	Amount (€): 0	

<b>Length of course</b>	<b>5 years</b>	
<b>Pregraduate specialization</b>		
Do HEIs provide specialized courses?	Yes	
In which years?	4 <sup>th</sup>	
In which specialisation (industry, hospital...)?		Industrial, Clinical
Numbers in each specialization?	Split 50/50	
<b>Postgraduate specialization</b>		
	<p>a. A 15-month, full-time, 90-ECTS M.Sc. in pharmacy, with specialization in Industrial pharmacy (the other 2 areas of specialization are pharmaco-economics and clinical pharmacy). The specialization is set by the choice of one particular 20-ECTS unit (industrial pharmacy, pharmaco-economics, or clinical pharmacy), the placement, and the dissertation.</p> <p>b. A 3- year part-time 90-ECTS M.Sc. in Applied Chemistry. This degree has the possibility of exit after 2 years and completion of 60 ECTS with a Postgraduate Diploma in Applied Chemistry. Exit is either voluntary or through failure to obtain the weighted average mark necessary to progress to the Masters (60%). The first 60-ECTS consists of a course structure designed chiefly on the recommendations of various UK societies - RPSGB (Royal Pharmaceutical Society of GB), Royal Society of Chemistry (<a href="http://www.rsc.org/">http://www.rsc.org/</a> ) and Institute of Biology (<a href="http://www.societyofbiology.org/home">http://www.societyofbiology.org/home</a> ) - re educational requirements for Qualified Persons, plus a mini-project. The 30-ECTS difference to the Masters degree consists of the dissertation. This degree is offered by the Department of Chemistry. The course was established at the specific request of the pharmaceutical manufacturing industry in Malta. The MQPA (Maltese Qualified Persons' Association, <a href="http://www.mqpa.org/home.htm">http://www.mqpa.org/home.htm</a> were actively involved in, and endorsed the course.</p> <p>c. Post-graduate degree by research: Master of Philosophy and Doctor of Philosophy</p>	
<b>Past and present changes in E&amp;T</b>		
Have there been any major changes since 1999?		Changes: specialisation (duration 1 semester) in the 7 <sup>th</sup> semester and orientation in another area not taken up for specialisation (6 weeks) in the 6 <sup>th</sup> semester, Changes in entry course requirements to include a Pass in Intermediate Pure Mathematics

### Chapter 3. Teaching and learning methods

Student hours						
Method	Year 1	Year 2	Year 3	Year 4	Year 5	Total
<b>HEIs courses</b>						
Lecture	1300	1150	1060	650		<b>4160</b>
Tutorial	41	66	20	20		<b>147</b>
Practical		50	100	50		<b>200</b>
Project work	50	100	150	300	500	<b>1100</b>
<b>Traineeship: including practice and tutorial sessions</b>						
Community	84	84	84	42	1000	<b>1294</b>
Other (please specify)			Choice clinical or industrial: 80	Choice clinical or industrial: 500		<b>580</b>
<b>Total</b>	<b>1475</b>	<b>1459</b>	<b>1494</b>	<b>1562</b>	<b>1500</b>	<b>7481</b>

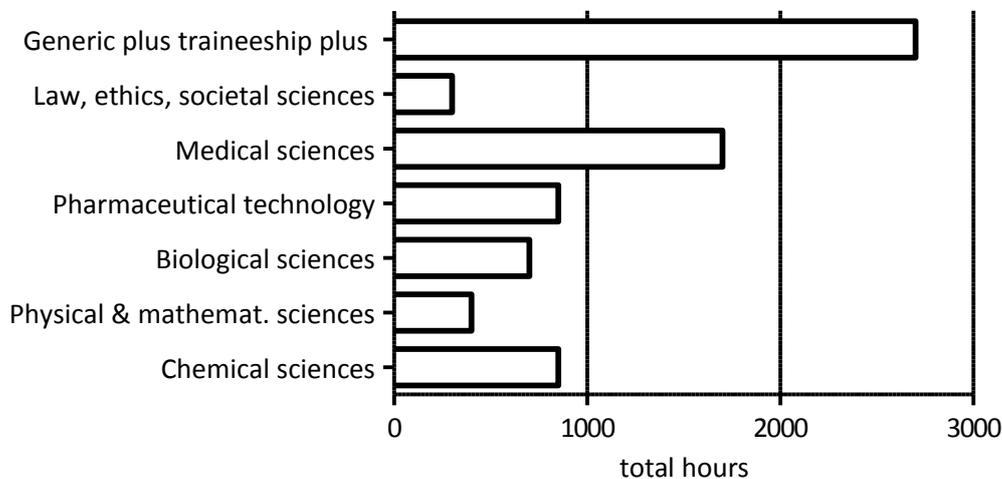
#### Student hours according to teaching and learning methods



## Chapter 4. Subject areas

Student hours						
Subject area	Year 1	Year 2	Year 3	Year 4	Year 5	Total
CHEMSCI	300	250	200	100		850
PHYSMATH	350	50				400
BIOLSCI	300	300	100			700
PHARMTECH	150	250	300	150		850
MEDISCI	250	500	600	350	1000	1700
LAWSOC	50	50	100	100		200
TOTAL taught courses	1400	1400	1300	700	0	4800
GENERIC + traineeship + project	100	100	200	300+500 (optional area)	500	2700
<b>Total</b>	<b>1500</b>	<b>1500</b>	<b>1500</b>	<b>1500</b>	<b>1500</b>	<b>7400</b>

### Student hours according to subject area



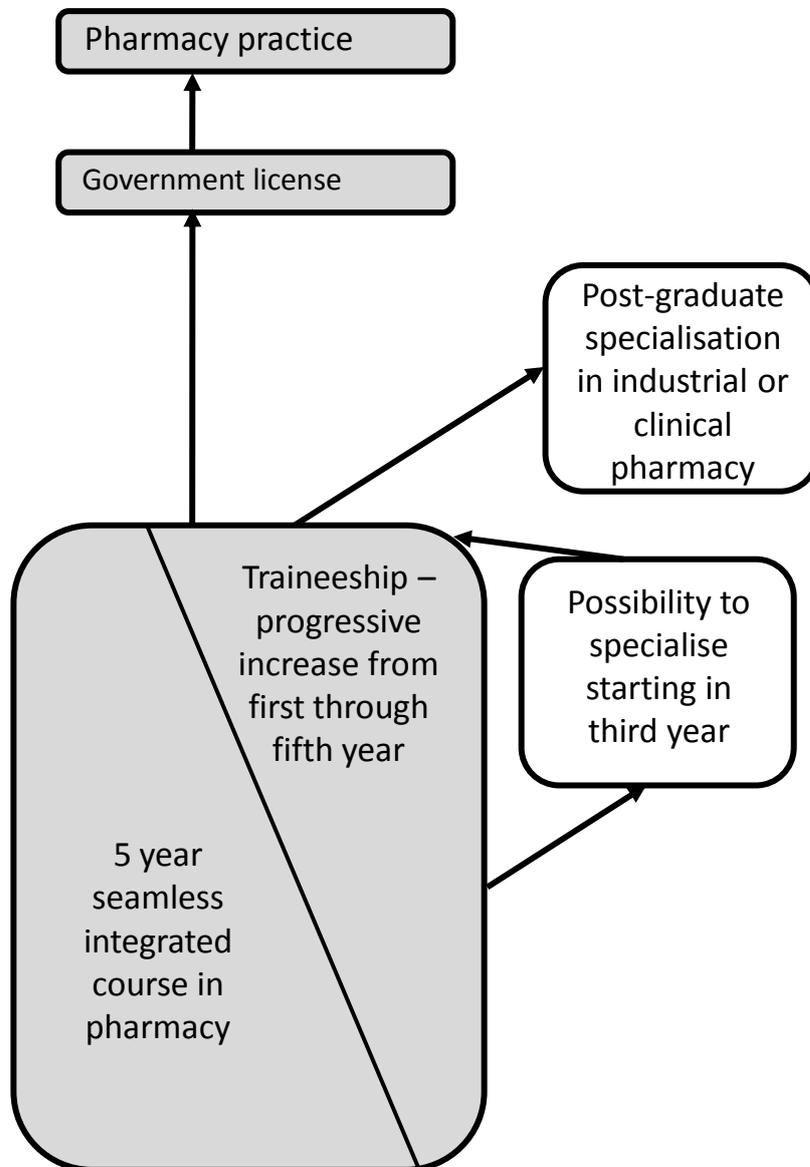
## Chapter 5. Impact of the Bologna principles

Bologna principle	Is the principle applied? Y/N or partially	How is it applied? Does your HEI have multilateral recognition and agreements? Other comments.
<b>1. Comparable degrees / Diploma Supplement</b>	Yes	All teaching is English
<b>2. Two main cycles (B and M) with entry and exit at B level</b>	No	There is a seamless 5-year degree structure.
<b>3. ECTS system of credits / links to LLL</b>	ECTS- yes	CPD is organised by the Malta College of Pharmacy Practice: it is voluntary but followed by most. There are no links between ECTS obtained before registration and those obtained following. The Maltese Pharmacy Council is considering the opportunity and mechanism for rendering CPD compulsory and linked to registration.
<b>4. Obstacles to mobility</b>	No	
<b>5. European QA</b>	Yes	University Programme Validation Committee operates in line with national requirements
<b>6. European dimension</b>	Yes	Teaching material and experiences are shared with a number of universities in the EU and USA through academic networking
<b>ERASMUS staff exchange to your HEI from elsewhere</b>		Number of staff months: 1
<b>ERASMUS staff exchange from your HEI to other HEIs</b>		Number of staff months: 1
<b>ERASMUS student exchange to your HEI from elsewhere</b>		Number of student months: 51
<b>ERASMUS student exchange from your HEI to other HEIs</b>		Number of student months: 51

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

The directive states	Does 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> ,..."	Yes	
"... <u>four years of full-time theoretical and practical training</u> at a university or at a higher institute of a level recognised as equivalent, or under the supervision of a university;"	Yes	Practical sessions to include short placements in industry as well so that graduates also have hands on approach in the area.
"... <u>six-month traineeship in a pharmacy</u> which is open to the public or in a hospital, under the supervision of that hospital's pharmaceutical department."	Yes	Confirmed
"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> ."	Yes	Confirmed
Directive annex	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.	To add in list Pharmacy Practice rather than having it labelled within the Pharmacotherapy aspect. Pharmacy Practice is the module that is used to assist the student to merge the scientific knowledge from pharmacology, chemistry and pharmaceutical technology to pharmacotherapy.	

**The Maltese pharmacy education and training scheme.**





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**PHARMINE**  
*Pharmacy Education  
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UNIVERSITY OF MALTA  
*L-Università ta' Malta*



**UNIVERSITY OF TARTU**



Vrije  
Universiteit  
Brussel

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

**Website: [www.pharmine.org](http://www.pharmine.org)**

Pharmacy education & training in

# The NETHERLANDS

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.

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](#))

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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.uhp-nancy.fr](mailto:jeffrey.atkinson@pharma.uhp-nancy.fr)

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Website	<a href="http://www.pharm.uu.nl">www.pharm.uu.nl</a>	<a href="http://www.rug.nl/farmacie">www.rug.nl/farmacie</a>

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## Summary.

The pharmacy diploma is obtained after a six year masters degree course at one of 2 universities: Groningen or Utrecht.

Specialisation occurs following graduation.

The 6<sup>th</sup> year is roughly split into traineeship and elective courses. Traineeship is approximately half community and half in a hospital pharmacy. There is also early traineeship in the form of a 1 month community pharmacy traineeship in the 4<sup>th</sup> year.

## Introduction.

Total population: 16,379,000

Gross national income per capita (PPP international \$): 37,940

Life expectancy at birth m/f (years): 78/82

Healthy life expectancy at birth m/f (years, 2003): 70/73

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): 81/59

Total expenditure on health per capita (Intl \$, 2006): 3,383

Total expenditure on health as % of GDP (2006): 9.3

Figures are for 2006 unless indicated. Source: [World Health Statistics 2008](#)

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

The Koninklijke Nederlandse Maatschappij ter bevordering der Pharmacie (<http://www.knmp.nl/>) helped with this section.

	Y/N, number or %	Comments.
<b>Community pharmacy</b>		
Community pharmacists	3100	
Community pharmacies	2000	
Competences and roles of community pharmacists		Drug distribution, medication surveillance and information (patient care), pharmaco-therapeutic consultancy with prescribers, medication review, drug compounding and quality management.
Is ownership of a pharmacy limited to pharmacists?	No	
Rules governing the distribution of community?	No	
Healthcare products available through channels other than pharmacies?	Yes	General Sales List products are available from drugstores.
Are persons other than pharmacists involved in community practice?	Yes	There are technicians who work under the responsibility of the community pharmacists, but they work within community pharmacies.
Their titles and number(s)	17,000	3 to 10 in every community pharmacy,
Their qualifications		
Organisation providing and validating the E&T		
Duration of studies (years)	3	
Subject areas		Assistance of community pharmacists
Competences and roles		They do distribution tasks, compounding, and advice to patients.
<b>Hospital pharmacy</b>		
Hospital pharmacists	400	
Hospital pharmacies	100	
Competences and roles of hospital pharmacists		Drug distribution, medication policy, medication surveillance, clinical pharmacy, drug safety, drug compounding, quality management
<b>Pharmaceutical and related industries</b>		
Companies with production, R&D and distribution		
Production only		
Distribution only		
Generic drugs only		
<b>Industrial pharmacy</b>		
Number of pharmacists working in industry		

Competences and roles of industrial pharmacists		
<b>Other sectors</b>		
Pharmacists in other sectors	1500	
Sectors		Government, universities, consultancy, wholesale
Competences and roles		Wide : marketing, GMP, marketing authorization review, Inspectorate Public Health
<b>Roles of professional associations</b>		
Registration of pharmacists	Yes	
Creation of pharmacies and control of territorial distribution	No	
Ethical and other aspects of professional conduct	Yes	
Quality assurance and validation of HEI courses for pharmacists	No	

## Chapter 2. Pharmacy HEIs, students and courses

	Y/N, number or %	Comments.
HEIs the Netherlands	2	Utrecht: <a href="http://www.pharm.uu.nl">www.pharm.uu.nl</a> In English <a href="http://www.uu.nl/EN/Pages/default.aspx">http://www.uu.nl/EN/Pages/default.aspx</a> Groningen: <a href="http://www.rug.nl/farmacie/index">http://www.rug.nl/farmacie/index</a> university: <a href="http://www.rug.nl/corporate/index">http://www.rug.nl/corporate/index</a>
Public	2	
<b>Organisation of HEIs</b>		
Attached to a science faculty	Yes	
Do HEIs offer B + M degrees?	Yes	
Do HEIs offer an M. Pharm. after a B degree in another HEI?	Partially	It is possible to be admitted to a M.Pharm programme with another bachelor, but only after some "reparation" courses, especially in the areas of drug compounding and (sometimes) pharmacology.
Number of international students (non EU)	Number: 0	
<b>Entry requirements (beginning of S1 of B1, following secondary school)</b>		
Specific pharmacy-related examination	No	
Other form of entry requirement at a national level	Yes	Profiles 'Nature and Health' or 'Nature and <i>technics</i> ' in secondary school
Is there a national <i>numerus clausus</i> ?	No	
<b>Advanced entry</b>		
At which level?		Master, for pharmacists from outside the EU or for students with a bachelor other than the B.Pharm. or master after some "reparations"
What are the requirements?		Bachelor or master in a chemical and/or biological area. Dutch language skills for the M.Pharm.
Specific requirements for international students		Dutch language skills for the master programme.
<b>Fees per year</b>		
For home students		2010/2011: 1672,-- euro/year We do not get an amount for each starting student but we get an amount related to the number of students who obtain a B.Pharm. degree.
For EU MS students		2010/2011: 1672,-- euro/year
For non EU students		2010/2011: 1672,-- euro/year
<b>Length of course: 6 years</b>		
<b>Specialization</b>		
Do HEIs provide specialized courses?		Specialization will take place after graduation

<b>Groningen</b>		
<b>Teaching staff</b>		
Number of teaching staff (nationals)	82	And 8 international teaching staff (EU) and 2 form outside the EU
Number professionals (pharmacists and others) from outside the HEIs, involved in E&T	10	Difficult to estimate as a lot of pharmacists are invited for lectures
<b>Students</b>		
Places at entry following secondary school		Not a fixed number
Number of applicants for entry	150	This number is variable
Graduates that become registered pharmacists.	40-60	This is approximately the number of graduates who become MSc with the title of pharmacist.
International students (from EU)	?	There is not a fixed number. We rarely have a student from another EU state, but a major problem is of course command of Dutch language which is understandably required for a Dutch pharmacist.
International students (non EU)		
<b>Length of course</b>	<b>6 years</b>	For the master programme; we sometimes also impose 1 year a premaster programme on candidates for the master programme.
<b>Specialization</b>		
Does your HEI provide specialized courses?	No	There are some elective courses (in year 5 and 6), but I would not designate them as specialized courses. During the master course students can choose some electives of which are product-oriented or patient-oriented.
<b>Past and present changes in E&amp;T</b>		
Have there been any major changes since 1999 at your HEI?	Yes	During the last years our curriculum changed. This started in 2006/2007 by the introduction of a new first year of our bachelor programme. This year (2010/2011) our fifth year is renewed and next year our final year will be improved.
Major changes before 2019?	No	
<b>Is Groningen typical of the Netherlands?</b>	Yes	

### Chapter 3. Teaching and learning methods

<b>Student hours</b>
<b>Groningen</b>

Method	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>HEIs courses (2005)</b>						
<b>Lecture</b>	278	288	199	172	30	51
<b>Tutorial</b>	93	15	57	162	45	52
<b>Practical</b>	306	594	533	318	180	9
<b>Project work</b>	125	0	263	170	1255 (including 880 hours research*; see also electives/choice)	236
<b>Self guided learning</b>	878	783	628	738	170	72
<b>Traineeship</b>						
<b>Hospital</b>	0	0	0	0	0	320
<b>Community</b>	0	0	0	160	0	240
<b>Other (please specify)</b>	0	0	0	0	0	320: students can choose to do their final traineeship in a hospital, or community pharmacy
<b>Electives</b>						
<b>Choice</b>			Students are free to choose the subject of their Bachelor project and thesis (440 hours)		1) * Students can choose a research project from a whole range of pharmaceutical/medical /chemical research areas 2) Students have to choose electives (560 hours)	560 (students can choose between a more patient-oriented or product-oriented courses)

## Chapter 4. Subject areas

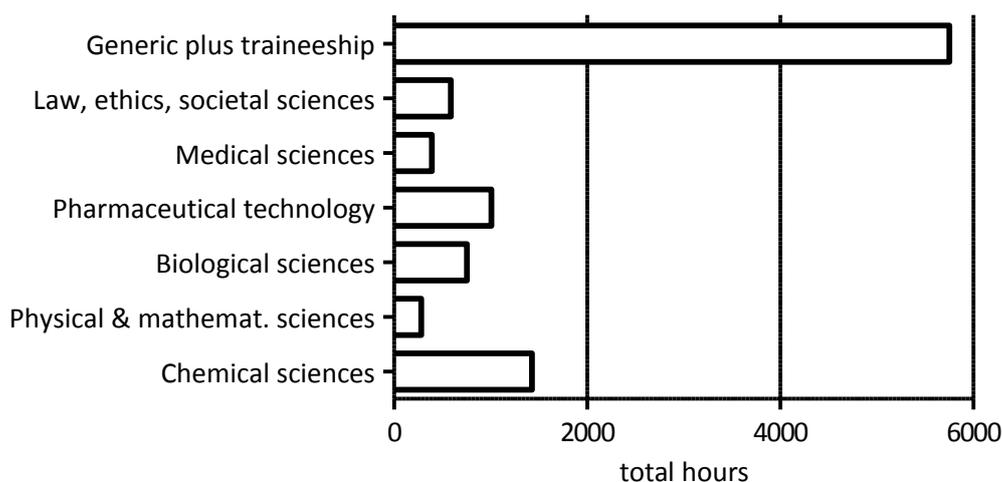
### Student hours

Groningen (2010/2011)

Subject area	Year 1	Year 2	Year 3
<b>CHEMSCI</b>	Pharmaceutical analysis (5 ECTS) Molecules and reactions (5 ECTS) → 280 hours	Bio-organic chemistry (5 ECTS) Pharmaceutical analysis (5 ECTS) Pharmaco-chemistry & spectrometry (5 ECTS) Organic chemistry practicals (5 ECTS) → 560 hours	Pharmaceutical analysis (10 ECTS) → 280 hours
<b>PHYSMATH</b>	Mathematics and statistics (5 ECTS) → 140 hours	Biostatistics (5 ECTS) → 140 hours	
<b>BIOLSCI</b>	Cell biology 1 (4 ECTS) Cell biology 2 (4 ECTS) Genetics (4 ECTS) Human Physiology (5 ECTS) Practical anatomy and physiology (2 ECTS) Practicals cell biology (3 ECTS) → 616 hours	Pharmaceutical microbiology (5 ECTS) → 140 hours	
<b>PHARMTECH</b>	Pharmaceutical technology (5 ECTS) → 140 hours	Drug formulation & biophysics (10 ECTS) → 280 hours	
<b>MEDISCI</b>	Physiology/Pharmacology (4 ECTS) Immunology/Oncology (2 ECTS) Pathology (5 ECTS)  → 308 hours		
<b>LAWSOC</b>	Ethics. (5 ECTS) → 140 hours		Pharmaceutical technology, ethics and society (5 ECTS) → 140 hours
<b>GENERIC</b>	Poster presentation (2 ECTS) → 56	Pharmacokinetics (5 ECTS) Pharmacology Practicals (5 ECTS) Metabolism and Toxicology (5 ECTS) Receptor pharmacology (5 ECTS) → 560 hours	Bachelor project (10 ECTS) Bachelor thesis (5 ECTS) Drugs of CNS (5 ECTS) Drugs of Endocrinology (10 ECTS) Pharmaceutical genetics and Immunology (5 ECTS) Pharmaco-epidemiology (5 ECTS) Drugs Infections and Tumours (5 ECTS) → 1260 hours

Subject area	Year 4	Year 5	Year 6
<b>CHEMSCI</b>	Pharmaceutical inorganic Chemistry (3 ECTS) Pharmaceutical Chemistry (3 ECTS) → 308 hours		
<b>PHARMTECH</b>	Drug Production and Research (9 ECTS) Manufacturing of Drugs theory and practice (12 ECTS) → 588 hours		
<b>MEDISCI</b>	Clinical Chemistry and Pathophysiology (3 ECTS) → 84 hours		
<b>LAWSOC</b>	Management in Pharmacy (2 ECTS) → 56 hours		Law and ethics (3 ECTS) Pharmacy 'game' (6 ECTS) → 252 hours
<b>GENERIC</b>	Pharmacotherapy (12 ECTS) Phytotherapy (3 ECTS) Behavior And Communication (4 ECTS) Drug Safety (3 ECTS) Traineeship (6 ECTS) → 786 hours	Research project in an research area of choice and electives → 1680 hours	Traineeships → 848 hours Patient or product oriented courses → 560 hours

Student hours by subject area.



**Student hours**

Utrecht

Subject area	Year 4	Year 5	Year 6
CHEMSCI	200		
PHYSMATH		960: research project	
BIOLSCI			
PHARMTECH	400	3x 200 optional	1 x 200 optional 120
MEDISCI	390	40 2 x 200 optional	1 x 200 optional 240
LAWSOC	200	200 optional	
GENERIC	10	Optional 10 (in one of the MEDISCI courses)	16

In years 5 and 6 we offer 8 electives of 5 weeks each, of which students have to choose 4. 4 are MEDISCI, 1 is LAWSOC (epidemiology) and 3 are MEDISCI.

## Chapter 5. Impact of the Bologna principles

Bologna principle	Is the principle applied? Y/N or partially	Comments.
1. Comparable degrees / Diploma Supplement	Yes	We have only one MSc degree, which is also the (basic) pharmacist degree.
2. Two main cycles (B and M) <u>with entry and exit at B level</u>	No	No specific exit at B level.
3. ECTS system of credits / links to LLL	Yes	ECTS system
4. Obstacles to mobility		There are no obstacles for mobility, there is no specific staff exchange. We encourage students to do their research project abroad and we facilitate that by providing information and helping them to acquire funding for a stay abroad.
5. European QA	No	
6. European dimension	No	
ERASMUS staff exchange to Groningen from elsewhere (2009/2010)		Number of staff months:
ERASMUS staff exchange from Groningen to other HEIs (2009/2010)		Number of staff months: 1
ERASMUS student exchange to Groningen from elsewhere (2009/2010)		Number of student months: 60
ERASMUS student exchange from Groningen to other HEIs (2009/2010)		Number of student months: 40 (+ 60 months student exchange to HEIs outside Europe/outside ERASMUS programm)

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

The directive states	How does this directive statement affect pharmacy E&T?
“Evidence of formal qualifications as a pharmacist shall attest to training of at least <u>five years' duration...</u> ”	
“ <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> ”	We have even longer period of 5 years full-time theoretical and practical training.
“ <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> ”	We do have a six-month traineeship. It is divided over years 4 and 6 in community as well as hospital pharmacies.
“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> ”	We do respect the theoretical training. Our bachelor programme is largely theoretical and directed at a broad scientific education. The master programme has a balance of theoretical, practical and communication training, combined with a research project and traineeships in community pharmacies and hospital pharmacies.
Directive annex	Subjects to be added or removed?
<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.	Subjects important in the Netherlands are communication with patients and other health care workers, professional attitude of pharmacists, and more patient related subjects (pharmaceutical patient care), structure and financing of the health care system, information and registration systems.



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*Pharmacy Education  
in Europe*

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

**Website: [www.pharmine.org](http://www.pharmine.org)**

Pharmacy education & training in

# NORWAY

2010

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

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## Summary.

The qualifications of “pharmacy manager” and “pharmacist” (responsible persons in community and hospital pharmacies) are based on a 5-year master degree course at an HEI with a 6-month traineeship in community or hospital pharmacy.

There is the possibility to do a 3-year B degree in pharmacy and work as a “*prescriptionist*”. The latter have the right to dispense drugs and advise patients but cannot be a responsible person in a pharmacy. The B degree is practically oriented and designed to fulfil the basic requirements for working in the community pharmacies.

The M degree is designed to give a solid background for work as a registered pharmacist in the community or hospital pharmacy or in industry, and to give a good back-ground for further research in the pharmaceutical sciences or other relevant scientific areas. The M degree includes a master thesis and advanced elective courses to support the master thesis work. At the University of Oslo and in Bergen the master thesis corresponds to 45 ECTS; in Tromsø to 30.

Clinical pharmacy is increasing in importance in Norway and focus, especially in community pharmacy, is moving away from basic sciences and manufacturing towards a much more patient-centred view. This transition will call for revision of the curricula.

## Introduction.

Total population: 4,669,000

Gross national income per capita (PPP international \$): 50,070

Life expectancy at birth m/f (years): 78/83

Healthy life expectancy at birth m/f (years, 2003): 70/74

Probability of dying under five (per 1 000 live births): 4

Probability of dying between 15 and 60 years m/f (per 1 000 population): 86/53

Total expenditure on health per capita (Intl \$, 2006): 4,521

Total expenditure on health as % of GDP (2006): 8.7

Figures are for 2006 unless indicated. Source: [World Health Statistics 2008](#)

For further information, see:

Highlights on health in Norway, at

<http://www.who.int/gho/countries/nor.pdf>

Pharmaceutical pricing and reimbursement information Norway OBIG 2008, at:

[http://ppri.oebig.at/Downloads/Results/Norway\\_PPRI\\_2008.pdf](http://ppri.oebig.at/Downloads/Results/Norway_PPRI_2008.pdf)

ECORYS - Study of regulatory restrictions in the field of pharmacies, at :

[http://ec.europa.eu/internal\\_market/services/docs/pharmacy/appendices\\_en.pdf](http://ec.europa.eu/internal_market/services/docs/pharmacy/appendices_en.pdf)

Eurybase - Descriptions of National Education Systems and Policies – Norway 2008, at:

[http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/national\\_summary\\_sheets/047\\_NO\\_EN.pdf](http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/national_summary_sheets/047_NO_EN.pdf)

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

	Y/N, number or %	Comments.
<b>Community pharmacy</b>		
Number of community pharmacists	1185	Managers and pharmacists with a Master of Science in Pharmacy (M.Sc.Pharm) degree (as of January 1st 2009)
Number of community pharmacies	614	(as of August 1 <sup>st</sup> 2009) Number of inhabitants per pharmacy: 7500 (low compared to many European countries)
Competences and roles of community pharmacists		<p>Master in Pharmacy and Bachelor in Pharmacy</p> <p>Standards for pharmacies in Norway - pharmacies shall</p> <ul style="list-style-type: none"> <li>- assess the prescription and follow up use of medicines at customer/patient level from a pharmaceutical point of view</li> <li>- have working routines that ensure customer/patient safety</li> <li>- give advice and counselling with the aim of making the customer/patient understand the purpose of his/her treatment</li> <li>- contribute to solving drug-related problems for individual customers/patients</li> <li>- co-ordinate advice and counselling with the local health service</li> <li>- offer pharmaceutical services that support and contribute to the rational use of medicines and promote the objective of the treatment</li> <li>- document their health assistance</li> <li>- evaluate and follow up requests from professional end users</li> <li>- be efficient in supplying medicines and other health-related products</li> </ul> <p>Pharmacists can substitute generic drugs and provide diagnostic services. They are also involved in health promotion campaigns.</p>
Is ownership of a community pharmacy limited to pharmacists?	Partially	Most pharmacies are owned by three large international pharmacy chains (see documents in this country profile and: <a href="http://www.apotek.no/graphics/NAF-bibliotek/Diverse/PDF/Facts_and_Figures_2009.pdf">http://www.apotek.no/graphics/NAF-bibliotek/Diverse/PDF/Facts_and_Figures_2009.pdf</a> )
Rules governing the distribution of pharmacies?	Yes	The pharmacy chains signed an agreement with the Ministry of Health and Care Services to ensure pharmacy coverage in scarcely populated areas.
Drugs and healthcare products available by channels other than pharmacies?	Yes	Selected OTC available in supermarkets and fuel stations. Internet pharmacies are not allowed.
Are persons other than pharmacists involved in community practice?	Yes	Professional staff in a pharmacy consists of a pharmacy manager together with pharmacists, <i>prescriptionists</i> , pharmacy technicians and sometimes nurses. Pharmacy managers, pharmacists and <i>prescriptionists</i> can dispense.
Their titles and number(s)	4279	B.Sc.Pharm ( <i>prescriptionists</i> ): 1010 (as of January 1st 2009) Pharmacy technicians: 3109 (as of January 1st 2009) Others (nurses etc): 160 (as of January 1st 2009)
<i>Prescriptionists</i>		B. Sc. Pharm.
Organisation providing and validating the E&T		Oslo. Oslo University College (OUC). OUC offers the broadest portfolio of professional studies available in Norway. OUC has more than 50 academic degrees in Health Sciences and other areas.

		<a href="http://www.hio.no/content/view/full/4563">http://www.hio.no/content/view/full/4563</a> in English  Namsos. Nord-Trøndelag University College, Namsos (Norwegian: Høgskolen i Nord-Trøndelag) or HiNT is a Norwegian university college located in the county of Nord-Trøndelag. HiNT has about 5,500 students and 440 employees  The school offers higher education within nursing, pharmacy, etc. <a href="http://www.hint.no/">http://www.hint.no/</a> in Norwegian
Duration of studies		3 years
Subject areas		Pharmaceutical technology, Social pharmacy, Medicinal chemistry, Drug Analysis, Pharmacognosy, Pharmacology, Microbiology
<b>Hospital pharmacy</b>		
Does such a function exist?	Yes	
Number of hospital pharmacists	305	M.Sc.Pharm (managers and pharmacists) 305 as of October 1 <sup>st</sup> 2008.
Number of public hospital pharmacies	32	as of August 1 <sup>st</sup> 2009
Competences and roles of hospital pharmacists		Hospital pharmacy is the health care service, which comprises the art, practice, and profession of choosing, preparing, storing, compounding, and dispensing medicines and medical devices, advising healthcare professionals and patients on their safe, effective and efficient use.
<b>Pharmaceutical and related industries</b>		
Number of companies with production, R&D and distribution	9	Companies that do not have products with marketing authorisation (MA) not included (a handful) (Ref. Elen Høeg at the Association of the Pharmaceutical Industry in Norway-LMI: <a href="http://www.lmi.no">www.lmi.no</a> in Norwegian)
Number of companies with production only	1	Contract manufacturer
Number of companies with distribution only	120	Companies distributing human and veterinary products with MA in Norway that has no R&D or production. Parallel importers excluded. Not all companies are necessarily established in Norway.
<b>Industrial pharmacy</b>		
Number of pharmacists working in industry	350	Approximate figure. We estimate that the number is between 300 and 400, but no hard data are available
Competences and roles of industrial pharmacists		Basic research, clinical research, manufacturing and process development, quality assurance, quality control, regulatory affairs, distribution, pharmacovigilance, marketing, health economics, information. Norway follows EU directives on qualified persons (QP)n but these are not restricted to pharmacists.
<b>Other sectors</b>		
Number of pharmacists working in other sectors Any ideas on numbers?	200 (?)	
Sectors in which pharmacists are employed		Mainly public sector and professional organisations 1. Academic institutions (teaching and research) 2. The Norwegian Medicines Agency (Nomad) is the national, regulatory authority for new and existing medicines and the supply chain. Is there a website? 3. The Norwegian Institute of Public Health (website?) is a national centre of excellence in the areas of epidemiology, mental health, control of infectious diseases, environmental medicine, forensic toxicology and

		<p>drug abuse.</p> <p>4. The Directorate of Health (website?) is a specialist director and an administrative body under the Ministry of Health and Care Services and the Ministry of Labour and Social Inclusion. The Directorate is administered by the Ministry of Health and Care Services.</p> <p>5. The Norwegian Labour and Welfare Administration (website?)</p> <p>6. Regional Medicines Information Centres (website) is a governmental organization that consists of pharmacists and clinical pharmacologists who answers all kinds of medicines-related questions from healthcare professionals in Norway. RELIS also receive and evaluate Norwegian adverse drug reaction reports on behalf of the authorities. In addition RELIS participate in research, education of healthcare professionals and publish scientific articles in national and international journals.</p> <p>7. Professional organisations :</p> <p>Norges apotekforening (<a href="http://www.apotek.no/">http://www.apotek.no/</a> )</p> <p>Norges Farmaceutiske Forening (<a href="http://www.farmaceutene.no/id/696">http://www.farmaceutene.no/id/696</a>)</p> <p>Legemiddelindustriforeningen (<a href="http://www.lmi.no/">http://www.lmi.no/</a> )</p> <p>Private sector:</p> <p>Food manufacturing and fish farming (very few pharmacists in this sector)</p>
Roles of pharmacists in other sectors		Managers, advisors, technical specialists etc.
<b>Roles of professional associations</b>		
Registration of pharmacists	Yes	<p>In order to work as a pharmacist in Norwegian pharmacies you need an authorisation as a pharmacist.</p> <p>The Norwegian Registration Authority for Health Personnel (SAFH) is the authority to give authorisation as a pharmacist. SAFH is responsible for granting the professional authorisation which is required for practising the applicants' profession within the legally regulated health personnel categories. Authorisation represents full and permanent approval. Norwegian and pharmacists from the EU with a 5 years Master in Pharmacy are automatically qualified by SAFH. Other non-EU candidates have to pass by a review board.</p> <p><a href="http://www.safh.no/english/index.html">http://www.safh.no/english/index.html</a> in English.</p> <p>Thus the HEI accredits all the theoretical and practical (including traineeship) aspects of the Master course. This accreditation is sufficient for registration with no further courses or examinations.</p>
Creation of community pharmacies and control of territorial distribution	Yes	<p>Of the 614 private sector pharmacies, three of the large pharmacy chains wholly own 591 of them. The remaining privately owned pharmacies are either owned by limited companies, which are often part-owned by the pharmacy chains, or by individuals.</p> <p>There are no government-imposed regulations on establishment of pharmacies. The latter can be owned by anyone except pharmaceutical manufacturers and medical doctors.</p>
Ethical and other aspects of professional conduct	Yes	<p>Ethical codes for pharmacist in Norway are developed by the Norwegian Pharmaceutical Society and approved by the Norwegian Association of Pharmacists and the Norwegian Pharmacy Association</p> <p>Standards for Pharmacy Practice (<a href="http://www.apotek.no/home/standards-for-pharmacy-practice.aspx">http://www.apotek.no/home/standards-for-pharmacy-practice.aspx</a> ) is a document that contains quality standards for pharmacies in Norway in areas defined as the pharmacies' core activities developed by the Norwegian Pharmacy Association on behalf of the</p>

		<p>pharmacy trade, in cooperation with The Norwegian Association of Pharmacists and The Association of Pharmacy Technicians, the professional organizations for pharmacy employees.</p> <p>Pharmacists are authorized health personnel and as such are bound by law to a number of duties regarding patients' rights.</p>
Quality assurance and validation of HEI courses for pharmacists	Yes	<p>The Norwegian Agency for Quality Assurance in Education (NOKUT) is an independent public agency, established by law in 2002, with the task of carrying out external quality assurance of higher education and tertiary vocational education in Norway.</p> <p>NOKUT evaluated The School of Pharmacy at the University of Oslo and the University of Tromsø in 2005-2007</p> <p><a href="http://www.nokut.no/">http://www.nokut.no/</a>  <a href="http://www.nokut.no/en/">http://www.nokut.no/en/</a></p>

Websites	
Norway Pharmacy Association: "Facts and Figures 2009"	<a href="http://www.apotek.no/graphics/NAF-bibliotek/Diverse/PDF/Facts_and_Figures_2009.pdf">http://www.apotek.no/graphics/NAF-bibliotek/Diverse/PDF/Facts_and_Figures_2009.pdf</a>
The Pharmacy Act, March 1 <sup>st</sup> 2001	<a href="http://www.lovdatab.no/cgi-wift/wiftldles?doc=/app/gratis/www/docroot/all/nl-20000602-039.html&amp;emne=apotek*&amp;&amp;">http://www.lovdatab.no/cgi-wift/wiftldles?doc=/app/gratis/www/docroot/all/nl-20000602-039.html&amp;emne=apotek*&amp;&amp;</a>

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## Chapter 2. Pharmacy HEIs, students and courses

	Y/N, number or %	Comments
<b>Total number of HEIs in your country</b>	5	3 at Master level (Universities of Oslo, Bergen and Tromsø) 2 at Bachelor level (University Colleges of Oslo and Namsos)
Public	3 (master level)	The School of Pharmacy at the University of Oslo (UiO) The Institute of Pharmacy at the University of Tromsø (UiT) Centre for Pharmacy at the University of Bergen (UiB)
<b>Organisation of HEIs</b>		
Attached to a science faculty	Yes	The School of Pharmacy at the University of Oslo
Attached to a medical faculty	Yes	The Institute of Pharmacy at the University of Tromsø Centre for Pharmacy at the University of Bergen
<b>Norway</b>		
<b>Teaching staff</b>		
Number of teaching staff (nationals)	57	UiB: 2 Professors + 4 Associate professors UiT (2009): 4 Professors + 1 Professor II + 9.6 Ass. professors + 1 Ass. Professor (nationally recruited) + 14.29 Ph.D. students with a 4 <sup>th</sup> year for teaching. UiO: 19 (22) Professors + 7 Professor II + 9 Associate professors + 32 Ph. D. student teachers
Number of international teaching staff		UiT: 4 International professor II
Number professionals (pharmacists and others) from outside the HEIs, involved in E&T		UiT: 9, among them 2 Ph.D. students  Local community and/or hospital pharmacists act as supervisors for traineeship. They receive university training for this function. They follow progress. The HEIs also set work assignments.
<b>Students</b>		
Number of places at traditional entry (beginning of S1 of B1, following secondary school)	129	UiO: 70 UiT: 35 UiB: 24
Number of applicants for entry	1900	UiO: 850 UiT: 2007/2008 Number of applicants: 358 (1. priority: 32, 2. priority: 41)  UiB: NA  In Norway candidates for university give 10 subject preferences. Overall 190 gave pharmacy as their first choice and 1900 put pharmacy at some level from 1 to 10.

Number of graduates that become registered pharmacists.	57/70  29/35  22/24	UiO: 17 graduates so not become registered pharmacists. As all graduates are automatically registered, these 17 drop out before graduation.  UiT  UiB
Number of international students (from EU member states)		UiO: 3 students S2 of M4  UiT: S everal agreements, but received only one student 2007/2008
<b>Entry requirements (beginning of S1 of B1, following secondary school)</b>		
Specific pharmacy-related, national entrance examination	Yes	The Pharmacy program has special admission requirements relevant to the major subject in the fields of study, with advanced mathematics, mathematics, physics and chemistry.
Other form of entry requirement at a national level	Yes	In order to be evaluated for admission, applicants must fulfil the basic entrance requirements to Norwegian universities. All applicants must provide documentation of completed secondary school education. Some groups of applicants must also document one or two years of higher education. Applicants, who do not fulfil the minimum requirements, must pass specific examinations from Norwegian upper secondary school.  Applicants must also document a satisfactory knowledge of Norwegian and English
Is there a national <i>numerus clausus</i> ?	Partially	Yes, for the Institute of Pharmacy at the University of Tromsø there is a " <i>numerus clausus</i> " for the Sami population and the population of northern Norway. No, for the other universities.
<b>Advanced entry</b>		
At which level?		Bachelor's level
What are the requirements?		Those who have taken a bachelor's degree in Pharmacy ( <i>prescriptionist</i> ) at a university college (Oslo or Namsos) can apply directly to the School of Pharmacy at the University of Oslo and study an alternative curriculum for 3½ years to become a master in pharmacy.
<b>Fees per year</b>		
For home students	Amount (€): 59.10	Each semester the students have to pay: tuition fee NOK 410,- copy fee NOK 100,- (1 EUR = 7.86 NOK, September 2010)
For EU MS students	Amount (€): 0	International students studying through an exchange agreement pay tuition fee at their home institution.
For non EU students	Amount (€): 0	For international students that have an exchange agreement pay tuition fee at their home institution this is an ERASMUS disposition
<b>Length of course</b>	<b>5 years</b>	
<b>Specialization</b>		
Do HEIs provide specialized courses?	Yes	Each student must do research and write a thesis in a given research area (e.g. microbiology, pharmacology...see below)
In which years?	Years: 4 <sup>th</sup> and 5 <sup>th</sup>	1.5 year
In which specialisation (industry, hospital...)?		Pharmaceutical technology, Social pharmacy, Medicinal chemistry, Drug Analysis, Pharmacognosy, Pharmacology, Microbiology.

		<p>These are science subjects.</p> <p>Although there is no pre-graduate specialisation in hospital pharmacy within the M. Sc. Pharm. Degree course, a 2-years Master in Clinical Pharmacy is on offer. This is also open to B. Pharm. Graduates with experience in a hospital/clinical community pharmacy setting.</p>
What are the student numbers in each specialization?		Approximately 60 students each year
<b>Past and present changes in E&amp;T</b>		
Have there been any major changes since 1999?	Y/N: Y	<p>In 2003 The School of Pharmacy in Oslo introduced an ambitious new curriculum for the undergraduate students. The curriculum is multidisciplinary for the first three years before going onto specialization and writing a thesis for the last 1 ½ years of study.</p> <p>The curriculum was last adjusted in 2006 to produce the curriculum followed today</p>
Are any major changes envisaged before 2019?	Maybe	There may be some changes regarding introducing Bachelor's degree in Pharmacy (along with Master's degree in Pharmacy) at the universities.
<b>Oslo</b>		
<b>Teaching staff</b>		
Number of teaching staff (nationals)	??	UiO: 19 (22) (19 or 22?) Professors + 7 Professor II (again: what is a professor II?) + 9 Associate professors + 30 Ph. D. student teachers
Number of international teaching staff (from EU MSs)	2	UiO: 2 Ph. D. student teachers
Number of international teaching staff (non EU)	0	UiO: 0; UiB: 0; UiT: 0; HiO: 0; HiT: 0; HiN: 0
Number professionals (pharmacists and others) from outside the HEIs, involved in E&T		UiO: A lot depending on the subject taught.
<b>Students</b>		
Number of places at entry	80	
Number of applicants for entry	800	There are 10 applicants per place.
Number that become registered pharmacists.	63	
<b>Entry requirements (beginning of S1 of B1, following secondary school)</b>		
Your HEI has a specific pharmacy-related entrance examination	Yes	See before for national entrance requirements
<b>Advanced entry</b>		
At which level?		Bachelor's level
What are the requirements?		Those who have taken a bachelor's degree in Pharmacy ( <i>prescriptionist</i> ) can apply directly to the School of Pharmacy at the University of Oslo and study after an alternative curriculum in 3 ½ years to become a master in pharmacy
Specific requirements for international students (EU or non EU).		None

<b>Fees per year</b>		
For home students	Amount (€): 59.10	Each semester the students have to pay tuition fee NOK 410,- copy fee NOK 100,- (1 EUR = 7.86 NOK, September 2010)
For EU MS students	Amount (€): 0	International students studying through an exchange agreement pay tuition fee at their home institution.
For non EU students	Amount (€): 0	For international students that have an exchange agreement pay tuition fee at their home institution
<b>Length of course</b>	<b>5 years</b>	
<b>Specialization</b>		
Do HEIs provide specialized courses?	Yes	Each student must do research and write a thesis in a given research area (e.g. microbiology, pharmacology...see below)
In which years?	Years: 4 <sup>th</sup> and 5 <sup>th</sup>	1.5 year
In which specialisation (industry, hospital...)?		Pharmaceutical technology, Social pharmacy, Medicinal chemistry, Drug Analysis, Pharmacognosy, Pharmacology, Microbiology. These are science subjects.  Although there is no pre-graduate specialisation in hospital pharmacy within the M. Sc. Pharm. Degree course, a 2-years Master in Clinical Pharmacy is on offer. This is also open to B. Pharm. Graduates with experience in a hospital/clinical community pharmacy setting.
What are the student numbers in each specialization?		Approximately 60 students each year
<b>Past and present changes in E&amp;T</b>		
Have there been any major changes since 1999?	Y/N: Y	In 2003 The School of Pharmacy in Oslo introduced an ambitious new curriculum for the undergraduate students. The curriculum is multidisciplinary for the first three years before going onto specialization and writing a thesis for the last 1 ½ years of study. The curriculum was last adjusted in 2006 to produce the curriculum followed today
Are any major changes envisaged before 2019?	Maybe	There may be some changes regarding introducing Bachelor's degree in Pharmacy (along with Master's degree in Pharmacy) at the universities.
Is your HEI typical of all HEIs in the country?	Yes	

<b>References</b>	
References to texts and articles of national law	Norwegian law on higher education: Univeristets- og høyskoleloven (2004-04-01): <a href="http://www.lovdatab.no">www.lovdatab.no</a> In English: <a href="http://www.lovdatab.no/info/lawdata.html">http://www.lovdatab.no/info/lawdata.html</a>

## Chapter 3. Teaching and learning methods

Student hours						
Method	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Lecture	255	244	278			777
Tutorial	108	155	51			314
Practical	1313	1264	557			3134
Project work*	395	210	586	Six months - 960	12 months - 1920	4071
<b>Subtotal</b>	<b>2071</b>	<b>1873</b>	<b>1472</b>			<b>8296</b>
Traineeship						960
Hospital				Six months**		
Community				Six months**		
<b>Total traineeship</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6 months - 960</b>	<b>0</b>	
<b>Grand total</b>	<b>2071</b>	<b>1873</b>	<b>1471</b>	<b>12 months - 1920</b>	<b>12 months - 1920</b>	<b>9256</b>
<b>*Electives for project work</b>						
Choice	0	0	0	Six months	12 months	
Optional	0	0	0			
<b>Total electives</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>Six months</b>	<b>12 months</b>	

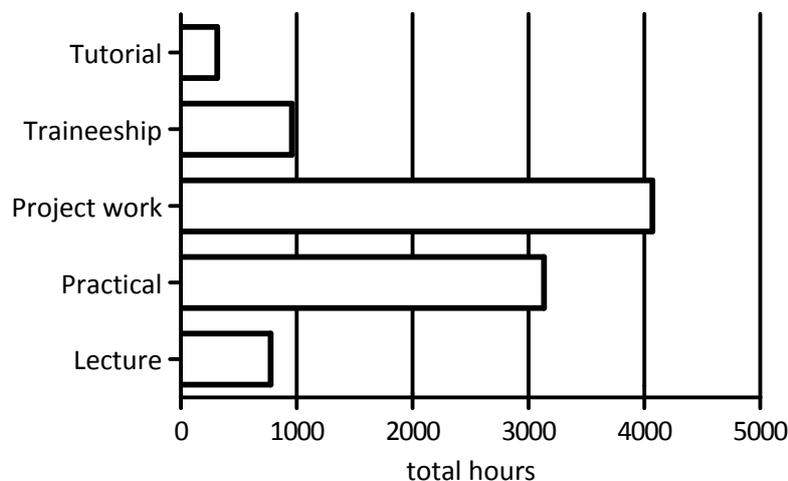
\*\* : The students are at traineeship in either a hospital pharmacy or a community pharmacy for 19 weeks, and have lectures before and after this period, all together six months

### Electives:

45 ECTS total in 4<sup>th</sup> and 5<sup>th</sup> year.

45 ECTS in master thesis

### Student hours by teaching and learning methods



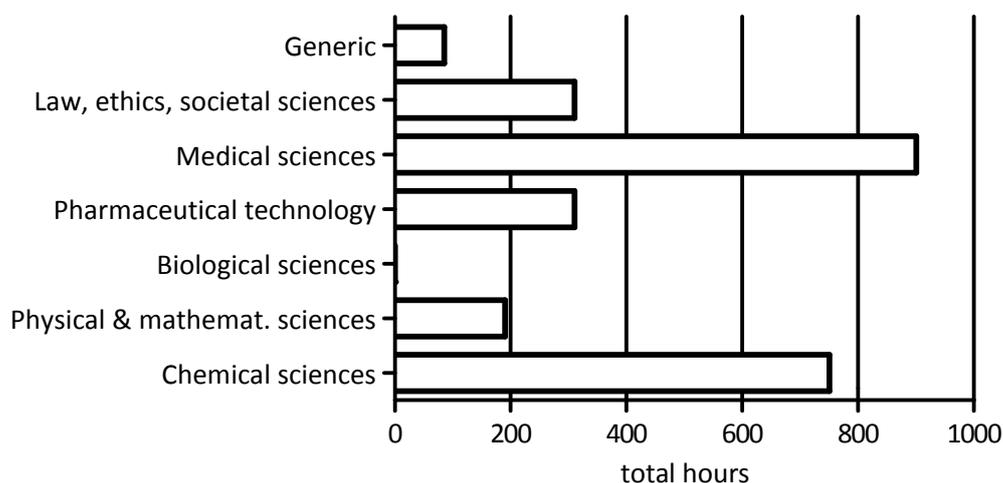
## Chapter 4. Subject areas

### Student hours

Subject area	Year 1	Year 2	Year 3	Year 4	Total (years 1-4)
CHEMSCI	400	200	150		750
PHYSMATH			30	160	190
BIOLSCI					0
PHARMTECH	10	100	200		310
MEDISCI	300	250	350		900
LAWSOC	100	50	100	60	310
GENERIC	25		60		60
<b>Total</b>	<b>835</b>	<b>601</b>	<b>890</b>	<b>220</b>	<b>2546</b>

Values in the above table are estimated from number of **lectures** multiplied with 3 and rounded off. Years 4 and 5 are different for each student.

### Student hours by subject area (lectures, years 1 through 4)



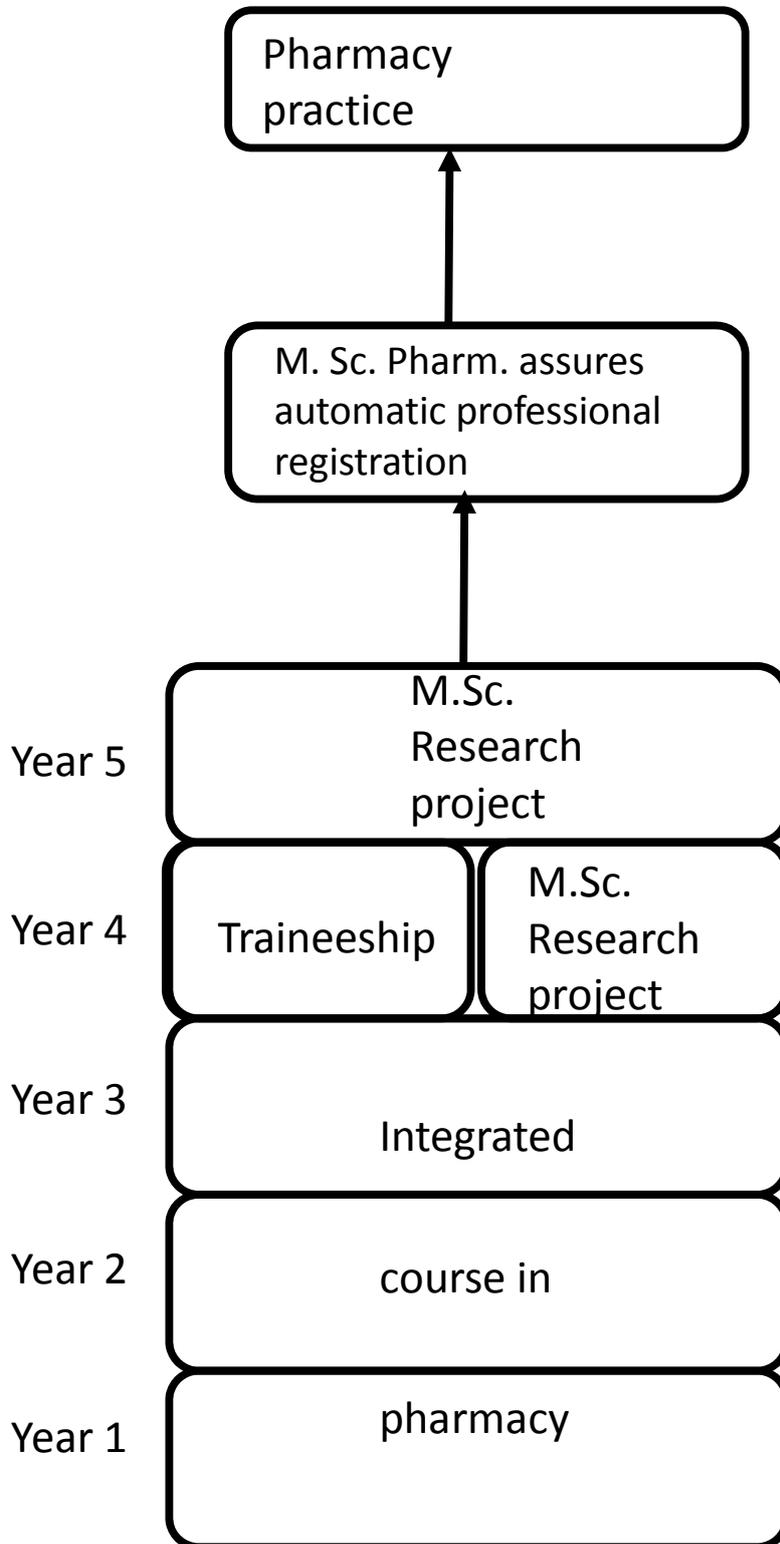
## Chapter 5. Impact of the Bologna principles

Bologna principle	Is the principle applied? Y/N or partially	Comments.
<b>1. Comparable degrees / Diploma Supplement</b>	Yes	All students that graduate from the School of Pharmacy receive a transcript and a Diploma Supplement that is written in English with information about the Academic Structure at the University of Oslo.
<b>2. Two main cycles (B and M) <u>with entry and exit at B level</u></b>	No	The School of Pharmacy at Oslo University offers a five-year integrated Master's degree in Pharmacy. It does not offer a Bachelor's degree in Pharmacy
<b>3. ECTS system of credits / links to LLL</b>		There is no formal requirement for CPD in Norway. The postgraduate Master in Clinical Pharmacy uses the same ECTS system as the pre-graduate Master of Science in Pharmacy
<b>4. Obstacles to mobility</b>		The teaching is given in Norwegian the first three years, and the students have to answer all the exams in Norwegian at the undergraduate level. Other obstacles are resources, both staff and financial resources
<b>5. European QA</b>	No	
<b>6. European dimension</b>	No	But, we are following the EC directive 2005/36/EC as a guideline.

## 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 School of Pharmacy offers a five-year integrated Master's degree in pharmacy at university level. It does not offer a bachelor's degree in Pharmacy yet, but there might be some changes regarding introducing Bachelor's degree in Pharmacy along with Master's degree in Pharmacy at the universities.	
“ <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 curriculum for the undergraduate students is multidisciplinary the first three years before six month apprenticeship at a pharmacy. The last 1 ½ year of study is specialization with advanced courses at master's level and writing a thesis.	
“ <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> ”	For the most part, the course consists of a six month apprenticeship at a pharmacy where the most important focus is to learn how to deal with medicine related situations in active contact with the pharmacy's customers and other health personnel. This is accomplished by allowing the student to participate in all of the pharmacy's tasks, for example filling prescriptions, advising customers in how to use their medicine, the logistics, and the economic/ administrative/ leadership aspects of the job.	The students are at traineeship in either a hospital pharmacy or a community pharmacy for 19 weeks, and have lectures before and after this period, all together six months The university supervises and examines the traineeship.
“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 education given in the five-year integrated Master's degree is research based. It is primarily theoretical, but practical training is introduced to support selected learning outcomes and specific pharmaceutical skills. The academic level of the Master in Pharmacy degree, compares very well with non-professional degrees.	
Directive annex	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 subject areas are encompassed in our courses  Norway has focused more on clinical pharmacy, communications and biotechnological therapy at the expense of biology, physics and organic chemistry.	

**The Norwegian pharmacy education and training scheme  
(based on the model of Oslo).**





Education and Culture DG

Lifelong Learning Programme

**PHARMINE**  
Pharmacy Education  
in Europe

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Nancy



**UNIVERSITY OF TARTU**



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

**Website:** [www.pharmine.org](http://www.pharmine.org)

Pharmacy education & training in

# POLAND

2010

This document was validated by Prof. Dr. Jan Krzek, Dean of the Faculty of Pharmacy, Jagiellonian University Medical College.



Signature and seal  
*Prof. dr hab. Jan Krzek*

Dean of the Faculty  
Professor Jan Krzek

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

The “PHARMINE survey of European higher education institutions delivering pharmacy education & training – POLAND” was produced by:

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Website	<a href="http://www.farmacja.cm-uj.krakow.pl">www.farmacja.cm-uj.krakow.pl</a>	

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## Summary.

There are 10 higher education institutions (HEIs) offering pharmacy education and training in Poland. The study course is a uniform 5 years long + 6 months and ends with an MSc in Pharmacy. First two years of university study are devoted mainly to basic and applied sciences including laboratories, practical exercises and basic medical sciences (physiology, biochemistry). Beginning from year 3 curricula contains generic subjects, patient counselling, pharmaceutical technology and advanced medical sciences (pathophysiology). After years 3 and 4 one month long compulsory traineeships in open and hospital pharmacy respectively are included.

Pharmacies don't have a monopoly on the dispensation of medicines in Poland as drugs are also delivered via medical shops and some of them are available in common sale (i.e. supermarkets). Internet trade is also allowed. According to the law regulations pharmacists cannot provide any diagnostic services. Not only pharmacists are pharmacy owners as it is commonly allowed to own a community pharmacy. Only registered pharmacists follow a 5.5-years (M.Sc. Pharm.) degree course with a 6 months' traineeship can dispense all drugs and counsel patients. To be a pharmacy manager it is obligatory to possess minimum 5 years of experience or minimum 3 years of experience plus specialization in community pharmacy. Pharmacy technicians after vocational schools (2 years long course) can dispense some drugs under pharmacist supervision but cannot counsel patients.

Advanced level subject specific courses and six months' research period and reporting (Master's thesis) typically end the university studies.

## Introduction.

### Statistics for Poland.

Total population: 38082 (2007)

Gross national income per capita (PPP international \$): 15330 (2007)

Life expectancy at birth m/f (years): 71/80 (2007)

Healthy life expectancy at birth m/f (years, 2003): 64/70 (2007)

Probability of dying under five (per 1 000 live births): 7 (2007)

Probability of dying between 15 and 60 years m/f (per 1 000 population): 209/79

Total expenditure on health per capita (Intl \$, 2006): 919

Total expenditure on health as % of GDP (2006): 6.2

### Highlights on health in Poland.

In 2005 Poland spent 6.2% of gross domestic product (GDP) on health care, of which approximately 70% was public expenditure. Private expenditure on pharmaceuticals has grown from 23% in 1994 to 35.1% in 2006. In comparison with other European countries, Poland spends a disproportionately high percentage of total health expenditure (THE) on pharmaceuticals. Health care in Poland can be broadly divided into two sectors: public health insurance (dominates) and private sector insurance.

The general phenomenon observed in Western European countries connected with population ageing is also observed in Poland. In 2007, about one third (31.3%) of Poland's population were people in the 0-24 age group; 55.3% were people aged 25-64, and the +65 age group accounted for 13.4% of the country's total population<sup>9</sup>. It should be added, however, that since the 1990s, demographers have observed a rapid decrease in the number of children and youth. According to the preliminary estimates for 2008 (Table 2), the category of people in the pre-working age (0-17 years of age) represented approximately 19% of the total population, which was about 10pp less than in 1990. Over this period, a decrease in the pre-working age group was accompanied by an increase in the working age category (people aged 18-59/64) and in the senior (retirement) age group (60+/65+), by 6.3pp respectively, up to a level of ca 64.5%, and by 3.5pp, up to a level of 16.3%<sup>10</sup>. In 2007, the average life expectancy, which has been on the increase ever since the early 1990s, was 79.7 years for women and 71 years for men.

In 2006 in Poland the total mortality rate increased by 0.8% compared with 2000. In the years 2001-2004 a drop in the mortality rate (compared with 2000) was recorded respectively by 1.3% in 2001, by 2.3% in 2002, by 0.6% in 2003, and by 1.0% in 2004, and then it again increased by 0.3% in 2005. This resulted from age specific changes in the population structure, as well as age specific death rates. Assuming that the structure of 2000 has been constant, the total death rate in 2006 is lower by 11.4% (compared with 2000), due to the decreasing age specific death rates (respectively: by 3.1% in 2001, by 5.7% in 2002, by 5.6% in 2003, by 8.2% in 2004, and by 9.2% in 2005).

A favorable dropping tendency in infant mortality in Poland was recorded in the entire post-war period, with the highest intensity in the 1990s. In 2006 the infant death rate was four times lower than in 1980.

In Poland the risk of death due to tobacco smoking is very high. Still every fourth Pole is a daily smoker (33.9% of men and 19.3% of women), despite the fact that in the period between the two surveys (1996, 2004) the share of men smoking tobacco declined significantly (from 47.3% to 38.0%). However, the drop among women was slight (from 24.4% to 23.1%).

More and more adults drink alcohol. Total abstinence in the recent 12 months was declared by only 25% of the surveyed (in 1996 – nearly 30%). The percentage of women drinking alcohol also increased (over 67% in 2004 and less than 60% in 1996), while the percentage of men drinking alcohol was over 83%, which is slightly higher than in 1996 (81%).

(From the WHO “Highlights on health in Poland”, 2005. <http://www.euro.who.int/Document/E88745.pdf>)

Official statistics of the ministry of Health – available in Polish only

(<http://www.mz.gov.pl/wwwmz/index?mr=b32651&ms=265&ml=pl&mi=266&mx=0&ma=2440> and [http://www.mz.gov.pl/wwwfiles/ma\\_struktura/docs/zielona\\_ksiega\\_06012009.pdf](http://www.mz.gov.pl/wwwfiles/ma_struktura/docs/zielona_ksiega_06012009.pdf))

Official statistics of the Central Statistical Office – available in Polish and English

([http://www.stat.gov.pl/bdren\\_n/app/strona.indeks](http://www.stat.gov.pl/bdren_n/app/strona.indeks))

[http://ppri.oebig.at/Downloads/Results/Poland\\_PPRI\\_2007.pdf](http://ppri.oebig.at/Downloads/Results/Poland_PPRI_2007.pdf)

[http://www.stat.gov.pl/cps/rde/xbcr/gus/PUBL\\_L\\_prognoza\\_ludnosci\\_na\\_lata2008\\_2035.pdf](http://www.stat.gov.pl/cps/rde/xbcr/gus/PUBL_L_prognoza_ludnosci_na_lata2008_2035.pdf)

[http://libserver.cedefop.europa.eu/vetelib/eu/pub/cedefop/vetreport/2009\\_CR\\_PL.pdf](http://libserver.cedefop.europa.eu/vetelib/eu/pub/cedefop/vetreport/2009_CR_PL.pdf))

## 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	21 534	Based on the 2008 data. ( <a href="http://www.stat.gov.pl">www.stat.gov.pl</a> )
Number of community pharmacies	10 628	Based on the 2008 data. ( <a href="http://www.stat.gov.pl">www.stat.gov.pl</a> ) In current law situation there is no differentiation between main and subsidiary pharmacies. There are ca. 2 pharmacists per pharmacy in average. The average number of inhabitants per pharmacy is 3590.
Competences and roles of community pharmacists		<ol style="list-style-type: none"> <li>1. Supplying prescription medicines</li> <li>2. Managing medicines for some ailments</li> <li>3. Giving advice on medicines</li> <li>4. Galenic drugs manufacturing</li> <li>5. Patients counselling</li> <li>6. Pharmacy management</li> <li>7. Drugs rotation management</li> <li>8. Pharmaceutical care delivering (not obligatory though)</li> </ol> (Competencies are defined in the pharmaceutical law - <a href="http://isap.sejm.gov.pl/search.jsp">http://isap.sejm.gov.pl/search.jsp</a> *)
Is ownership of a community pharmacy limited to pharmacists?	No	Every EU citizen can own community pharmacy after satisfying law requirements regarding professional staff and locum. The ownership is NOT limited to pharmacists but the pharmacy manager has to be a qualified pharmacist (either 5 years of professional experience or minimum 3 years of professional experience plus specialization). As defined in the pharmaceutical law ( <a href="http://isap.sejm.gov.pl/search.jsp">http://isap.sejm.gov.pl/search.jsp</a> *)
Rules governing the distribution of pharmacies?	No	
Healthcare products available to the general public by other channels	Yes	Governed by the Ministry of Health list of medicinal products available for sale in specialized drugstores (medical shops, pharmacy points) and for the common sale (supermarkets etc.). The internet based retail and mail-orders are also allowed for OTC and Rx drugs. ( <a href="http://isap.sejm.gov.pl/search.jsp">http://isap.sejm.gov.pl/search.jsp</a> *)
Are persons other than pharmacists involved in community practice?	Yes	Pharmacy technicians
Their titles and number(s)	20 052	Based on the 2007 data – official statistics of the Central Statistical Office. ( <a href="http://www.stat.gov.pl">www.stat.gov.pl</a> ). Presented data shows number of technicians working in community pharmacies. Total number of pharmacy technicians is estimated to ca. 80 000.  No official pharmacy technicians registry exist.
Organisation providing and validating the E&T		Vocational schools accessible for people after the secondary school education. Vocational schools are operating under the Ministry of Education control and have high level of independence regarding the curriculum construction but have common base.  Examples: <a href="http://www.omega.szkola.pl/">http://www.omega.szkola.pl/</a>  Such schools have common curriculum granted by Ministry of Education.
Duration of studies	2 years	

Subject areas		Basic anatomy and physiology, pharmacodynamics and basic drug chemistry, pharmaceutical technology, pharmacognosy, basic pharmaceutical law and economy, basic psychology, public health, drug analysis and obligatory 2 years long practice after passing the final exams.
Competences and roles		Role – dispensing Rx and OTC-medicines, galenic drug preparation. All activities can be done only under the pharmacist supervision. It is denied to dispense and prepare narcotics (N, I-P and II-P drugs) and intensely acting drugs (list 'A') –as defined in Polish pharmaceutical law ( <i>Ustawa Prawo farmaceutyczne</i> ).
<b>Hospital pharmacy</b>		
Does such a function exist?	Yes	Polish representative in EAHP ( <a href="http://www.eahp.eu">www.eahp.eu</a> ) is General Pharmaceutical Chamber ( <a href="http://www.nia.org.pl">www.nia.org.pl</a> ).
Number of hospital pharmacists	1100	
Number of hospital pharmacies	615+93	There are 615 hospital pharmacies (in some cases divided into one central pharmacy and dependent branches in small hospitals) and 93 small pharmacy units in health resorts, prisons and other institutions where drugs are dispensed but where hospital pharmacies were not established.
Competences and roles of hospital pharmacists		Drug dispensing; galenic formulations preparation; drug related information preparation and dissemination; parenteral and non-parenteral nutrition elements preparation; unit doses preparation (including anti-cancer drugs); infusion fluids preparation; hospital supply chains organization (drugs and medical devices; it includes procedures preparation); haemodialysis and peritoneal dialysis solutions preparation; ADRs monitoring; taking part in clinical trials (filing system preparation); pharmacotherapy rationalization.
<b>Pharmaceutical and related industries</b>		
Number of companies with production, R&D and distribution	248	Based on the 2007 data. ( <a href="http://www.stat.gov.pl">www.stat.gov.pl</a> ). It is a number of Manufacturing or Importation Authorizations (MIA) issued by Main Pharmaceutical Inspector. MPI does not differentiate companies with and without R&D.
Number of companies with production only	248	Same number as above. NOT production ONLY – total number of companies WITH production.
Number of companies with distribution only	609	Number of Wholesale Authorizations issued by Main Pharmaceutical Inspector.
<b>Industrial pharmacy</b>		
Number of pharmacists working in industry		No estimation possible.
Competences of industrial pharmacists		R&D, management, drug registration, pharmacovigilance
<b>Other sectors</b>		
Pharmacists working in other sectors		No estimation possible.
Sectors in which pharmacists are employed		Local and National Pharmaceutical Boards, scientific institutions, Local and Main Pharmaceutical Inspectorate, Sanitary Inspection, central administration (i.e. Ministry of Health)
Competences of pharmacists employed in other sectors		Education, research, participation in law regulations preparation, sanitary control, pharmacies quality control.
<b>Roles of professional associations</b>		
Registration of pharmacists	Yes	Only certified (registered) pharmacist can work in community and hospital pharmacy. Registration is handled by the local pharmaceutical chambers, the latter also handle evaluation of the candidates for pharmacy manager.

Creation of community pharmacies and control of territorial distribution	No	In Polish law community pharmacy certificate of approval is issued by the Pharmaceutical Inspectorate (administrative decision). Pharmaceutical Boards have consultative opinion only which is not obliging for the inspectorate.
Ethical and other aspects of professional conduct	Yes	Code of the vocational ethics and deontology.
Validation of HEI courses	Yes	Representatives of the professional organizations have an advisory voice during the development of HEI curricula.

References	
References to texts and articles of national law	<p>Code of the vocational ethics and deontology.  Act of parliament about pharmaceutical boards. (In polish - Ustawa o izbach aptekarskich.)  Act of parliament about pharmaceutical law. (In polish – Ustawa Prawo farmaceutyczne)</p> <p><a href="http://isap.sejm.gov.pl/search.jsp">http://isap.sejm.gov.pl/search.jsp</a>  Ministry of Health – <a href="http://www.mz.gov.pl">http://www.mz.gov.pl</a>  National Pharmaceutical Board – <a href="http://www.nia.org.pl">http://www.nia.org.pl</a>  Main Pharmaceutical Inspectorate - <a href="http://www.gif.gov.pl">http://www.gif.gov.pl</a>  Office for Registration of Medicinal Products, Medical Devices and Biocidal Products - <a href="http://www.urpl.gov.pl">http://www.urpl.gov.pl</a></p> <p>English versions are not available. There are no direct links to the pdf files as the website actively manages the file access.</p>

## Chapter 2. Pharmacy HEIs, students and courses

	Y/N, number or %	If you wish to expand your answer, please add your comments below.
<b>Total number of HEIs in your country</b>	10	<ol style="list-style-type: none"> <li>1. Medical University of Białystok / Uniwersytet Medyczny w Białymstoku (<a href="http://www1.umb.edu.pl/">http://www1.umb.edu.pl/</a>)</li> <li>2. Nicolaus Copernicus University in Torun Medical College / Uniwersytet Mikołaja Kopernika Collegium Medicum (<a href="http://www.cm.umk.pl/">http://www.cm.umk.pl/</a>)</li> <li>3. Medical University in GDanks / Gdański Uniwersytet Medyczny (<a href="http://www.gumed.edu.pl/">http://www.gumed.edu.pl/</a>)</li> <li>4. Jagiellonian University Medical College / Uniwersytet Jagielloński Collegium Medicum (<a href="http://www.cm-uj.krakow.pl">www.cm-uj.krakow.pl</a>)</li> <li>5. Medical University of Lublin / Uniwersytet Medyczny w Lublinie (<a href="http://www.umlub.pl/">http://www.umlub.pl/</a>)</li> <li>6. Medical University of Lodz / Uniwersytet Medyczny w Łodzi (<a href="http://www.umed.pl">http://www.umed.pl</a>)</li> <li>7. Poznan University of Medical Sciences / Uniwersytet Medyczny im. Karola Marcinkowskiego w Poznaniu (<a href="http://www.usoms.poznan.pl/">http://www.usoms.poznan.pl/</a>)</li> <li>8. Medical University of Silesia / Śląski Uniwersytet Medyczny w Katowicach (<a href="http://www.slam.katowice.pl">http://www.slam.katowice.pl</a>)</li> <li>9. Medical University of Warsaw / Warszawski Uniwersytet Medyczny (<a href="http://www.wum.edu.pl/">http://www.wum.edu.pl/</a>)</li> <li>10. Wrocław Medical University / Akademia Medyczna im. Piastów Śląskich we Wrocławiu (<a href="http://www.am.wroc.pl/">http://www.am.wroc.pl/</a>)</li> </ol>
Public	10	
<b>Organisation of HEIs</b>		
Independent faculty	Yes	All listed HEIs are independent regarding the education and research but are members of the Medical Universities (independent from other Faculties though).
Do HEIs offer B + M degrees?	No	No bachelor level at the pharmaceutical faculties. Master level only (uniform system in the whole country).
<b>Poland</b>		
<b>Teaching staff</b>		
Number of teaching staff (nationals)	Number: 1446	
		ALL
		Full professors
		Associated professors
		Assistant professors
		Research scientists
		Academic teachers
		Białystok
		Toruń
		Gdańsk
Kraków		
Lublin		
Łódź		
Poznań		
Katowice		
Warszawa		
Wrocław		
Number of international teaching staff (from EU MSs)	Number: 1	Poznań
Number of international teaching staff (non EU)	Number: 2	Warszawa (1), Wrocław (1)

Number professionals (pharmacists and others) from outside the HEIs, involved in E&T	Number: 228			
<b>Students</b>				
Number of places at entry following secondary school	Number: -	Numbers of places at each HEI depends on the funds governed centrally and allocated each year by the Ministry of Health.		
Number of applicants for entry	Number: ~1500		Białystok	100
			Toruń	120
			Gdańsk	115
			Kraków	170
			Lublin	NA
			Łódź	238
			Poznań	156
			Katowice	230
			Warszawa	160
			Wrocław	203
Number of graduates that become registered/professional pharmacists.	Number: ~1200		Białystok	84
			Toruń	NA
			Gdańsk	110
			Kraków	170
			Lublin	NA
			Łódź	114
			Poznań	NA
			Katowice	150
			Warszawa	NA
			Wrocław	84
Number of international students (from EU member states)	Number:		Białystok	0
			Toruń	1
			Gdańsk	1
			Kraków	1
			Lublin	NA
			Łódź	0
			Poznań	2
			Katowice	0
			Warszawa	1
			Wrocław	0
Number of international students (non EU)	Number:		Białystok	1
			Toruń	1
			Gdańsk	0
			Kraków	9
			Lublin	NA
			Łódź	1
			Poznań	26
			Katowice	0
			Warszawa	7
			Wrocław	6

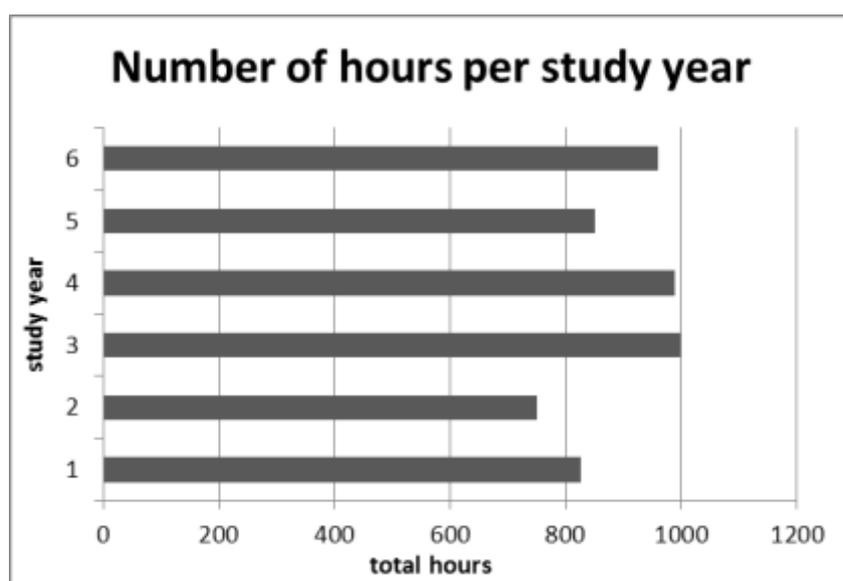
<b>Entry requirements (beginning of S1 of B1, following secondary school)</b>		
Specific pharmacy-related, national entrance examination	No	Final secondary school exam results (which are conducted at the same day in the whole country). Exams are divided into two levels – basic and advanced. Advanced level of the exam in Biology and Chemistry is required.
Is there a national <i>numerus clausus</i> ?	Yes	Numbers of places at each HEI depends on the funds governed centrally and allocated each year by the Ministry of Health.
<b>Fees per year</b>		
For home students	Amount (€):	Fees are set independently by the Senates of Medical Universities.
For EU MS students	Amount (€):	
For non EU students	Amount (€):	
<b>Length of course</b>	<b>5.5 years</b>	
<b>Specialization</b>		
Do HEIs provide specialized courses?	Yes	<p>All HEIs offer specialised <u>postgraduate</u> courses.</p> <p>Specialization courses are offered for pharmacists.</p> <p>At the national level, according to the Polish law (Act of the Ministry of Health - Rozporządzenie Ministra Zdrowia z dnia 15 maja 2003r. w sprawie specjalizacji oraz uzyskiwania tytułu specjalisty przez farmaceutów /Dz. U. Nr 101, poz.941/) there are 12 various paths:</p> <ol style="list-style-type: none"> <li>1. Pharmaceutical analysis</li> <li>2. Food and nutrition</li> <li>3. Community pharmacy</li> <li>4. Clinical pharmacy</li> <li>5. Industrial pharmacy</li> <li>6. Hospital pharmacy</li> <li>7. Pharmacology</li> <li>8. Natural drugs</li> <li>9. Microbiology</li> <li>10. Pharmaceutical biotechnology</li> <li>11. Public health</li> <li>12. Environmental health</li> </ol> <p>To run each of them, an independent accreditation is granted by the National Accreditation Commission for Pharmacists Post-Graduate Specialization is compulsory.</p>
<b>Past and present changes in E&amp;T</b>		
Major changes since 1999?	Yes	Bologna guidelines accommodation - different level for different HEIs.
Major changes envisaged before 2019?	Yes	
<b>Krakow</b>		
<b>Teaching staff</b>		
Number of teaching staff (nationals)	129	The classification according to the academic position is as follows: Full professors – 15 Associated professors (habilitation – DSc level) – 9 Assistant professors – 52 Research scientist - 34 Academic teachers - 19

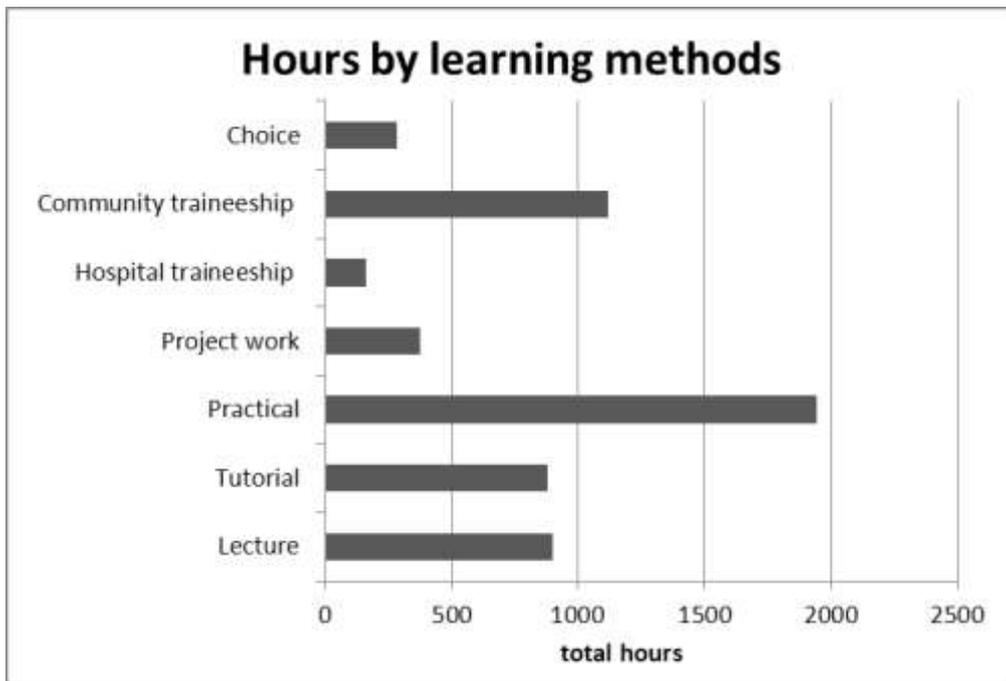
Number professionals (pharmacists and others) from outside the HEIs, involved in E&T	~10	Pharmacists and medical doctors - they are mainly involved in teaching vocational subjects (pharmaceutical care, pharmacotherapy). Such courses are offered for students from higher study years. Traineeships are managed by university teachers but direct supervision is given by professional (pharmacists) working in community/hospital pharmacies. It also includes Police specialists (i.e. drug addiction specialists), foreign languages native speakers.
<b>Students</b>		
Number of places at entry following secondary school	110+60	110 – number of state-commissioned places (based on the 2009 data). 60 – number of paid (self-financed) places.
Number of applicants for entry	827	It varies from year to year. During the last 4 years the average number of applicants was 8 per 1 place (6-10).
Number of graduates that become registered/professional pharmacists.	~170	As the part of the curriculum there is the professional practice (6 <sup>th</sup> study year) after the study all graduates automatically become registered pharmacists. The pharmacy students' drop-out is negligible (high prestige, good future perspectives, high level of competition during qualification).
Number of international students (from EU member states)	1	Czech Republic
Number of international students (non EU)	9	Kazakhstan, Ukraine
<b>Entry requirements (beginning of S1 of B1, following secondary school)</b>		
Your HEI has a specific pharmacy-related entrance examination	No	The final secondary school exam results (which are conducted at the same day in the whole country) counts. Exams are divided into two levels – basic and advanced. Advanced level of the exam in Biology and Chemistry is required.
<b>Fees per year??</b>		
For home students	0	Higher education in Poland in general is free - however according to the Higher Education Act there is a pool of paid places for candidates who are below the entry level and wish to pay for the study. At the Faculty of Pharmacy Jagiellonian University the fee is equal to ~1500 € per semester.
<b>Length of course</b>	<b>5.5 years (11 semesters)</b>	
<b>Specialization</b>		
Does your HEI provide specialized courses?	Yes <ul style="list-style-type: none"> <li>• undergraduate studies – in form of elective courses</li> <li>• specialized postgraduate studies for pharmacists</li> </ul>	<p>Jagiellonian University Medical College Faculty of Pharmacy used to have specialization for undergraduate students (analytical pharmacy, clinical pharmacy, community pharmacy from either 1971 {analytical pharmacy} or 1978 {clinical pharmacy} up to 1998). It was decided to unify all of them and provide one course based on the one curriculum.</p> <p>Three educational paths included this year into the curriculum bring in specialized courses in industrial, clinical, community pharmacy parallel to the elective courses. They are obligatory for 4th and 5th year students (75 hours altogether). Students choose from the list of facultative topics and consequently follow the chosen path.</p> <p>Additional specialized training courses are delivered for pharmacists. Faculty of Pharmacy Jagiellonian University offers courses during specialization for post-graduate students (pharmacists) in Community Pharmacy (accreditation granted by the National</p>

		Accreditation Commission for Pharmacists Post-Graduate Specialization).
In which years?	4 <sup>th</sup> and 5 <sup>th</sup>  Postgraduate studies	4 <sup>th</sup> study year – 30 hours 5 <sup>th</sup> study year – 45 hours
In which specialisation (industry, hospital...)?		Industrial pharmacy Clinical pharmacy Community pharmacy
What are the student numbers in each specialization?	4 <sup>th</sup> year	Industrial pharmacy - 21 Clinical pharmacy - 50 Community pharmacy - 75
	5 <sup>th</sup> year	Industrial pharmacy - 16 Clinical pharmacy - 56 Community pharmacy - 69
<b>Past and present changes in E&amp;T</b>		
Have there been any major changes since 1999 at your HEI?	Yes	Bologna guidelines accommodation: readable and comparable degrees in EU, ECTS credit system, quality assurance, free students' mobility (no major obstacles). Pharmaceutical care and practical pharmacy implementation to the curriculum as separate courses. Focus on personalized pharmacotherapy.  Educational paths were included into the curriculum. 4 <sup>th</sup> and 5 <sup>th</sup> study years students choose from the list of facultative topics and consequently follow the chosen path (industrial, clinical, community).
Are any major changes envisaged before 2019 at your HEI?	Yes	Increase the impact of the practical pharmacy and pharmaceutical care philosophy. Change the focus to the patient related and individualized pharmacotherapy. Pharmacists role are evolving from that of compounders and dispensers of medicines to that of experts on medicines within multidisciplinary health care teams.
Is your HEI typical of all HEIs in Poland?	Yes	

### Chapter 3. Teaching and learning methods

Student hours						
Method	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>HEIs courses</b>						
Lecture	130	232	226	189	121	
Tutorial	104	145	156	245	229	
Practical	591	373	458	396	125	
Project work					375	
<b>Subtotal</b>						
<b>Traineeship (obligatory for diploma)</b>						
Hospital				160		
Community			160			960
<b>Electives</b>						
Choice		+ (60)	+ (75)	+ (75)	+ (75)	
Optional			Scientific research	Scientific research	Scientific research	Scientific research
			Under the umbrella of the student scientific organizations and research scientist supervision.			
<b>Total</b>	<b>825</b>	<b>750</b>	<b>840</b>	<b>830</b>	<b>850</b>	<b>960</b>

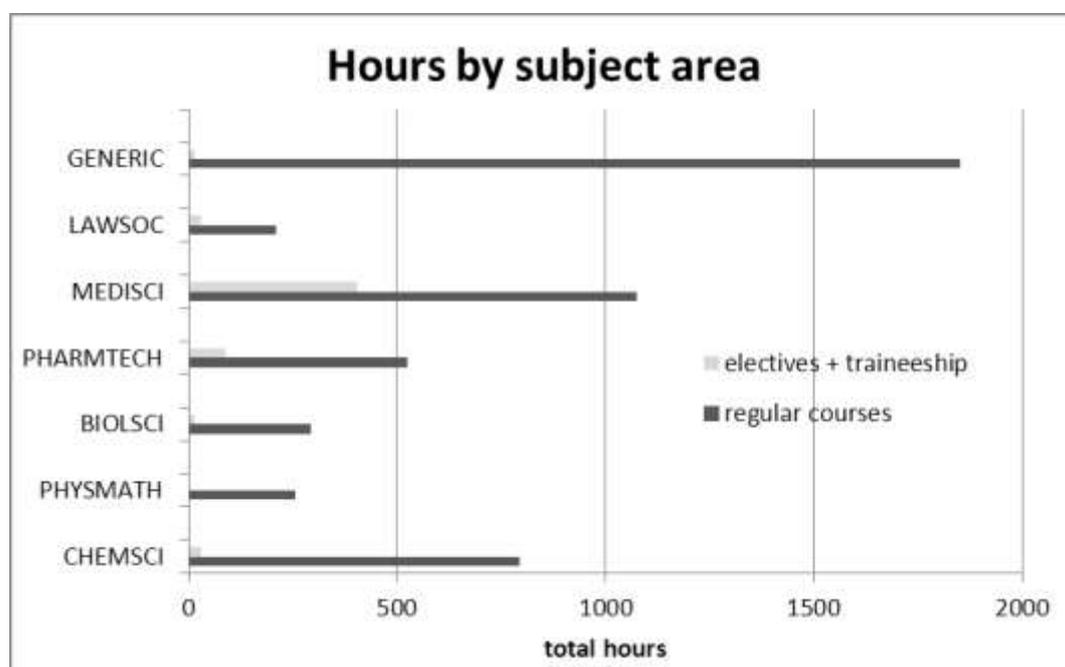




## Chapter 4. Subject areas.

Student hours							
Subject area	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
CHEMSCI	360	180	255 (+ 15*)	(+ 15*)	-	-	795 (+ 30*)
PHYSMATH	135	105	-	-	15	-	255
BIOLSCI	160	135 (+ 15*)	-	-	-	-	295 (+ 15*)
PHARMTECH	-	-	165	245 (+ 45*)	115 (+ 15*)	-	525 (+ 90*)
MEDISCI	-	150 (+ 60*)	330 (+ 75*)	430 (+ 120*)	165 (+ 150*)	-	1075 (+ 405*)
LAWSOC	-	45 (+ 30*)	15	60	90	-	210 (+ 30*)
GENERIC	120	75 (+ 15*)	160**	160**	375***	960****	1850 (+ 15*)

\* - summarized hours of electives; \*\* - summer traineeship; \*\*\* - master thesis project; \*\*\*\* - diploma traineeship



## 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	General ECTS systems. There is no international accreditation system. Pharmaceutical degrees earned in EU are recognized based on the Polish pharmaceutical law. Pharmaceutical faculties issue diploma supplements in Polish and other official EU languages (e.g. English, French, Spanish).																
2. Two main cycles (B and M) with entry and exit at B level	No	One cycle –11 semesters MSc course																
3. ECTS system of credits / links to LLL	Yes	2003. ECTS based undergraduate curricula are connected with pharmaceutical long-life learning but there is no ECTS system for pharmaceutical LLL.																
4. Obstacles to mobility	Partially	Language skills and financial issues can become obstacles.																
5. European QA	No	Although QA is carried out at a national level by two independent bodies – National Accreditation Committee (PKA) (last, positive recommendation dates back to 2006 and the next one is scheduled for 2011) and the Accreditation Committee for the Medical Universities (KAAUM - <a href="http://www.kaaum.pl/">http://www.kaaum.pl/</a> ), (last positive recommendation 2009).																
6. European dimension																		
ERASMUS staff exchange to your HEI from elsewhere	~10	Number of staff ~10. Duration of stay varies.																
ERASMUS staff exchange from your HEI to other HEIs	~40	Number of staff ~40 (in average 3 months long stay - ~120 person-months).																
ERASMUS student exchange to your HEI from elsewhere	Number of student months: ~30	Number of staff ~40 (in average 6 months long stay - ~240 person-months).																
ERASMUS student exchange from your HEI to other HEIs	Number of student months: 680	Total number of student months from four years (2004-2008). <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">2004-2005</td> <td style="width: 20%;">26 students</td> <td style="width: 20%;">5 months</td> <td style="width: 45%;">130 student months</td> </tr> <tr> <td>2005-2006</td> <td>31 students</td> <td>5 months</td> <td>155 student months</td> </tr> <tr> <td>2007-2008</td> <td>45 students</td> <td>5 months</td> <td>225 student months</td> </tr> <tr> <td>2008-2009</td> <td>34 students</td> <td>5 months</td> <td>170 student months</td> </tr> </table> France  1. Université d'Auvergne - Clermont-Ferrand 1 2. Université Montpellier I	2004-2005	26 students	5 months	130 student months	2005-2006	31 students	5 months	155 student months	2007-2008	45 students	5 months	225 student months	2008-2009	34 students	5 months	170 student months
2004-2005	26 students	5 months	130 student months															
2005-2006	31 students	5 months	155 student months															
2007-2008	45 students	5 months	225 student months															
2008-2009	34 students	5 months	170 student months															

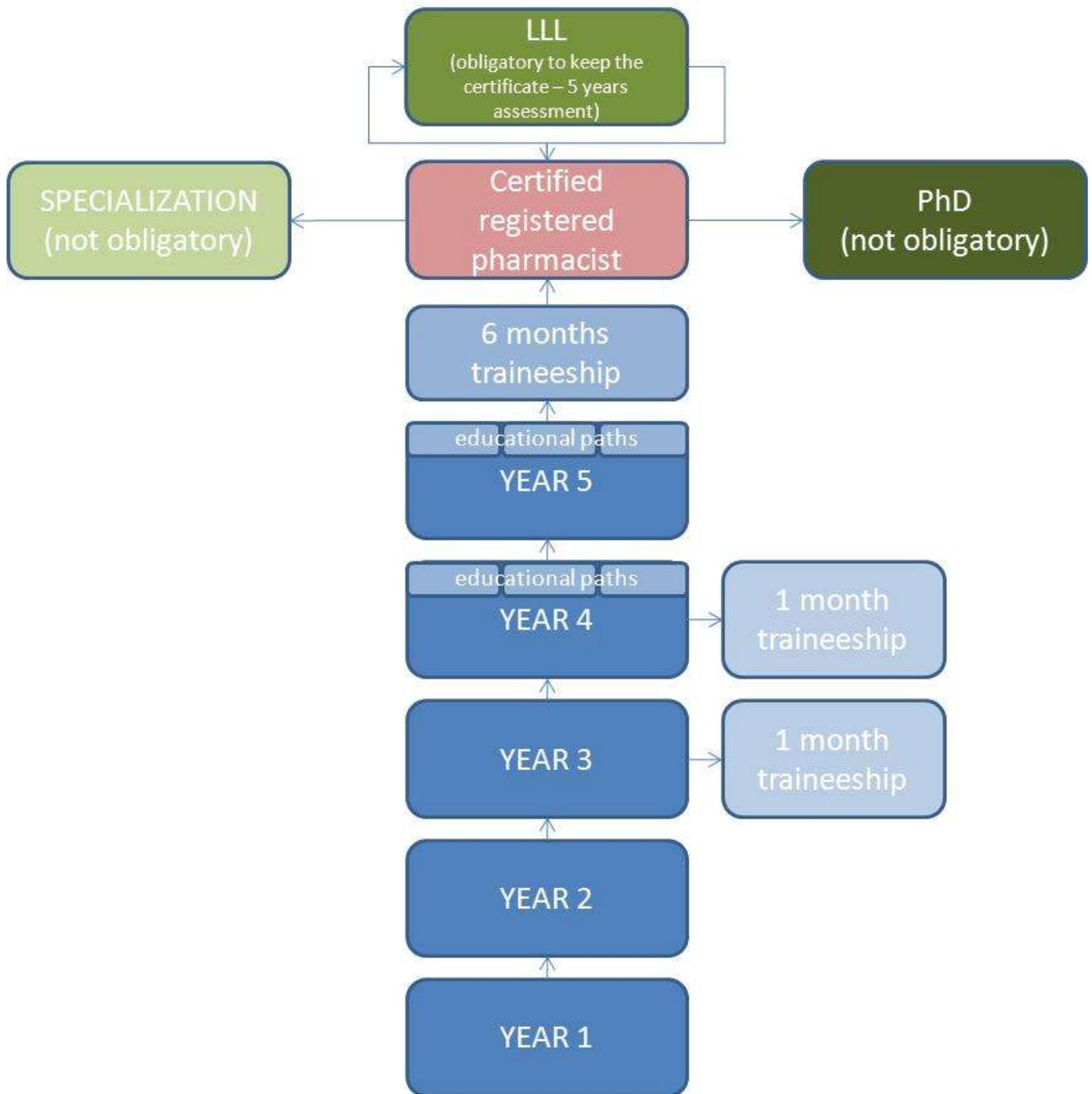
	<p>3. Université Claude Bernard - Lyon 1</p> <p>Spain</p> <p>4. Universidad Complutense de Madrid 5. Universitat de Barcelona</p> <p>Holland</p> <p>6. Universiteit Utrecht 7. Rijksuniversiteit Groningen</p> <p>Iceland</p> <p>8. Háskóla Íslands</p> <p>Malta</p> <p>9. L-Università ta' Malta</p> <p>Germany</p> <p>10. Rheinische Friedrich-Wilhelms- Universität Bonn 11. Universität Regensburg 12. Johann Wolfgang Goethe-Universität Frankfurt am Main 13. Bayerische Julius-Maximilians- Universität Würzburg 14. Friedrich-Alexander-Universität, Erlangen-Nürnberg</p> <p>Turkey</p> <p>15. Mersin Üniversitesi 16. İnönü Üniversitesi</p> <p>Great Britain</p> <p>17. University of Strathclyde, Glasgow</p> <p>Italy</p> <p>18. Università di Perugia 19. Università di Catania 20. Università della Calabria 21. Università degli Studi di Cagliari 22. Università degli Studi di Ferrara</p>
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## Chapter 6. Impact of EC directive 2005/36/EC

The directive states		Comments
“Evidence of formal qualifications as a pharmacist shall attest to training of at least <u>five years' duration</u> ,...”		Already implemented.
“ <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 long study are not planned to be implemented in Poland but they are recognized as equivalent to the five years long pharmaceutical education.
“ <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> ”		Already implemented.  Traineeship is carried out under the practicing pharmacist and university scientific staff member supervision.
“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> ”		Already implemented.  Practical training in the university laboratories has been expanded. New opportunities for external practices (industry, hospital pharmacy) have been added.
Directive annex	How does / will this directive annex affect pharmacy E&T?	If you wish to expand your answer, please add your comments below. Do you consider the directive annex valid? If not how would you change it?
<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.	Already implemented.	Directive should be expanded with genetics, proteomics, mathematical modelling, proteogenomics, and metabolomics.

References	
References to texts and articles of national law	27 <sup>th</sup> of July 2005 Act on Higher Education (Journal of Laws 2005 No. 164, item. 1365, of 2006 No. 46, item. 328 and later changes). In polish - Ustawa z dnia 27 lipca 2005 r. Prawo o szkolnictwie wyższym (Dz.U. z 2005 r. Nr 164, poz. 1365, z 2006 r. Nr 46, poz. 328 i zm. późn.).  12 <sup>th</sup> of July 2007 on the training standards for particular fields and levels of education, as well as the modes of production and the conditions to be met by the University to carry out interdisciplinary studies and macro-specializations, Annex No 28 (Journal of Laws 2007

	<p>No 164 item. 1166, Annex 28). In polish - Rozporządzenie z dnia 12 lipca 2007 r. w sprawie standardów kształcenia dla poszczególnych kierunków oraz poziomów kształcenia, a także trybów tworzenia i warunków, jakie musi spełniać uczelnia, by prowadzić studia międzykierunkowe oraz makrokierunki, załącznik nr 28 (Dz.U. 2007 nr 164 poz. 1166, zał. 28).</p> <p>Rules of studies of first, second and Master uniform degree adopted by the Senate of the Jagiellonian University resolutions of 31 May 2006, of 25 April 2007 and 7 May 2008 (in force since 1 October 2008). In polish - Regulamin studiów I stopnia, II stopnia oraz jednolitych studiów magisterskich uchwalony przez Senat Uniwersytetu Jagiellońskiego uchwałami z dnia 31 maja 2006 r., z dnia 25 kwietnia 2007 r. oraz z dnia 7 maja 2008 r. (w brzmieniu obowiązującym od 1 października 2008 r.).</p>
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**Scheme for pharmacy education in Poland.**



Education and Culture DG

Lifelong Learning Programme

**PHARMINE**  
*Pharmacy Education  
in Europe*

**PCN**

*Pharmacolor  
Consultants  
Nancy*



**UNIVERSITY OF TARTU**

**Nancy-Université**

*Université  
Henri Poincaré*



Vrije  
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**PHARMINE**

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

**Website: [www.pharmine.org](http://www.pharmine.org)**

Pharmacy education & training in

# PORTUGAL

2010

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

The “PHARMINE survey of European higher education institutions delivering pharmacy education & training – PORTUGAL” was produced by:

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## Summary.

Pharmacy education and training in Portugal address several main professional areas: community, hospital, clinical biology, industry and regulatory affairs. Nearly 65% of the pharmacy graduates work at the community level, followed by clinical biology (11%) and hospital pharmacy (7.7%).

The integrated degree of Master in Pharmacy (4.5 years + 6 months traineeship) allows graduates to work in all sectors. Public and some private pharmacy HEIs provide additional education in the form of a degree of Master in Science (Bologna 2<sup>nd</sup> cycle), which in the case of clinical biology allows post-graduate students to register with the Order of Pharmacists (Pharmaceutical Society) as specialists. It is up to the Order to confer the title of specialist, after a minimum number of years of practice and a specialist examination for hospital and industry pharmacists.

In Portugal the Directive 2005/36/EC is in place, thus pharmacists recognised by the pharmaceutical authority of another member state are recognized as pharmacists by the Portuguese Order.

## Introduction.

### Statistics for Portugal.

Total population: 10,579,000

Gross national income per capita (PPP international \$): 19,960

Life expectancy at birth m/f (years): 74/81

Healthy life expectancy at birth m/f (years, 2003): 67/72

Probability of dying under five (per 1 000 live births): 4

Probability of dying between 15 and 60 years m/f (per 1 000 population): 133/53

Total expenditure on health per capita (Intl \$, 2006): 2,080

Total expenditure on health as % of GDP (2006): 10.0

Figures are for 2006 unless indicated. Source: [World Health Statistics 2008](#)

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

### Highlights on health in Portugal.

Despite a gain of 4.5 years over the past 20 years, Portuguese people have one of the lowest levels of life expectancy in Europe. Girls born in 2002 can expect to live almost 81 years and boys slightly less than 74 years. Portuguese babies now reach their first birthday as often as in Europe, with a major improvement especially in survival during the first month of life. However, the majority of people in Portugal rate their health as being poor or very poor.

Similar to other European countries, most Portuguese die from non-communicable diseases. Mortality from cardiovascular diseases is higher than in Europe, but its two main components, ischaemic heart disease and cerebrovascular disease, display inverse trends compared with Europe, with cerebrovascular disease being the single biggest killer in Portugal (17%). Portuguese people die 12% less often from cancer than in Europe, but mortality is not declining as rapidly. Cancer is more frequent among children as well as among women younger than 44 years. Although lung cancer (slowly increasing among women) and breast cancer (decreasing rapidly) are scarcer, cancer of the cervix and the prostate are more frequent. Portugal has the highest mortality rate for diabetes in Europe, with a sharp increase since the late 1980s.

Infectious diseases take more lives in Portugal than in Europe, mainly through HIV, tuberculosis and hepatitis B and C infections. They put a higher-than-average burden on the Portuguese: 6% of the total burden of disease for men and 3% for women. Both mortality and incidence rates of HIV/AIDS are amongst the highest in Europe. The main vector for transmission in Portugal is drug injection (half of the cases). TB is in the highest range for European countries. It remains a threat to public health in Portugal, especially among men aged 60 years and older, but also killing people 15–29 years old three to five times more often than in Europe.

Alcohol consumption has been 15% higher in Portugal than in Europe for the last two decades, inducing adverse effects, measured in particular by the mortality from liver cirrhosis and other digestive diseases (both in the highest range of European countries, especially among men). Tobacco consumption in Portugal was once one of the lowest in Europe but has now caught up with the average

Portuguese people consume more fruits and vegetables than Europe average. Although Portugal is part of the Mediterranean belt of healthy diet, obesity and CVD are as frequent or more frequent than in Europe.

Source: [http://www.euro.who.int/document/chh/por\\_highlights.pdf](http://www.euro.who.int/document/chh/por_highlights.pdf)

For further information, see:

Pharmaceutical Pricing and Reimbursement Information (PPRI) – Portugal

[http://ppri.oebig.at/Downloads/Results/Portugal\\_PPRI\\_2008.pdf](http://ppri.oebig.at/Downloads/Results/Portugal_PPRI_2008.pdf)

ECORYS - Study of regulatory restrictions in the field of pharmacies, at :

[http://ec.europa.eu/internal\\_market/services/docs/pharmacy/appendices\\_en.pdf](http://ec.europa.eu/internal_market/services/docs/pharmacy/appendices_en.pdf)

Eurybase - National summary sheets on education system in Europe and ongoing reforms, 2009 Edition – Portugal,

at :

[http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/national\\_summary\\_sheets/047\\_PT\\_EN.pdf](http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/national_summary_sheets/047_PT_EN.pdf)

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

	Y/N, number or %	Comments.
<b>Community pharmacy</b>		
Number of community pharmacists	6108 (2007)	Source: 1 – Ordem dos Farmacêuticos (Pharmaceutical Society) <a href="http://www.ordemfarmaceuticos.pt">www.ordemfarmaceuticos.pt</a>
Number of community pharmacies	2667 (2007)	Source: 2 – INFARMED – Medicines Statistics 2007 <a href="http://www.infarmed.pt">www.infarmed.pt</a> ~ 4000 patients / pharmacy 2.3 pharmacists per pharmacy
Competences and roles of community pharmacists		Preparation, control, selection, purchase, storage and dispensing of human and veterinarian medicines as well as medical devices in public and private pharmacies. Information sourcing on prescription-only medicines and other products, contributing to their rational use, including evaluation of medical prescriptions. Diagnostic services: measurement of blood pressure, sampling and determination of biochemical parameters.
Ownership of a pharmacy limited to pharmacists?	No	Only since 2007 Barriers to non-Portuguese, EU-qualified pharmacists exist in the form of Portuguese language requirements. A pharmacist may not form a partnership with other pharmacists, druggists, wholesalers, insurance companies or medical GPs. Internet pharmacies are not allowed.
Rules governing the distribution of pharmacies?	Yes	One community pharmacy per 3,500 habitants in each neighbourhood / county. > 500 metres between pharmacies.
Healthcare products through other channels?	Yes	Since 2007, specialized high-street shops or in dedicated areas in supermarkets.
Other persons involved in community practice?	4596 (2007)	Technical Assistants – 3800 ; Counter Assistants – 582 ; Practitioners – 214 Source: 2 – INFARMED – Medicines Statistics 2007 <a href="http://www.infarmed.pt">www.infarmed.pt</a>
Organisation providing and validating the E&T		Polytechnic colleges under the authority of the Ministry for Higher Education and Sciences.
Duration (years)	4	For non-pharmacist practitioners or technical assistants
Subject areas		Similar to the ones for pharmacists but at a more elementary level.
Competences and roles		The same as those of a pharmacist but under the supervision of a pharmacist. The presence of a qualified pharmacist is required at all times by law.
<b>Hospital pharmacy</b>		
Hospital pharmacists	738	Source: 1 – Ordem dos Farmacêuticos <a href="http://www.ordemfarmaceuticos.pt">www.ordemfarmaceuticos.pt</a>
Hospital pharmacies	115	NHS Hospital pharmacies – 80 ; Private Hospital Pharmacies - 25
Competences and roles of hospital pharmacists		The same as for community pharmacists but more clinically oriented, e.g. PK monitoring, parenteral nutrition, drug information, preparations for treatment in oncology. Hospital pharmacies can dispense medicines to patients with specific illnesses such as HIV and cancer that are treated in the same hospital.
<b>Pharmaceutical and related industries</b>		
Companies: production, R&D and distribution	480 (2007)	Source: 3 – APIFARMA – The pharmaceutical Industry in Pictures 2008. <a href="http://www.apifarma.pt">www.apifarma.pt</a>
Companies: production only	137	Source: 3 – APIFARMA – The pharmaceutical Industry in Pictures 2008. <a href="http://www.apifarma.pt">www.apifarma.pt</a>

Companies: distribution only	343	
Companies: producing generic drugs only	Number: ?	This is a difficult number to come up with. There are only a few companies dedicated exclusively to producing generic drugs. Most of them manufacture generics as well as brand products under license.
<b>Industrial pharmacy</b>		
Number of pharmacists working in industry	674	Source: 1 – Ordem dos Farmacêuticos <a href="http://www.ordemfarmaceuticos.pt">www.ordemfarmaceuticos.pt</a>
Competences and roles		Quality control, manufacture, GMP, regulatory affairs, clinical trials and monitoring.
<b>Other sectors</b>		
Pharmacists working in other sectors	3313	Source: 1 – Ordem dos Farmacêuticos <a href="http://www.ordemfarmaceuticos.pt">www.ordemfarmaceuticos.pt</a>
Sectors		Food industry and control, education, R&D, clinical chemistry and biology, armed forces, wholesale and distribution.
Competences		Mostly laboratory activities including chemical, biochemical, microbiological, immunological, haematological determinations, as well as food and water chemistry.
<b>Roles of professional associations</b>		
Registration	Yes	Ordem dos Farmacêuticos (Pharmaceutical Society)
Creation of pharmacies, control of distribution	No	The Community Pharmacies Association (ANF) advises the national regulatory agency (INFARMED) on this matter.
Ethics, professional conduct	Yes	Ordem dos Farmacêuticos
QA and validation of HEI courses	Yes	Ordem dos Farmacêuticos
Other roles		Continuing education, professional advancement programs through specialized groups: industry, hospital, regulatory affairs and community pharmacy. The National Association of Pharmacies (Associação Nacional das Farmácias) has the following remit: <ul style="list-style-type: none"> <li>• Create better working conditions</li> <li>• Improve the quality of the service</li> <li>• Cooperate with state government on implementation of projects and campaigns</li> </ul>

<b>References</b>	
Texts and articles of national law	Law 2125 1965 Decree-Law 48537 1968 Decree-Law 48547 of 27/8/1968 Decree-Law 320/99 of 11/8/1999 Decree-Law 288/2001 of 10.11.2001 Decree-Law 307/2007 of 31/8/2007 Decree-Law 134/2005 of 16/8/2005 Governmental decree 367/72 of 3/7/1972 Governmental decree 827/2005 of 14/9/2005 Governmental decree 474/2004 of 29/6/2004
Ordem dos Farmacêuticos – (Pharmaceutical Society)	<a href="http://www.ordemfarmaceuticos.pt">www.ordemfarmaceuticos.pt</a>
INFARMED Autoridade Nacional do Medicamento e Produtos de Saúde – Medicines Statistics 2007	<a href="http://www.infarmed.pt">www.infarmed.pt</a>
APIFARMA – The Pharmaceutical Industry in Pictures 2008	<a href="http://www.apifarma.pt">www.apifarma.pt</a> English: <a href="http://www.apifarma.pt/Default_en.aspx">http://www.apifarma.pt/Default_en.aspx</a>

Associação Nacional das Farmácias – ANF	<a href="http://www.anf.pt/">http://www.anf.pt/</a>
ECORYS / EU	<a href="http://ec.europa.eu/internal_market/services/docs/pharmacy/appendices_en.pdf">http://ec.europa.eu/internal_market/services/docs/pharmacy/appendices_en.pdf</a>

## Chapter 2. Pharmacy HEIs, students and courses

	Y/N, number or %	If you wish to expand your answer, please add your comments below.
<b>HEIs in Portugal</b>	9	Only university-level faculties or institutes
Public	5	<ol style="list-style-type: none"> <li>1. Faculdade de Farmácia da Universidade de Lisboa</li> <li>2. Faculdade de Farmácia da Universidade de Coimbra</li> <li>3. Faculdade de Farmácia da Universidade do Porto</li> <li>4. Universidade da Beira Interior</li> <li>5. Faculdade de Ciências e Tecnologia da Universidade do Algarve</li> </ol>
Private	4	<ol style="list-style-type: none"> <li>1. Instituto Superior de Ciências da Saúde Egas Moniz</li> <li>2. Universidade Fernando Pessoa</li> <li>3. Universidade Lusófona de Humanidades e Tecnologias</li> <li>4. Instituto Superior de Ciências da Saúde – Norte</li> </ol>
<b>Organisation of HEIs</b>		
Independent faculty	3	
Attached to a science faculty	6	
<b>Portugal</b>		
<b>Teaching staff</b>		
Teaching staff (nationals)	903	Excluding Faculdade de Ciências e Tecnologia da Universidade do Algarve and Instituto Superior de Ciências da Saúde – Norte.
International teaching staff (from EU MSs)	39	Excluding Faculdade de Ciências e Tecnologia da Universidade do Algarve and Instituto Superior de Ciências da Saúde – Norte.
International teaching staff (non EU)	10	Excluding Faculdade de Ciências e Tecnologia da Universidade do Algarve and Instituto Superior de Ciências da Saúde – Norte.
Professionals from outside the HEIs, involved in E&T	35	Excluding Universidade da Beira Interior, Faculdade de Ciências e Tecnologia da Universidade do Algarve, Instituto Superior de Ciências da Saúde – Norte, Universidade Fernando Pessoa and Universidade Lusófona de Humanidades e Tecnologias.
<b>Students</b>		
Places at entry following secondary school)	1021	<i>Numerus causus</i> 2008: FFUL – 223; FFUC – 175; FFUP – 203; UBI – 61; FCT/UALG – 44; ICS Egas Moniz – 110; U.F.Pessoa – 65; ULHT – 75; ISCSN - 65
Number of applicants for entry	4806	2008 Excluding Faculdade de Ciências e Tecnologia da Universidade do Algarve and Instituto Superior de Ciências da Saúde – Norte. 5 applicants / place
Number graduating as pharmacists.	702	2008 - Source: Ordem dos Farmacêuticos <a href="http://www.ordemfarmaceuticos.pt">www.ordemfarmaceuticos.pt</a>
Number of international students (from EU member states)	68	Excluding Universidade da Beira Interior, Faculdade de Ciências e Tecnologia da Universidade do Algarve, Instituto Superior de Ciências da Saúde – Norte and Universidade Fernando Pessoa
Number of international students (non EU)	58	Excluding Faculdade de Ciências e Tecnologia da Universidade do Algarve, Instituto Superior de Ciências da Saúde – Norte and Universidade Fernando Pessoa

<b>Entry requirements (beginning of S1 of B1, following secondary school)</b>		
Specific examination for pharmacy	Yes	
<b>Advanced entry</b>		
At which level?		Any level

What are the requirements?		There is a limited number of vacancies and criteria for candidates admission, including previous qualifications.
<b>Fees per year</b>		
For home students		FFUL – € 996,85; FFUC –€ 996,85; FFUP – € 996,00; UBI – € 996,85; FCT/UALG – €900; ICS Egas Moniz – n.a U.F.Pessoa – €5100; ULHT – €5687; ISCSN - €5700
For EU MS students		Erasmus students – no fee
For non EU students		Same as home students
<b>Length of course</b>	5 years	
<b>Specialization</b>		
Do HEIs provide specialized courses?	No	There is no specialization before the master's degree – only at the postgraduate / post-registration level.
<b>Past and present changes in E&amp;T</b>		
Major changes since 1999?	Yes	Implementation of Bologna principles through a national decree in 2006.
Major changes envisaged before 2019?	Yes	Specialization in post-graduate education
<b>Lisbon</b>		
<b>Teaching staff</b>		
Teaching staff (nationals)	128	FTE: 106. Permanent: 110. Post-docs (20) and doctoral students (90) also participate in teaching.
International teaching staff (from EU MSs)	1	
Professionals from outside the HEIs	18	
<b>Students</b>		
Places at entry following secondary school	210/year	
Number of applicants for entry	1253/year	6 applicants / place
Number graduating as pharmacists.	190/year	10% drop-out rate
International students (EU member states)	45	Mostly Erasmus students in 2008.
International students (non EU)	16	Mostly from Portuguese speaking countries:
<b>Entry requirements (beginning of S1 of B1, following secondary school)</b>		
Specific pharmacy-entrance examination	Yes	Biology, Physics, Chemistry.
<b>Advanced entry</b>		
At which level?		Any level
What are the requirements?		There is a limited number of vacancies and criteria for candidates admission, including previous qualifications.
<b>Fees per year</b>		
For home students	996,85€	
For EU MS students	996,85€	Erasmus students - no fee
For non EU students	996,85€	
<b>Length of course</b>	5 years	It was reduced from 5.5 years to 5 years from 2006 onwards.
<b>Specialization</b>		
Do HEIs provide specialized courses?	No	There is no specialization before the master's degree – only at the postgraduate / post-registration level.

<b>Past and present changes in E&amp;T</b>		
Major changes since 1999?	Yes	Implementation of Bologna principles through a national decree in 2006.
Major changes envisaged before 2019?	Yes	Specialization in post-graduate education
<b>Is Lisbon typical of all HEIs in Portugal?</b>	Yes	

<b>References</b>	
Texts and articles of national law	D.L. 42/2005 of 22.02.2005 D.L. 74/2006 of 24.03.2006 corrected by D.L. 107/2008 of 25.06.2008 and by D.L. 230/2009 14.09.2009 D.L. 230/2009 of 14.09.2009

### Chapter 3. Teaching and learning methods

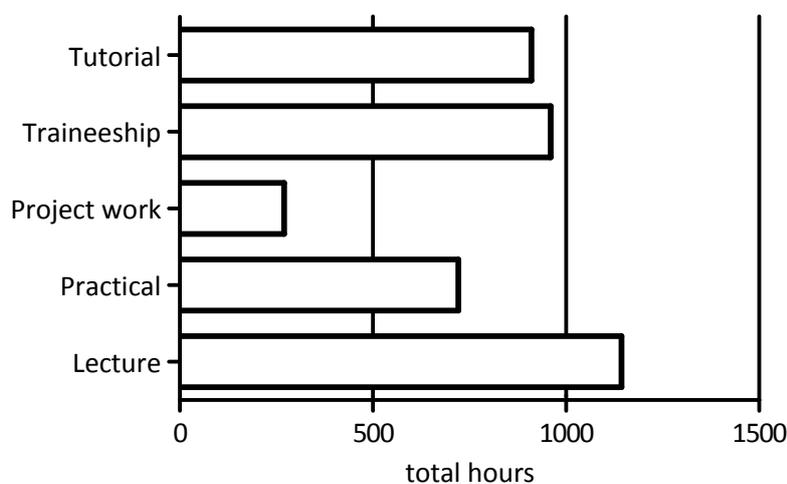
#### Student hours

Method	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Lecture	260	273	247	260	104	<b>1144</b>
Tutorial	234	175.5	156	260	84.5	<b>910</b>
Practical	136.5	195	195	136.5	58.5	<b>721.5</b>
Project work	0	0	0	180	90	<b>270</b>
Traineeship*					960	<b>960</b>
Hospital	0	0	0	0	320	
Community	0	0	0	0	640	
Choice	0	0	0	39	39	<b>78</b>
<b>Total</b>	<b>630.5</b>	<b>643.5</b>	<b>598</b>	<b>875.5</b>	<b>1336</b>	<b>4083.5</b>

A successful traineeship is evaluated and validated at a final oral examination in a presence of a Faculty jury. Trainees are followed by Faculty teaching staff (once a month).

The Portuguese Pharmaceutical Order has accredited the degree, thus graduates are automatically admitted.

Student hours by teaching method.



References	
Website	<a href="http://www.ff.ul.pt">www.ff.ul.pt</a>

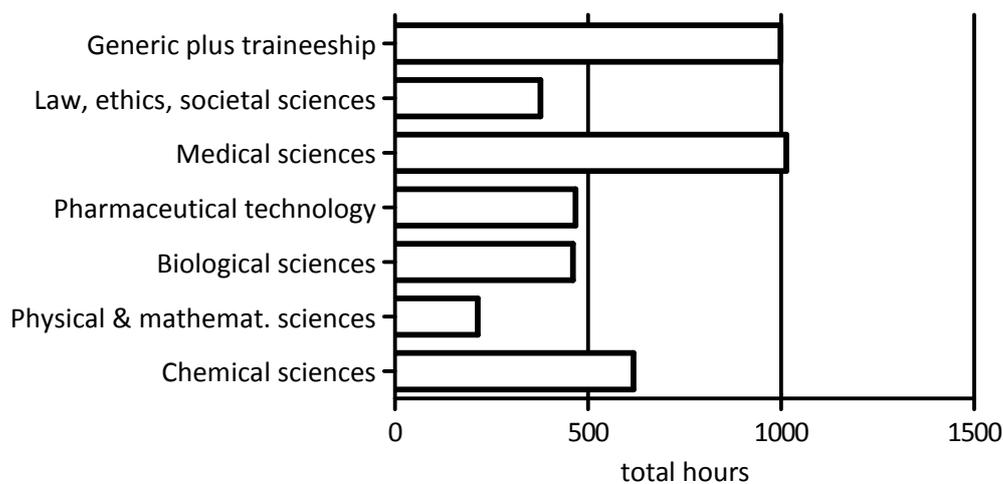
## Chapter 4. Subject areas

### Student hours

Subject area	Year 1	Year 2	Year 3	Year 4	Year 5	Total
<b>CHEMSCI</b>	234	234	65	84.5	0	<b>617.5</b>
<b>PHYSMATH</b>	214.5	0	0	0	0	<b>214.5</b>
<b>BIOLSCI</b>	130	149.5	45.5	91	45.5	<b>461.5</b>
<b>PHARMTECH</b>	0	0	169	299	0	<b>468</b>
<b>MEDISCI</b>	91	159	250	266.5	247	<b>1013.5</b>
<b>LAWSOC</b>	0	45.5	0	156	175.5	<b>377</b>
<b>GENERIC</b>	0	0	0	39*	0	<b>39</b>
<b>GENERIC PLUS TRAINEESHIP</b>	0	0	0	39	960	<b>999</b>
<b>Total</b>	<b>669.5</b>	<b>588</b>	<b>529.5</b>	<b>936</b>	<b>1428</b>	<b>4151</b>

\*: Some topics included in LAWSOC course work.

Student hours by subject area.



### References

Website	<a href="http://www.ff.ul.pt">www.ff.ul.pt</a>
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## Chapter 5. Impact of the Bologna principles

Bologna principle	Y/N	Comments
1. Comparable degrees / Diploma Supplement	Yes	DS in English
2. Two main cycles (B and M) with entry and exit at B level	No	Integrated Master degree (B+ M), Not B and M
3. ECTS system of credits / links to LLL	Partially	CPD, conducted by the Order is compulsory and amounts to 24 hours / year. It is mandatory for license renewal (every 5 years). CPD activities are converted into CPD credits (Créditos de Desenvolvimento Profissional) but not into ECTSs.
4. Obstacles to mobility	Yes	Language
5. European QA	Yes	The Portuguese Pharmaceutical Order accredits national pharmacy degrees every 6 years. The University of Lisbon is accredited by EUA.
6. European dimension	Yes	Cooperation with other European Universities at PhD studies level.
ERASMUS staff exchange to your HEI from elsewhere	2005 to 2010 Number of staff x days: 30	6 staff x 5 days
ERASMUS staff exchange from your HEI to other HEIs	2005 to 2010 Number of staff x days: 15	3 staff*5 days
ERASMUS student exchange to your HEI from elsewhere	2005 to 2010 Number of student x months: 561	4 students x 9 consecutive months 175 students x 3months 4 students x 6 months 21 students x 9 alternate months
ERASMUS student exchange from your HEI to other HEIs	2005 to 2010 Number of student x months: 728	13 student x 3 months 2 students x 4 months 20 students x 6 months 58 students x 9 months

### References

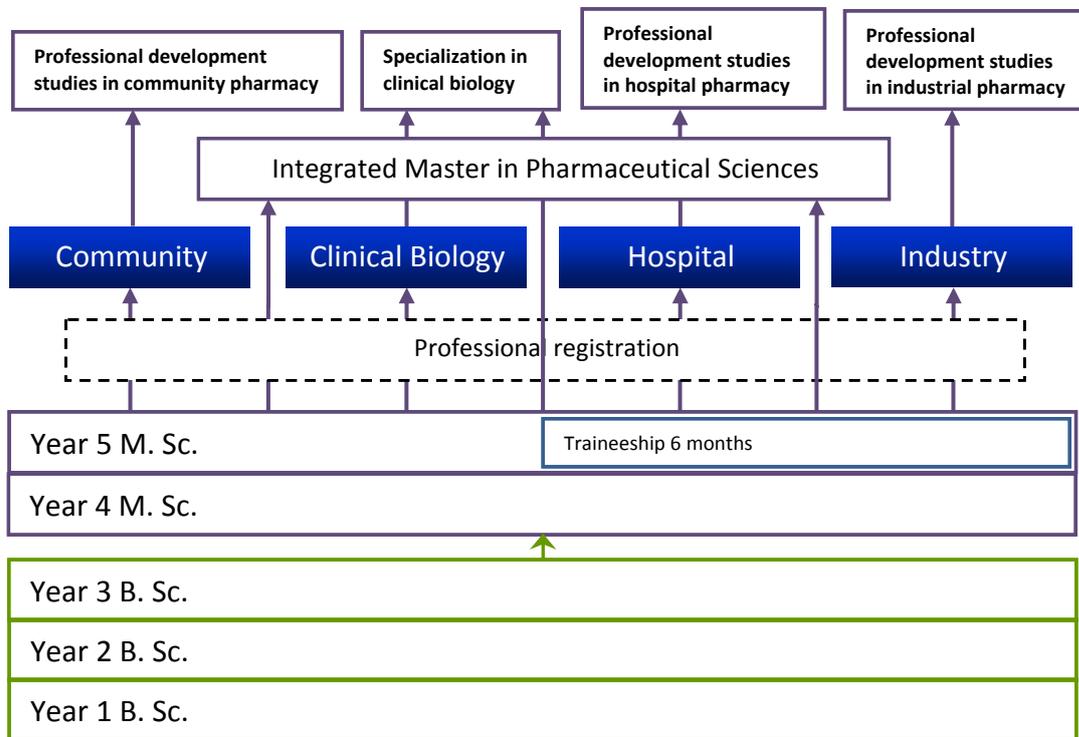
University of Lisbon document	University of Lisbon Deliberation n. 1096/2008 from D.R. n. 72 of 11.04.2008
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## Chapter 6. Impact of EC directive 2005/36/EC

The directive states	How does this directive statement affect pharmacy E&T?
“Evidence of formal qualifications as a pharmacist shall attest to training of at least <u>five years' duration</u> ,...”	Full compliance with directive Four and a half years of full time theoretical and practical training
“ <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> ”	Full compliance with directive
“ <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> ”	Full compliance with directive Six months traineeship in a pharmacy. Six months traineeship in pharmacy sites that were legally validated by the Order and INFARMED, while FFUL validates pedagogical suitability.
“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> ”	Full compliance with directive
<b>Directive annex</b>	
<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.	Full compliance with directive

References	
University of Lisbon document	University of Lisbon Deliberation n. 1096/2008 from D.R. n. 72 of 11.04.2008

## The Portuguese system of pharmacy education and training.





Education and Culture DG

Lifelong Learning Programme

**PHARMINE**  
*Pharmacy Education  
in Europe*

**PCN**

*Pharmacolor  
Consultants  
Nancy*



FACULDADE DE  
**FARMÁCIA**  
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## PHARMINE

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(142078-LLP-1-2008-BE-ERASMUS-ECDSP).

**Website: [www.pharmine.org](http://www.pharmine.org)**

Pharmacy education & training in

# ROMANIA

2010

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

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**COLEGIUL FARMACIȘTILOR DIN ROMÂNIA**  
**ROMANIAN PHARMACISTS' COLLEGE**

Nr. 124 din data 5<sup>th</sup> July 2010

This document "**Pharmacy education & training in ROMANIA**" was validated by the Romanian Pharmacists' College, at their General Assembly on the 25<sup>th</sup> June 2010 in Bucharest.

*/digitally prescribed/*

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## Summary.

Pharmacies have a monopoly on the dispensation of the medicines. They can also provide diagnostic services (e.g. measuring blood pressure, glycaemia, calculating the body mass index). In Romania ownership of community pharmacies is not restricted to pharmacists only and many pharmacies are now part of different pharmacy chains.

In order to become registered pharmacists, the students must follow a 5-year (M.Sc. Pharm. “license” in Romanian) degree course with a 6 months' traineeship (in the fifth year) in community or hospital pharmacy.

The so-called “pharmaceutical assistants” are, in fact, “medical assistants” (because the Romanian Law no. 95/2006 regarding The Reform of the Health System, specifies only “medical assistants”). Following a 3 years' study course at a medical faculty (B.Sc. Pharm.), a technological or high school college for health personnel, “medical assistants” dispense medicines and counsel patients under the supervision of a registered pharmacist.

Pharmacy training is organized as a 5 years integrated study programme. The first two years are devoted mainly to chemical, biological, physics and mathematics and generic sciences while in the next 3 years, disciplines such as pharmaceutical technology, medical sciences and law prevail. In the academic year 2009-2010 the number of study hours has been reduced in accordance with the European directives.

The university study period ends with specific subject courses, 6 month training and the final exam. The graduates can specialize further in Clinical Pharmacy, Clinical Laboratory, with a master in Biostatistics or in Public Health Management and/or with a PhD.

## Introduction.

### Statistics for Romania.

Total population: 21,438,000

Gross national income per capita (PPP international \$): 10,980

Life expectancy at birth m/f (years): 70/77

Healthy life expectancy at birth m/f (years, 2003):63/68

Probability of dying under five (per 1 000 live births): 14

Probability of dying between 15 and 60 years m/f (per 1 000 population): 215/92

Total expenditure on health per capita (Intl \$, 2006): 472

Total expenditure on health as % of GDP (2006): 5,4

Detailed information is available at: World Health Statistics 2009:

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

### Highlights on health in Romania.

The Romanian health care system has been changed, after 1989, from an integrated model, in which health care providers were directly employed by the Ministry of Health, to a *contract model* in which health care providers in the curative health system are independent and are contracted by the health insurance funds. These contracts are based on the so-called framework contract.

Since 1999, the main actors involved in the health care system are: the Ministry of Health and the district public health directorates, the National and the district health insurance funds, the Romanian and the district colleges of physicians and of pharmacists, the health care providers.

Until 1997, the main source of funding for the centralized health care system in Romania was general revenues, mainly through the state budget. In 1997, the Health Insurance Law transformed the Romanian health care system into an insurance-based system.

Until 1997, tax revenues were the main source of financing of the Romanian health sector. Since 1998, these sources have been replaced to a large extent by contributions to social health insurance. Health expenditure from public sources varied between 2.8% and 3.9% of GDP, or US \$30–60 per capita.

WHO estimates that a person born in Romania in 2002 can expect to live 71 years on average: 75 years if female and 67 years if male? WHO also estimates that Romanians spend on average 12% (8 years) of their lives with illness and disability.

In Romania, post neonatal mortality is higher than neonatal mortality. Romania' s maternal rate varied between 1989-1990-1996 and then decreased.

In 2002, the main non-communicable diseases accounted for about 90% of all deaths in Romania (of all deaths, 61% were caused by diseases of the circulatory system and 16% by cancer).

Pharmaceuticals are dispensed to the public through privately-owned community pharmacies in Romania. Over 80% of the community pharmacies are part of different pharmacy chains. Hospital pharmacies only provide pharmaceuticals for hospital use (in-patient care).

See also:

Health care systems in transition: Romania, European Observatory on Health Care Systems, WHO Regional Office for Europe, 2000

[http://ec.europa.eu/health/ph\\_information/dissemination/hsis/hsis\\_13\\_nhs\\_en.htm](http://ec.europa.eu/health/ph_information/dissemination/hsis/hsis_13_nhs_en.htm)

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

	Y/N, number or %	Comments.
<b>Community pharmacy</b>		
Community pharmacists	<i>circa</i> 13,500	3016 pharmacists in Bucharest and 11 608 outside Bucharest. 1,600 inhabitants/pharmacist.
Community pharmacies	5796	3,700 inhabitants/pharmacy 2.3 pharmacists/pharmacy
Competences and roles of community pharmacists		Supplying prescription medicines Managing medicines for some ailments Giving advice on medicines Screening, diagnostic services
Ownership of a pharmacy limited?	No	The community pharmacies are private institutions. Their owners can practice any profession as long as they hire a pharmacist as the manager
Rules governing the distribution of pharmacies?	No	Demographic criteria only (until 2010, according to the Law of pharmacy 266 / 2008): <ul style="list-style-type: none"> <li>• Bucharest – 1 pharmacy per 3000 inhabitants</li> <li>• cities that are capital of the district 1 per 3500 inhabitants</li> <li>• other cities 1 per 4000 inhabitants.</li> </ul>
Are drugs and healthcare products available by channels other than pharmacies?	Yes	Through stores that sell plants or medicines from plants and OTC ( <i>Plafar</i> ) only. The herbal products are available outside of community pharmacies as well. In the last years e-pharmacies appeared but their statute is not yet clearly established by law.
Are persons other than pharmacists involved in community practice?	Yes	
Their titles and number(s)	> 120 000	The title “Pharmacy assistants” is assimilated, by Romanian law, with that of “medical assistants”. Some medical assistants, like nurses, work under the supervision of a physician in a hospital or a clinic. Albeit, they can also work with community and hospital pharmacists. In a pharmacy, the so-called “medical assistants” help the pharmacist in dispensing and counselling only for OTC medicines and plant products.  The education of medical assistants can be offered in a Faculty of Pharmacy or in a Medical School. Medical assistants and Pharmacy assistants have completely different curricula, but the confusion arises from the lack of “pharmacy assistant” profession in official documents.
Their qualifications		
Organisation providing and validating the E&T		“Medical assistants for pharmacy” may study for 3 years at a university, or at a post-secondary medical school. For example, the Faculty of Medical Assistants and Midwives ( <i>Facultatea de Asistenti Medicali si Moase</i> of the University of Medicine and Pharmacy Carol Davila Bucharest ( <a href="http://www.univermed-cdgm.ro">www.univermed-cdgm.ro</a> , <a href="http://www.umf.ro">www.umf.ro</a> ) offers courses for Medical Assistants, Midwives, Pharmacy Assistants, Physiotherapy, Clinical Laboratory, Radiology and Imaging and Dental Technicians. The admission requires an exam. The graduating medical assistants are given a “graduate” diploma. Once again, the titles and curricula are heritage from communist period

		<p>and have no correspondence in European laws. On the other hand, it must be remarked that the pharmacy assistants are a necessary and useful link in the pharmacy profession.</p> <p>Three-year courses are also offered by the The Carol Davila Post-secondary Medical School (<i>Scoala postliceala Carol Davila</i>) offers courses for graduates from the secondary education with or without a Diploma of Baccalaureate .(<a href="http://www.scoalacdavila.ro">http://www.scoalacdavila.ro</a> ) Admission is made by interview. The graduates receive also a B.Sc.Pharm. diploma.</p>
Duration of studies (years)	3	3 years at a university, or at a post-secondary medical school.
Subject areas		Assistant pharmacists study the following subjects: General, organic and inorganic chemistry, Analytical chemistry, Pharmaceutical chemistry, Physics, mathematics, Botany, Galenic formulation, Cosmetics, Elements of Human anatomy and physiology, Medical terminology, Pharmacology, Pharmacognosy, Non-pharmacological treatment, Generic drugs, OTC medicines, Phytotherapy, Legislation, law relating to pharmacy, Professional Ethics, Foreign languages
Competences and roles		Supplying OTC medicines and herbal products Part of multidisciplinary patient-care team at hospital pharmacy.
<b>Hospital pharmacy</b>		
Does such a function exist?	Yes	
Number of hospital pharmacists	Around 692	120 in Bucharest and 572 in the rest of the country. The hospital pharmacies are small with 1-2 pharmacists and 2-3 medical assistants.
Number of hospital pharmacies	Around 564	120 in Bucharest and 444 in the rest of the country.
Competences and roles of hospital pharmacists		<p>Purchasing of drugs and medical material for hospital use</p> <p>Monitoring of drug use</p> <p>Unit-dose drug distribution for hospital wards</p> <p>Part of multidisciplinary patient-care team</p> <p>There are few medicines being still manufactured by pharmacists in the hospital pharmacy that are designed for internal or external use.</p>
<b>Pharmaceutical and related industries</b>		
Number of companies with production, R&D and distribution	7	<p>7 Romanian companies remain, the others have been taken over by international companies</p> <p>Actavis – <a href="http://www.actavis.com">www.actavis.com</a></p> <p>Antibiotice – <a href="http://www.antibiotice.ro">www.antibiotice.ro</a></p> <p>Gedeon-Richter – <a href="http://www.richter.hu">www.richter.hu</a></p> <p>Ozone Laboratories – <a href="http://www.ozonelaboratories.com">www.ozonelaboratories.com</a></p> <p>Sandoz - <a href="http://www.sandoz.com/site/en">http://www.sandoz.com/site/en</a></p> <p>Terapia Ranbaxy – <a href="http://www.terapia.ro">www.terapia.ro</a></p> <p>Zentiva – <a href="http://www.zentiva.com">www.zentiva.com</a></p> <p>The Romanian Association of International Medicines Producers (<i>Asociatia Romana a Producatorilor Internationali de Medicamente-</i> <a href="http://www.arpim.ro">http://www.arpim.ro</a> )</p> <p>The Romanian Association of International Medicines Manufacturers (ARPIM), the professional organization of the major pharmaceutical companies' representatives in Romania. ARPIM is a member of the</p>

		<a href="#">European Federation of Pharmaceutical Industries and Associations (EFPIA).</a>
Production only	5	
Number of companies with distribution only	38	Based on turnover the first 9 companies: Mediplus, Relad Pharma, Polisano, Fildas, Europharm Distribution, Farmexim, Farmexpert, ADM Farm. Dita <a href="http://www.dailybusiness.ro/topplayers/distributie-medicamente_71.html">http://www.dailybusiness.ro/topplayers/distributie-medicamente_71.html</a>
Number of companies producing generic drugs only	7 Romanian and other international companies	The first are Actavis, Antibiotice, Gedeon Richter, Labormed, Ozone, Sandoz, Terapia Ranbaxy si Zentiva, which produce and sell around 60% of medicines volume in Romania. All are members of the Asociation of Producers of Generic Medicines in Romania. <a href="http://www.dscllex.ro/legislatie/2006/mai2006/mo2006_434.htm">http://www.dscllex.ro/legislatie/2006/mai2006/mo2006_434.htm</a> <a href="http://www.wall-street.ro/articol/Companii/57705/S-a-infiintat-Asociatia-Produsatorilor-de-Medicamente-Generice-din-Romania.html">http://www.wall-street.ro/articol/Companii/57705/S-a-infiintat-Asociatia-Produsatorilor-de-Medicamente-Generice-din-Romania.html</a>
<b>Industrial pharmacy</b>		
Industrial pharmacists	Around 100	
Competences and roles of industrial pharmacists		Synthesis and production of new chemical entities and drugs R&D – drugs R&D – health care products other than drugs Preclinical drug evaluation (safety and efficacy) Clinical drug evaluation (safety and efficacy) Marketing Distribution Medical devices
<b>Other sectors</b>		
Pharmacists working in other sectors	Less than 100	
Sectors in which pharmacists are employed		Armed forces Universities National health services Agricultural and veterinary pharmacy
<b>Roles of professional associations</b>		
Registration of pharmacists	Yes	At the National College of Pharmacists based in Bucharest. <a href="http://www.colegfarm.ro">www.colegfarm.ro</a> There are Colleges in each district, including Bucharest. All the branches are active in registration of pharmacists. After graduation, in order to work as a pharmacist, the candidate must obtain the Pharmacists' Membership Certificate from the National Pharmacy College. Further traineeship-practice is not required.
Creation of community pharmacies and control of territorial distribution	Yes	A dossier has to be presented in order to open a new community pharmacy. This contains data about: number from the Trade Register of the new commercial society created, the personal employed (professional qualification, number), work programme, the proof of ownership of space, proof of the demographic criteria . This must be sent to the Ministry of Health, Department of Strategies and Medicine Politics. After verification of legal criteria, inspections are performed, by the Minister of Health and the College of Pharmacists, in order to release the authorisation to function.
Ethical and other aspects of professional conduct	Yes	Romania has a new Code of Ethics for pharmacists approved by the General Assembly of Pharmacists in 15 June 2009 by Decision no 2/2009.  ( <a href="http://www.colegfarm.ro/documente-ale-cfr/deciziile-adunarii-generale-a-cfr/88-decizie-nr-22009-privind-aprobarea-statutului-cfr-i-a-codului-deontologic.html">http://www.colegfarm.ro/documente-ale-cfr/deciziile-adunarii-generale-a-cfr/88-decizie-nr-22009-privind-aprobarea-statutului-cfr-i-a-codului-deontologic.html</a> ) (in Romanian)

Quality assurance and validation of HEI courses for pharmacists	Yes	The Romanian Agency for Quality Assurance in Higher Education (Agentia Romana de Asigurare a Calitatii in Invatamantul Superior – ARACIS, <a href="http://www.aracis.ro">www.aracis.ro</a> ) inspects and validates the courses for pharmacists at the university.
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References and websites	
National law	<p>Legea nr. 266/2008 - Legea Farmaciei, <i>Law of Pharmacy</i>, Publicată în Monitorul Oficial al României, Partea I, Nr. 765/13.XI.2008; <a href="http://www.colegfarm.ro/acte-normative/legi/124-legea-farmaciei-nr-2662008-in-forma-consolidata-.html">http://www.colegfarm.ro/acte-normative/legi/124-legea-farmaciei-nr-2662008-in-forma-consolidata-.html</a></p> <p>Ordinul Ministrului Sanatatii nr 962/2009 pentru aprobarea Normelor privind infiintarea, organizarea si functionarea farmaciilor si drogheriilor, MOF al Romaniei, Partea I nr 538/3.08.2009, <i>Order from the Minister of Health for approving the establishment, organisation and the operation of pharmacies and drugstores</i> <a href="http://www.colegfarm.ro/images/pdf/mo_0538.pdf">http://www.colegfarm.ro/images/pdf/mo_0538.pdf</a></p> <p>Ordinul Ministrului Sanatatii nr 1402/2009 pentru modificarea Normelor aprobate prin Ord.M.S. nr 962/2009, <i>Order from the Minister of Health that modifies the above Order.</i> <a href="http://www.colegfarm.ro/acte-normative/ordine-si-ordonante/146-ordin-nr-14022009-pentru-modificarea-normelor-aprobate-prin-oms-nr-9622009.html">http://www.colegfarm.ro/acte-normative/ordine-si-ordonante/146-ordin-nr-14022009-pentru-modificarea-normelor-aprobate-prin-oms-nr-9622009.html</a></p> <p>Legea 95/2006, TITLUL XIV Exercitarea profesiei de farmacist. Organizarea și funcționarea Colegiului Farmaciștilor din România, <i>Title XIV, Exercising the Pharmacist Profession. The Organising and function of Romanian College for Pharmacists</i>, Monitorul Oficial al Romaniei, Partea I nr. 372 din 28/04/2006 <a href="http://www.colegfarm.ro/acte-normative/legi/62-lege-nr-952006-din-14042006-privind-reforma-in-domeniul-sntii.html">http://www.colegfarm.ro/acte-normative/legi/62-lege-nr-952006-din-14042006-privind-reforma-in-domeniul-sntii.html</a></p> <p>Legea nr. 307/2004 privind exercitarea profesiei de asistent medical si a profesiei de moasa, precum si organizarea si functionarea Ordinului Asistentilor Medicali si Moaselor din Romania, <i>Exercising the medical assistant, the midwife and the organization and the function of the Order of Medical Assistances and Midwives in Romania</i>, Monitorul Oficial, Partea I nr. 578 din 30/06/2004 <a href="http://www.oamr.ro/legislatie/nationala/LEGEA_NR_307.pdf">http://www.oamr.ro/legislatie/nationala/LEGEA_NR_307.pdf</a></p> <p>ARPIM Code of ethics in the promotion of medicines adopted by ARPIM (Edition 2010)* <a href="http://www.arpim.ro/files/Cod_etic_ARPIM_EN.pdf">http://www.arpim.ro/files/Cod_etic_ARPIM_EN.pdf</a></p> <p>The Code of the Pharmacist adopted and the Statute of the Pharmacist’s College <a href="http://www.colegfarm.ro/documente-ale-cfr/documente-ale-cfr/65-codul-deontologic-al-farmacistului.htm">http://www.colegfarm.ro/documente-ale-cfr/documente-ale-cfr/65-codul-deontologic-al-farmacistului.htm</a></p>
EU)	<p>EC Directive 2005/36/EC <a href="http://ec.europa.eu/internal_market/qualifications/future_en.htm">http://ec.europa.eu/internal_market/qualifications/future_en.htm</a></p>

## Chapter 2. Pharmacy HEIs, students and courses

	Y/N, number or %	If you wish to expand your answer, please add your comments below.
HEIs in Romania	10	<ol style="list-style-type: none"> <li>1. West University <i>Vasile Goldis</i> Arad, <a href="http://www.uvvg.ro/site/">http://www.uvvg.ro/site/</a>, <a href="http://www.4icu.org/reviews/12323.htm">http://www.4icu.org/reviews/12323.htm</a></li> <li>2. University of Medicine and Pharmacy <i>Carol Davila</i>, Bucharest, <a href="http://www.ceed.co.uk/ceed/un/rom/ro003.htm">http://www.ceed.co.uk/ceed/un/rom/ro003.htm</a>; <a href="http://www.univermed-cdgm.ro">www.univermed-cdgm.ro</a></li> <li>3. University of Medicine and Pharmacy Cluj Napoca, <a href="http://www.ceed.co.uk/ceed/un/rom/ro020.htm">http://www.ceed.co.uk/ceed/un/rom/ro020.htm</a>; <a href="http://www.umfcluj.ro/">http://www.umfcluj.ro/</a> in English: <a href="http://www.umfcluj.ro/en">http://www.umfcluj.ro/en</a></li> <li>4. Ovidius University, Constanta, <a href="http://www.euroeducation.net/euro/ro025.htm">http://www.euroeducation.net/euro/ro025.htm</a>; <a href="http://www.univ-ovidius.ro/">http://www.univ-ovidius.ro/</a></li> <li>5. University of Medicine and Pharmacy Craiova, <a href="http://www.umfcv.ro/en/index.html">http://www.umfcv.ro/en/index.html</a></li> <li>6. University of Medicine and Pharmacy Iassy, <a href="http://www.umfiasi.ro/umf/ie2/navigation.jsp?node=2784">http://www.umfiasi.ro/umf/ie2/navigation.jsp?node=2784</a></li> <li>7. Oradea University: <a href="http://www.uoradea.ro/">http://www.uoradea.ro/</a></li> <li>8. University of Medicine and Pharmacy Targu Mures, <a href="http://www.euroeducation.net/euro/ro048.htm">http://www.euroeducation.net/euro/ro048.htm</a>; <a href="http://www.umftgm.ro/">http://www.umftgm.ro/</a></li> <li>9. University of Medicine and Pharmacy Timisoara, <a href="http://www.umft.ro/en/r_index.html">http://www.umft.ro/en/r_index.html</a></li> <li>10. University Lower Danube, Faculty of Medicine and Pharmacy, Galati <a href="http://www.ugal.ro/">http://www.ugal.ro/</a></li> </ol>
Public	9	
Private	1	West University <i>Vasile Goldis</i> Arad, <a href="http://www.uvvg.ro/site/">http://www.uvvg.ro/site/</a> , <a href="http://www.4icu.org/reviews/12323.htm">http://www.4icu.org/reviews/12323.htm</a>
<b>Organisation of HEIs</b>		
Independent faculty	Yes, 8 faculties are part of the "Medicine & Pharmacy" Universities	<ol style="list-style-type: none"> <li>1. University of Medicine and Pharmacy <i>Carol Davila</i>, Bucharest</li> <li>2. University of Medicine and Pharmacy Cluj Napoca</li> <li>3. University Ovidius, Constanta</li> <li>4. University of Medicine and Pharmacy Craiova</li> <li>5. University of Medicine and Pharmacy Iassy</li> <li>6. University Oradea,</li> <li>7. University of Medicine and Pharmacy Targu Mures</li> <li>8. University of Medicine and Pharmacy Timisoara</li> </ol>
Attached to a medical faculty	2	Faculty of Medicine, Dentistry and Pharmacy, at the "University Vasile Goldis" Arad Faculty of Medicine and Pharmacy, Galati
Do HEIs offer B + M degrees?	No	All pharmacy schools have a 5 year integrated systems.  There is no split between the first years (1-3) and the years 4-5 and there is no "paper" that gives the right to work after completing the first three years.
<b>Romania</b>		

<b>Teaching staff</b>		
Number of teaching staff (nationals)	Around 100 at each HEI = 1000 in all.	There is no national data on the number of teaching staff in pharmacy
Professionals from outside the HEIs, involved in E&T	Around 3%	The professionals from outside the HEI's involved in E&T are community pharmacists in charge of the traineeship period, researchers from hospitals or research units.
<b>Students</b>		
Number of places at entry	Around 150 – 250 per HEI	Around 150-200 students for smaller schools and 250 for Bucharest and Cluj.
Number of applicants for entry	300-400 per HEI	Around 2 applicants per place.
Graduates that become registered pharmacists.	150 - 250	
International students (EU)	2%	Students from Bulgaria, Germany, Greece
International students (non EU)	20%	Students from: Albania, Jordan, Iraq, Iran, Israel, Lebanon, Macedonia, Moldavia, Mongolia, Morocco, Nigeria, Palestine, Syria, Tunisia. The same conditions for entry apply as well as a test of English. We provide pharmacy courses in English.
<b>Entry requirements (beginning of S1 of B1, following secondary school)</b>		
Specific pharmacy-related, entrance examination	Yes	Botany or Anatomy and Organic Chemistry – these subjects are examined during specific exams to enter pharmacy studies
Other form of entry requirement at a national level	Yes	Graduates who already have a degree from other faculties (Medicine, Chemistry, Biology) and want a pharmacy degree also, can start from an advanced entry, 2 <sup>nd</sup> or the 3 <sup>rd</sup> year.
Is there a national <i>numerus clausus</i> ?	No	
<b>Advanced entry</b>		
At which level?		
What are the requirements?		
<b>Fees per year</b>		
For home students	1190 €	Half of places are paid by government and the other half by the students.
For EU MS students	1190 €	
For non EU students	5000 €	
<b>Length of course</b>	<b>5 years</b>	
<b>Bucharest</b>		
<b>Teaching staff</b>		
Number of teaching staff (nationals)	123	The staff is made of assistant professors, associate professors, professors with full position.
Professionals from outside the HEIs, involved in E&T	2-3%	The professionals from outside our HEI's involved in E&T are community pharmacists in charge of the traineeship period, researchers from hospitals or research units.
<b>Students</b>		
Number of places at entry	250	<a href="http://www.univermed-cdgm.ro/?pid=1693">http://www.univermed-cdgm.ro/?pid=1693</a> , in 2009

Number of applicants for entry	400	
Graduates that become registered pharmacists.	250	As all graduates become registered pharmacists this means that the Romanian government authorities accept the pharmacy degree as being sufficient proof of competence and do not have any further requirements such as a pre-registration of practice followed by an examination set by the pharmacy council, for example.
Number of international students (EU)	7	Students from Bulgaria, Germany, Greece
Number of international students (non EU)	68	Students from: Albania, Jordan, Iraq, Iran, Israel, Lebanon, Macedonia, Moldavia, Mongolia, Morocco, Nigeria, Palestine, Siria, Tunisia
<b>Specialization</b>		
Does your HEI provide specialized courses?	Yes	
In which years?	Postgraduate	
In which specialisation (industry, hospital...)?		<p>Specialisation in Pharmaceutical Laboratory and Clinical Pharmacy</p> <p>The disciplines studied in Pharmaceutical Laboratory specialisation are:</p> <ol style="list-style-type: none"> <li>1. Methodology of the scientific research</li> <li>2. Elements of mathematics and biostatistics in laboratory analysis</li> <li>3. Legislation and Management in pharmaceutical laboratory</li> <li>4. Biochemistry</li> <li>5. Evaluation of therapeutic effects, analysis and control of the vegetal products</li> <li>6. Experimental pharmacology</li> <li>7. Elements of informatics in pharmaceutical laboratory</li> <li>8. Food hygiene</li> <li>9. Toxicology</li> </ol> <p>The disciplines of Clinical Pharmacy are:</p> <ol style="list-style-type: none"> <li>1. Pharmacology, Pharmacotherapy, Clinical pharmacy</li> <li>2. Biochemistry</li> <li>3. Pharmaceutical chemistry</li> <li>4. Legislation, management and marketing</li> <li>5. Toxicology</li> <li>6. Pharmacognosy</li> </ol>
What are the student numbers in each specialization?	20 in clinical pharmacy, 10 in pharmaceutical laboratory	
<b>Past and present changes in E&amp;T</b>		
Major changes since 1999 at your HEI?	No	
Major changes envisaged before 2019.	No	
Is your HEI typical of all HEIs in Romania?	Yes	

<b>References and websites</b>	
National law	<p>Legea invatamantului nr. <b>84/1995</b> din 24/07/1995, actualizata la 20.07.2006, Education Law  <a href="http://www.univermed-dgm.ro/dwl/01_Legea_Invatamantului.pdf">http://www.univermed-dgm.ro/dwl/01_Legea_Invatamantului.pdf</a></p> <p>Lege nr. 288 / 24.06.2004 privind organizarea studiilor universitare, M.Of. Partea I nr 614/7.07.2004, Law regarding the organization of university studies</p>

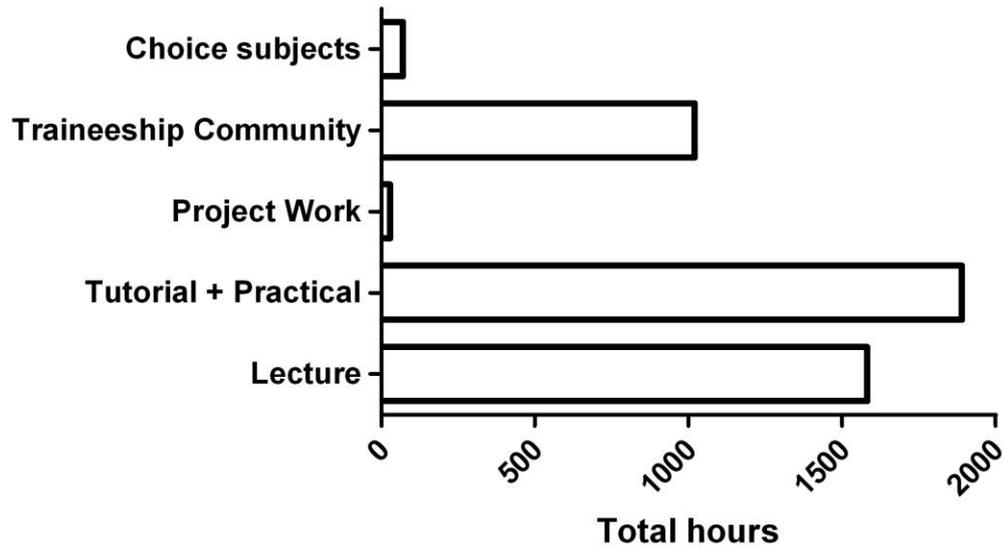
	<p><a href="http://www.univermed-cdgm.ro/dwl/04_Legea_privind_organizarea_studiilor_universitare.pdf">http://www.univermed-cdgm.ro/dwl/04_Legea_privind_organizarea_studiilor_universitare.pdf</a></p> <p><a href="http://www.univermed-cdgm.ro/?pid=1693">http://www.univermed-cdgm.ro/?pid=1693</a>  <a href="http://www.ceebd.co.uk/ceed/un/rom/ro003.htm">http://www.ceebd.co.uk/ceed/un/rom/ro003.htm</a>  <a href="http://www.4icu.org/reviews/3940.htm">http://www.4icu.org/reviews/3940.htm</a></p> <p>Hotărârea Guvernului României nr. 1257/2005 din 18/10/2005 privind aprobarea Regulamentului de organizare și funcționare al Agenției Române de Asigurare a Calității în Învățământul Superior (ARACIS), Publicat în Monitorul Oficial, Partea I nr. 966 din 01/11/2005, Romanian Government resolution regarding the approval of the Rules for Organising and Function of Romanian Agency for Quality Assurance  <a href="http://www.aracis.ro/uploads/media/HG_nr_1257.pdf">http://www.aracis.ro/uploads/media/HG_nr_1257.pdf</a></p> <p>Lege nr. 288 din 24 iunie 2004 privind organizarea studiilor universitare Publicat în Monitorul Oficial, Partea I nr. 614 din 7 iulie 2004, Law regarding the organization of university studies  <a href="http://www.univermed-cdgm.ro/dwl/04_Legea_privind_organizarea_studiilor_universitare.pdf">http://www.univermed-cdgm.ro/dwl/04_Legea_privind_organizarea_studiilor_universitare.pdf</a></p> <p><a href="http://www.univermed-cdgm.ro/dwl/01_Legea_Invatamantului.pdf">Legea invatamantului</a>, Lege nr. 84/1995 din 24/07/1995, versiune actualizată la data de 20/07/2006, Education Law actualized until 20.07.2006,  <a href="http://www.univermed-cdgm.ro/dwl/01_Legea_Invatamantului.pdf">http://www.univermed-cdgm.ro/dwl/01_Legea_Invatamantului.pdf</a></p> <p>Lege nr. 128 din 12 iulie 1997 privind Statutul personalului didactic , publicat în Monitorul Oficial, Partea I nr. 158 din 16 iulie 1997  <a href="http://www.univermed-cdgm.ro/dwl/02_Legea_privind_Statutul_personalului_didactic.pdf">http://www.univermed-cdgm.ro/dwl/02_Legea_privind_Statutul_personalului_didactic.pdf</a></p> <p>Lege nr. 288 din 24 iunie 2004 privind organizarea studiilor universitare, Publicat în Monitorul Oficial, Partea I nr. 614 din 7 iulie 2004, Law regarding the organization of academic studies  <a href="http://www.univermed-cdgm.ro/dwl/04_Legea_privind_organizarea_studiilor_universitare.pdf">http://www.univermed-cdgm.ro/dwl/04_Legea_privind_organizarea_studiilor_universitare.pdf</a></p>
EU	<p>EC Directive 2005/36/EC  <a href="http://ec.europa.eu/internal_market/qualifications/future_en.htm">http://ec.europa.eu/internal_market/qualifications/future_en.htm</a></p>

### Chapter 3. Teaching and learning methods

Method	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
<b>HEIs courses</b>						
Lecture	308	322	378	378	196	<b>1582</b>
Tutorial + Practical	462	406	364	420	238	<b>1890</b>
Project work	-	-	-	-	28	<b>28</b>
<b>Traineeship</b>						
Community	60	60	60	60	780	<b>1020</b>
<b>Subtotal:</b>	<b>830</b>	<b>788</b>	<b>802</b>	<b>858</b>	<b>1242</b>	<b>4520</b>
<b>Electives</b>						
Choice	14	14	14	14	14	<b>70</b>
<b>Total:</b>	<b>844</b>	<b>802</b>	<b>816</b>	<b>872</b>	<b>1256</b>	<b>4590</b>

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EU	<p>EC Directive 2005/36/EC  <a href="http://ec.europa.eu/internal_market/qualifications/future_en.htm">http://ec.europa.eu/internal_market/qualifications/future_en.htm</a></p>

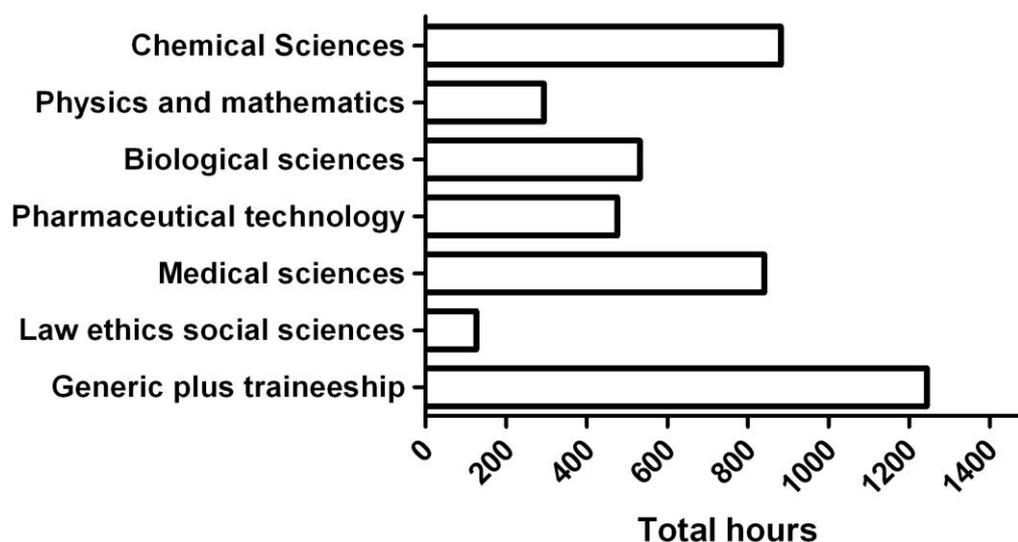
### Hours by learning methods



## Chapter 4. Subject areas

Subject area	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
<b>CHEMSCI</b>	<b>238</b>	<b>238</b>	<b>238</b>	<b>168</b>	-	<b>882</b>
<b>PHYSMATH</b>	238	-	-	56	-	<b>294</b>
<b>BIOLSCI</b>	154	14	336	14	14	<b>532</b>
<b>PHARMTECH</b>	28	14	84	140	210	<b>476</b>
<b>MEDISCI</b>	-	182	98	392	168	<b>840</b>
<b>LAWSOC</b>	14	14	-	42	56	<b>126</b>
<b>GENERIC + TRAINEESHIP</b>	172	172	60	60	780	<b>1244</b>
<b>TOTAL</b>	<b>844</b>	<b>634</b>	<b>816</b>	<b>872</b>	<b>1228</b>	<b>4394</b>

### Hours by subject area



References and websites	
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EU	<p>EC Directive 2005/36/EC  <a href="http://ec.europa.eu/internal_market/qualifications/future_en.htm">http://ec.europa.eu/internal_market/qualifications/future_en.htm</a></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	Diploma Supplement is according to European directives (it is in Romanian and English)
2. Two main cycles (B and M) <u>with entry and exit at B level</u>	No	We have a 5-year integrated course with no possibility of graduation after 3 years.
3. ECTS system of credits / links to LLL	Yes	Theoretically, this system was accepted and formally adopted in 1998. CPD is compulsory. Renewal of a licence to practice depends on proof of assiduity at CPD courses (organised by faculties of pharmacy and/or the College of Pharmacists) or participating in scientific conferences and subscribing to pharmaceutical magazines. Each pharmacist must gather 40 "Credit Points" of Pharmaceutical Education every year. After presenting the proof (diplomas, subscriptions) to the College the licence to practice is renewed. There is no link between pre-and post-graduate systems of credit points.
4. Obstacles to mobility	Yes	Both language barriers and finance. Only incoming students receive language tuition. Outgoing ones can apply but usually don't receive. We do not have supplementary travel scholarships
5. European QA	No	Not yet, but in the near future. Pharmacy courses and traineeship are validated by the Ministry of Education and the Romanian Agency for Quality Assurance in Higher Education (ARACIS <a href="http://www.aracis.ro/">http://www.aracis.ro/</a> ).
6. European dimension	Yes	Our staff is involved in European Projects: - Cooperation in Science and Technology (COST) - Joint Research Center (JRC) Ispra The EU collaboration in the field of education is rather absent.
ERASMUS staff exchange to your HEI from elsewhere		0
ERASMUS staff exchange from your HEI to other HEIs		0
ERASMUS student exchange to your HEI from elsewhere		0
ERASMUS student exchange from your HEI to other HEIs		Number of student months: 3-6 2 students in 2008 3 students in 2009, all to Italy

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[http://www.univermed-cdgm.ro/dwl/01\\_Legea\\_Invatamantului.pdf](http://www.univermed-cdgm.ro/dwl/01_Legea_Invatamantului.pdf)

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[http://www.univermed-cdgm.ro/dwl/08\\_HG\\_1257\\_2005\\_Regulament\\_organizare\\_functionare\\_ARACIS.pdf](http://www.univermed-cdgm.ro/dwl/08_HG_1257_2005_Regulament_organizare_functionare_ARACIS.pdf)  
[Hotarare nr. 1175/2006 privind organizarea studiilor universitare de licenta si aprobarea listei domeniilor si specializarilor din cadrul acestora](http://www.univermed-cdgm.ro/dwl/08_HG_1257_2005_Regulament_organizare_functionare_ARACIS.pdf)

[Nomenclatorul domeniilor de studii universitare de licenta si al specializarilor din cadrul acestora, al specializarilor reglementate sectorial si/sau general, precum si numarul de credite de studiu transferabile](http://www.univermed-cdgm.ro/dwl/10_HG_676_2007_Domenii_studii_de_licenta.pdf), București, Nr. 67628 iunie 2007, Classification of the licence academic studies and the specializations that are regulated as well as the number of credits of transfer and accumulation  
[http://www.univermed-cdgm.ro/dwl/10\\_HG\\_676\\_2007\\_Domenii\\_studii\\_de\\_licenta.pdf](http://www.univermed-cdgm.ro/dwl/10_HG_676_2007_Domenii_studii_de_licenta.pdf)

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## 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> ,...”	Duration 5 years	
“ <u>...four years of full-time theoretical and practical training</u> at a university or at a higher institute of a level recognised as equivalent, or under the supervision of a university;”	Yes, applied ad literam (4.5 years of full time theoretical and practical training and 6 months of traineeship in hospital or community pharmacy)	Professors from the pharmaceutical technology department validate the traineeship through an oral / written examination in which the student must solve a problem in pharmaceutical technology (e.g. a pharmaceutical preparation). At the end of this period, the student must also present a notebook with his/her activity in the practice period and be able to answer questions regarding pharmaceutical practice.
“ <u>...six-month traineeship in a pharmacy</u> which is open to the public or in a hospital, under the supervision of that hospital's pharmaceutical department.”	yes	Industrial traineeship is allowed in lieu of community or hospital traineeship, but for only 1 of the 6 compulsory months.
“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> ”	Yes	
Directive annex	How does / will this directive annex affect pharmacy E&T?	If you wish to expand your answer, please add your comments below. Do you consider the directive annex valid? If not how would you change it?
<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 /	2005 curricula is in fact “old” and represents an obstacle in updating pharmaceutical education to general frame	We would change the annex by changing the importance of certain subjects:  Greater importance: Biopharmacy, I.T., Bioanalytics, Medicinal chemistry, Physio-pathology, Bioanorganic chemistry  Less importance: Inorganic chemistry, Anatomy

<p>General and applied biochemistry (medical) / Anatomy and physiology; medical terminology / Microbiology / Pharmacology and pharmacotherapy / Pharmaceutical technology / Toxicology / Pharmacognosy / Legislation and, where appropriate, professional ethics.</p>		<p>Biopharmacy – release of drugs from pharmaceutical formulations, bioavailability and pharmacokinetics.          Bioanalytics – assay of drugs in biological fluids          Bioorganic- complexes of ionic metals with enzymes and proteins.</p>
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<p>Bibliographic references (EU, national, international)</p>	<p>2005/36/CE European Parliament and Council Directive 7.09. 2005 regarding professional qualifications  <a href="#">Acord intre Comunitatea Economica Europeana si Republica Islanda de cooperare in domeniul educatiei si formarii profesionale in cadrul programului Erasmus</a>, L332/22, JO EC nr.11, vol 6, p.226, Agreement for cooperation regarding education and professional formation in the ERASMUS program between CEE and the Republic of Island</p> <p><a href="#">Conventia privind Definirea Statutului Scolilor Europene</a> L 212/3, JO EC nr. 16, vol 1, p. 16, Convention regarding Defining the Statute of the European Schools</p> <p><a href="#">Acord intre Comunitatea Europeana si Guvernul Canadei de reinnoire a programului de cooperare in domeniul invatamantului superior si al formarii profesionale</a>, L 71/16 JO EC nr. 11, vol 22, p.216, Agreement between European Community and the Government of Canada for the renewal of the cooperation in higher education and professional formation</p> <p><a href="#">Acord intre Comunitatea Europeana si Statele Unite ale Americii de reinnoire a programului de cooperare in domeniul invatamantului superior si al invatamantului si formarii profesionale</a>, L 346/34, nr 11, vol 51, p. 32, Agreement between European Community and the USA for the renewal of the cooperation program in higher education and education and professional forming</p>

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[Decizia Consiliului din 16 iulie 1985 privind echivalarea calificarilor profesionale intre statele membre ale Comunitatii Europene \(85/368/CEE\)](#) L 199/56, JO EC 06/vol 1, p.113, European Council Decision regarding the equivalence of professional qualifications between member states of the European Community

[Decizia consiliului din 16 septembrie 1985 privind constituirea unui Comitet consultativ pentru formare profesionala in domeniul farmaciei \(85/434/CEE\)](#), L253/43, JO EC 01/vol 1, p. 53, European Council Decision regarding the formation of an advisory Committee for professional formation in pharmacy

[Regulamentul \(CEE\) NR 1360/90 al Consiliului din 7 mai 1990 privind infiintarea Fundatiei Europene de Formare](#), L 131/1, JO EC nr.01/vol1, p. 86, European Council Regulation regarding the creation of the European Formation Foundation

[Decizia Consiliului de Directie privind accesul public la documentele Fundatiei Europene de Formare \(97/C 369/11\)](#), C 369/10, OJ EC 01/vol1, p. 182, Decision of the Direction Council regarding public access to documents of the European Formation Foundation

[Decizia nr. 2317/2003/CE a Parlamentului European si a Consiliului din 5 decembrie 2003 de stabilire a unui program pentru ameliorarea calitatii invatamantului superior si promovarea intelegerii interculturale prin cooperare cu tari terte \(Erasmus Mundus\) \(2004-2008\)](#), L 345/1, OJ EC 16, vol 1 p. 239, European Parliament and Council Decision for establishing a program for improving the quality of higher education and promotion of intercultural agreement by cooperation with third countries

[Decizia nr. 2241/2004/CE a Parlamentului European si a Consiliului din 15 decembrie 2004 de instituire a unui cadru comunitar unic pentru transparenta calificarilor si competentelor \(Europass\)](#), L 390/6, OJ EC 16 vol 2, p.5, European Parliament and Council Decision for establishing a unique community framework for transparent of qualifications and competencies

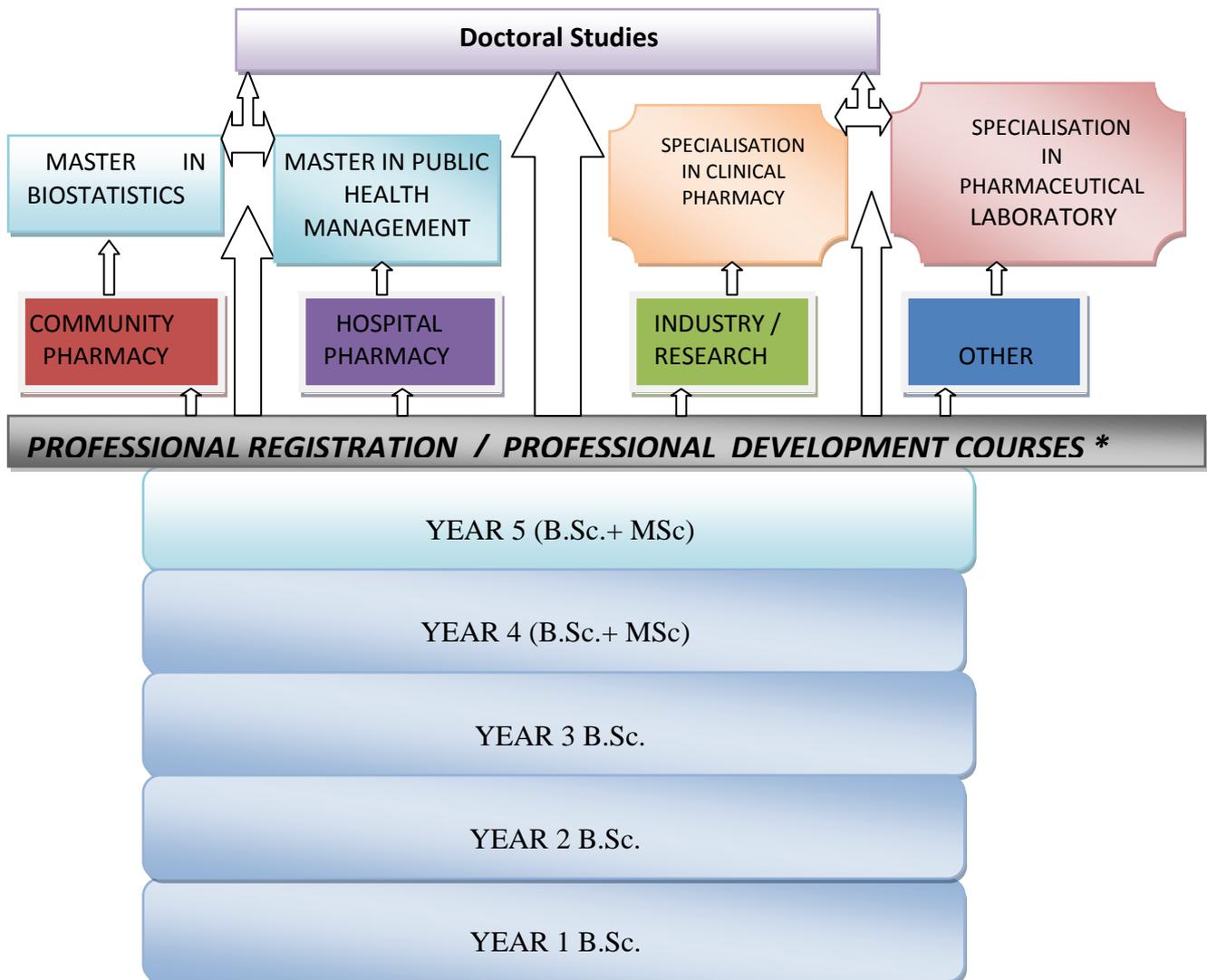
[Decizia nr. 1719/2006/CE a Parlamentului European si a Consiliului din 15 noiembrie 2006 de instituire a programului Tineretul in actiune pentru perioada 2007-2013](#), L 327/30, OJ EC nr 16 vol 3, p. 10, European Parliament and Council Decision for establishing a programme The Youth in action for 2007-2013

[Decizia nr. 1720/2006/CE a Parlamentului European si a Consiliului din 15 noiembrie 2006 de stabilire a unui program de actiune in domeniul invatarii continue](#), L 327/45, OJ EC nr 16, vol 3, p. 25, European Parliament and Council Decision for establishing an action programme for continuing education

[Recomandarea Parlamentului European si a Consiliului din 23 aprilie 2008 privind stabilirea Cadrelui european al calificarilor pentru invatarea de-a lungul vietii \(2008/C 111/01\)](#), C 111/1, European Parliament and Council Recommendation regarding the establishment of the European Qualification Card for Life Long Learning

<http://eur-lex.europa.eu/ro/legis/20080601/chap1630.htm>

## The Romanian system of pharmacy education and training



**1. \*The professional development courses offered by the Faculty of Pharmacy in Bucharest are the following: Asigurarea calitatii preparatelor farmaceutice sterile.**

*Quality assurance for pharmaceutical sterile products*

**2. Proiectarea si formularea comprimatelor "perorale".**

*Design and formulation of "peroral" tablets*

**3. Tehnologii moderne de granulare farmaceutica.**

*Modern granulation pharmaceutical technologies*

**4. Aplicatiile farmaceutice ale emulsiilor si suspensiilor.**

*Therapeutical application of emulsions and suspensions*

**5. Design-ul, tehnologii de obtinere si aplicatiile sistemelor terapeutice transdermice.**

*Design and technologies for obtaining and application of therapeutical transdermic systems*

**6. Rolul farmacistului in comunicare si complianta.**

*Pharmacists's role in communication and compliance*

**7. Acoperirea comprimatelor si peletelor.**

*Coating of the tablets*

**8. Homeopatie.**

*Homeopathy*

**9. Preparate farmaceutice de inhalat si presurizate.**

*Presurised pharmaceutical products for inhalation*

**10. Caracteristici tehnico-administrative ale medicamentului.**

*Technical – administrative characteristics of medicine*

**11. Strategii de imbunatatire a eliberarii dermice a substantelor medicamentoase.**

*Strategies for improving the dermal release of active substances*

**Aspecte de formulare a preparatelor administrate in medicatia geriatria.**

*Formulation aspects of products administered in geriatric population*

**12. Aspecte de formulare a preparatelor administrate in medicatia pediatria.**

*Aspects regarding formulation of products administered in pediatric therapy*

**13. Tehnici de promovare in industria farmaceutica.**

*Techniques for promotion in the pharmaceutical industry*

**14. Capsule gelatinoase-formulare si tehnologii de obtinere.**

*Softgel – formulation and obtaining technologies*

**15. Sisteme orale de eliberare a substantelor medicamentoase.**

*Oral system for releasing medical substances*

**16. Sisteme de eliberare oculara a substantelor medicamentoase.**

*Systems for ocular application*

**17. Forme farmaceutice cu administrare intravaginala.**

*Pharmaceutical formulations for vaginal administration*

**18. Metode moderne in controlul calitatii medicamentelor.**

*Modern methods in quality control of medicines*

**19. Controlul calitatii preparatelor de origine vegetala.**

*Quality control for formulations of vegetal origin*

**20. Controlul calitatii formelor farmaceutice.**

*Quality control of pharmaceutical formulations*

**21. Controlul calitatii preparatelor de uz stomatologic.**

*Quality control for dental products*

**22. Calitatea medicamentului.**

*Quality of drugs*

**23. Aspecte noi privind analizele de laborator clinic. Notiuni de nutritie si dietoterapie.**

*New aspects regarding clinical lab analysis. Notions of nutrition and dietotherapy*

**24. Administratie sanitara-Management si Marketing farmaceutic.**

*Health administration – Pharmaceutical management and marketing*

**25. Politica nationala a medicamentului. Legislatie nationala, legislatie europeana.**

*National medicine policy. National and European legislation*

**26. Economie farmaceutica--Management si Marketing in domeniul farmaceutic.**

*Pharmaceutical economy – Pharmaceutical management and marketing*

**27. Etica si deontologie farmaceutica in context european.**

*Ethics and deontology in European context.*

**28. Consultatia minimala in farmacia de comunitate.**

*Minimal consultation in community pharmacy*

**29. Atestat de Farmacologie Experimentală. – atestat de studii complementare**

*Experimental Pharmacology – complementary studies*

**30. Metaloporfirine in terapia fotodinamica a cancerului.**

*Metaporphirines in the photodynamic cancer therapy*

**31. Mecanisme biochimice implicate in actiunea medicamentelor.**

*Biochemical mechanisms involved in the drugs action*

**33. Medicamente biologice in practica farmaceutica.**

*Biological medicines in pharmaceutical practice*

**34. Interferonii si interleukinele.**

*Interferons and interleukines*

**35. Medicamente obtinute prin inginerie genetica.**

*Medicines obtained by genetic engineering*

**36. Toxicologia medicamentelor.**

*Toxicology for medicines*

**37. Metode rapide pentru diagnosticarea intoxicatiilor acute medicamentoase.**

*Rapid methods for diagnosis of acute intoxications*

**38. Toxicologia impuritatilor aerului. Ecotoxicologie.**

*Toxicology of impurities in the air. Ecotoxicology*

**39. Controlul toxicologic al alimentelor.**

*Food toxicology control*

**40. Metode screening pentru detectarea in materiale biologice si corpuri delictive a substantelor care induc dependenta (medicamente, stupefiante, halucinogene).**

*Screening methods for detecting substances that induce addiction in biological materials and material evidence*

**41. Evaluari comparative ale actiunii stupefiantelor si halucinogenelor.**

*Comparative evaluation of the drugs and hallucinogenic action*

**42. Metode de separare electroforetice. Aplicatii in controlul medicamentului.**

*Electroforetic methods of separation. Applications in medicines control*

- 43. Metode spectrofotometrice in vizibil si UV aplicate la controlul calitatii formelor farmaceutice.**  
*Spectrophotometric methods in visible and UV applied to quality control of pharmaceutical formulations*
- 44. Asigurarea calitatii in laboratorul de control fizico-chimic al medicamentului.**  
*Quality assurance in the physico-chemical medicine control laboratory*
- 45. Spectrometria de absorbtie si emisie atomica- metoda de investigare a puritatii substantelor si formelor farmaceutice.**  
*Atomic absorption and emission spectrometry – method for investigating the purity of the substances and pharmaceutical formulations*
- 46. Stabilitatea formelor farmaceutice – parametru de apreciere a calitatii medicamentelor.**  
*Stability of pharmaceutical formulations – parameter for evaluating the quality of the medicines*
- 47. Cromatografia de lichide de inalta performanta – metoda de electie in determinarea puritatii si dozarea substantelor farmaceutice.**  
*HPLC – election method in determining purity and dosage of pharmaceutical substances*
- 48. Validarea metodelor analitice.**  
*Validation of analytical methods*
- 49. Biofarmacia preparatelor orale.**  
*Biopharmacy of oral formulation*
- 50. Biofarmacia preparatelor dermice.**  
*Biopharmacy of dermic formulations*
- 51. Biofarmacia preparatelor oftalmice.**  
*Biopharmacy of eye formulations*
- 52. Medicamente anxiolitice.**  
*Anxiolytic drugs*
- 53. Medicamente antipsihotice.**  
*Antipsychotic drugs*
- 54. Medicamente hipnotice-sedative.**  
*Sedative-hypnotics drugs*
- 55. Medicamente antihipertensive.**  
*Medicines for high blood pressure*
- 56. Medicamente de uz veterinar.**  
*Veterinary medicines*
- 57. Substante psihotrope de natura vegetala si animala.**  
*Psychotropic substances vegetal and animal*
- 58. Ciuperci terapeutice.**  
*Therapeutic mushrooms*
- 59. Actualitati privind analiza si controlul preparatelor farmaceutice de natura vegetala.**  
*News regarding the analysis and control of pharmaceutical formulations*
- 60. Fitoterapia afectiunilor gastro-intestinale.**  
*Phytotherapy of gastro-intestinal diseases*
- 61. Modalitati de standardizare a productiei de medicamente.**  
*Ways of standardization medicine production*
- 62. Combaterea alcoolismului.**  
*Alcoholism treatment*
- 63. Analiza compusilor organici prin metode cromatografice si spectrale.**  
*Analysis of organic compounds using chromatography and spectral methods*
- 64. Bazele teoretice ale chimiei bioorganice.**  
*Theoretical basis of bio-organic chemistry*
- 65. Noi aspecte privind rezistenta microbiana. Mecanisme de rezistenta, dificultati in testarea rezistentei bacteriene, implicatii clinico – epidemiologice. Masuri de prevenire si control a transmiterii bacteriilor cu inalta rezistenta la antibiotice.**  
*New aspects regarding microbial resistance. Mechanisms, difficulties in testing clinical-epidemiological implications . Measures of prevention and control of transmission of bacterias with high resistance to antibiotics*
- 66. Bioterrorismul si armele biologice. Managementul crizei biologice, profilaxie, scheme moderne de tratament.**  
*Bioterrorism and biological weapons. Biological crisis management, modern treatment schemes*
- 67. Laboratoarele de microbiologie securizate; laboratoarele de nivel 1, 2, 3, 4; biobazele 1, 2, 3, 4; norme de protectie a muncii in laborator. Bioprotectie, biosiguranta, biosecuritate.**  
*Safety microbiology labs: level 1,2,3,4 labs bio-bases 1,2,3,4, regulations for work protection in the lab. Bio-protection, bio-safety, bio-security*
- 68. Actualitati in micologia medicala. Diagnosticul de laborator al candidozelor; cand si cum testam sensibilitatea Candidei spp? Cum interpreteaza clinicianul rezultatul eliberat de laborator?**  
*News in medical mycology. Diagnostic of candidiasis in the lab; when and how we test sensibility for Candida spp. ? How does the clinician interpret the result from the laboratory ?*



Education and Culture DG

Lifelong Learning Programme

**PHARMINE**  
*Pharmacy Education  
in Europe*

**PCN**

*Pharmacolor  
Consultants  
Nancy*



**UNIVERSITY OF TARTU**



Vrije  
Universiteit  
Brussel

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Henri Poincaré

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

**Website: [www.pharmine.org](http://www.pharmine.org)**

Pharmacy education & training in

# SLOVAKIA

2011



**PHARMINE**  
*Pharmacy Education  
in Europe*

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.

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

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## Summary.

Community pharmacies in Slovakia provide traditional community pharmacy services. Internet pharmacies are operating and are linked to community pharmacies. Ownership and geographical distribution of community pharmacies are not restricted by any rules. However, pharmacist should be employed as pharmacy manager to open pharmacy. At community pharmacy there are working pharmacists, pharmacy technicians and pharmacy sanitary.

Comenius University only provides uninterrupted studies in pharmacy on Master level. There exists a specific pharmacy-related entrance examination in chemistry and biology. During pharmacy studies the specialized courses are not provided.

Pharmacy education in Slovakia follows Bologna principles and EC directive 2005/36/EC.

## Introduction.

### Statistics for Slovakia.

Total population: 5 435 273

Gross national income per capita (PPP international \$): 11 400€

Life expectancy at birth m/f (years): 71/78

Healthy life expectancy at birth m/f (years, 2007): 64/70

Probability of dying under five (per 1 000 live births): 59

Probability of dying between 15 and 60 years m/f (per 1 000 population): 269

Total expenditure on health per capita (Intl \$, 2006): 735

Total expenditure on health as % of GDP (2006): 7,1

Detailed information is available at: World Health Statistics 2009:

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

### Highlights on health in Slovakia.

Healthcare systems in transition Slovakia (2004)

[http://www.euro.who.int/\\_data/assets/pdf\\_file/0007/95938/E85396.pdf](http://www.euro.who.int/_data/assets/pdf_file/0007/95938/E85396.pdf)

Pharmaceutical Pricing and Reimbursement Information

[http://ppri.oebig.at/Downloads/Results/Slovakia\\_PPRI\\_2007.pdf](http://ppri.oebig.at/Downloads/Results/Slovakia_PPRI_2007.pdf)

## 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	2900	
Number of community pharmacies	1848	
Competences and roles of community pharmacists		Competencies of community pharmacists/ Supplying prescription medicines <ol style="list-style-type: none"> <li>Managing medicines for some ailments</li> <li>Giving advice on medicines</li> <li>Screening services</li> <li>Internet pharmacy</li> </ol>
Is ownership of a community pharmacy limited to pharmacists?	No	Pharmacist has to be the responsible person for pharmacy.
Rules governing the geographical distribution of community pharmacies?	No	
Are drugs and healthcare products available to the general public by channels other than pharmacies?	No	There are internet pharmacies linked to community pharmacy.
Are persons other than pharmacists involved in community practice?	Yes	There are pharmaceutical laboratory technician and pharmaceutical sanitary persons.
Their titles and number(s)	2080	No title
Their qualifications		
Duration of studies (years)	2 or 3 years	2 years if the study is after finished general secondary school (3 years external study)
Competences and roles		Sale of OTC-medicines, administration of OTC and IPD in competence of pharmaceutical laboratory technician
<b>Hospital pharmacy</b>		
Does such a function exist?	Yes	
Number of hospital pharmacists	159	Section of hospital pharmacists at Slovak Chamber of Pharmacists
Number of hospital pharmacies	50	
Competences and roles of hospital pharmacists		Competencies of hospital pharmacists: <ol style="list-style-type: none"> <li>In wards or outpatient clinics</li> <li>Consultant in specialised clinical areas such as paediatrics or intensive care</li> <li>Part of multidisciplinary patient-care team</li> <li>Purchasing of drugs and medical material</li> </ol>

- e. Monitoring of drug use
- f. Unit-dose drug distribution
- g. Production of patient-specific medicines (e.g. cytotoxic preparations)
- e. In some hospital pharmacies, the radio-medicines pharmacy

#### Pharmaceutical and related industries

Number of companies with production, R&D and distribution	110	<a href="#">Abbott Laboratories Slovakia s.r.o.</a> <a href="#">Asta Medica s.r.o.</a> <a href="#">AstraZeneca</a> <a href="#">Aventis</a> <a href="#">Boehringer Ingelheim</a> <a href="#">Bristol - Myers Squibb</a> <a href="#">Eli Lilly</a> <a href="#">GlaxoSmithKline Slovakia s.r.o.</a> <a href="#">ICN Czech Republic a.s.</a> <a href="#">Janssen-Cilag</a> <a href="#">Knoll s.r.o.</a> <a href="#">Laboratoires Fournier</a> <a href="#">Lek d.d., o.z.</a> <a href="#">Lundbeck</a> <a href="#">Medochemie Ltd. o.z.</a> <a href="#">Merck Sharp &amp; Dohme</a> <a href="#">Novartis</a> <a href="#">Novo Nordisk A/S</a> <a href="#">Parke - Davis</a> <a href="#">Pfizer</a> <a href="#">Pharmacia (Pharmacia&amp;Upjohn)</a> <a href="#">Pliva</a> <a href="#">Roche</a> <a href="#">Sanofi Pasteur GmbH</a> <a href="#">Searle</a> <a href="#">Schering</a> <a href="#">Schering Plough</a> <a href="#">SmithKline Beecham</a> <a href="#">Solvay Pharma</a> <a href="#">UCB Pharma, s.r.o.</a> <a href="#">Unimed Pharma s.r.o.</a> <a href="#">Wörwag Pharma GmbH&amp;Co.</a> <a href="#">Wyeth - Lederle</a>
		Ctrl+Click on the name to go to the website of the company.
Number of companies with production only	14	
Number of companies with distribution only	12	
Number of companies producing generic drugs only	1	Zentiva a.s. <a href="http://www.zentiva.sk/">http://www.zentiva.sk/</a>
<b>Industrial pharmacy</b>		
Number of pharmacists working in industry	200	
Competences and roles of industrial pharmacists		Competencies of industrial pharmacists: <ul style="list-style-type: none"> <li>a. Synthesis and production of new chemical entities and drugs</li> </ul>

		<ul style="list-style-type: none"> <li>b. R&amp;D – drugs</li> <li>c. R&amp;D – health care products other than drugs</li> <li>d. Preclinical drug evaluation (safety and efficacy)</li> <li>e. Clinical drug evaluation (safety and efficacy)</li> <li>f. Marketing</li> <li>g. Distribution</li> <li>h. Medical devices</li> <li>i. Cosmetology</li> <li>j. Drug evaluation and registration (governmental and industrial)</li> </ul>
<b>Other sectors</b>		
Number of pharmacists working in other sectors	-	No available data
Sectors in which pharmacists are employed		<ul style="list-style-type: none"> <li>Government and ministries</li> <li>Regional government</li> <li>Academic position</li> <li>Science</li> <li>Journalism</li> <li>Forensics</li> <li>Armed forces</li> <li>Voluntary health organisations/non-governmental organisations</li> <li>Secondary school E&amp;T (biology, clinical chemistry...)</li> <li>National health services</li> <li>International health services</li> <li>Agricultural and veterinary pharmacy</li> <li>Administrators of pharmaceutical associations</li> </ul>
<b>Roles of professional associations</b>		
Registration of pharmacists	Yes	<p>Slovak Chamber of Pharmacists</p> <p>The Slovak Chamber of Pharmacists represents pharmacies and pharmacists. Its website provides an address book of pharmacies and a registry of members of the Chamber, hosts a discussion forum and provides a list of regional chambers.</p>
Creation of community pharmacies and control of territorial distribution	No	
Ethical and other aspects of professional conduct	Yes	<p>There exists the Code of Ethics for pharmacists.</p> <p>The ethical committees are based on system: EC Ministry of Health, Local EC (Health care facilities or R&amp;D institutions and Regional EC (State authority)</p>
Quality assurance and validation of HEI courses for pharmacists	Yes	<p>Accreditation Committee of Ministry of Education and specialisation studies – Ministry of health.</p>

## Websites

Ministerstvo zdravotníctva SR	<a href="http://www.health.gov.sk">www.health.gov.sk</a>
Svetová zdravotnícka organizácia	<a href="http://www.who.sk">www.who.sk</a>
Štátny ústav kontroly liečiv	<a href="http://www.sukl.sk">www.sukl.sk</a>
Slovenská lekárska komora	<a href="http://www.lekom.sk">www.lekom.sk</a>
Slovenská lekárska spoločnosť	<a href="http://www.slek.sk">www.slek.sk</a>
Asociácia lekárníkov Slovenska	<a href="http://www.als.sk">www.als.sk</a>
Slovenská lekárska spoločnosť	<a href="http://www.sls.sk">www.sls.sk</a>
Stredoeurópsky inštitút pre zdravotnú politiku - Health Policy Institute	<a href="http://www.hpi.sk">www.hpi.sk</a>
Asociácia distribútorov liekov a zdravotníckych pomôcok v SR	<a href="http://www.adl.sk">www.adl.sk</a>
Slovenská asociácia farmaceutických spoločností orientovaných na výskum a vývoj	<a href="http://www.safs.sk">www.safs.sk</a>
Úrad pre dohľad nad zdravotnou starostlivosťou	<a href="http://www.udzs.sk">www.udzs.sk</a>
Slovenská spoločnosť pre farmakoekonomiku	<a href="http://www.farmako-ekonomika.sk">www.farmako-ekonomika.sk</a>
Lekárska fakulta UK	<a href="http://www.fmed.uniba.sk">www.fmed.uniba.sk</a>
Farmaceutická fakulta UK	<a href="http://www.fpharm.uniba.sk">www.fpharm.uniba.sk</a>
Slovenská zdravotnícka univerzita	<a href="http://www.szu.sk">www.szu.sk</a>
Slovenská Zdravotnícka Sieť	<a href="http://www.healthnet.sk">www.healthnet.sk</a>
Zdravotnícky informačný servis	<a href="http://www.medicus.sk">www.medicus.sk</a>
NÁRODNÉ CENTRUM ZDRAVOTNÍCKYCH INFORMÁCIÍ	<a href="http://www.nczisk.sk">www.nczisk.sk</a>
Štatistický úrad	<a href="http://www.statistics.sk">www.statistics.sk</a>
I-Europa, s.r.o. - monitoringu vývoja politiky v oblasti zdravotníctva a farmaceutického priemyslu v EÚ i na Slovensku	<a href="http://www.euractiv.sk">www.euractiv.sk</a>
Asociácia na ochranu práv pacientov SR	<a href="http://www.aopp.sk">www.aopp.sk</a>
Zbierka zákonov	<a href="http://www.zbierka.sk">www.zbierka.sk</a>

## Chapter 2. Pharmacy HEIs, students and courses

	Y/N, number or %	If you wish to expand your answer, please add your comments below.
<b>Total number of Pharmacy HEIs in your country</b>	2	Comenius University Bratislava, Faculty of Pharmacy. <a href="http://www.fpharm.uniba.sk">www.fpharm.uniba.sk</a> University of Veterinary Medicine and Pharmacy <a href="http://www.uvm.sk/en/node/1437">http://www.uvm.sk/en/node/1437</a>
Public	2	
<b>Organisation of HEIs</b>		
Independent faculty	1	Comenius University in Bratislava <a href="http://www.fpharm.uniba.sk">www.fpharm.uniba.sk</a>
Other (please specify)	1	University of veterinary medicine and pharmacy
Do HEIs offer B + M degrees?	No	
Do HEIs offer an M. Pharm. after a B degree in another HEI?	No	Only M – Pharmacy (no B studies) Or B- Medical and Diagnostic device
<b>Bratislava-Slovakia</b>		
<b>Teaching staff</b>		
Number of teaching staff (nationals)	108	Professors 14, assistant-professors 32 at full time 20 teachers are on part time
Number of international teaching staff	3	Switzerland, Czech Republic, Austria
Number of professionals (pharmacists and others) from outside the HEIs, involved in E&T	350	80% Community pharmacists responsible for traineeship 20% partners for R&D (tutors for MSc, and PhD thesis)
<b>Students</b>		
Places at traditional entry (beginning of S1 of B1, following secondary school)	350	There are 250 Slovak and 100 foreigners . Amount is decision of Academic Senate of Faculty.
Number of applicants for entry	>1000	
Number of graduates that become registered/professional pharmacists.	200	There are 200-220 graduated Slovaks (registered about 85%, 10% for PhD and 5% others. 30-40 foreigners – no data
Number of international students (from EU member states)	350	10 countries of EU plus Serbia, Kuwait
Number of international students (non EU)	8	Serbia, Kuwait
<b>Entry requirements (beginning of S1 of B1, following secondary school)</b>		
Your HEI has a specific pharmacy-related entrance examination	Yes	Biology and Chemistry multiply test

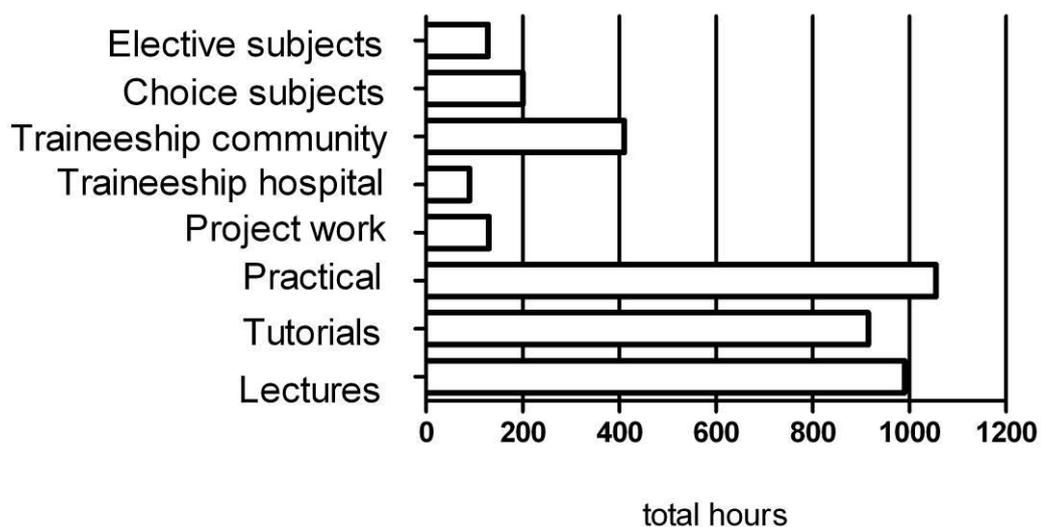
<b>Fees per year</b>		
For home students	0	
For EU MS students	7200 €	For those students studying in English.
For non EU students	7200 €	For those students studying in English.
<b>Length of course</b>	<b>5 years</b>	
<b>Specialization</b>		
Does your HEI provide specialized courses?	No	
<b>Past and present changes in E&amp;T</b>		
Have there been any major changes since 1999 at your HEI?	Yes	6 months pharmacy practice was introduced in pharmacy master curriculum.
Are any major changes envisaged before 2019 at your HEI?	Yes	2011 New study program for Pharmacy (English version not available now)
<b>Is your HEI typical of all HEIs in the country?</b>	Yes	
<b>References</b>		
References to texts and articles of national law	<a href="http://www.fpharm.uniba.sk">www.fpharm.uniba.sk</a>	

### Chapter 3. Teaching and learning methods

#### Student hours

Method	Year 1	Year 2	Year 3	Year 4	Year 5
<b>HEIs courses</b>					
Lecture	266	210	252	280	0
Tutorial	98	70	112	126	0
Practical	266	196	182	266	0
Project work	0	0	0	84	350
<b>Traineeship</b>					
Hospital	0	0	0	0	0
Community	0	0	0	160	800
<b>Electives</b>					
Choice	28	28	28	84	0
Optional	238	446	504	266	0

Hours by learning methods

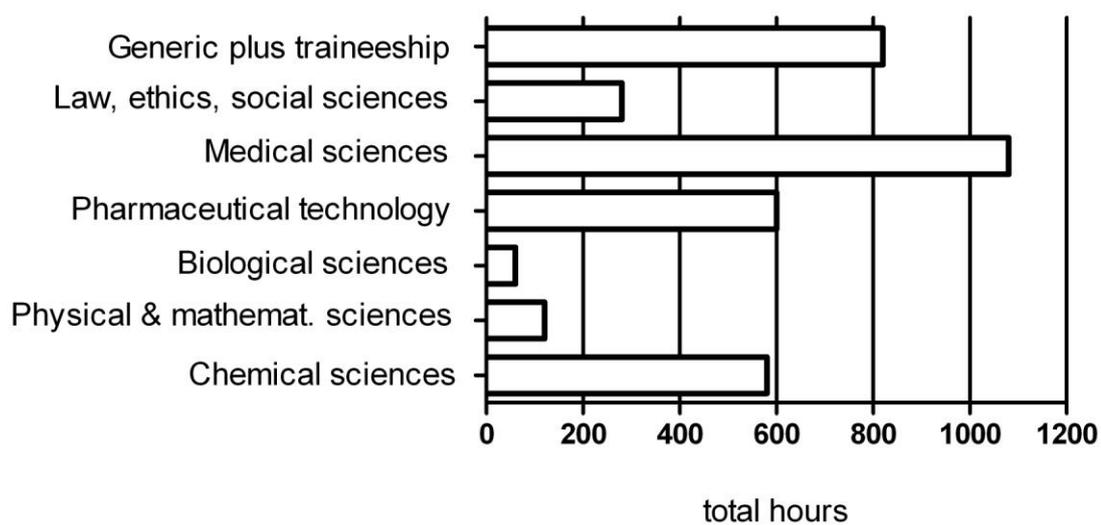


## Chapter 4. Subject areas

### Student hours

Subject area	Year 1	Year 2	Year 3	Year 4	Year 5
CHEMSCI	322	294	182	126	0
PHYSMATH	154	84	0	42	0
BIOLSCI	126	98	126	0	0
PHARMTECH	0	42	154	266	0
MEDISCI	112	196	350	224	0
LAWSOC	28	0	56	24	0
GENERIC	56	84	28	160	825

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.
<b>Comparable degrees / Diploma Supplement</b>	Yes	All documents could be issued in Slovak or/and English version.
<b>Two main cycles (B and M)</b>	No	
<b>ECTS system of credits / links to LLL</b>	Yes	2005 onwards
<b>Obstacles to mobility</b>	No	
<b>European QA</b>	No	
<b>ERASMUS staff exchange to your HEI from elsewhere</b>		0
<b>ERASMUS staff exchange from your HEI to other HEIs</b>		One teacher per year
<b>ERASMUS student exchange to your HEI from elsewhere</b>		1-2 students per year
<b>ERASMUS student exchange from your HEI to other HEIs</b>		Usually 3-5 students per year

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

The directive states	How does / will this directive statement affect pharmacy E&T?
“Evidence of formal qualifications as a pharmacist shall attest to training of at least <b>five years' duration...</b> ”	Five years
“ <b>...four years of full-time theoretical and practical training</b> at a university or at a higher institute of a level recognised as equivalent, or under the supervision of a university;”	Fulfilled
“ <b>...six-month traineeship in a pharmacy</b> which is open to the public or in a hospital, under the supervision of that hospital's pharmaceutical department.”	Fulfilled
“The balance between theoretical and practical training shall, in respect of each subject, give <b>sufficient importance to theory to maintain the university character of the training.</b> ”	Fulfilled
Directive annex	How does / will this directive annex affect pharmacy E&T?
<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.	Fulfilled



Education and Culture DG

Lifelong Learning Programme

**PHARMINE**  
*Pharmacy Education  
in Europe*

**PCN**

*Pharmacolor  
Consultants  
Nancy*



**UNIVERSITY OF TARTU**



Vrije  
Universiteit  
Brussel

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### PHARMINE

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

**Website: [www.pharmine.org](http://www.pharmine.org)**

Pharmacy education & training in

# SLOVENIA

2010



**PHARMINE**  
*Pharmacy Education  
in Europe*

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

## Introduction.

### Statistics for Slovenia.

Total population: 2,002,000

Gross national income per capita (PPP international \$): 4210

Life expectancy at birth m/f (years): 75/81

Healthy life expectancy at birth m/f (years, 2003): 69/74

Probability of dying under five (per 1 000 live births): 4

Probability of dying between 15 and 60 years m/f (per 1 000 population): 141/59

Total expenditure on health per capita (Intl \$, 2006): 2,063

Total expenditure on health as % of GDP (2006): 8.4%

Detailed information is available at: World Health Statistics 2009:

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

### Highlights on health in Slovenia.

Slovenia is by geographic position and by development part of Central Europe. It is in the group of high income countries. Life expectancy at birth and healthy life expectancy is similar to average in EU. Neonatal mortality rate, under 5 mortality rate, maternal mortality ratio and adolescent fertility rate are lower than average in region. Immunization coverage is high. Cardiovascular diseases and malignancies are the main mortality causes, the third are injuries. Median age is 41 yrs with 14% of population over 60 years, which shows tendency of ageing population with similar problems of health care and social care system as elsewhere in EU.

Slovenia has well dispersed primary health care system with regional hospitals (second level) and two university medical centres for tertiary health care service but with insufficiency of medical doctors. The number of pharmacists are also lower than average in EU (per population).

The “PHARMINE survey of European higher education institutions delivering pharmacy education & training – GERMANY” was produced by:

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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.uhp-nancy.fr](mailto:jeffrey.atkinson@pharma.uhp-nancy.fr)

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

	Y/N, number or %	Comments.
<b>Community pharmacy</b>		
Community pharmacists	2008: 906	2210 inhabitants per pharmacist 4.4 pharmacists per pharmacy
Community pharmacies	2008: 296	Branch pharmacies included 6764 inhabitants per pharmacy
Competences and roles of community pharmacists		According to Directive 2005/36/EC: <ul style="list-style-type: none"> <li>• Supplying prescription medicines</li> <li>• Managing medicines for some ailments</li> <li>• Giving advice on medicines</li> <li>• Screening services</li> <li>• Services to the housebound</li> <li>• Services to nursing and care homes (medication reviews, advice on storage and administration of medicines)</li> </ul>
Ownership of a pharmacy limited to pharmacists?	No	201 community pharmacies are owned by municipalities.  Private ownership of community pharmacies is limited to pharmacists. <a href="http://www.lzs.si/Aboutus/tabid/218/language/sl-SI/Default.aspx">http://www.lzs.si/Aboutus/tabid/218/language/sl-SI/Default.aspx</a>
Are there rules governing the distribution of pharmacies?	Yes	400 m street distance in towns; 6 km distance of branch pharmacy from the first nearest community pharmacy; 10 km distance of dispensing doctor from the first nearest community pharmacy (Resolution about health care organisation in Slovenia 2008-2013) <a href="http://www.uradni-list.si/1/objava.jsp?urlid=200436&amp;stevilka=1568">http://www.uradni-list.si/1/objava.jsp?urlid=200436&amp;stevilka=1568</a> <a href="http://www.mz.gov.si/fileadmin/mz.gov.si/pageuploads/aktualno/javna_razprava/javna_razprava_2008/nacionalni_plan_2008/Microsoft_Word_-_NPZV_javna_razprava_280108.pdf">http://www.mz.gov.si/fileadmin/mz.gov.si/pageuploads/aktualno/javna_razprava/javna_razprava_2008/nacionalni_plan_2008/Microsoft_Word_-_NPZV_javna_razprava_280108.pdf</a>
Healthcare products available by other channels	Yes	Specialized shops: some of them are registered for OTC also, some of them not; later may sell healthcare products only.  Only few pharmacies offer E-pharmacies service and only for OTC
Other persons involved in practice	Yes	Under supervision of pharmacist
Titles and number	456	Pharmacy technicians
Organisation providing and validating the E&T		Srednja šola za farmacijo, kozmetiko in zdravstvo; Secondary school for pharmacy, cosmetics and healthcare; <a href="http://www.ssfkz.si">www.ssfkz.si</a>
Duration of studies (years)	0.5	Pharmacy technicians do not have higher education; after 4 years of study and final exam at the end of secondary school, they have 6 months probation in pharmacy
Subject areas		Non-prescription medicines Storage and managing of medicines Non-medicinal healthcare products
Competences and roles		Managing medicines for some ailments Screening services Preparing some medicines

<b>Hospital pharmacy</b>		
Does such a function exist?	Yes	
Number of hospital pharmacists	78	They are organized as a section inside of Slovene chamber of pharmacy <a href="http://www.lzs.si/Aboutus/tabid/218/language/sl-SI/Default.aspx">http://www.lzs.si/Aboutus/tabid/218/language/sl-SI/Default.aspx</a>
Number of hospital pharmacies	29	Branch pharmacies included
Competences and roles of hospital pharmacists		According to Directive 2005/36/ES (Recognized competences differ very from hospital to hospital) <ul style="list-style-type: none"> <li>• In wards or outpatient clinics</li> <li>• Consultant in specialised clinical areas such as paediatrics or intensive care</li> <li>• Part of multidisciplinary patient-care team</li> <li>• Purchasing of drugs and medical material</li> <li>• Monitoring of drug use</li> <li>• Unit-dose drug distribution</li> <li>• Production of patient-specific medicines (cytotoxic preparations, radiopharmaceuticals)</li> </ul>
<b>Pharmaceutical and related industries</b>		
Companies with production, R&D and distribution	2	<a href="http://www.krka.biz/en/">http://www.krka.biz/en/</a> <a href="http://www.lek.si/en/">http://www.lek.si/en/</a>
Companies with production only	10	Pharmaceutical industry and Galenical laboratories <a href="http://www.krka.biz/en/">www.krka.biz/en/</a> <a href="http://www.lek.si/en/">www.lek.si/en/</a> <a href="http://www.galex.si">www.galex.si</a> <a href="http://www.marifarm.si">www.marifarm.si</a>
Companies with distribution only	5	About 60 companies are registered for distribution of pharmaceutical and healthcare products, 5 of them are classical distributional companies for pharmaceutical products: Kemofarmacija (Celesio), Salus, Farmadent, Sanolabor, Medis; About 80-100 pharmacists employed in sector of pharmaceutical product distribution (sales) <a href="http://www.kemofarmacija.si">www.kemofarmacija.si</a> , <a href="http://www.salus.si">www.salus.si</a> , <a href="http://www.medis.si">www.medis.si</a> , <a href="http://www.sanolabor.si">www.sanolabor.si</a>
Companies producing generic drugs only	3	Krka, Galex, Marifarm <a href="http://www.krka.biz/en/">www.krka.biz/en/</a> <a href="http://www.galex.si">www.galex.si</a> <a href="http://www.marifarm.si">www.marifarm.si</a>
<b>Industrial pharmacy</b>		
Pharmacists working in industry	470	470 in industry, another 420 in representative companies of foreign drug manufacturers
Competences and roles of industrial pharmacists		Depends on position and company: <ul style="list-style-type: none"> <li>• R&amp;D – drugs</li> <li>• R&amp;D – health care products other than drugs</li> <li>• Synthesis and production of new chemical entities and drugs</li> <li>• Preclinical drug evaluation (safety and efficacy)</li> <li>• Clinical drug evaluation (safety and efficacy)</li> <li>• Pharmaceutical products manufacturing</li> <li>• Marketing</li> <li>• Distribution</li> </ul>

		<ul style="list-style-type: none"> <li>• Medical devices</li> <li>• Cosmetology</li> <li>• Drug evaluation and registration (industrial)</li> </ul>
<b>Other sectors</b>		
Pharmacists working in other sectors	ca 150	
Sectors in which pharmacists are employed		Education (secondary and universities); Health insurance; Government, administration and legislation (Parliament, Agency for pharmaceutical products, Health inspectorate), National health institute
Competences of pharmacists in other sectors		Depends on sector and working position: in some area the same as basic competences of pharmacists, on some area defined by working place and not by professional education
<b>Roles of professional associations</b>		
Registration of pharmacists	No	Individual pharmacists are not registered, except private owners of community pharmacies, which are registered at the Ministry of health. According a Law of Pharmacy, all pharmacies (community, hospital or private) should be registered at the Slovene chamber of pharmacy <a href="http://www.lzs.si/Aboutus/tabid/218/language/sl-SI/Default.aspx">http://www.lzs.si/Aboutus/tabid/218/language/sl-SI/Default.aspx</a>
Creation of pharmacies and control of territorial distribution	No	The role is indirect through professional collegiate body for pharmacies (guidelines) or civil initiatives.
Ethical and other aspects of professional conduct	Yes	Codex of pharmaceutical ethics; Slovenian Pharmaceutical Society: for pharmacists, members of association The Deontology codex in pharmacy; Slovene chamber of pharmacy The Deontology Codex in laboratory medicine; Slovenian Chamber for laboratory medicine: for all who work in diagnostic laboratories, including pharmacist
Quality assurance and validation of HEI courses	Yes	Partially Slovene chamber of pharmacy, partially Faculty of pharmacy
Other (please specify)		Specialization programmes are completed by end exam and presentation of thesis. Courses organized by Slovenian Chamber of Pharmacy include final evaluation tests.

<b>References</b>	
References to texts and articles of national law	Zakon o lekarniški dejavnosti (uradno prečiščeno besedilo) (ZLD-UPB1) Ur.l. RS, št. 36/2004 - Pharmacies Act - official consolidated text Slovenian Chamber of Pharmacy, Statutes, Code of ethics <a href="http://www.sfd.si">www.sfd.si</a> ; <a href="http://www.lzs.si/Aboutus/tabid/218/language/sl-SI/Default.aspx">http://www.lzs.si/Aboutus/tabid/218/language/sl-SI/Default.aspx</a> , <a href="http://zakonodaja.gov.si/rpsi/r09/predpis_ZAKO4079.html">http://zakonodaja.gov.si/rpsi/r09/predpis_ZAKO4079.html</a> <a href="http://www.mz.gov.si/en/">http://www.mz.gov.si/en/</a>
References	Slovenian Chamber of Pharmacy, Annual report for 2008 <a href="http://www.lzs.si">www.lzs.si</a>

## Chapter 2. Pharmacy HEIs, students and courses

	Y/N, number or %	Comments.
<b>Total number of HEIs in Slovenia</b>	1	Only one with programme of Pharmacy: University of Ljubljana, Faculty of Pharmacy
Public	1	
<b>Organisation of HEIs</b>		
Independent faculty	Yes	<a href="http://www.ffa.uni-lj.si">www.ffa.uni-lj.si</a> In English : <a href="http://www.ffa.uni-lj.si/en.html">http://www.ffa.uni-lj.si/en.html</a>
Do HEIs offer B + M degrees?	No	B+M degree in Laboratory medicine, BUT not in pharmacy; M degree in Industrial pharmacy (BUT without competencies as a pharmacist according to Directive 2005/36/ES).  In pharmacy only 5-years programme (integrated B + M).
Do HEIs offer an M. Pharm. after a B degree in another HEI?	No	Not in pharmacy, only in Industrial pharmacy, which is M (+2) (M. Ind. Pharm.)
<b>Ljubljana - Slovenia</b>		
<b>Teaching staff</b>		
Number of teaching staff (nationals)	65	65 professionals employed at the faculty, 40 professionals from other faculties and outside the HEI
Number of international teaching staff (from EU MSs)	0	As guest teachers 3 – 8 persons per year
Number of international teaching staff (non EU)	0	As guest teachers 1 – 3 persons per year
Number professionals (pharmacists and others) from outside the HEIs, involved in E&T	40	Experts from pharmaceutical industry, Ministry of health, Health Insurance Institute of Slovenia, community pharmacies, laboratory medicine, Agency for pharmaceutical products, hospitals
<b>Students</b>		
Number of places at entry following secondary school	160-180	Yearly decision of Ministry for higher education, science and technology
Number of applicants for entry	220 - 250	<a href="http://www.vpis.uni-lj.si/">http://www.vpis.uni-lj.si/</a> <a href="http://www.vpis.uni-lj.si/podatki/pdf/31.pdf">http://www.vpis.uni-lj.si/podatki/pdf/31.pdf</a>
Number of graduates that become registered/professional pharmacists.	120	About 100 - 120 per year in last 5 years graduated (the generations on 1 <sup>st</sup> y till 2006 were 135), 10-15% change study program or drop out or discontinue the study for more than 2 years >80% graduates enter state examine for registered pharmacists. Others (without state exam) are employed as pharmacists in industry, legislative, education etc, where state exam is not necessary.
Number of international students (from EU member states)	1	Bulgaria (2010/11) The lectures are hold in Slovenian language. ERASMUS and other exchange students receive English study literature and individual mentoring by professors. Practical laboratory work: most subject have an English-speaking sub-group. All written and oral instructions are given in English. Exams: written and oral exams are provided in English language. Exchange students are expected to have at least intermediate level of

		English knowledge.
Number of international students (non EU)	13	Croatia, Macedonia, Serbia , Bosnia and Herzegovina The lectures are hold in Slovenian language. ERASMUS and other exchange students receive English study literature and individual mentoring by professors. Practical laboratory work: most subject have an English-speaking sub-group. All written and oral instructions are given in English. Exams: written and oral exams are provided in English language. Exchange students are expected to have at least intermediate level of English knowledge.
<b>Entry requirements (beginning of S1 of B1, following secondary school)</b>		
Specific national entrance examination	No	
Other form of entry requirement at a national level	Yes	General examination before graduation of general secondary school on the national level (for gymnasiums). Graduates of some secondary technical school (pharmacy, laboratory medicine, veterinary, cosmetics) may enter with additional examine from general examination
Is there a national <i>numerus clausus</i> ?	Yes	160 regular students and 16 for foreign students, graduates or parallel students In year 209/2010
<b>Fees per year</b>		
For home students	Amount (€): 0	The costs are covered from the state budget. For non EU students € 1700.
<b>Length of course</b>	<b>5 years</b>	
<b>Specialization</b>		
Do HEIs provide specialized courses?	Yes	Theoretical part of <u>postgraduate</u> specialization programmes in cooperation with Slovenian Chamber of Pharmacy and Slovenian Chamber for Laboratory Medicine
In which years?	Post master	First year of 3-year or 4-year postgraduate specialization programmes.
In which specialisations		<ul style="list-style-type: none"> <li>• Clinical Pharmacy</li> <li>• Community Pharmacy</li> <li>• Analysis of Pharmaceutical Products</li> <li>• Pharmaceutical Engineering</li> <li>• Pharmacognosy</li> <li>• Clinical biochemistry</li> </ul>
Numbers in each specialization	3-10	Very different from year to year and from specialization to specialisation: from 0-10; all together around 30 in the first year
<b>Past and present changes in E&amp;T</b>		
Have there been any major changes since 1999?	Yes	Harmonisation according to Directive (6 month training in pharmacy), when Slovenia entered EU Bologna reform
Are any major changes envisaged before 2019?	No	Fine tuning of the programme
<b>References</b>		
References to texts and articles of national law	Zakon o visokem šolstvu (The Law of Higher education), Zakon o zdravstveni dejavnosti (The law of health) <a href="http://www.mvzt.gov.si/en/legislation/">http://www.mvzt.gov.si/en/legislation/</a> <a href="http://www.mz.gov.si/en/">http://www.mz.gov.si/en/</a>	
References	Annual Report of Faculty of Pharmacy for 2007 and 2008 <a href="http://www.ffa.uni-lj.si/en/faculty.html">http://www.ffa.uni-lj.si/en/faculty.html</a>	

### Chapter 3. Teaching and learning methods

Student hours are in brackets, outside brackets are contact hrs with teachers/assistants

Method	Year 1	Year 2	Year 3	Year 4	Year 5	Total
<b>HEIs courses</b>						
Lecture	520 (1200)	450 (1050)	405 (900)	525 (1200)	0	1900 (4350)
Tutorial	95 (300)	15 (50)	60 (200)	35 (90)		205 (640)
Practical	150 (300)	315 (700)	345 (700)	215 (500)		1025 (2200)
Project work				5 (10)	125 (900)	130 (910)
<b>Traineeship:</b>						
Community - hospital					720 (could be in hospital pharmacy)	450 (720)
Industrial					Not included	0
Other (please specify)					180 contact hrs for standard topics: <ul style="list-style-type: none"> <li>• first aid</li> <li>• safety legislation</li> <li>• social pharmacy</li> </ul>	180 (180)
<b>Subtotal:</b>	765 (1800)	780 (1800)	810 (1800)	780 (1800)	755 (1800)	3890 (9000)
<b>Electives (included into student work load)</b>						
Choice	0	0	150 (350)	240 (540)	120 (800)	510 (1690)
<b>Total</b>						3890 (9000)

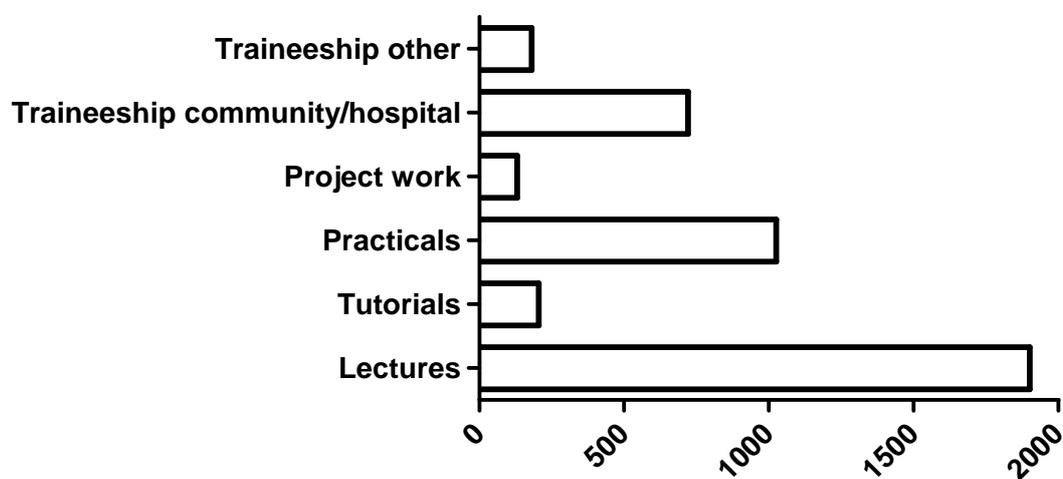
Numbers in the table HEI courses correspond to contact hrs with teacher/assistant/mentor/supervisor; In average, this is half of student work. Student load is 1800h per each year (with 765 to 810 contact hrs) and is written in brackets.

	1	2	3	4	5
HEI courses					
Contact hrs	765	780	810	785	120
Student work	1800	1800	1800	1800	900 + traineeship
Traineeship	0	0	0	0	Student work: 1100 - 1300 Some parts of traineeship are performed through HEI

<b>Electives</b>	0	0	1 from 2 alternatives in 5 <sup>th</sup> semester and 1 from 6 subjects in 6 <sup>th</sup> semester	1 from 2 alternatives in each semester and 2 from 15 subjects in 8 <sup>th</sup> semester	The topic of master thesis is elective from several subjects
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<b>References</b>	PROSPECTUS: UNIFORM MASTER'S PHARMACY PROGRAMME, UNIVERSITY OF LJUBLJANA, FACULTY OF PHARMACY; <a href="http://www.ffa.uni-lj.si">www.ffa.uni-lj.si</a>
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### Hours by learning methods



## Chapter 4. Subject areas

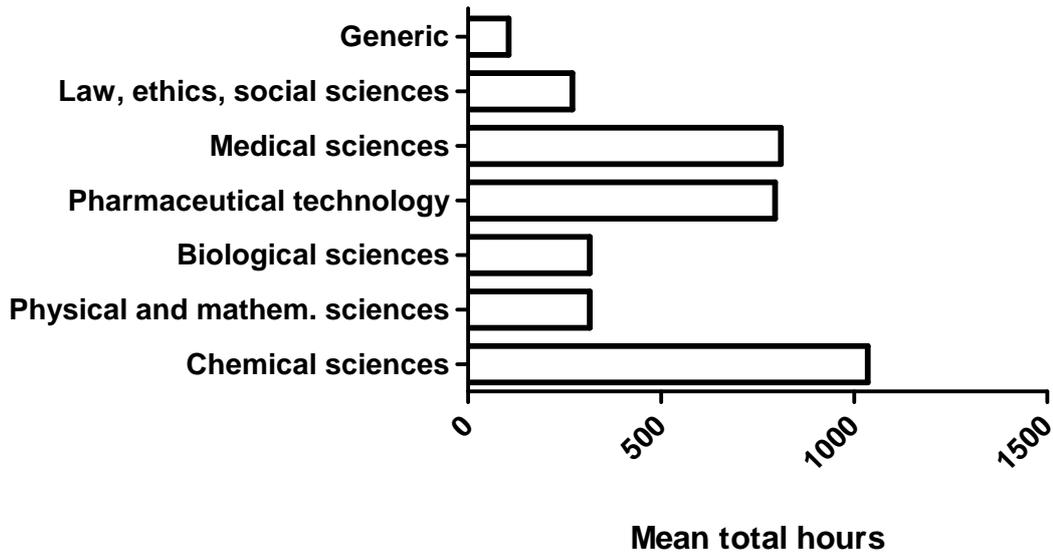
Student hours are in brackets

Subject area	Year 1	Year 2	Year 3 150 contact hrs (300-350 hrs student work) for electives	Year 4 240 contact hrs (550-650 hrs student work) for electives	Year 5 Master degree (1 semester = 900 hrs) + traineeship (24 weeks)	Total (traineeship and thesis defence not included)
<b>CHEMSCI</b>	285 (600-700)	285 (600-700)	300 or 390 (700 -900)	0 or 60 Add.electives: 60 (0-270)	0 - 120 (0-800) + traineeship	870 – 1200 (1900 – 3370)
<b>PHYSMATH</b>	255 (570-600)	0	0	0	0 - 120 (0-800) + traineeship	255 -375 (570 – 1400)
<b>BIOLSCI</b>	90 (200-250)	90 (200-250)	0	75 (170-200)	0 - 120 (0-800) + traineeship	255 – 375 (570 – 1500)
<b>PHARMTECH</b>	0	330 (750-850)	105 Add.electives: 1x60 (220-400)	180 or 240 Add.electives: 7x60 (1 or 2 selected) (400-700)	0 - 120 (0-800) + traineeship	615 – 975 (1320 – 2700)
<b>MEDISCI</b>	90 (200-250)	75 (170-200)	255 Add.electives: 3x60 (1 selected) (580-720)	150 or 210 or 270 Add.electives: 9x60 (1 or 2 selected) (350-900)	0 - 120 (0-800) + traineeship + thesis defence	690 – 930 (1300 – 2070)
<b>LAWSOC</b>	45 (100-150)	0	0 or 90 Add.electives: 1x60 (0- 350)	120 Add.electives:60 (270-420)	0 - 120 (0-800) + traineeship	165 – 375 (370 – 1720)
<b>GENERIC</b>	0	0	0 or 90 (0-250)	0	0 - 120 (0-800) + traineeship + thesis viva	0 - 210 ( 0 – 1050)

	1	2	3	4	5
<b>CHEMSCI</b>					Depends on selected area for Individual Research Work for Master's Thesis
<b>PHYSMATH</b>					Depends on selected area for Individual Research Work for Master's Thesis

<b>BIOLSCI</b>				Pharmaceutical biotechnology deals with Pharmtech tasks also (75 contact hrs, 150-200 hrs student work)	Depends on selected area for Individual Research Work for Master's Thesis
<b>PHARMTECH</b>				Selected topics from biotechnology deals with BioISCI task also	Depends on selected area for Individual Research Work for Master's Thesis
<b>MEDISCI</b>					Depends on selected area for Individual Research Work for Master's Thesis
<b>LAWSOC</b>					Depends on selected area for Individual Research Work for Master's Thesis
<b>GENERIC</b>	Generic competences are incorporated in many subjects, which belong originally to other subject areas: 1.) Practical skills in practical work in laboratories 2) Language as part of Pharmaceutical chemistry (examine) and other subjects where literature is in English 3) Communication as a part of Social pharmacy as well as part of many subjects where student seminars (oral presentations) are obligatory; Defence of master thesis 5 <sup>th</sup> year	Generic competences are incorporated in many subjects, which belong originally to other subject areas: 1.) Practical skills in practical work in laboratories 2) Language as part of Pharmaceutical chemistry (examine) and other subjects where literature is in English 3) Communication as a part of Social pharmacy as well as part of many subjects where student seminars (oral presentations) are obligatory; Defence of master thesis 5 <sup>th</sup> year	Generic competences are incorporated in many subjects, which belong originally to other subject areas: 1.) Practical skills in practical work in laboratories 2) Language as part of Pharmaceutical chemistry (examine) and other subjects where literature is in English 3) Communication as a part of Social pharmacy as well as part of many subjects where student seminars (oral presentations) are obligatory; Defence of master thesis 5 <sup>th</sup> year	Generic competences are incorporated in many subjects, which belong originally to other subject areas: 1.) Practical skills in practical work in laboratories 2) Language as part of Pharmaceutical chemistry (examine) and other subjects where literature is in English 3) Communication as a part of Social pharmacy as well as part of many subjects where student seminars (oral presentations) are obligatory; Defence of master thesis 5 <sup>th</sup> year	Preparation of master thesis, Defence of master thesis, First aid and communication as part of traineeship

### Hours by subject area



References	PROSPECTUS: UNIFORM MASTER'S PHARMACY PROGRAMME, UNIVERSITY OF LJUBLJANA, FACULTY OF PHARMACY; <a href="http://www.ffa.uni-lj.si">www.ffa.uni-lj.si</a>
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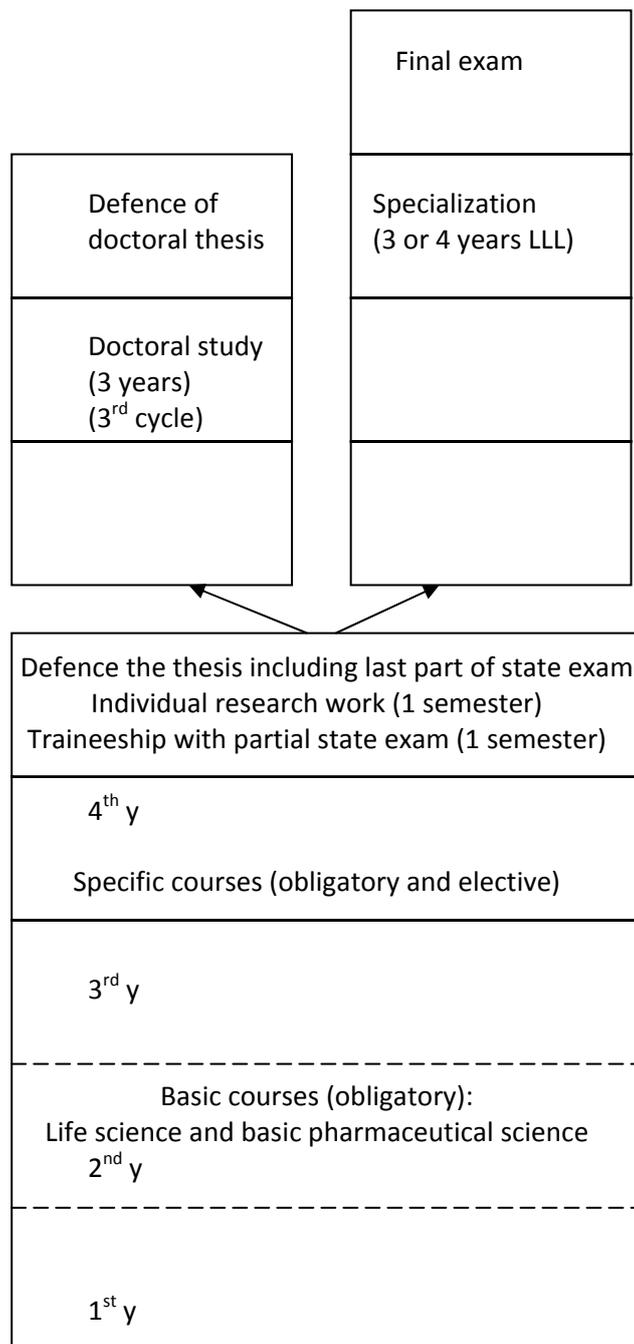
## Chapter 5. Impact of the Bologna principles

Bologna principle	Is the principle applied? Y/N or partially	How is it applied? Does your HEI have multilateral recognition and agreements? Other comments.
<b>1. Comparable degrees / Diploma Supplement</b>	Yes	
<b>2. Two main cycles (B and M) <u>with entry and exit at B level</u></b>	No	Not in the programme of pharmacy, only in programme laboratory medicine (B and M) and Industrial pharmacy (only M)
<b>3. ECTS system of credits / links to LLL</b>	Yes	We have ECTS system last 4 years Accredited courses of LLL has similar structure (30 hrs of student workload for 1 ECTS, 11-15 hrs of 30 are contact, others are individual work)
<b>4. Obstacles to mobility</b>	Yes	<u>The lectures</u> are given in Slovenian. ERASMUS and other exchange students receive English study literature and individual mentoring by professors. <u>Practical laboratory work</u> : most subjects have an English-speaking sub-group. All written and oral instructions are given in English. <u>Exams</u> : written and oral exams are provided in English language. COURSES: Students can select from a list of courses offered at the UL FFA, optionally individual research projects can be carried out. They communicate preferred LA with the Coordinator. Semestral or full-year exchanges are preferred except for individual research projects where more flexibility is possible. Exchange students are expected to have at least intermediate level of English knowledge. Obstacles: <u>Language</u> : some foreign students do not understand English sufficiently (and do not understand Slovenian) <u>Whole year courses</u> make problems in one-semester mobility, due to student work load (e.g. 30 ECTS for winter semester at foreign HEI and 30 ECTS for summer semester at home faculty + additional work for the whole-year courses: student can not pass the exam without knowledge from the first part of the course)
<b>5. European QA</b>	Yes	University of Ljubljana as a whole has external quality assessment and was in the last years among 500 best universities (among 204 best in Europe) <a href="http://www.arwu.org/Country2010Main.jsp?param=Slovenia">http://www.arwu.org/Country2010Main.jsp?param=Slovenia</a> faculty of pharmacy has no special European QA
<b>6. European dimension</b>		Common diploma in Postgraduate European Radiopharmacy Course. The postgraduate education for the title "Radiopharmaceutical Chemist/ Radiopharmacist" consists of three modules taking place in Ljubljana (Slovenia), Zurich (Switzerland) and Leipzig (Germany). The course contents follow the the guidelines of the European Association of Nuclear Medicine <u>EANM</u> .  Summer school in Immunology. Collaboration with Institute of Pharmacology, University of Bern Head: Prof. Hans Uwe Simon

		<p>Membership (institutional or/and personal) in:</p> <p>European Association of the Faculties of Pharmacy - EAFP</p> <p>The European Federation for Pharmaceutical Sciences - EUFEPS</p> <p>Galenos and MedNatNet networks</p> <p>European federation of medical chemistry – EFMC</p> <p>International federation for clinical chemistry - IFCC</p>
<b>ERASMUS staff exchange to your HEI from elsewhere</b>	3	<p>We have staff exchange through Central European Exchange Program for University Studies (CEEPUS) networks and bilateral cooperation</p> <p><a href="http://www.cmepius.si/en/higher-education/ceepus.aspx">http://www.cmepius.si/en/higher-education/ceepus.aspx</a></p>
<b>ERASMUS staff exchange from your HEI to other HEIs</b>	0	<p>We have staff exchange through CEEPUS networks and bilateral cooperation</p> <p>5-15 persons/year</p>
<b>ERASMUS student exchange to your HEI from elsewhere</b>	<p>Number of student months: 295</p>	<p>ERASMUS Billateral agreements and exchanges with 40 Faculties of Pharmacy. (Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, Germany, France, Greece, Hungary, Italy, Portugal, Spain, Switzerland, Turkey, United Kingdom)</p> <p>Additionally, we have student exchange through CEEPUS networks</p> <p><a href="http://www.cmepius.si/en/higher-education/ceepus.aspx">http://www.cmepius.si/en/higher-education/ceepus.aspx</a></p> <p>ERASMUS students OUT GOING= 295 student months</p> <p>number of student months: (20x10, 10x5)= 250</p> <p>Other student mobility :</p> <p>BASILLEUS</p> <p>CEEPUS (3x5)=15</p> <p>EPSA (European Pharmacy Student Association) (5x3)= 15</p> <p>IPSF (International Pharmacy Student Federation ) (15x 1)= 15</p>
<b>ERASMUS student exchange from your HEI to other HEIs</b>	<p>Number of student months: 255</p>	<p>Additionally, we have student exchange through CEEPUS networks</p> <p><a href="http://www.cmepius.si/en/higher-education/ceepus.aspx">http://www.cmepius.si/en/higher-education/ceepus.aspx</a></p> <p>Student exchange INCOMING = 255 student months</p> <p>ERASMUS students incoming, number of student months:(10x10, 10x5, 5x3)= 165</p> <p>Other student mobility: 30</p> <p>BASILLEUS (2x10, 2x5)= 30</p> <p>CEEPUS (3x5) = 15</p> <p>EPSA (European Pharmacy Student Association)</p> <p>IPSF (International Pharmacy Student Federation ) (15x 1)= 15</p>

## 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> ,...”	We introduced through bologna reform 5 yrs study of pharmacy. In pharmaceutical industry this prolongation was not accepted well (additional half year of traineeship, oriented in apothecary work). For work in industry graduates need additional skills, which can not be included into 6 months traineeship in a pharmacy.	
“... <u>four years of full-time theoretical and practical training</u> at a university or at a higher institute of a level recognised as equivalent, or under the supervision of a university;”	In general, this is good. It is not possible to get enough basic and specific knowledge/skills for pharmaceutical work in shorter time.	
“... <u>six-month traineeship in a pharmacy</u> which is open to the public or in a hospital, under the supervision of that hospital's pharmaceutical department.”	Comparing earlier probationalship of 12 months in which was possible to include community/hospital pharmacies, laboratory medicine and industry, six months is too short period for all. Besides, only pharmacies are covered by Directive, not industry and laboratory medicine. But prolongation to more than 5 years would not be accepted.	Industrial pharmacists (management) mainly support dual system of education (the last part of education oriented more to industrial skills and knowledge instead to traineeship in community / hospital pharmacies.
“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> .”	This is very important for 1/HEI study and for 2/traineeship, Ad1/ beside competences for working in pharmacy pharmacists should have wide university education (academic literacy and critical distance for solving problems) ad2/ some common skills can be organized on HEI and not separately for each student in pharmacies	
Directive annex	Comments	
<b>V.6. PHARMACIST</b> <b>5.6.1. Course of training for pharmacists</b> <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.</b>	Professional ethics should be obligatory for all pharmacists, not only where appropriate. Immunology and biotechnology are more and more important fields for pharmacists and should be incorporated as a basic course, not only as electives.	



**Scheme for pharmacy education and training in Slovenia.**



Lifelong Learning Programme



Education and Culture DG

**PHARMINE**  
*Pharmacy Education  
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*Pharmacolor  
Consultants  
Nancy*



*University of Ljubljana*



**UNIVERSITY OF TARTU**

**Nancy-Université**  
*Université  
Henri Poincaré*



Vrije  
Universiteit  
Brussel

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**PHARMINE**

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

*Website: [www.pharmine.org](http://www.pharmine.org)*

Pharmacy education & training in

# SPAIN

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.

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](#))

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Revision: April 2011.

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<b>Chapter 6. Impact of EC directive 2005/36/EC</b>	<b>28</b>

## Summary.

The pharmacy student population of Spain is over 20000 people and has a large foreign element (44%) with 16% of students coming from EU member states and 28% from other countries.

Pharmacy is a 5 year seamless degree course with a minimum of 6 months traineeship. There is the opportunity to start traineeship in the 3<sup>rd</sup> year but the main traineeship period is in the 5<sup>th</sup> and final year.

Courses for hospital and industrial pharmacy are available.

Teaching is mainly by lectures and traineeship. The 3 main subject areas are medical sciences (750 hours), chemical sciences (640 hours) and biological sciences (540 hours). There is a total of 300 hours devoted to pharmaceutical sciences.

A HEI diploma is the only requirement for registration as a qualified pharmacist.

## Introduction.

### Statistics for Spain.

Total population: 43,887,000

Gross national income per capita (PPP international \$): 28,200

Life expectancy at birth m/f (years): 78/84

Healthy life expectancy at birth m/f (years, 2003): 70/75

Probability of dying under five (per 1 000 live births): 4

Probability of dying between 15 and 60 years m/f (per 1 000 population): 105/44

Total expenditure on health per capita (Intl \$, 2006): 2,388

Total expenditure on health as % of GDP (2006): 8.1

Detailed information is available at: World Health Statistics 2009:

<http://www.who.int/countries/esp/en/>

### Highlights on health in Spain.

The public sector in Spain is mostly involved in regulation and funding, whereas the manufacture and distribution (i.e. by manufacturers, importers, wholesalers and pharmacies) of pharmaceuticals are in the hands of private bodies.

*Health authorities:* at both national and autonomous community level, health authorities take on a range of regulatory responsibilities. A series of strict regulations govern the licensing of pharmaceuticals and market access. Governmental authority over pharmaceuticals can be divided into three levels (central state, autonomous community and regional health services) with the relevant health authority taking charge at the appropriate level.

*The state:* as a central actor, the state regulates and authorizes clinical trials; issues marketing authorizations for pharmaceuticals; controls the advertising of drugs and health care products directed towards the general population; licenses pharmaceutical laboratories; regulates the quality and manufacture of pharmaceutical products; fixes the price of drugs; sets co-payments; and decides on the inclusion or exclusion of pharmaceuticals on the list of publicly financed medicines. The Pharmaceuticals Act of 1990 forms the basis of pharmaceutical policy in Spain and most legislation regulating the pharmaceutical market has been updated since then in line with the act's requirements. The creation of the National Medicines Agency in 1997 and its effective implementation in 1999 have promoted the diffusion and implementation of guidelines and protocols. Whereas safety, efficacy and effectiveness are well established as criteria, the use of cost-effectiveness criteria is much more restricted. There has also been some discussion on the potential decentralization of budget management to primary health care centres, with any savings made reverting back to the centres, thus creating incentives to reduce costs. However, these policy proposals are still in initial pilot stages. In addition, programmes on the rational use of medicines have been introduced,

including drug therapy guides, treatment protocols and prescription profile analyses. The autonomous communities are in charge of implementing such policies at regional level through regional laws and decrees, thus creating the practical regulatory framework. The regional health services pay the balance of drug costs by reimbursing pharmacies through their professional colleges on a monthly basis (professional colleges are also in charge of computerizing prescriptions).

*Patients* : only over-the-counter drugs are not covered as part of the public system. Pensioners, people with permanent disabilities and special groups (e.g. AIDS patients) have full access to the subsidized pharmaceuticals of the public system and are fully exempted from pharmaceutical co-payments, whereas the rest of the public has a 40% co-payment for drugs.

Full text available at:

<http://www.euro.who.int/Document/E89491.pdf>

For further information, see:

Pharmaceutical Pricing and Reimbursement Information (PPRI) – New PPRI analysis including Spain, Pharmaceuticals Policy and Law 11 (2009) 213–234 213

[http://ppri.oebig.at/Downloads/Publications/Article\\_PPRI\\_Spain\\_PharmaceuticalPolicyAndLaw\\_2009.pdf](http://ppri.oebig.at/Downloads/Publications/Article_PPRI_Spain_PharmaceuticalPolicyAndLaw_2009.pdf)

ECORYS - Study of regulatory restrictions in the field of pharmacies, at :

[http://ec.europa.eu/internal\\_market/services/docs/pharmacy/appendices\\_en.pdf](http://ec.europa.eu/internal_market/services/docs/pharmacy/appendices_en.pdf)

Eurybase - National summary sheets on education system in Europe and ongoing reforms, 2009 Edition – Spain, at :

[http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/national\\_summary\\_sheets/047\\_ES\\_EN.pdf](http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/national_summary_sheets/047_ES_EN.pdf)

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

	Number or %	Comments.
<b>Community Pharmacy</b>		
Community pharmacists	48,000	<a href="http://www.portalfarma.com">www.portalfarma.com</a> The statistical data corresponds to 2008
Community pharmacies	21,057	<a href="http://www.portalfarma.com">www.portalfarma.com</a> The statistical data corresponds to 2008 900 inhabitants / pharmacy 2.3 pharmacists / pharmacy
Competences and role of the community pharmacist		<p>According to:</p> <ul style="list-style-type: none"> <li>• EC directive EC 2005/36/EC acknowledging professional qualifications.</li> <li>• Law on Governing of Health Care Professions: <i>“the activities aimed at the production, preservation and dispensing of medicines, as well as the cooperation in the analytical and pharmaco-therapeutic processes and surveillance of public health correspond to Graduates in Pharmacy”.</i></li> <li>• Law 16/97 on the regulation of the community pharmacies services. Article 1. Definition and functions of the community pharmacies: <i>“Under the terms shown in the General Health Care Law 14/1986, of the 25th of April and the Law 25/1990, of the 20th of December on Medicines, the community pharmacies are private health care establishments of public interest, subject to the health care planning set forth by the Autonomous Communities, in which the graduate-owner pharmacist of them, aided, if such is the case, by assistants or auxiliary workers, must provide the following basic services to the population:</i> <ol style="list-style-type: none"> <li>1. <i>The acquisition, custody, preservation and dispensing of medicines and health care products.</i></li> <li>2. <i>The monitoring, control and custody of the prescriptions for the dispensed medicines.</i></li> <li>3. <i>The guarantee of pharmacist attention, in the pharmacist’s area, to the villages where there are no community pharmacies.</i></li> <li>4. <i>The preparation of magistral formulae and special preparations, in the cases and according to the procedures and controls established.</i></li> <li>5. <i>The information and monitoring of the pharmacological treatments to patients.</i></li> <li>6. <i>The cooperation in the control of the individualised use of the medicines, in order to detect the adverse reactions that could occur and notify the organisms in charge of pharmacovigilance of these reactions.</i></li> <li>7. <i>Cooperation on the programmes promoted by the Health Care Administrations on quality guarantee of pharmacist assistance and health care attention in general, promotion and protection of health, disease prevention and health care education.</i></li> <li>8. <i>The cooperation with the Health Care Administration in the training and information aimed at other health care professionals and users about the rational use of medicines and health care products.</i></li> <li>9. <i>The coordinated action with the care structures from the Health Services in the Autonomous Communities.</i></li> <li>10. <i>The cooperation in the education to obtain the qualification of Degree</i></li> </ol> </li> </ul>

*in Pharmacy, in accordance with that set forth in the Community Directives and in the State Regulations and University rules which establish the corresponding study plans in each of them.”*

- Law 29/2006 on guarantees and rational use of medicines chapter IV On rational use of medicines in community pharmacies Article 84. Community pharmacies.
1. *“In the community pharmacies, the pharmacists, as the people responsible for dispensing medicines to citizens, will ensure the fulfilment of guidelines established by the doctor in charge of the patient on the prescription and cooperate with him in the monitoring of the treatment through the pharmaceutical care procedures, contributing to ensure their efficiency and safety. Likewise, they will take part in the performance of all the activities aimed at the rational use of the medicines, particularly through the informed dispensing to the patient.*
  2. *The Health Care Administrations will perform the arrangement of the community pharmacies, taking the following criteria into account:*
    - a. *General planning of the community pharmacies in order to guarantee correct pharmaceutical care.*
    - b. *The presence and professional action of the pharmacist as an unavoidable requirement and condition for the dispensing of medicines to the public, taking into account the number of pharmacists necessary in terms of the pharmacy’s activity.*
    - c. *The minimum material, technical and resources requirements, including accessibility for disabled people, established by the Government as basic to ensure the providing of a correct health care assistance, without detriment to the competences that the Autonomous Communities have attributed to them on this subject.*
  3. *The community pharmacies are obliged to dispense the medicines that are demanded of them, both by private individuals and by the National Health System under the established regulation conditions.*
  4. *Due to reasons for emergency and distance of the community pharmacy or other special circumstances that occur, in certain establishments, exceptionally, the creation of first aid posts may be authorised under the conditions that are determined by the regulations with a basic nature, without detriment to the competences that the Autonomous Communities have attributed to them on this subject.*
  5. *The Public Administrations will watch over the continuous training of the pharmacists and the appropriate qualification and training of the auxiliaries and technical pharmacy assistants.*
  6. *The community pharmacies have the consideration of private health care establishments of public interest.”*
- Order CIN/2137/2008 by which the requirements for the verification of the official university diplomas that qualify people for practicing the pharmacist profession are established.

Ownership of the	Yes	• The General Law on Health Care Art. 103 point 4. Only pharmacists may be
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community pharmacies limited to pharmacists		<p>owners and deed-holders of community pharmacies open to the public.</p> <ul style="list-style-type: none"> <li>• Law 16/97 on Regulation of the community pharmacy services Art.4. - The community pharmacies may only be transferred to other pharmacists.</li> </ul>
Rules regulating the geographical distribution of the pharmacies	Yes	<ul style="list-style-type: none"> <li>• Law 16/97 on Regulation of the community pharmacy services Art.2. <i>“The planning of community pharmacies will be established taking into account the demographic density, geographical characteristics and dispersion of the population, with a view to guaranteeing the accessibility and quality in the service and the sufficiency in the supply of medicines, according to health care requirements in each territory. The territorial arrangement of these establishments will be performed by modules of population and distances between community pharmacies, which will be determined by the Autonomous Communities, in accordance with the abovementioned general criteria. In all cases, the territorial arrangement regulations must guarantee the appropriate pharmaceutical assistance to the entire population.”</i></li> <li>• Law 29/2006 on guarantees and rational use of medicines Art. 84 point 2 <i>“The Health Care Administrations will perform the arrangement of the community pharmacies, taking into account the following criteria:</i> <ul style="list-style-type: none"> <li>- <i>General planning of the community pharmacies in order to guarantee the correct pharmaceutical assistance.</i></li> <li>- <i>The presence and professional action of the pharmacist as action of the pharmacist as an unavoidable requirement and condition for the dispensing of medicines to the public, taking into account the number of pharmacists necessary in terms of the pharmacy’s activity.</i></li> <li>- <i>The minimum material, technical and resources requirements, including accessibility for disabled people, established by the Government as basic to ensure the providing of a correct health care assistance, without detriment to the competences that the Autonomous Communities have attributed to them on this subject.</i></li> </ul> </li> <li>3. <i>The community pharmacies are obliged to dispense the medicines that are demanded of them, both by private individuals and by the National Health System under the established regulation conditions.</i></li> <li>4. <i>Due to reasons for emergency and distance of the community pharmacy or other special circumstances that occur, in certain establishments, exceptionally, the creation of first aid posts may be authorised under the conditions that are determined by the regulations with a basic nature, without detriment to the competences that the Autonomous Communities have attributed to them on this subject.</i></li> <li>5. <i>The Public Administrations will watch over the continuous training of the pharmacists and the appropriate qualification and training of the auxiliaries and technical pharmacy assistants.</i></li> <li>6. <i>The community pharmacies have the consideration of private health care establishments of public interest.”</i></li> <li>• Laws on Pharmacy Arrangement in the different Autonomous Communities (17) that configure the territory of the Spanish State. The modules of population and the distances between the community pharmacies vary in each Autonomous Community.</li> </ul>
Medicines and health care	No	<ul style="list-style-type: none"> <li>• Law 29/2006 on guarantees and rational use of medicines. Stated purpose: <i>“Amongst the most important modifications some new ones are incorporated</i></li> </ul>

products available to the general public through other channels		<i>such as selling medicines subject to medical prescription over the Internet, leaving the door open for the acquisition of publicity medicines over the Internet, but always with a real pharmacy behind the operation. This is pending legislation development.” Art. 111. - 11. “Selling medicines or health care products with home delivery or over the Internet or using other teleprocessing or indirect means, against that set forth in this Law.”</i>
People other than pharmacists involved in the practice	Yes	In addition to the pharmacist owners of the community pharmacy, deputies, substitutes or managers, there will be other staff who are not pharmacy graduates. Pharmacy technicians and auxiliary workers.
Qualification and number		Medium Grade vocational training cycle Cualificación profesional: FARMACIA, Nivel:2 (of 5), Code: SAN123_2 ( <a href="https://www.educacion.es/iceextranet/bdqCualificacionesAction.do">https://www.educacion.es/iceextranet/bdqCualificacionesAction.do</a> )
Organisation providing and validating the education and training		<ul style="list-style-type: none"> <li>• Royal Decree 1689/2007, of the 14th of December, by which the qualification of Technician in Pharmacy and Parapharmacy is established and the minimum education level for this are fixed.</li> <li>• Order EDU/2184/2009, of the 3rd of July, by which the curriculum of the Medium Grade vocational training cycle corresponding to the qualification of Technician in Pharmacy and Parapharmacy is established.</li> </ul> <p>Ministry of Education. <a href="http://www.educacion.es">www.educacion.es</a></p>
Length of the courses (years)		2 years (2,000 hours) <a href="http://www.educacion.es">www.educacion.es</a>
Thematic areas		<p>ROYAL DECREE 1689/2007, of the 14th of December, by which the qualification of Technician in Pharmacy and Parapharmacy is established and the minimum education level for this are fixed (Chapter III – Art. 10):</p> <ul style="list-style-type: none"> <li>• The professional modules for this vocational training cycle are: <ul style="list-style-type: none"> <li>○ Layout and sale of products.</li> <li>○ Community pharmacy.</li> <li>○ Dispensing of pharmaceutical products.</li> <li>○ Dispensing of parapharmaceutical products.</li> <li>○ Basic laboratory operations.</li> <li>○ Magistral formulae.</li> <li>○ Health promotion.</li> <li>○ First Aid.</li> <li>○ Basic anatomy, physiology and pathology.</li> <li>○ Work training and orientation.</li> <li>○ Enterprise and enterprising initiative.</li> <li>○ Training in work centres.</li> </ul> </li> </ul> <p><a href="http://www.educacion.es">www.educacion.es</a></p>
Competences and role		<p>ROYAL DECREE 1689/2007, of the 14th of December, by which the qualification of Technician in Pharmacy and Parapharmacy is established and the minimum education level for this are fixed (Chapter II):</p> <p>This professional will be able to:</p> <ul style="list-style-type: none"> <li>○ Assist in the dispensing of pharmaceutical products, informing of their characteristics to the users.</li> <li>○ Assist in the preparation of pharmaceutical and parapharmaceutical products.</li> </ul>

		<ul style="list-style-type: none"> <li>○ Prepare the pharmaceutical products for their distribution to the different hospital units, under medical supervision.</li> <li>○ Obtain values from somatometric parameters for the user's vital signs.</li> <li>○ Perform analytical controls.</li> <li>○ Maintain the material, instruments, equipment and the work area in optimum conditions for their use.</li> <li>○ Promote healthy living habits in the users to maintain or improve their health and prevent illness.</li> <li>○ Process the invoicing of prescriptions handling computing applications.</li> </ul> <p>www.educacion.es</p>
Hospital Pharmacy		
Hospital pharmacists	1612	<a href="http://www.portalfarma.com">www.portalfarma.com</a>
Hospital pharmacies	288	5.59 pharmacists/hospital
Competences and roles of the hospital pharmacists		<ul style="list-style-type: none"> <li>• Article 82. Support structures for the rational use of medicines in hospitals. <ul style="list-style-type: none"> <li>1. <i>Without detriment to the responsibility that all the health care professionals have in the rational use of medicines, hospitals must have available hospital pharmacy services or units in accordance with the minimum conditions established by this Law. The highest level hospitals and those others that are determined must have Clinical Pharmacology services or units.</i></li> <li>2. <i>To contribute to the rational use of medicines, the hospital pharmacy units or services will perform the following functions:</i> <ul style="list-style-type: none"> <li>a. <i>Guarantee and assume the technical responsibility for the acquisition, quality, correct preservation, cover of requirements, custody, preparation of magistral formulae or special pharmacy preparations and dispensing of the medicines necessary for the intra-hospital activities and the other activities, for outpatient treatments that require a particular surveillance, supervision and control.</i></li> <li>b. <i>Establish an efficient and safe medicine distribution system, taking steps to guarantee the correct administration, taking care of and dispensing the products in clinical research phases and ensuring the fulfilment of the legislation on medicines containing psychoactive substances or any other medicine that requires special control.</i></li> <li>c. <i>Form part of the hospital committees in which their knowledge might be useful for the selection and scientific evaluation of the medicines and their use.</i></li> <li>d. <i>Establish a medicine information service for all the hospital staff, an intra-hospital pharmacovigilance system, systematic studies of medicine use and clinical pharmacokinetic activities.</i></li> <li>e. <i>Perform educational activities on questions within their competence aimed at health care personnel from the hospital and at patients.</i></li> <li>f. <i>Carry out their own research work or cooperate with other units or services and participate in clinical trials with medicines.</i></li> </ul> </li> </ul> </li> </ul>

- g. Cooperate with the primary and specialised attention structures in the area in the development of the functions stated in article 81.
- h. Perform as many functions as may lead to a better use and control of the medicines.
- i. Participate and coordinate the management of the purchases of medicines and health care products for the hospital in order to ensure its efficiency.

3. The functions defined in the paragraphs from c) to h) of the previous section will be developed in coordination with clinical pharmacology and other clinical units and services in the hospital.”-

#### Article 83. Hospital pharmacy.

1. The hospital pharmacy services will be under the ownership and responsibility of a pharmacist who is a specialist in hospital pharmacy.
2. The Health Care Administrations with competences in pharmaceutical arrangement will perform this function in the hospital pharmacy maintaining the following criteria:
  - a. Fix requirements for its smooth running, in accordance with the established functions.
  - b. Whereby the actions are provided with the presence and professional action of the pharmacist or pharmacists necessary for correct assistance.
  - c. The pharmacists from the hospital pharmacies must have studied the courses in the corresponding speciality.
3. The hospitals that do not have pharmacy services, must request the Autonomous Communities for authorisation, if applicable, to maintain a store of medicines under the supervision and control of a pharmacist. The conditions, requirements and regulations for the operation of these stores will be determined by the competent health care authority.”

The laws of the autonomous communities also have their own regulation over the service that the pharmacists provide in each Autonomous Community.

Pharmaceutical Industries and related areas		
Production, R+D and distribution	298	35,812 employes (2002) 2,4% European Union
Number of companies that only produce	259	Farmaindustria <a href="http://www.farmaindustria.es">http://www.farmaindustria.es</a> In English: <a href="http://www.farmaindustria.es/Farma_Public_ING/index.htm">http://www.farmaindustria.es/Farma_Public_ING/index.htm</a>
Number of companies that only distribute	39	The association for pharmaceutical distribution, FEDIFAR, has no Web site. Other web sites for distributors: <ul style="list-style-type: none"> <li>• SOCIEDAD COOPERATIVA FARMACÉUTICA ESPAÑOLA D.S.: C/ Santa Engracia, nº 31 28010 MADRID. <a href="http://www.cofares.es">www.cofares.es</a></li> <li>• Asociación de cooperativas farmacéuticas. <a href="http://www.acofarma.com">www.acofarma.com</a>. In English: <a href="http://www.acofarma.com/portal/component?option=com_frontpage/Itemid,101/">http://www.acofarma.com/portal/component?option=com_frontpage/Itemid,101/</a></li> </ul>
Number of companies	177	Asociación Española de Medicamentos Genéricos Paseo de la Castellana, 173 4º izda. 28046 - Madrid

manufacturing generic products		AESEG <a href="http://www.aeseg.es">www.aeseg.es</a>
Industrial Pharmacy		
Pharmacists working in industry	11996	Of the 11996 pharmacists working in industry 1505 are registered with the chamber. - <a href="http://www.portalfarma.com">www.portalfarma.com</a> -Asociación española de farmaceuticos de la industria <a href="http://www.aefi.org/">http://www.aefi.org/</a> -Sociedad española de Farmacia Industrial y Galénica <a href="http://www.sefig.org/">http://www.sefig.org/</a>
Other sectors		
Sectors		The distribution of pharmacists by sector/activity is: <ul style="list-style-type: none"> <li>• Community pharmacy (69%)</li> <li>• Dermopharmacy (15%)</li> <li>• Nutrition (12%)</li> <li>• Orthopedics (11%)</li> <li>• Clinical Analysis (5%)</li> <li>• Hospital Pharmacy (3%)</li> <li>• Industry (2%)</li> <li>• Administration and Public Health (2%)</li> <li>• Optics and Acoustics (1%)</li> <li>• Distribution (1%)</li> <li>• Education and Research (1%)</li> <li>• Other activities (6%).</li> </ul>
Role of the professional associations		
Registration of pharmacists	Yes	To be able to practice their pharmacist activities, all the community pharmacists must be registered with their appropriate provincial professional association in each of the 17 autonomous communities. This is part of the national body, the General Council of Official Colleges of Pharmacists. The associations are also grouped in Regional Councils.  <a href="http://www.portalfarma.com">www.portalfarma.com</a>  The <u>only</u> requirement for registration is the holding of a <u>qualification in pharmacy from an HEI</u> (there are no requirements as to preliminary time in practice, good conduct statement, language, nationality or obligation of residence).  There are no obstacles for pharmacists from the EU.
Creation of community pharmacies and control of the territorial distribution	Yes	Each of the 17 Autonomous Communities and the 2 Autonomous Cities holds the competency. Territorial arrangement and modules of population criteria are applied.
Ethical aspects of professional conduct	Yes	The Pharmaceutical Corporation is in charge of ensuring the ethical and professional conduct of the practicing pharmacists.
Guarantee of quality and validation of the HEI courses for pharmacists	Yes	The National Agency for Evaluation of Quality and Accreditation (ANECA) is a state foundation that is aimed at contributing to the improvement in the further education system by way of the evaluation, certification and accreditation of teaching, teachers and institutions. There are recognized agencies in many autonomic communities with work in collaboration with the national ANECA. Both national and autonomic agencies

	are recognized by the European agency ENQA  Agencia nacional de evaluación de la calidad y acreditación ANECA <a href="http://www.aneca.es/">http://www.aneca.es/</a> In English: <a href="http://www.aneca.es/en.aspx">http://www.aneca.es/en.aspx</a>
Other roles	The 3 specific activities for pharmacists are <ol style="list-style-type: none"> <li>1. the community pharmacy</li> <li>2. the hospital pharmacy and</li> <li>3. the management of distribution warehouses,</li> </ol> as well as positions in certain public administration organisations (national body of pharmacists, national health system inspectors, primary assistance pharmacists or military pharmacists) and clinical chemists and biochemists. Other openings for pharmacists are technical management, quality control and manufacturing techniques, technical information on medicines, pharmacology, business management, scientific documentation and specialists in dermo-pharmacy and alimentation.

Websites and legislation	
General Spanish Council of Pharmacists Pharmaceutical Associations <i>Portalfarma</i>	Consejo General de Colegios Oficiales de Farmacéuticos C/ Villanueva, 11. Madrid 28001 Tel: +34 91 431 25 60 Fax: +34 91 432 81 00 e mail: <a href="mailto:congral@redfarma.org">congral@redfarma.org</a> <a href="http://www.portalfarma.com">www.portalfarma.com</a> <a href="http://www.portalfarma.com/Home.nsf/Home?OpenForm">http://www.portalfarma.com/Home.nsf/Home?OpenForm</a> English: <a href="http://www.portalfarma.com/home.nsf/cmPortallngles?OpenFrameset">http://www.portalfarma.com/home.nsf/cmPortallngles?OpenFrameset</a>
RD 109/2010, of the 5th of February 2010	It modifies different Royal Decrees on the subject of health care for their adaptation to the Law 17/2009, of the 23rd of November, on free access to the service activities and their practice and the Law 25/2009, of the 22nd of December, of modification of several laws for their adaptation to the Law on free access to the service activities their practice; and it also modifies the first section of the Third Transitory Provision of the RD 183/2008.
Order CIN/2137/2008, of the 3rd of July 2008	It establishes the requirements for verifying the official certificates that qualify people to practice the pharmacist profession.
RD 183/2008, of the 8th of February 2008	By which the Health Science specialities are determined and classified and certain aspects of the specialised health care training system are developed. (State Gazette No. 45, of 21-2-08).
Law 29/2006, of the 2nd of July 2006  Modified by: <ul style="list-style-type: none"> <li>• Law 51/2007, of the 26th of December</li> <li>• Law 25/2009, of the 22nd of December</li> <li>• Law 28/2009, of the 30<sup>th</sup> of December and</li> <li>• the Royal Decree-Law 4/2010, of the 26<sup>th</sup> of March</li> </ul>	on guarantees and rational use of medicines and health care products.
<i>Ley 44/2003 (21 nov 2003) de ordenación de las</i>	<a href="http://noticias.juridicas.com/base_datos/Admin/l44-">http://noticias.juridicas.com/base_datos/Admin/l44-</a>

<i>profesiones sanitarias</i> on Arrangement of the Health Care Professions	<a href="#">2003.html</a>
Royal Decree 1464/1990, of 26th October, 1990	establishes the official university title of Licenciado en Farmacia (Master of Pharmacy) and the general guidelines relating to the study programmes leading to it.
Royal Decree 2708/1982, of 15th October, 1982	governs the studies for specialisations and the awarding of the title of pharmacy specialist
Royal Decree 1667/89, of 22nd December 1989	governs the acknowledgement of diplomas, certificates and other pharmacy qualifications from the other European Union member states

## Chapter 2. Pharmacy HEIs, students and courses

	Y/N, number	If you wish to expand your answer, please add your comments below.
<b>HEIs in Spain</b>	19	
Public	13	<ol style="list-style-type: none"> <li>1. University of the Basque Country <a href="http://www.vc.ehu.es/">http://www.vc.ehu.es/</a></li> <li>2. University of Alcalá <a href="http://www.uah.es/">http://www.uah.es/</a></li> <li>3. University of Barcelona <a href="http://www.ub.es/">http://www.ub.es/</a></li> <li>4. University of Santiago de Compostela <a href="http://www.usc.es">http://www.usc.es</a></li> <li>5. University of Granada <a href="http://www.ugr.es/~genfarma">http://www.ugr.es/~genfarma</a></li> <li>6. Madrid Complutense University <a href="http://www.ucm.es/info/farmacia/">http://www.ucm.es/info/farmacia/</a></li> <li>7. University of Salamanca <a href="http://w3.usal.es/">http://w3.usal.es/</a></li> <li>8. University of la Laguna <a href="http://www.ull.es/">http://www.ull.es/</a></li> <li>9. University of Valencia <a href="http://www.uv.es/~uvalen/cat/">http://www.uv.es/~uvalen/cat/</a></li> <li>10. University of Seville <a href="http://www.us.es">http://www.us.es</a></li> <li>11. Miguel Hernández University (<a href="http://www.umh.es/">http://www.umh.es/</a>)</li> <li>12. University of Murcia (<a href="http://www.um.es/">http://www.um.es/</a>)</li> <li>13. University of Casitlla La Mancha (<a href="http://www.uclm.es/">http://www.uclm.es/</a>)</li> </ol>
Private	6	<ol style="list-style-type: none"> <li>1. University of Navarra (Pamplona) <a href="http://unav.es/farmacia/">http://unav.es/farmacia/</a></li> <li>2. University San Pablo CEU (Madrid) <a href="http://www.ceu.es">http://www.ceu.es</a></li> <li>3. University Alfonso X El Sabio (Madrid) <a href="http://www.uax.es/uax/que-estudiar/licenciaturas-ingenierias/ccs0/far0">http://www.uax.es/uax/que-estudiar/licenciaturas-ingenierias/ccs0/far0</a></li> <li>4. University Cardenal Herrera CEU (Valencia) <a href="http://www.uch.ceu.es/principal/titulaciones/tablon.asp?cod_carrera=farmacia&amp;menusuperior=">http://www.uch.ceu.es/principal/titulaciones/tablon.asp?cod_carrera=farmacia&amp;menusuperior=</a></li> <li>5. University San Jorge (Zaragoza) <a href="http://www.usj.es/sitio/programas/grados/farmacia/">http://www.usj.es/sitio/programas/grados/farmacia/</a></li> <li>6. European University of Madrid (<a href="http://www.uem.es/">http://www.uem.es/</a>)</li> </ol>
<b>Organisation of HEIs</b>		
Independent faculties	Yes	
Do HEIs offer B + M degrees?	Yes	Pharmacy degrees ( <i>licenciatura en farmacia</i> ) are <u>seamless, fully integrated B+M degrees over 5 years</u> , equivalent to, but no official master's degree is given. Currently all Faculties are in the process of recognition of the master's degree. leading to the equivalent of a Master degree.
<b>Spain</b>		
<b>Teaching staff</b>		
Teaching staff (nationals)	1,835	
International teaching staff (from EU)	23	
Number of international teaching staff (non EU)	7	
Professionals from outside the HEIs	1,700	
<b>Students</b>		
Places at entry following secondary school	3,168	There is no <i>numerus clausus</i> and almost as many places as there are candidates.
Number of applicants	4,000	1.3 applicants / place

for entry				
Graduates that become registered pharmacists.	2,600	82%		
International students (from EU)	500	16%		
International students (non EU)	900	28% Total foreign: 44%		
<b>Entry requirements following secondary school</b>				
Specific pharmacy-related, national entrance examination	No			
Other form of entry requirement at a national level	Yes			
Is there a national <i>numerus clausus</i> ?	No			
<b>Fees per year (€)</b>				
Public Universities	700-1000			
Private Universities	7000-9000			
<b>Length of course</b>	<b>5 years</b>			
<b>Specialization</b>				
Do HEIs provide specialized courses?	Yes	<p><i>FIR or farmacéutico interno-residente, pharmacist intern-resident</i>) following an examination like medical specialties.</p> <p>These specialties are:</p> <ul style="list-style-type: none"> <li>• Those requiring hospital internship <ul style="list-style-type: none"> <li>○ Hospital pharmacist</li> <li>○ Clinical microbiology and parasitology</li> <li>○ Clinical biochemistry</li> <li>○ Clinical immunology</li> <li>○ Clinical analysis</li> </ul> </li> <li>• Those not requiring hospital internship <ul style="list-style-type: none"> <li>○ Radio-pharmacy</li> <li>○ Drug and medicines' control and analysis</li> <li>○ Industrial and Galenic PharmacyExperimental Pharmacology</li> <li>○ Industrial Microbiology</li> <li>○ Nutrition and Dietetics</li> <li>○ Public Health</li> <li>○ Food and Higyenicechnology</li> <li>○ Analytical and Experimental Toxicology)</li> </ul> </li> </ul> <p>Courses for <u>industrial pharmacy specialisation</u>:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%; padding: 5px;">           Summer Course: FARMACOVIGILANCIA, aspectos teóricos y prácticos FARMACOVIGILANCE, practical and theoretical aspects             Curso de Orientación Profesional en la Industria            Professional Orientation Course in Pharmaceutical and other related Industries for the Faculties of Pharmacy         </td> <td style="width: 30%; text-align: center; vertical-align: middle; padding: 5px;">           Universidad de Alcalá         </td> </tr> </table>	Summer Course: FARMACOVIGILANCIA, aspectos teóricos y prácticos FARMACOVIGILANCE, practical and theoretical aspects  Curso de Orientación Profesional en la Industria Professional Orientation Course in Pharmaceutical and other related Industries for the Faculties of Pharmacy	Universidad de Alcalá
Summer Course: FARMACOVIGILANCIA, aspectos teóricos y prácticos FARMACOVIGILANCE, practical and theoretical aspects  Curso de Orientación Profesional en la Industria Professional Orientation Course in Pharmaceutical and other related Industries for the Faculties of Pharmacy	Universidad de Alcalá			

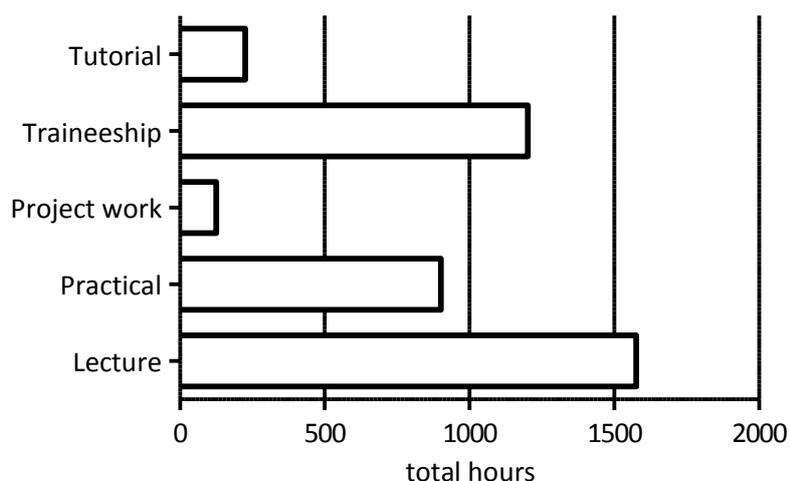
		<p>MASTER on Gestión y Producción en la Industria Farmacéutica Master's degree in Management and Production in Pharmaceutical Industry</p>	<p>Universidad de Salamanca</p>
		<p>Curso de Orientación Profesional en la Industria Professional Orientation Course in Pharmaceutical and other related Industries for the Faculties of Pharmacy</p>	<p>Universidad Complutense</p>
		<p>Curso de Orientación Profesional en la Industria Professional Orientation Course in Pharmaceutical and other related Industries for the Faculties of Pharmacy Título de Farmacéutico Especialista Pharmaceutical Specialist Degree</p>	<p>Universidad San Pablo CEU</p>
		<p>MASTER de Gestión de la Industria Farmacéutica Master's degree in Management in Pharmaceutical Industry</p>	<p>CESIF</p>
		<p>Validaciones de Limpieza Cleaning Validation</p>	<p>AEFI</p>
		<p>Gestión de Riesgos en relación con la cadena del frío Cold chain risk management</p>	
		<p>Perspectiva europea del sector de los Complementos Alimenticios European Perspective of Food Complements</p>	
		<p>1ª Jornada sobre Garantía de calidad en la fabricación de Productos Cosméticos 1st Conference on Manufacturing and Quality Assurance of Cosmetics</p>	
		<p>El control sanitario en el comercio exterior de productos farmacéuticos Medicines Foreign Trade Health Control</p>	
		<p>Taller de aguas Water Workshop</p>	
		<p>Primer Curso de casos prácticos de precios y financiación de medicamentos 1st Course on practical cases in medicines price and reimbursement</p>	
		<p>Curso práctico de NEES Practical Course on NEES</p>	
		<p>Primer curso de casos prácticos de directrices de calidad y de farmacopea 1st Practical Course on Quality and Pharmacopeia Guidelines</p>	
		<p>Segundo curso teórico-práctico en Farmacovigilancia 2nd Theoretical-Practical Course in Pharmacovigilance</p>	
		<p>Centro de Estudios superiores de la industria farmacéutica Post-graduate studies in Pharmaceutical Industry Center CESIF: <a href="http://www.cesif.es/">http://www.cesif.es/</a> Other courses:</p> <ul style="list-style-type: none"> <li>• MIFPMáster en Industria Farmacéutica y Parafarmacéutica Master's Degree in Pharmaceutical and Parapharmaceutical Industry</li> <li>• MTCAMáster en Tecnología Control y Seguridad Alimentaria Master's Degree in Control and Food Assurance Technology</li> </ul>	

		<ul style="list-style-type: none"> <li>• MCDFMáster en Cosmética y Dermofarmacia Master’s Degree in Cosmetics and Dermopharmacy</li> <li>• MTGQMáster en Tecnología y Gestión de la Industria Química Master’s Degree in Technology and Management in Chemical Industry</li> <li>• MDMFMáster en Dirección Comercial y Márketing de Industrias Farmacéuticas y Afines Master’s Degree in Trade Management and Marketing of Pharmaceutical Industries and other Industries related</li> <li>• MDMAMáster en Dirección Comercial y Márketing de Industrias Alimentarias Master’s Degree in Trade Management and Marketing of Food Industries</li> <li>• MBTSMáster en Biotecnología de la Salud Master’s Degree in Health and Biotechnology</li> </ul> <p>AEFI Asociación Española de Farmacéuticos de la Industria Spanish Association of Pharmacists in Industry. <a href="http://www.aefi.org/">http://www.aefi.org/</a></p> <p>The General Council of Pharmacists also provides courses for Industrial pharmacy specialisation within their National Plan of Continuous Professional Training: <i>El medicamento y la industria farmacéutica: del diseño molecular a la farmacia</i> The medicine and the Pharmaceutical industry: from molecular design to the pharmacy (2009-2011)</p>
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## Chapter 3. Teaching and learning methods

Student hours						
Method	Year 1	Year 2	Year 3	Year 4	Year 5	Total
<b>HEIs courses</b>						
Lecture	350	350	350	350	175	1575
Tutorial	50	50	50	50	25	225
Practical	200	200	200	200	100	900
Project work					125	125
<b>Traineeship</b>						
Hospital					450	450
Community					450	450
Industrial or academic			100 (optional)	100 (optional)	100 (optional)	300
<b>Electives</b>						
Optional				75	75	150
<b>Total</b>	600	600	700	775	1500	4175

Student hours by learning method.



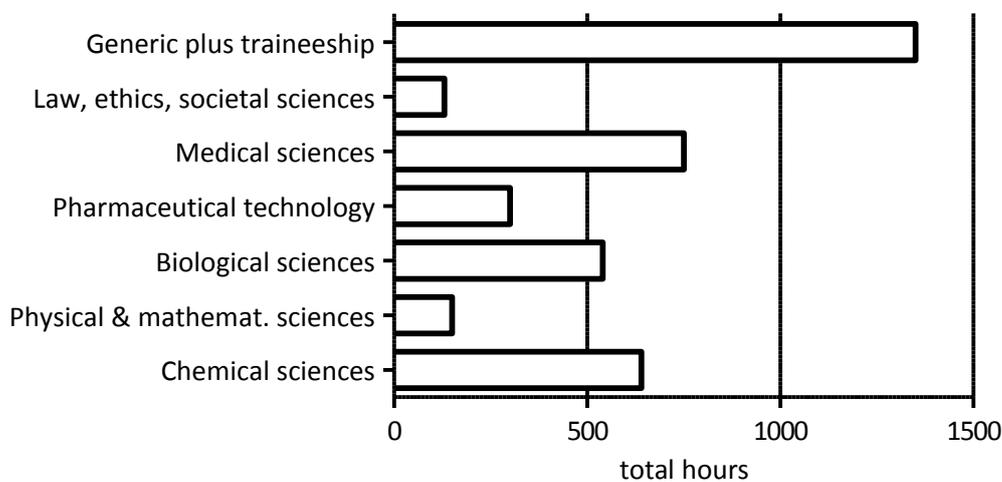
References	
Texts and articles of national law	LEY DEL MEDICAMENTO. RD 1393/2007. ORDEN CIN/2137/2008

## Chapter 4. Subject areas

### Student hours

	Year 1	Year 2	Year 3	Year 4	Year 5	Total
CHEMSCI	300	200	100	40		640
PHYSMATH	60	90				150
BIOLSCI	100	140	120	120	60	540
PHARMTECH			120	120	60	300
MEDISCI	40	140	240	240	90	750
LAWSOC				60	90	150
GENERIC	100	50	20	20		190
GENERIC plus TRAINEESHIP			100	160	1090	1350
<b>Total</b>	<b>600</b>	<b>620</b>	<b>700</b>	<b>760</b>	<b>1390</b>	<b>4070</b>

Student hours by subject area.



## Chapter 5. Impact of the Bologna principles

Bologna principle	Y/N	Comments.
<b>1. Comparable degrees / Diploma Supplement</b>	Yes	<p>Spanish degrees are similar in all institutions. They all follow European directives 2005/36 CE (1). Spanish legislation established the duration as a minimum of 3000 of contact hours. They have a core common contents between 50-75% of the study plan (2). All studies are recognized between institutions on the basis of full recognition of equivalent disciplines (&gt;75% subjects in common) or group of disciplines (e.g. all disciplines of the first cycle), otherwise credits are recognized (3). In the case of foreign degrees a homologation process is established (4). By 2010 all degrees change to plans based on ECTS (5a, 5b). The process of change will last until 2015, although some institutions will ended by 2011.</p> <p>DS is delivered by half of the institutions since 2004 to the students that request it (6). There is a DS fee. DS is presented in Spanish and English.</p>
<b>2. Two main cycles (B and M) <u>with entry and exit at B level</u></b>	No	<p>Current study plans Students are fully integrated degrees. Students that finished the first part of Pharmacy (2,5-3 years according to institutions) can follow some degrees such as Biochemistry, Food Science and Technology, etc. No entry at the second part of Pharmacy from other studies is allowed. From 2010 Pharmacy remains as a fully integrated degree with the consideration of Bachelor. Master's degrees are now offered as postgraduate courses of 1 and 2 years.</p>
<b>3. ECTS system of credits / links to LLL</b>	Yes	<p>Although ECTS and grades were defined in 2003 (7) only 2010 new study plans used then. Until now credits represent contact ours (10 contact our = 1 credit). From 2010 ECTS are mandatory to all degrees.</p> <p>LLL: There are programs in collaboration with the professional associations of pharmacists in some institutions.</p>
<b>4. Obstacles to mobility</b>	Yes	<p>1:Financial and language. 2. Diferences in the calendar and programs, specially those not organized in semesters.</p>
<b>5. European QA</b>	Yes	<p>Some institutions follow evaluation under national (Plan Nacional de Calidad de las Universidades) or regional plans (E.g.. Andalusia plan for Quality Assurance) of Quality. These plans follow the ENQA directives.</p> <p>All new plans after Bologna implementation follow QA with evaluation each six years. The evaluation is under the control of the Agencia Nacional de Evaluación y Acreditación (ANECA) or autonomic agencies.</p>
<b>6. European dimension</b>	Yes	<p>Most institutions have agreements for staff and students' mobility (see list below). European doctorates are starting but increasing quickly (in 2008:13 and in 2009:52)</p>

Countries and Universities with agreements for staff and students' mobility with Spanish Faculties:

Austria Wien

Belgium CATHOLIQUE DE LOUVAIN

Belgium GENT

Belgium Haute Ecole Charleroi Europe

Belgium LIÈGE

Bulgaria Medical University

Czech Republic Charles V University

Czech Republic PRAHA

Czech Republic Veterinary and Pharmaceutical Sciences Brno

Finland Kuopio

France AIX-MARSEILLE

France Bordeus II Victor Segalen

France Bourgogne.

France Caen Basse Normandie

France Claude Bernard Lyon I (Lyon); .

France Franche-Comté.

France François Rabelais de Tours

France Grenoble I Joseph Fourier

France HENRI POINCARÉ - NANCY

France Institut Superior de Ciència de Saúde-Nord

France JOSEPH FOURIER, GRENOBLE

France Lille II

France Lió Claude Bernard

France Llemotges

France Méditerranée

France Montpellier II-Sciences et Techniques du Languedoc (Montpellier)

France Montpellier I (Montpellier);

France Nantes

France PARIS XI

France Reims Xampanya-Ardenes

France René Descartes-ParisV

France Rennes

France Rouen Alta Normandia

France Tolosa Paul Sabatier

France Victor Segalen Bordeaux 2

France Dijon

France Estrasbourg

France Lyon

France Poitiers

France Reims

France ANGERS

Germany Aachen University of Applied Sciences

Germany ALBERT-LUDWIGS-UNIVERSITÄT FREIBURG IM BREISGAU

Germany Bonn

Germany EBERHARD KARLS UNIVERSITÄT TÜBINGEN.

Germany Ernst-Moritz-Arndt Universität Greifswald

Germany FREIE UNIVERSITÄT BERLIN

Germany	Friederich-schiller Universität Jena
Germany	Julius Maximilians Universität Würzburg.
Germany	LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN.
Germany	MASARYKOVA UNIVERZITA.
Germany	Philipps-Universität Marburg
Germany	PHILIPPS-UNIVERSITÄT MARBURG.
Germany	Renana Friedrich Wilhelm de Bonn
Germany	Rheinische Friedrich-Wilhelms-Universität Bonn (Bonn); .
Germany	RUPRECHT-KARLS-UNIVERSITÄT HEIDELBERG
Germany	Technische Universität Carolo Wilhemina Zu Braunschweig (Braunschweig)
Germany	TECHNISCHE UNIVERSITÄT MÜNCHEN
Germany	UNIVERSITÄT REGENSBURG
Germany	Westfalia Wilhelm de Münster
Germany	Frankfurt (2)
Greece	Nacional i Kapodistriana d’Atenes
Greece	THESSALONIKI
Hungary	Budapest
Iceland	ICELAND
Ireland	NATIONAL UNIVERSITY OF IRELAND, CORK
Italy	Palermo (4)
Italy	Roma 01
Italy	Urbino
Italy	CHIETI
Italy	COSENZA
Italy	MILANO
Italy	"MAGNA GRAECIA" DI CATANZARO
Italy	BARI
Italy	Bologna
Italy	CAGLIARI
Italy	Calabria
Italy	Càller
Italy	Camerino
Italy	Catania
Italy	CATTOLICA DEL SACRO CUORE
Italy	FERRARA
Italy	Firenze
Italy	G. D’Annunzio-Chieti Pescara (Chieti);
Italy	Gènova
Italy	Messina
Italy	Modena e Reggio Emilia
Italy	NAPOLI
Italy	Napoli Federico II
Italy	Padova
Italy	Parma
Italy	Pavia
Italy	Perugia
Italy	PISA
Italy	POTENZA 01
Italy	ROMA "LA SAPIENZA"
Italy	ROMA 3
Italy	SALERNO

	Italy SASSARI Italy Siena Italy Torino; . Italy URBINO Malta MALTA Poland Akademia Medyczna we Wroclaw Portugal Coimbra Portugal dos Açores Portugal Lisboa Portugal Porto Portugal Beira Interior-Covilha Portugal Lusofona de Lisboa Portugal BRAGANCA Romania Medicina si Farmacie "Iuliu Hatieganu" Cluj-Napoca Slovenia LJUBLJANA Suisse Ginebra Sweden Uppsala Turkey Hacettepe Universitesi Turkey HATAY UK Aberdeen UK BRADFORD UK London-School of Pharmacy (London). UK King's College London UK HATFIEL 01 UkraineKIEL
<b>ERASMUS staff exchange to your HEI from elsewhere</b>	Staff months: No data available.
<b>ERASMUS staff exchange from your HEI to other HEIs</b>	Staff months: No data available.
<b>ERASMUS student exchange to your HEI from elsewhere</b>	Student months: 3147 (2009/10)
<b>ERASMUS student exchange from your HEI to other HEIs</b>	Student months: 6042 (2009/10)

<b>References</b>	
References to texts and articles of national law	SENECA / SICUE (for national mobility programme) ERASMUS (EU) <a href="http://farmacia.ugr.es/conti.php?sec=12&amp;pag=9">http://farmacia.ugr.es/conti.php?sec=12&amp;pag=9</a> <a href="http://farmacia.ugr.es/conti.php?sec=12&amp;pag=10">http://farmacia.ugr.es/conti.php?sec=12&amp;pag=10</a>

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

The directive states	How does / will this directive statement affect pharmacy E&T?
“Evidence of formal qualifications as a pharmacist shall attest to training of at least <u>five years' duration</u> ,...”	Spain complies
“... <u>four years of full-time theoretical and practical training</u> at a university or at a higher institute of a level recognised as equivalent, or under the supervision of a university;”	Spain complies
“... <u>six-month traineeship in a pharmacy</u> which is open to the public or in a hospital, under the supervision of that hospital's pharmaceutical department.”	Spain complies
“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> ”	Spain complies
Directive annex	How does / will this directive annex affect pharmacy E&T?
V.6. PHARMACIST 5.6.1. <i>Course of training for pharmacists</i> 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.	Spain complies

Texts and articles of national law
1 DIRECTIVA 2005/36/CE DEL PARLAMENTO EUROPEO Y DEL CONSEJO, de 7 de septiembre de 2005  2 Real Decreto 27 de noviembre 1987, núm. 1497/1987 (Mº Educ. y Ciencia). UNIVERSIDADES. Directrices generales comunes de los planes de estudio de los títulos de carácter oficial y validez en todo el territorio nacional. (Modificado y actualizado conforme al R.D. 1267/1994 de 10 de junio, BOE 11 de junio, al R.D. 2347/1996 de 8 de noviembre de, BOE de 23 de noviembre, al R.D. 614/1997 de 25 de abril, BOE de 16 de mayo y al R.D. 779/1998 de 30 de abril, BOE de 1 de mayo).  3 REAL DECRETO 55/2005, de 21 de enero, por el que se establece la estructura de las enseñanzas universitarias y se regulan los estudios universitarios oficiales de Grado. BOE núm. 21: 2842-2846  4 ORDEN ECI/1519/2006, de 11 de mayo, por la que se establecen los criterios generales para la determinación y realización de los requisitos formativos complementarios previos a la homologación de títulos extranjeros de educación superior. BOE núm. 119: 19066-19068  5a REAL DECRETO 1393/2007, de 29 de octubre, por el que se establece la ordenación de las enseñanzas universitarias oficiales. BOE núm. 260:44037-44048  5b Real Decreto 861/2010, de 2 de julio, por el que se modifica el Real Decreto 1393/2007, de 29 de octubre, por el que se establece la ordenación de las enseñanzas universitarias oficiales.  6 REAL DECRETO 1044/2003, de 1 de agosto, por el que se establece el procedimiento para la expedición por las

universidades del Suplemento Europeo al Título. BOE núm. 218:33848-33853

7 REAL DECRETO 1125/2003, de 5 de septiembre, por el que se establece el sistema europeo de créditos y el sistema de calificaciones en las titulaciones universitarias de carácter oficial y validez en todo el territorio nacional. BOE núm. 224: 34355-34356

8 LEY 44/2003, de 21 de noviembre, de ordenación de las profesiones sanitarias. BOE núm. 280: 41442-41458

9 LEY ORGÁNICA 4/2007, de 12 de abril, por la que se modifica la Ley Orgánica 6/2001, de 21 de diciembre, de universidades. BOE núm. 89:16241-16260

CIN/2137/2008

<http://www.uco.es/organizacion/ees/documentos/nuevastitulaciones/reguladas/Farmaceutico%20-%20Competencias.pdf>

**The information given in this enquiry corresponds to the average of the 18 public and private faculties of pharmacy in Spain. Information for a given faculty is to be found in the web pages of the faculties in question.**



**PHARMINE**  
Pharmacy Education  
in Europe

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de Granada**



**UNIVERSITY OF TARTU**



Vrije  
Universiteit  
Brussel

**Nancy-Université**  
Université  
Henri Poincaré

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## PHARMINE

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(142078-LLP-1-2008-BE-ERASMUS-ECDSP).

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Pharmacy education & training in

# SWEDEN

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 – SWEDEN" was produced by:

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## Summary.

In Sweden the duration of education for Master of Science in pharmacy degree is 5 years of which 6 months consist of compulsory traineeship in community or hospital pharmacy. Currently two universities, at Uppsala University and Sahlgrenska Academy, are running the education to master degree but two more universities will in 2012 start the master programme. There is a possibility to do a 3 years bachelor of science in pharmacy programme and work as a “*prescriptionist*”. This is today possible at 5 different universities in Sweden. The Bachelor programme includes a 10 weeks compulsory traineeship in a community pharmacy. For the moment it is not possible to study for 3 years for Bachelor degree and then additional 2 years for Master degree, as these are two separate programmes with separate applications and intake. However, in the coming years this will be possible at, at least, one university. Both Bachelor and Master degree includes Bachelor/Master thesis and advance elective courses. Bachelors and Master can obtain a licence as pharmacist in Sweden.

The Masters and Bachelors are both qualified to manage a pharmacy, to dispense prescription drugs and OTC drugs, advice patients and to act as responsible persons in community pharmacy, according to the Swedish law. The Bachelor degree is more practically oriented and aimed to prepare for the basic requirements for working in the community pharmacies. The Master degree will give a solid background for work as a registered pharmacist in the community or hospital pharmacy with advanced counselling as well as with research and development in industry. Masters are working in hospitals in collaboration with physicians and nurses and are also qualified for PhD studies.

The need for skills in clinical pharmacy is increasing in Sweden and for pharmacist with a Master degree it is possible to take 1-year courses for specialisation in clinical pharmacy.

From 1971 to 2009 the ownership of pharmacies was an exclusive right of the State. In 2009 the law was changed and ownership is now open for every one, not just pharmacists. Since 2010 the number of pharmacies has increased by more than 20 % and today Sweden has about 1200 pharmacies (8300 inhabitants per pharmacy). The State owns still about 350 pharmacies but the other pharmacies are owned by private persons and by international pharmacy chains.

## Introduction.

### Statistics for Sweden.

Total population: 9,078,000

Gross national income per capita (PPP international \$): 34,310

Life expectancy at birth m/f (years): 79/83

Healthy life expectancy at birth m/f (years, 2003): 72/75

Probability of dying under five (per 1 000 live births): 4

Probability of dying between 15 and 60 years m/f (per 1 000 population): 78/49

Total expenditure on health per capita (Intl \$, 2006): 3,119

Total expenditure on health as % of GDP (2006): 8.9

Detailed information is available at: World Health Statistics 2009:

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

### Highlights on health in Sweden.

Health Systems in Transition Sweden, 2005

<http://www.euro.who.int/en/home/projects/observatory/publications/health-system-profiles-hits/full-list-of-hits/sweden-hit-2005>

National system overviews on education systems in Europe and ongoing reforms SWEDEN, October 2010.

[http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/national\\_summary\\_sheets/047\\_SE\\_EN.pdf](http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/national_summary_sheets/047_SE_EN.pdf)

Pharmaceutical pricing and reimbursement policies in Sweden <http://www.oecd.org/dataoecd/63/17/40699881.pdf>

Swedish Healthcare system <http://www.swedishhealthcare.se/swedenshealthcaresystem.html>

Quality and Efficiency in Swedish Health Care

<http://www.socialstyrelsen.se/publikationer2010/2010-4-37>

<http://www.socialstyrelsen.se/Lists/Artikelkatalog/Attachments/18023/2010-4-37.pdf>

## 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	1400	Additional 1100 are working in drug industry and 400 in government /university
Number of community pharmacies	1200	Plus 70 hospital pharmacies. More community pharmacies will probably open as the government has open up for private pharmacies.
Competences and roles of community pharmacists		<ul style="list-style-type: none"> <li>a. Supplying prescription medicines</li> <li>b. Managing medicines for some ailments</li> <li>c. Giving advice on medicines</li> <li>d. Services to nursing and care homes (medication reviews, advice on storage and administration of medicines)</li> <li>e. Other (please specify), information in schools about drugs</li> </ul>
Is ownership of a community pharmacy limited to pharmacists?	No	Up to 2009 the State was the only owner of community pharmacies but now everyone can own a pharmacy, almost. Physicians and wholesalers are by law not allowed to be a sole owner of a pharmacy. The State owns still about 350 pharmacies but the rest are owned by private persons and by international pharmacy chains. In spring 2011 Sweden has about 1200 pharmacies, which is about 8300 inhabitants per pharmacy. There is an increase of pharmacies by more than 20 % since 2009 and the need for Masters and Bachelors is increasing and for the moment there is a shortage of pharmacists.
Are there rules governing the geographical distribution of community pharmacies?	No	
Are drugs and healthcare products available to the general public by channels other than pharmacies?	Yes	Some non-prescription drugs are available outside community pharmacies, in ordinary shops and petrol stations. The sale of non-pharmaceutical products is allowed to a limited extent. OTC drugs and prescription drugs can be bought via the Internet through some of the pharmacy companies. And also special machines in shops are available for the customers to deliver some non-prescription drugs.
Are persons other than pharmacists involved in community practice?	Yes	
Their titles and number(s)	5500 bachelors. 1300 pharmacy technicians	Prescriptionist/bachelor Pharmacy technician

<b>Their qualifications</b>		
Organisation providing and validating the E&T		<p>Bachelor education is at university level. The validating organisation: Swedish National agency for higher education (<a href="http://www.hsv.se/2.539a949110f3d5914ec800056285.html">http://www.hsv.se/2.539a949110f3d5914ec800056285.html</a>)</p> <p>Technician education is on post-secondary school level, not on university level. These schools are called vocational training schools, and the students have 12 years undergraduate studies before starting the education. Validating organisation: Swedish National Agency for Higher Vocational Education (<a href="http://www.yhmyndigheten.se/english">http://www.yhmyndigheten.se/english</a>)</p>
Duration of studies (years)	Bachelor 3 years Technician 1,5 years	
<b>Subject areas</b>		
Competences and roles		<p>Bachelor: counselling, supplying prescription drugs and non-prescription drugs.</p> <p>Technician: supplying and counselling on OTC drugs and non-pharmaceutical products.</p>
<b>Hospital pharmacy</b>		
Does such a function exist?	Y	
Number of hospital pharmacists	200	
Number of hospital pharmacies	73	The number of hospital pharmacies will decrease as more hospitals will take care of the drug distribution and management of drugs inside the hospital and employ pharmacists to be part of that.
Competences and roles of hospital pharmacists		<ol style="list-style-type: none"> <li>In wards or outpatient clinics</li> <li>Consultant in specialised clinical areas such as paediatrics or intensive care</li> <li>Part of multidisciplinary patient-care team</li> <li>Monitoring of drug use</li> <li>Unit-dose drug distribution</li> <li>Production of patient-specific medicines (e.g. cytotoxic preparations)</li> <li>Other (please specify)</li> </ol> <p>One year programme in clinical pharmacy in Uppsala to add to the five years to pharmacist/master, specialisation in clinical pharmacy to qualify for working in health care teams.</p>
<b>Pharmaceutical and related industries</b>		
Number of companies with production, R&D and distribution	5 big companies and several smaller drug and biotech companies, about 80	<p>Some of the drug companies:</p> <p>Pfizer AB (<a href="http://www.pfizer.se">www.pfizer.se</a>),  GlaxoSmithKline AB (<a href="http://www.glaxosmithkline.se">www.glaxosmithkline.se</a>),  Merck Sharp &amp; Dohme (Sweden) AB (<a href="http://www.msds.se">www.msds.se</a>),  Novartis Sverige AB (<a href="http://www.novartis.se">www.novartis.se</a>),  AstraZeneca Sverige AB (<a href="http://www.astrazeneca.se">www.astrazeneca.se</a>),  Bayer AB (<a href="http://www.bayer.se">www.bayer.se</a>),  Boehringer Ingelheim AB (<a href="http://www.boehringer-ingelheim.se">www.boehringer-ingelheim.se</a>),  Bristol-Myers Squibb A (<a href="http://www.bms.se">www.bms.se</a>)  Ferring Läkemedel AB (<a href="http://www.ferring.se">www.ferring.se</a>),</p>

		Eli Lilly Sweden AB ( <a href="http://www.lilly.se">www.lilly.se</a> ). More information at <a href="http://www.lif.se/cs/default.asp?id=40897">http://www.lif.se/cs/default.asp?id=40897</a>
Number of companies with production only		
Number of companies with distribution only		
Number of companies producing generic drugs only		
<b>Industrial pharmacy</b>		
Number of pharmacists working in industry	1100-1200	
Competences and roles of industrial pharmacists		<ul style="list-style-type: none"> <li>a. Synthesis and production of new chemical entities and drugs</li> <li>b. R&amp;D – drugs</li> <li>c. R&amp;D – health care products other than drugs</li> <li>d. Preclinical drug evaluation (safety and efficacy)</li> <li>e. Clinical drug evaluation (safety and efficacy)</li> <li>f. Marketing</li> <li>g. Distribution</li> <li>h. Medical devices</li> <li>i. Drug evaluation and registration (governmental and industrial)</li> <li>j. Other (please specify)</li> </ul>
<b>Other sectors</b>		
Number of pharmacists working in other sectors	400	
Sectors in which pharmacists are employed		University, government, FDA, regulatory authorities,
Competences and roles of pharmacists employed in other sectors		Regulatory affairs, research/teaching, drug evaluation and registration
<b>Roles of professional associations</b>		
Registration of pharmacists	Yes	The National Board of Health and Welfare <a href="http://www.socialstyrelsen.se/english">http://www.socialstyrelsen.se/english</a>
Creation of community pharmacies and control of territorial distribution	Yes	Medical Products Agency <a href="http://www.lakemedelsverket.se/english/">http://www.lakemedelsverket.se/english/</a>
Ethical and other aspects of professional conduct	Yes	The National Board of Health and Welfare <a href="http://www.socialstyrelsen.se/english">http://www.socialstyrelsen.se/english</a>

Quality assurance and validation of HEI courses for pharmacists	Yes	Swedish National Agency for Higher Education <a href="http://www.hsv.se/2.539a949110f3d5914ec800056285.html">http://www.hsv.se/2.539a949110f3d5914ec800056285.html</a>
Other (please specify)		

References	
References to texts and articles of national law	<a href="http://www.lakemedelsverket.se/english/overview/Legislation/">http://www.lakemedelsverket.se/english/overview/Legislation/</a>
Bibliographic references (EU, national, international)	

## Chapter 2. Pharmacy HEIs, students and courses

	Y/N, number or %	If you wish to expand your answer, please add your comments below.
<b>Total number of HEIs in your country</b>	2	Uppsala: Faculty of Pharmacy, Uppsala University <a href="http://www.farmfak.uu.se/english">http://www.farmfak.uu.se/english</a> Gothenburg: Sahlgrenska Akademy <a href="http://www.sahlgrenska.gu.se">http://www.sahlgrenska.gu.se</a>  In 2012 additional 2 HEI will start, at university of Lund and Umeå
Public	2	
Private	0	
<b>Organisation of HEIs</b>		
Independent faculty	Yes	At Faculty of pharmacy, Uppsala University.
Attached to a science faculty	No	
Attached to a medical faculty	Yes	At Sahlgrenska Akademy.
Other (please specify)		
Do HEIs offer B + M degrees?	Yes	Two separate programmes in Uppsala, 3 years programme for B and 5 years programme for M, separate applications as well.
Do HEIs offer an M. Pharm. after a B degree in another HEI?	Yes/No	Yes in Sahlgrenska Not in Uppsala
Do HEIs offer a B. Pharm. followed by an M. Pharm. in the same HEI or elsewhere?	Yes	A B Pharm from Uppsala may in Uppsala study for M pharm level to get license as a pharmacist according to the European standard. That will take about 2,5 years of study as the B and M programme have different curriculum and the first 3 years of M programme are not identical with the 3 years B programme.  In Uppsala students with a B degree are offered to study for a general Master degree, a Master programme in drug discovery and development or a Master programme in drug management, for 2 years. After these years they are not able to get a license as a pharmacist/European standard but they still have license as a Bachelor/prescriptionist.
Sahlgrenska Akademy		
<b>Teaching staff</b>		
Number of teaching staff (nationals)	50	
Number of international teaching staff (from EU MSs)		
Number of international teaching staff (non EU)		
Number professionals		

(pharmacists and others) from outside the HEIs, involved in E&T		
<b>Students</b>		
Number of places at traditional entry (beginning of S1 of B1, following secondary school)	90	
Number of applicants for entry	1,4	
Number of graduates that become registered/professional pharmacists.	80	
Number of international students (from EU member states)	0	
Number of international students (non EU)	0	
<b>Entry requirements (beginning of S1 of B1, following secondary school)</b>		
Your HEI has a specific pharmacy-related entrance examination	No	
<b>Fees per year</b>		
For home students	0	
For EU MS students	0	
For non EU students	2350 €	
<b>Length of course</b>	<b>5 years</b>	
<b>Specialization</b>		
Do HEIs provide specialized courses?	Yes	
In which years?	4, semester 8	
In which specialisation (industry, hospital...)?		
What are the student numbers in each specialization?	15-25	
<b>Past and present changes in E&amp;T</b>		
Have there been any major changes since 1999?	No	
Are any major changes envisaged before 2019?		

<b>Faculty of Pharmacy, Uppsala university</b>		
<b>Teaching staff</b>		
Number of teaching staff (nationals)	120	Including all teaching personal, also some PhD students that teach.
Number of international teaching staff (from EU MSs)	0	
Number of international teaching staff (non EU)	0	
Number professionals (pharmacists and others) from outside the HEIs, involved in E&T	20	Professionals from the industry, hospitals, and pharmacies are involved in lecturing and tutoring, bringing experiences from the field outside the faculty to the faculty, for example patient case studies.
<b>Students</b>		
Number of places at traditional entry (beginning of S1 of B1, following secondary school)	90 each semester, that is 180 each year	Students will enter the studies twice a year, in January 90 students and in September 90 students, will enter the first semester, that is each year 180 students will be accepted.
Number of applicants for entry	160-190 each semester	160-190 applicants twice a year, in January and in September
Number of graduates that become registered/professional pharmacists.	120-130 /year	Out of the students who started the first semester, some drop out and some have not passed all exams at the end of the fifth year, and need some more time before graduation.
Number of international students (from EU member states)	0	
Number of international students (non EU)	0	
<b>Entry requirements (beginning of S1 of B1, following secondary school)</b>		
Your HEI has a specific pharmacy-related entrance examination	No	
<b>Advanced entry</b>		
At which level?		S4 B2 S7 M4 S10 M5
What are the requirements?		For entry to S4 Students must have passed 1 year courses For entry to S7 students must have passed 5 semesters courses For entry to S10, pharmacy internship/traineeship, students must have passed all courses S1-S9
Specific requirements for international students (EU or non EU).		No
<b>Fees per year</b>		
For home students	0	

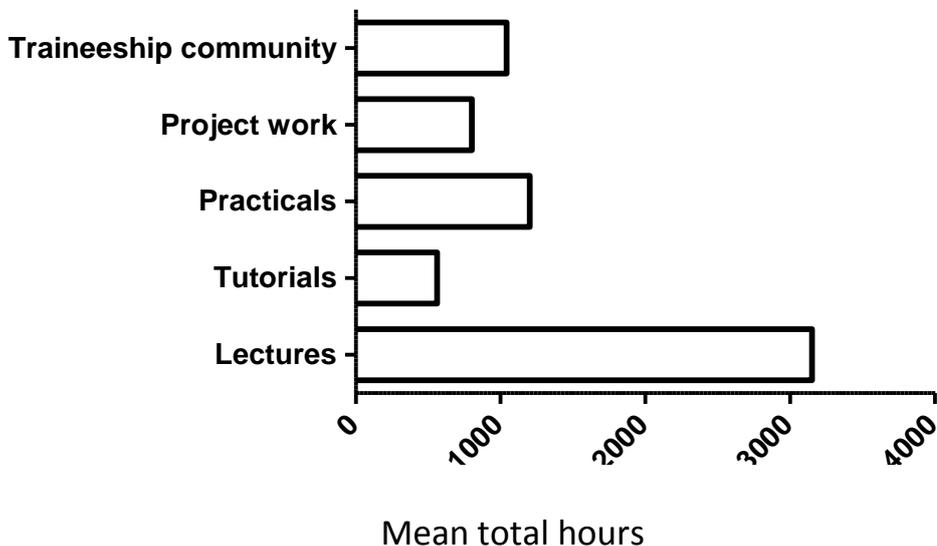
For EU MS students	0	
For non EU students	15000 €	€
<b>Length of course</b>	<b>5 years</b>	5-10 weeks per course in general
<b>Specialization</b>		
Does your HEI provide specialized courses?	Yes	Elective courses at semester 8 are specialized.
In which years?	Years: 4 semester 8 5 semester 9	S8 specialized elective courses S9 individual research project
In which specialisation (industry, hospital...)?		In pharmaceutical biosciences, pharmacy and medicinal chemistry
What are the student numbers in each specialization?	10-20	
<b>Past and present changes in E&amp;T</b>		
Have there been any major changes since 1999 at your HEI?	Yes	Expanded from 4 years curriculum to 5 years
Are any major changes envisaged before 2019 at your HEI?	No	
<b>Is your HEI typical of all HEIs in the country?</b>	No	Typical in general but Uppsala has two intake a year as the Sahlgrenska faculty in Gothenburg has one intake a year
<b>If your HEI is not typical, how do HEIs differ (e.g. in terms of organisation, subject areas, specialization...)?</b>		In Sweden there is just one faculty of pharmacy, in Uppsala, and the faculty has the competence to teach in all subjects for the 5 years curriculum for pharmacists and the faculty has research competence in all area of pharmacy that are taught at the faculty. Not all but most of the teachers are pharmacists and almost all have a PhD with just a few exceptions.

<b>References</b>	
References to texts and articles of national law	<a href="http://www.hsv.se/lawsandregulations.4.5161b99123700c42b07ffe3904.html">http://www.hsv.se/lawsandregulations.4.5161b99123700c42b07ffe3904.html</a>

### Chapter 3. Teaching and learning methods

Student hours						
Sahlgrenska academy						
Method	Year 1	Year 2	Year 3	Year 4	Year 5	Total
<b>HEIs courses</b>						
Lecture	20-25/w x 40w 800-1000	20-25/w x 40w 800-1000	20-25/w x 40w 800-1000	20-25/w x 20w 400-500		2800-3500
Tutorial	2-5/w x 40 w 80-200	320-800				
Practical	5-10/w x 40w 200-400	5-10/w x 40w 200-400	5-10/w x 40w 200-400	5-10/w x 40w 200-400		800-1600
Project work					40/w x 20w 800	800
<b>Traineeship</b>						
Hospital						
Community					40/w x 26w 1040	1040
Industrial (academic or industrial)						
Other (please specify)						
<b>Electives</b>						
Choice						
Optional				40/w x 20w 800		800
<b>Total</b>	1080-1600	1080-1600	1080-1600	1480-1900	1840	

Hours per learning methods



**Student hours**

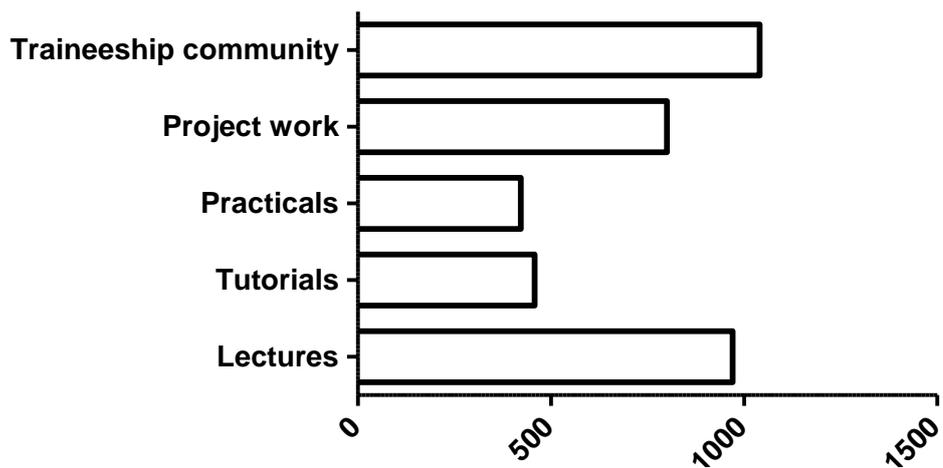
Faculty of Pharmacy, Uppsala University

Method	Year 1	Year 2	Year 3	Year 4	Year 5	Total
<b>HEIs courses</b>						
Lecture	260	326	233	151		970
Tutorial	116	107	134	101		458
Practical	118	74	226	4		422
Project work					40/w x 20w 800	800
<b>Traineeship</b>						
Hospital						
Community					40/w x 26w 1040	1040
Industrial (academic or industrial)						
Other (please specify)						
<b>Electives</b>						
Choice						
Optional				20-25/w x 20w 400-500		400-500
<b>Total</b>	494	507	593	656-756	1840	4090-4190

If you wish to expand your answer, please add your comments below.

	1	2	3	4	5	6
<b>HEI courses</b>				During the course <i>Product and process analytical chemistry</i> the students have scheduled 64 hours to work for themselves to prepare a paper. During the course <i>Regulatory requirements and quality assurance</i> the students have 9 hours scheduled to prepare a paper and 15 hours for visiting some drug industries		
<b>Electives</b>				Elective courses during semester 8, in pharmaceutical biosciences, pharmacy or medicinal chemistry		

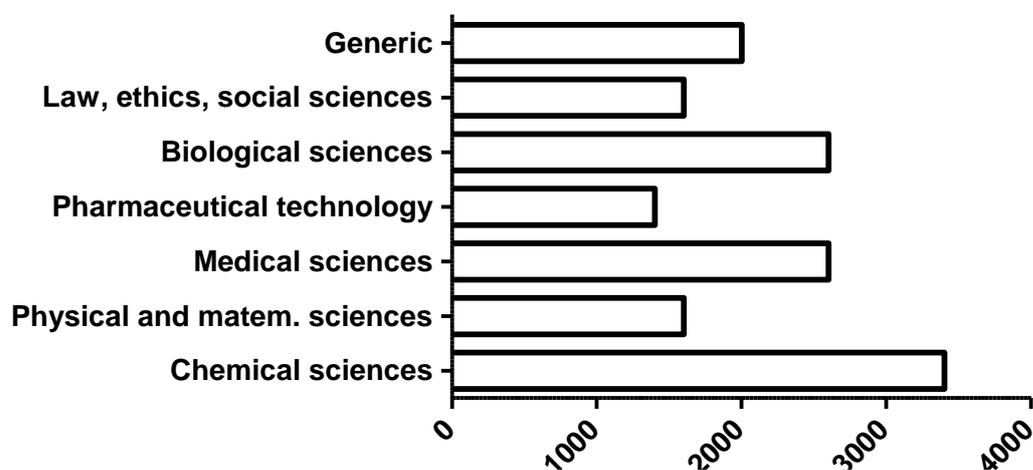
### Hours per learning methods



## Chapter 4. Subject areas

Student hours						
Sahlgrenska academy						
Subject area	Year 1	Year 2	Year 3	Year 4	Year 5	Total
<b>CHEMSCI</b>	40 h/w x 20w 800	40 h/w x 10w 40 /w x 5 w 600	40 h/w x 10w 400	<b>(electives</b> 40h/w x 20w in any area) 800	Project work (40/w x 20w in any area) 800	3400
<b>PHYSMATH</b>		40/w x 5w 200		40/w x 15w <b>(electives</b> in any area) 600	Project work (40/w x 20w in any area) 800	1600
<b>BIOLSCI</b>	40 /w x 20w 800	40/w x 5w 200		<b>(electives</b> 40/w x 20w in any area) 800	Project work (40/w x 20w in any area) 800	2600
<b>PHARMTECH</b>			40/w x 10 w 400	40/w x 5w <b>(electives</b> in any area) 200	Project work (40/w x 20w in any area) 800	1400
<b>MEDISCI</b>		40 /w x 5w 200	40 /w x 20 w 800	<b>(electives</b> 40h/w x 20w in any area) 800	Project work (40/w x 20w in any area) 800	2600
<b>LAWSOC</b>				<b>(electives</b> 40/w x 20w in any area) 800	Project work (40/w x 20w in any area) 800	1600
<b>GENERIC</b>				<b>(electives</b> 40/w x 20w in any area) 800	Traineeship (40/w x 30w) 1200	2000

Hours by subject area



**Student hours**

Faculty of Pharmacy, Uppsala University

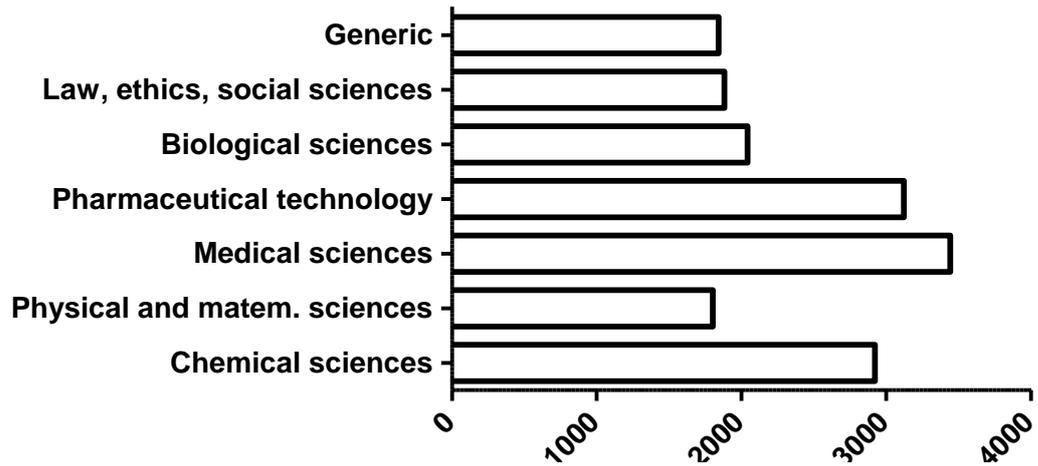
Subject area	Year 1	Year 2	Year 3	Year 4	Year 5	Total
<b>CHEMSCI</b>	40 h/w x 24w 960 h	40 h/w x 4w 160 h	40 h/w x 5w 200 h	electives 40h/w x 20w in any area 800 h	Project work (40h/w x 20w in any area) 800 h	2920
<b>PHYSMATH</b>	40 h/w x 5 w 200 h			electives 40h/w x 20w in any area 800 h	Project work (40h/w x 20w in any area) 800 h	1800
<b>BIOLSCI</b>	40 h/w x 6w 240 h	40/w x 5w 200 h		(electives 40h/w x 20w in any area) 800 h	Project work (40h/w x 20w in any area) 800 h	2040
<b>PHARMTECH</b>	40 h/w x 3 w 120 h	40 h/w x 2 w 80 h	40h/w x 25 w 1000 h	electives 40h/w x 20w in any area 800 h + 40 h/w x 8 w 320 h	Project work (40h/w x 20w in any area) 800 h	3120
<b>MEDISCI</b>	40 h/w x 2 w 80 h	40 h/w x 29w 1160 h	40 h/w x 10 w 400 h	electives 40h/w x 20w in any area 800 h + 40 h/w x 5 w 200 h	Project work (40h/w x 20w in any area) 800 h	3440
<b>LAWSOC</b>				electives 40h/w x 20w in any area 800 h + 40 h/w x 7 w 280 h	Project work (40h/w x 20w in any area) 800 h	1880
<b>GENERIC</b>				<b>electives</b> 40h/w x 20w in any area 800 h	Traineeship (40h/w x 26w) 1040 h	1840

**If you wish to expand your answer, please add your comments below.**

	1	2	3	4	5	6
<b>CHEMSCI</b>				Electives are courses at the faculty or outside the faculty that students are free to study during semester 8 (20w), at least courses for 15 weeks out of the 20 weeks semester must		

				cover some of the area taught during the first 7 semesters (medicinal chemistry, pharmaceutical biosciences or pharmacy), 5 weeks can cover something taught outside the faculty	
--	--	--	--	--	--

### 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	Yes	Comparable to European standards in Uppsala university, Diploma supplement. Diploma Supplement in Sahlgrenska academy.
2. Two main cycles (B and M) <u>with entry and exit at B level</u>	No	In Uppsala: Two separate programmes, B for 3 years and M for 5 years A bachelor may work in a pharmacy, drug industry and government/pharmacy organisations. A bachelor from a HEI other than pharmacy can not enrol into the master program to become a registered pharmacist.
3. ECTS system of credits / links to LLL	Yes	In Uppsala: Project work during semester 9 (S9 M5) may be performed in other countries, also outside Europe, and are accepted as a part of the training to pharmacist and ECTS credits may be acquired from such projects. Elective courses from outside Sweden may also give ECTS credits.
4. Obstacles to mobility	No	In Uppsala: The faculty of pharmacy in Uppsala has agreements with several schools of pharmacy/universities/institutes in Europe, for the moment 16 universities, for student exchange. Uppsala faculty of pharmacy validate ECTSs obtained in other HEI in other countries in Europe. The faculty has a special staff engaged in student exchange and building up bridges and agreements with universities and schools of pharmacy around Europe.
5. European QA	No	
6. European dimension		
ERASMUS staff exchange to your HEI from elsewhere	0	
ERASMUS staff exchange from your HEI to other HEIs	0	
ERASMUS student exchange to your HEI from elsewhere	Number : refer to specifications in right column	Uppsala: 2010: 13 ERASMUS students were exchanged arranged by the faculty and 3 students were exchanged arranged by the university exchange office, each students were exchange for 5 month each 2009: 17 ERASMUS students were exchanged arranged by the faculty, each students were exchange for 5 month each
ERASMUS student	Number;	Uppsala:

<b>exchange from your HEI to other HEIs</b>	refer to specifications in right column	2010: 18 ERASMUS students were exchanged arranged by the faculty and 33 students were exchanged arranged by the university exchange office, each students were exchange for 5 month each 2009: 9 ERASMUS students were exchanged arranged by the faculty and 12 students were exchanged arranged by the university exchange office, each students were exchange for 5 month each
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<b>References</b>	
References to texts and articles of national law	
Bibliographic references (EU, national, international)	

<b>Websites</b>	
References to texts and articles of national law	

## 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> ,...”	Already achieved	
“ <u>...four years of full-time theoretical and practical training</u> at a university or at a higher institute of a level recognised as equivalent, or under the supervision of a university;”	Not in Uppsala	
“ <u>...six-month traineeship in a pharmacy</u> which is open to the public or in a hospital, under the supervision of that hospital's pharmaceutical department.”	Already achieved	
“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> .”	Already achieved	
Directive annex	How does / will this directive annex affect pharmacy E&T?	If you wish to expand your answer, please add your comments below. Do you consider the directive annex valid? If not how would you change it?
<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	In Uppsala: Already achieved except for the course “Plant and animal biology”, this course is mostly focused on plants.	

<p>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.</p>		
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References	
<p>References to texts and articles of national law</p>	<p><a href="http://www.lakemedelsverket.se/english/overview/Legislation/">http://www.lakemedelsverket.se/english/overview/Legislation/</a>  <a href="http://www.socialstyrelsen.se/applicationforswedishlicencetopractiseeea/pharmacist">http://www.socialstyrelsen.se/applicationforswedishlicencetopractiseeea/pharmacist</a>  <a href="http://www.socialstyrelsen.se/applicationforswedishlicencetopractiseothercountries/pharmacist">http://www.socialstyrelsen.se/applicationforswedishlicencetopractiseothercountries/pharmacist</a></p>

# The Swedish pharmacy education and training scheme

Undergraduate and graduate pharmacy programmes at Uppsala University

**PhD studies  
(4 years)**

**Traineeship in a  
pharmacy  
(0,5 year)**

**M.Sc research project  
- thesis (0,5 year)**

**Elective courses  
(0,5 year)**

**Compulsory courses  
in medicinal  
chemistry,  
pharmaceutical  
biosciences and  
pharmacy  
(3,5 years)**

**Master  
5 years**

**Master programme in  
Drug Discovery and  
Development  
Or  
Drug Management  
(2 years)**

**B.Sc. research project  
- thesis (0,25 year)**

**Elective courses  
(0,25 year)**

**Compulsory courses in  
medicinal chemistry,  
pharmaceutical  
biosciences and  
pharmacy, including 9  
weeks traineeship  
(2,5 years)**

**Bachelor  
3 years plus 2 years master programme**



Education and Culture DG

Lifelong Learning Programme

# PHARMINE

Pharmacy Education  
in Europe

# PCN

Pharmacolor  
Consultants  
Nancy



UPPSALA  
UNIVERSITET



# UNIVERSITY OF TARTU

Nancy-Université  
Université  
Henri Poincaré



Vrije  
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Brussel

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## PHARMINE

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

Website: [www.pharmine.org](http://www.pharmine.org)

*Pharmacy education & training in*

# TURKEY

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 Europe. 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 qualification, 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 – TURKEY" was produced by:

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## Summary.

Pharmacy education is provided by 12 public faculties of pharmacy and 4 private faculties (*3 of them are very recently established*) in Turkey. Students are selected via a centralized countrywide exam. Up to recently, education period was 4 years ending with a Bachelor of Science (B.Sc.) degree. Since the academic year 2005-2006, the duration of pharmacy education become 5 years, and graduates now receive a Master of Science (M.Sc) degree. They may continue their education for further M.Sc. and/or Ph.D. degrees in several fields of pharmaceutical sciences, and graduate studies are coordinated by the Graduate Institute of Health Sciences.

The principal education philosophy in faculties of pharmacy is to provide a sound professional education and training corresponds with the contemporary state and standard of pharmaceutical sciences supported by laboratory practices and traineeship. During the pharmacy education, students are provided with basic and professional knowledge on drug sources (natural, semi-synthetic and synthetic), production of pharmaceutical raw materials, pharmaceutical formulation and technology, therapeutic and adverse effects of drugs and pharmaceutical care. Pharmacy graduates may practice in community or hospital pharmacies, in pharmaceutical industry or in academic fields.

Students should acquire 200 credits in order to be graduated. 180 credits have to be collected from compulsory courses and traineeship, and 20 credits from compulsory elective courses 4 of which are chosen from fine arts or sports and the rest from pharmaceutical subjects. Traineeship is organized in 5 different periods with a total duration of more than 6 months, and conducted in community pharmacies, hospital pharmacies, and industry or other production/ research laboratories.

Basic courses are organized as lectures and practicals corresponding with the needs of the pharmaceutical practice in the country as well as in the European context. For the time being, the only specialization process is to allow students to choose either Academia/Industry or Pharmacy/Hospital pharmacy sections in the last year of the education. That is, in the first semester of the 5th year of the curriculum, along with completing a graduation project, students are offered two

types of interdisciplinary courses: (1) Academia/Industry or (2) Pharmacy/Hospital pharmacy oriented courses. However, they all receive the same degree and diploma. Since almost 80% of the pharmacy graduates are going to the practice of community pharmacy, further specialization is not yet considered. In fact, most of the students prefer the Pharmacy/Hospital pharmacy section courses. On the other hand, pharmaceutical industry usually prefers to employ those who have a further M.Sc. or PhD. degree, and hospital pharmacy practice does not yet require further specialization, although pharmaceutical care is quite attractive for more students now and a patient-oriented education movement is progressing.

There is no exact validation for traineeship. However, students receive a list of minimum or basic information/knowledge/information (SOPs) that should be acquired during their traineeship period and they must receive the approval of the responsible person of the training institution. Overall evaluation of each traineeship period and grading was made on their performance report and by a verbal and written exam conducted by the faculty. As discussed in the following sections, CPD is not compulsory, but developing progressively. In fact, the Pharmacists Association (TEB or TPA) has conducting CPD courses since at least a decade. Bologna and 2005/36/EC are principally accepted as a goal at the State level as well as by the whole high education system, adaptation is a continuous process, but full transformation is taking time.

## Introduction.

### Statistics for Turkey.

Total population: 73,922,000

Gross national income per capita (PPP international \$): 8,410

Life expectancy at birth m/f (years): 71/75

Healthy life expectancy at birth m/f (years, 2003): 61/63

Probability of dying under five (per 1 000 live births): 26

Probability of dying between 15 and 60 years m/f (per 1 000 population): 153/91

Total expenditure on health per capita (Intl \$, 2006): 645

Total expenditure on health as % of GDP (2006): 5.6

Figures are for 2006 unless indicated. Source: [World Health Statistics 2008](#)

See also: <http://www.who.int/countries/lva/en/>

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

### Highlights on pharmacy in Turkey.

Pharmacy economics: see country file of PPRI Pharma Profile, for Turkey at:

[http://ppri.oebig.at/Downloads/Results/Turkey\\_PPRI\\_2007.pdf](http://ppri.oebig.at/Downloads/Results/Turkey_PPRI_2007.pdf)

The Turkish health care system is neither a National Health Service nor a Social Health Insurance System but both. Concrete reforms have been made since 2003 towards introducing a General Health Insurance Scheme (GHIS), a family practitioner scheme and establishing autonomous hospitals. Turkey has a deconcentrated public administration governance mechanism i.e. the lowest level of decentralization. The State Planning Organization is responsible for strategic planning of the health care system. The Ministry of Health (MoH) is the coordinating body for the health care delivery activities and it is the main authority in the provision of primary, secondary and tertiary care.

Pharmaceutical expenditures have been the most speculated area of health expenditure estimations ranging from 40-60% of total health care expenditures. Pharmaceutical policy is collectively shaped by various authorities and the sector is governed by a set of policies and legislations. The MoH General Directorate of Pharmaceuticals and Pharmacies (GDPP) is the main authority in market authorization, pricing, legal classification and inspection. The basic rules and regulations for all medicinal products are set in the Act on Medicinal Products for Human Use (Act No 1262, Official Gazette No 809, 26.05.1928) various articles of which are amended to meet the requirements in time. The directorate is supported by a number of commissions which are comprised of academicians, pharmaceutical scientists, clinicians, other related experts and representatives of the Ministry and other related organizations. The commissions evaluate the documents provided by pharmaceutical manufacturers and their decisions form the basis for marketing and approval. Market authorization is granted only if the company is registered in Turkey and foreign importers can only import their pharmaceuticals through a company registered in Turkey that follows the rules and regulations of Commercial laws. In line with other departments of the MoH, the GDPP also initiated arrangements for harmonization of EU procedures as Turkey is a potential member state. During this process, modifications for authorization regulations were made in 2005 to allow a 6-year marketing exclusivity under certain conditions. Accordingly, protection is provided only for new molecules authorized in Turkey and the protection term will effectively begin from the first authorization date in any of the EU Customs Union Zone countries. The National Patent Act is effective since January 1, 1999, and implemented retrospective from January 1 1995. On the other and, a National Institute of Medicine is now being established according to the last policy document of “Transformation in Health” and will be responsible for making policies and authorization and will be the regulatory body for production, promotion, marketing and research and development activities.

The Turkish pharmaceutical industry is comprised of both research based and generic manufacturers. There are approximately 300 drug companies 50 of which have production and research facilities. The Turkish pharmaceutical market is one of the fastest growing markets around the world. Health policies and social security coverage has changed significantly during the past years, paving the way for a solid growth in the pharmaceutical market. Legislation regulating the industry is in line with European Union norms and regulations.

The distribution channel of pharmaceuticals starts from manufacturers to wholesalers and to pharmacies. Pharmaceuticals are dispensed through pharmacies. Doctors are allowed to dispense only if there is not a pharmacy within reach of the community. Drug stores and supermarkets are not allowed to sell pharmaceuticals and this is valid both for POMs and OTCs. Pharmacy chains and mail order/internet pharmacies are forbidden as well.

Pharmacies are private entities in Turkey and hospitals have their own pharmacies only to serve in-patients. Activities of pharmacies and establishment and ownership rules are regulated by Act on Pharmacists and Pharmacies (Act No 6197) and Decree on Pharmacies and Pharmacy Services. Only Turkish citizens with a diploma from a Faculty of Pharmacy can open a pharmacy. Pharmacists are organized around the “Turkish Pharmacists Association”. This is a strong and powerful NGO organized in 81 provinces. The provincial branches have a role in the approval of opening new pharmacies within the boundaries of the province. The association is also an active stakeholder within the health policy-making framework. Pharmacies are remunerated by social security organizations, state and private out-of-pocket payments. There were 24,612 pharmacies in 2006 with ~3000 inhabitant per pharmacies.

Panos Kanavos, Ismail Üstel, Joan Costa-Font. Pharmaceutical Reimbursement Policy in Turkey. [www.suvak.org.tr](http://www.suvak.org.tr)

Pharmaceutical Pricing and Reimbursement Information –TURKEY Pharma Profile

June 2007. [http://ppri.oebig.at/Downloads/Results/Turkey\\_PPRI\\_2007.pdf](http://ppri.oebig.at/Downloads/Results/Turkey_PPRI_2007.pdf)

Ronan De Kervenoael, Ulf Nils. Faces of Pricing and profit planning at the doorstep of the EU:Government pricing policy in the innovative pharmaceutical sector in Turkey. <http://www.jimsjournal.org/7.pdf>

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

	Y/N, number or %	Comments
<b>Community pharmacy</b>		
Community pharmacists	~24.000	( <a href="http://www.turkstat.gov.tr/IcerikGetir.do?istab_id=5">www.turkstat.gov.tr/IcerikGetir.do?istab_id=5</a> (24.612 for the year 2006) also in <a href="http://www.teb.org.tr">http://www.teb.org.tr</a> .
Community pharmacies	~24.000	3000 inhabitants/pharmacy-pharmacist
Competences and roles of pharmacists		<p>Pharmacists work as pharmacy owners, managers, and responsible pharmacists. Competences include administrative issues, customer service, supplying prescription medicines, giving advice on medicines, education of pharmacy staff, multidisciplinary cooperation with other health care professionals</p> <p>Bioequivalent products are allowed to be substituted by the pharmacists, the application should be according to the rules of Ministry of Health and to the lists provided by the Social Security Institution.</p> <p>Diagnostic services: blood pressure, sugar are not officially allowed.</p> <p>Pharmacists may take part in health promotion campaigns (smoking, obesity...)</p>
Ownership of a pharmacy limited to pharmacists?	Yes	<p>According to the law 6197 on Pharmacists and Pharmacies (date of the Law: 1953) Pharmacists are the only competent professionals having right to provide pharmaceuticals, except veterinarians who have right to sell veterinary medicines in their offices.</p> <p><a href="http://www.mevzuat.adalet.gov.tr/html/967.html">http://www.mevzuat.adalet.gov.tr/html/967.html</a> (not in eng) see also (<a href="http://www.teb.org.tr/en/?modul=structure">http://www.teb.org.tr/en/?modul=structure</a>)</p>
Rules governing the distribution of pharmacies?	No	
Healthcare products by other channels	No	<p>In Turkey, medicines are sold to the public only via pharmacies. Veterinary drugs are available also from veterinarians. There are no internet pharmacies.</p>
Other persons involved in practice?	40,000	<p>Pharmacy technicians. However, only pharmacists are responsible to dispense/sell medicines and counsel patients on medicines.</p>
Organisation providing and validating the E&T		<p>Pharmacy technicians are high school graduates. Further education is provided to these individuals by TEB (Turkish Pharmacists' Association) courses (1.5-2 months).</p> <p>However, recently, a 2-year pre-license education has been created in Universities. One in Hacettepe University is actively recruiting students following Higher Education Exam.</p>
Duration	2 years	
Subject areas		<p>Main subjects are management, accountancy, computer applications, regulations and ethics, drug dosage forms and medical devices, mathematics, public health, public relations and communication, practical drug and health information, cosmetology, practical courses</p>
Competences and roles		<p>Main task is assisting the pharmacist in customer service, and stock management and handling.</p>

<b>Hospital pharmacy</b>		
Hospital pharmacists	1280	
Hospital pharmacies	1200	Approximate number counting public and private hospitals of more than 50 beds.
Competences and roles of hospital pharmacists		Main task is logistics, purchasing of drugs and medical materials, production of patient-specific medicines (e.g. cytotoxic preparations). Curriculum improvements, in the faculties of pharmacy, have already been started to provide more opportunities to train the students in the real ward environments, and thus to prepare them for a better hospital pharmacy services as well as to motivate the graduates to provide such services.
<b>Pharmaceutical and related industries</b>		
Companies with production, R&D and distribution	43	Novartis, Abbott, Pfizer, Roche, Sanofi-Aventis, Bayer,..... Abdi İbrahim ( <a href="http://www.abdiibrahim.com.tr/english/index.asp">http://www.abdiibrahim.com.tr/english/index.asp</a> ) Bilim ( <a href="http://www.bilimilac.com.tr">www.bilimilac.com.tr</a> ); Sanovel : <a href="http://www.sanovel.com.tr/">http://www.sanovel.com.tr/</a>  See also <a href="http://www.aifd.org.tr">www.aifd.org.tr</a> (Association of Research-Based Pharmaceutical Companies) (AİFD) <a href="http://www.ieis.org.tr">http://www.ieis.org.tr</a> (Pharmaceutical Manufacturers Association of Turkey (IEIS) <a href="http://www.tisd.org.tr">http://www.tisd.org.tr</a> (Turkish Manufacturers Association)  For the whole list of Turkish drug companies English websites: <a href="http://www.medilexicon.com/pharmaceuticalcompanies.php">http://www.medilexicon.com/pharmaceuticalcompanies.php</a> <a href="http://www.medicines1.com/pharmaceutical-companies/turkey.html">http://www.medicines1.com/pharmaceutical-companies/turkey.html</a>
Companies with production only	35	For the whole list of Turkish drug companies an English websites: <a href="http://www.medilexicon.com/pharmaceuticalcompanies.php">http://www.medilexicon.com/pharmaceuticalcompanies.php</a> <a href="http://www.medicines1.com/pharmaceutical-companies/turkey.html">http://www.medicines1.com/pharmaceutical-companies/turkey.html</a>
Companies with distribution only	37	More than 200 wholesalers exist Selçuk Ecza Deposu: <a href="http://www.selcukecza.com.tr">http://www.selcukecza.com.tr</a> Galenos Ecza Deposu: <a href="http://www.galenosecza.com.tr/">http://www.galenosecza.com.tr/</a>
Companies producing generic drugs only	43	Almost all of the drug companies produce also generic drugs.
<b>Industrial pharmacy</b>		
Pharmacists working in industry	88	Pharmaceutical companies used to hire mostly chemical engineers and chemists. The number of pharmacists employed in the pharmaceutical industry started to rise in the past few years.
Competences and roles of industrial pharmacists		Pharmacists work in the areas of registration, quality assurance and quality control, clinical research, R&D and marketing areas. Recently those with masters degree or Ph.D. are preferred.  The qualified person status as defined by the EU directives is valid in Turkey but not always restricted to pharmacists
<b>Other sectors</b>		
Number of pharmacists working in other sectors	*SGK and **IEGM: 1355; Other (including academics):	*SGK: National Social Insurance Institution: <a href="http://www.sgk.gov.tr/wps/portal/tr">http://www.sgk.gov.tr/wps/portal/tr</a> in English: <a href="http://www.sgk.gov.tr/wps/portal/en">http://www.sgk.gov.tr/wps/portal/en</a> ** IEGM Ministry of Health - General Directorate of Pharmacy and Pharmacists <a href="http://www.iegm.gov.tr/Default.aspx?sayfa=anasayfa">http://www.iegm.gov.tr/Default.aspx?sayfa=anasayfa</a>

	1113	in English: <a href="http://www.ieg.gov.tr/Default.aspx?sayfa=anasayfa&amp;lang=en">http://www.ieg.gov.tr/Default.aspx?sayfa=anasayfa&amp;lang=en</a>
Sectors in which pharmacists are employed		- Administrative jobs: e.g. pharmacists working in Turkish national health authorities (Ministry of Health, IEGM, SGK) - Academic sector, e.g. pharmacists working in Universities and research organizations * Other/Un-specified
Competences and roles of pharmacists employed in other sectors		Academic positions involve teaching, research, administration, management and leadership. Pharmacists working in IEGM and SGK are involved in some specific areas, such as marketing authorizations, pricing and re-imburements of medical products, IT-issues such as e-prescriptions, e-applications and related databases, medicines information, researchers, managers,
<b>Roles of professional associations</b>		
Registration of pharmacists	Yes	Turkish Pharmacists Association (TEB). From the TEB website ( <a href="http://www.teb.org.tr/en/">http://www.teb.org.tr/en/</a> ): Turkish Pharmacists Association is established in Istanbul, due to the Law of Turkish Pharmacists Association, which is published on Official Journal of February 2nd, 1956. The association gained the identity of being a constitutional corporation according to the related part of Fundamental Law. Our association is managed according to the related Law, and the organs of the association are elected among its members.  Turkish Pharmacists Association works so as to supply the mutual needs of pharmacists all over the country, to ease the professional practices, to improve the profession due to general benefits of pharmacy profession, build and protect a relation web consisting of respect and confidence among its members. The centre of the association moved from Istanbul to Ankara according to the change of Law in 1984.  All over Turkey, there are 51 (fifty one) pharmacist chambers established. The chambers are directly attached to TPA (Turkish Pharmacists Association) by Law. TPA serves its 26 thousand members with 60 employees from the centre in Ankara. TPA gives great importance to global improvement and sharing knowledge and experience on international area. TPA is member of FIP, EPHEA, Euro Pharm Forum; and also observer member of PGEU.  Each community pharmacist should be registered to the corresponding Chamber of Pharmacists in their geographical region.
Creation of pharmacies and territorial distribution	No	Territorial distribution is not controlled yet; however, the Turkish government has been working on a legislation proposal on this for the past few years.
Ethical and other aspects of professional conduct	Yes	There is an Ethical Committee of TEB, and also individual Chambers of Pharmacists have Ethical Committees that counsel and evaluate their members professional performance with regards to the reimbursement issues, patient counselling, patient care and communication as well as pharmaceutical counterfeiting
QA, validation of HEI courses for pharmacists	No	HEIs are in the process of establishing their own, the situation will certainly change as the adaptation procedure of EU regulations is completed

<b>Websites</b>	
Pharmaceutical Manufacturers Association of Turkey (IEIS)	<a href="http://www.ieis.org.tr">www.ieis.org.tr</a> in English: <a href="http://www.ieis.org.tr/asp_pages/index.asp">http://www.ieis.org.tr/asp_pages/index.asp</a>
Association of research-based pharmaceutical companies	<a href="http://www.aifd.org.tr">www.aifd.org.tr</a> in English: <a href="http://www.aifd.org.tr/en/anasayfa.aspx">http://www.aifd.org.tr/en/anasayfa.aspx</a>
Turkish Ministry of Health	<a href="http://www.saglik.gov.tr">www.saglik.gov.tr</a> in English : <a href="http://www.saglik.gov.tr/EN/Default.aspx?17A16AE30572D313AAF6AA849816B2EF4376734BED947CDE">http://www.saglik.gov.tr/EN/Default.aspx?17A16AE30572D313AAF6AA849816B2EF4376734BED947CDE</a>
TPA (Turkish pharmacists' association) Willy Brandt S. No:9 Çankaya Ankara 06690 TURKEY Tel : +90-312-409 81 00 Fax : +90-312-409 81 09	<a href="http://www.teb.org.tr">www.teb.org.tr</a> in English : <a href="http://www.teb.org.tr/en/teb@teb.org.tr">http://www.teb.org.tr/en/teb@teb.org.tr</a>

## Chapter 2. Pharmacy HEIs, students and courses

	Y/N, number or %	If you wish to expand your answer, please add your comments below.
<b>Total number of HEIs in Turkey</b>	146 (total HEIs) 14 pharmacy HEIs	Statistics are taken from Higher Education Council of Turkey (YÖK). <a href="http://www.yok.gov.tr">www.yok.gov.tr</a>  In English: <a href="http://www.yok.gov.tr/en/">http://www.yok.gov.tr/en/</a>
Pharmacy HEIs : public	11	<ol style="list-style-type: none"> <li>1. <a href="http://www.anadolu.edu.tr/akademik/fak_ecz/eindex.htm">Anadolu University</a> - Faculty of Pharmacy,</li> <li>2. <a href="http://www.pharmacy.ankara.edu.tr/">Ankara University</a> - Faculty of Pharmacy,</li> <li>3. <a href="http://beta.atauni.edu.tr/university/?ln=en&amp;lp=Department.en&amp;f_id=103">Atatürk University</a> - Faculty of Pharmacy,</li> <li>4. <a href="http://pharmacy.ege.edu.tr">Ege University</a> - Faculty of Pharmacy,</li> <li>5. <a href="http://www.pharmacy.gazi.edu.tr">Gazi University</a> - Faculty of Pharmacy,</li> <li>6. <a href="http://www.eczacilik.hacettepe.edu.tr/">Hacettepe University</a> - School of Pharmacy,</li> <li>7. <a href="http://www.istanbul.edu.tr/eczacilik/">University of Istanbul</a> - Faculty of Pharmacy,</li> <li>8. <a href="http://pharmacy.marmara.edu.tr/">Marmara University</a> - Faculty of Pharmacy</li> <li>9. <a href="http://www.mersin.edu.tr/fakulte.php?id=1&amp;tip=1">University of Mersin</a> - Faculty of Pharmacy,</li> <li>10. <a href="http://pharmacy.erciyes.edu.tr/">Erciyes University</a> - Faculty of Pharmacy,</li> <li>11. <a href="http://iys.inonu.edu.tr/?web=eczacilik">Inönü University</a> - Faculty of Pharmacy,</li> </ol> <p>(Karadeniz Teknik University- Faculty of Pharmacy, (currently not in education))</p>
Private	4	<ol style="list-style-type: none"> <li>1. Yeditepe Univesity: <a href="http://www.yeditepe.edu.tr/?&amp;language_id=2">http://www.yeditepe.edu.tr/?&amp;language_id=2</a></li> <li>2. BezmialemUniversity: - <a href="http://www.marmarademo.com/bezm/index.php?option=com">www.marmarademo.com/bezm/index.php?option=com</a></li> <li>3. Medipol University: <a href="http://www.medipol.edu.tr/Pages/Academic/Faculty-of-Pharmacy/263.aspx">http://www.medipol.edu.tr/Pages/Academic/Faculty-of-Pharmacy/263.aspx</a></li> <li>4. Yenyüzyıl University: very recent, no website</li> </ol>
<b>Organisation of HEIs</b>		
Independent faculty	Yes	
Do HEIs offer B + M degrees?	Yes	HEIs offer M. Pharm. for its own students having a B. Pharm. degree
<b>Turkey</b>		
<b>Teaching staff</b>		
Number of teaching staff	546	
<b>Students</b>		
Number of entry places	1423 in total	As of 2008.

Number of applicants for entry		Applications are on the basis of students' points in Higher Education Exam (University Entrance Exam) which is a general exam after high school graduation, mandatory for all students applying to all fields. Therefore application numbers cannot be specified. Pharmacy faculty quotas are given above.
Graduates becoming registered pharmacists.	783/year	As of 2008 As already mentioned, there is a very tough university entrance exam and the system sometimes does not allow the students to choose the right place for themselves. So that some tries to take the exam again and quit. Some continues but fails, etc... However, the discrepancy is mainly coming from the increasing number of pharmacy faculties in the last few years and elevation of the quota by YOK
Number of international students		Cannot give a number: Not many from Europe Some (roughly 40-50) from Asian and African countries
<b>Entry requirements (beginning of S1 of B1, following secondary school)</b>		
Specific pharmacy-related, national entrance examination	No	Having completed the nationwide general entrance exam, students make application to pharmacy faculties based on their points, and the acceptance is dependent on the faculty quota.
Is there a national <i>numerus clausus</i> ?	No	Each institution sets its individual <i>numerus clausus</i> approved by Higher Education Council (YOK).
<b>Advanced entry</b>		
At which level?		2 <sup>nd</sup> year, 3 <sup>rd</sup> year: Vertical entry (from other Faculties of Pharmacy)  2 <sup>nd</sup> Year: Horizontal entry (from other faculties of health sciences which offer relevant courses during the 1 <sup>st</sup> year e.g. from Faculty of Medicine or Biology)
What are the requirements?		High academic average in the 1 <sup>st</sup> year courses: min. 3.00/4.00 High General Entrance Exam points
Specific requirements for international students (EU or non EU).		Language skills requirements for B. Sc. and M. Sc. Students complete a 1-year preparatory course in Turkish organized by Ministry of National Education.  Proof of proficiency in English (TOEFL or other) is also required.
<b>Fees per year (public, national universities)</b>		
For home students	250€/year	
For foreign students	900€/year	
<b>Length of course</b>	<b>3+2</b>	<b>Total 5 years seamless, integrated degree course</b>
<b>Specialization</b>		
Specialized courses?	Yes	
In which years?	5 <sup>th</sup> year	
In which specialisation (industry, hospital...)?		In the 5 <sup>th</sup> year of the curriculum, along with the graduation project, students are offered two types of specialized courses: (1) Academia/industry section or (2) Pharmacy/hospital pharmacy section)
Numbers in each specialization?	90% H-P 10% A-I	As of 2009
<b>Past and present changes in E&amp;T</b>		
Have there been any major changes since 1999?	Yes	Pharmacy education which used to be a 4 year course has been increased to 5 years, and orientation programmes with specialized courses have been started

Are any major changes envisaged before 2019?	Yes	Full compliance with the Bologna initiative, and reduction of student quotas in Pharmacy Faculties
<b>Hacettepe</b>		
<b>Teaching staff</b>		
Number of teaching staff (nationals)	82	
Number professionals (pharmacists and others) from outside the HEIs, involved in E&T	5	Some universities hire professional pharmacists from TEB, AEO, SGK and IEGM to teach specific legislations and procedures for the 5 <sup>th</sup> year students who have selected "Pharmacy/ Hospital Pharmacy" section for their last year orientation programme. This application is currently practiced in only Hacettepe University
<b>Students</b>		
Entry places	109	As of 2008
Graduates that become professional pharmacists.	105	As of 2008
What are the student numbers in each specialization?	Number: 70 H-P 11 A-I	Numbers corresponding to 2009-2010 education year
Is Hacettepe typical of all HEIs in the country?	Yes	

<b>Websites</b>	
Higher Education Council of Turkey (YÖK).	<a href="http://www.yok.gov.tr">www.yok.gov.tr</a> In English: <a href="http://www.yok.gov.tr/en/">http://www.yok.gov.tr/en/</a>
Hacettepe University	<a href="http://www.eczacilik.hacettepe.edu.tr/">http://www.eczacilik.hacettepe.edu.tr/</a>

### Chapter 3. Teaching and learning methods

#### Student hours - Hacettepe

Method	Year 1	Year 2	Year 3	Year 4	Year 5	Total
<b>HEIs courses</b>						
Lecture	518	406	308	294	112	<b>1638</b>
Practical	168	168	336	224		<b>896</b>
Project work					56	<b>56</b>
<b>Subtotal</b>	<b>686</b>	<b>574</b>	<b>644</b>	<b>518</b>	<b>168</b>	<b>2590</b>
<b>Traineeship</b>						
Hospital				20 (bedside training in wards)		<b>20</b>
Community			210		490	<b>700</b>
Industrial				210		<b>210</b>
Other		10 (at the faculty)				<b>10</b>
<b>Subtotal</b>	<b>686</b>	<b>584</b>	<b>854</b>	<b>748</b>	<b>658</b>	<b>3530</b>
<b>Electives</b>						
Compulsory	28	28	28	84	84	<b>252</b>
<b>Subtotal</b>	<b>714</b>	<b>612</b>	<b>882</b>	<b>832</b>	<b>742</b>	<b>3782</b>

Lectures and project work are in the first semester of the 5<sup>th</sup> year, and the whole last semester of the 5<sup>th</sup> year is devoted to the traineeship in a community pharmacy.

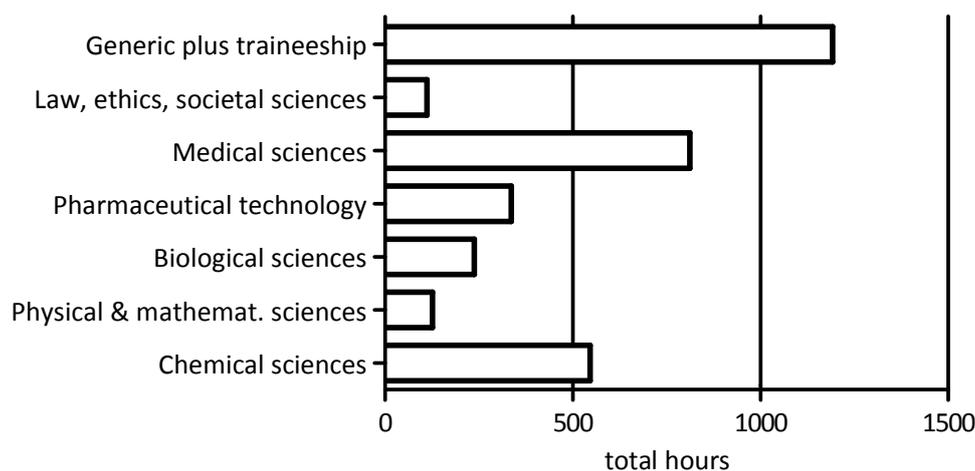
## Chapter 4. Subject areas

Student hours						
Subject area	Year 1	Year 2	Year 3	Year 4	Year 5	Total
CHEMSCI	154	182	140	70		546
PHYSMATH	126					126
BIOLSCI	42	126	70			238
PHARMTECH		84	140	112		336
MEDISCI	140	126	266	280		812
LAWSOC	56			56		112
GENERIC	168	56	28			252
TRAINEESHIP		10	210	230	490	940
GENERIC + TRAINEESHIP	168	66	238	230	490	1192
ELECTIVES	28	28	28	84	84	252
Specialization courses-elective					112	112
PROJECT					56	56
<b>TOTAL</b>	<b>714</b>	<b>612</b>	<b>882</b>	<b>832</b>	<b>742</b>	<b>3782</b>

The hours calculated in every column, is the time scheduled for lectures, assignments and group works. The time student use for individual work is not calculated here.

However, students have to make 30 ETCS each semester, so that the whole curriculum is 300 ECTSs.

Student hours by subject area



## Chapter 5. Impact of the Bologna principles

Bologna principle	Y/N	Comments.
1. Comparable degrees / Diploma Supplement	No	It may be discussed in the future
2. Two main cycles (B and M) <u>with entry and exit at B level</u>	No	It was not easy to extend the pharmacy education to 5yrs which was 4 yrs before (the first graduates of 5 year duration were produced only this summer) and to adapt the curriculum. So that B/M was not an issue up to now.
3. ECTS system of credits / links to LLL	No	CPD/LLL in Turkey is developing progressively
4. Obstacles to mobility	Partial	The main obstacles to outgoing mobility are language, finance, lodgings. For incoming mobility the main obstacle is the language
5. European QA	No	
6. European dimension		For graduate programs, with co-direction of theses.
<b>ERASMUS staff exchange to your HEI from elsewhere</b>		Number of staff months: 2
<b>ERASMUS staff exchange from your HEI to other HEIs</b>		Number of staff months: 6
<b>ERASMUS student exchange to your HEI from elsewhere</b>		Number of student months: 3 to 6
<b>ERASMUS student exchange from your HEI to other HEIs</b>		Number of student months: 6 to 12

The Erasmus system is working perfectly in some universities. E.g. in Univ of Hacettepe, there is a Erasmus coordinator in each faculty who makes bilateral agreements and there is general coordinator in the EU office of the university, and last year Hacettepe University sent 273 undergraduate and graduate students to abroad for an average of 4-6 months and received 88 scholars from European institutions.

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

The directive states	How does / will this directive statement affect pharmacy E&T?
“Evidence of formal qualifications as a pharmacist shall attest to training of at least <u>five years' duration</u> ,...”	This statement will result in equivalent education in Pharmacy Faculties and will facilitate exchange and mobility of students. Statement is already in practice in Turkey.
“... <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> ”	Theoretical and practical courses in the first 4 years of the education is required and is already in application in Turkey
“... <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 months traineeship is applied in Turkish HEIs. Students may complete this training period in hospitals, research centres, ministry of health, pharmaceutical companies and abroad as well as in community pharmacies.
“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> ”	This is a principle that is tried to be applied in all subject areas of pharmacy education here in Turkey.
Directive annex	How does / will this directive annex affect pharmacy E&T?
<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.	These are the main subject titles that used to exist in the curriculum of faculties of pharmacy nationwide. Additionally, our HEI offers pharmaceutical botany, pharmaceutical care / clinical pharmacy, biopharmaceutics and pharmacokinetics, and computer applications as obligatory courses in the programme.



Education and Culture DG

Lifelong Learning Programme

**PHARMINE**  
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**UNIVERSITY OF TARTU**



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

**Website:** [www.pharmine.org](http://www.pharmine.org)

Pharmacy education & training in the

# UNITED KINGDOM

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.

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](#))

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## Summary.

- Twenty-five universities provide pharmacy first degree education in the UK. All offer integrated masters qualification of four years duration and rated at 480 credits on the relevant UK Higher Education Credit System.
- To register as a pharmacist, a student must complete the integrated masters MPharm and complete a one year period of post-graduate (pre-registration) training and pass the Registration Examination for admission to the Register. Pre-registration training consists of 52 week's of satisfactory supervised and assessed training in employment. To register as a pharmacist at least six months of the pre-registration training must be in either community pharmacy or hospital pharmacy.
- All UK universities are quality assured by an The Quality Assurance Agency for Higher Education (QAA) which has a presence in each of the devolved countries (England, Wales, Northern Ireland and Scotland). The QAA undertakes periodic quality audits at each university.
- Higher Education Institutions offer a range of post-graduate programmes relevant to pharmacy. Individual institutions vary in the programmes they provide. Some of these programmes may contribute to career development or progression but there are no national requirements regarding entry to the different branches of pharmacy (industry, hospital, community).
- Since September 2010 the pharmacy regulator in Great Britain is the General Pharmaceutical Council (GPHC) which has powers to set standards for education leading to registration and for post-registration education. The Council also sets standards for CPD and for periodic revalidation of registered pharmacists and operates a comprehensive fitness to practice process covering health and professional performance. Northern Ireland has a separate pharmacy regulator, the Pharmaceutical Society of Northern Ireland, which has similar regulatory powers to that of the General Pharmaceutical Council.
- The GPHC is also the statutory regulator for pharmacy technicians and technician regulation will be mandatory from July 2011. Pharmacy technicians and pharmacists are two separate regulated professions but share a common register held by the GPHC.

- The pharmacy regulators undertake periodic accreditation of all university providers of pharmacy first degree programmes. Currently the only accredited post-registration programme is for independent pharmacist prescribing.
- The pharmacy regulators currently set the standards for, assess and organise the pre-registration training programme.
- New educational standards for pharmacy education in Great Britain are under development and should be introduced by the General Pharmaceutical Council later in 2011. These move to a focus upon outcomes of education rather than the process of education which will be the decision of the provider.
- Pharmacy education and training at both the pre-registration and post-registration phases is currently under review in England by the Modernising Pharmacy Careers Programme. As the first output, the programme has recommended that there is reform of the pre-registration programme which would involve a move to a five year integrated degree which encompassed the pre-registration training period.
- There is a significant move in pharmacy education to first registration towards a focus upon the clinical role of the pharmacist including diagnosis, prescribing and therapeutics. This is reflected in the proposals of the MPC programme board.

## Introduction.

Total population: 60,512,000

Gross national income per capita (PPP international \$): 33,650

Life expectancy at birth m/f (years): 77/81

Healthy life expectancy at birth m/f (years, 2003): 69/72

Probability of dying under five (per 1 000 live births): 6

Probability of dying between 15 and 60 years m/f (per 1 000 population): 98/61

Total expenditure on health per capita (Intl \$, 2006): 2,784

Total expenditure on health as % of GDP (2006): 8.4

Figures are for 2006 unless indicated. Source: [World Health Statistics 2008](#)

For further information, see:

Highlights on health in the UK WHO 2005, at

<http://www.euro.who.int/en/where-we-work/member-states/united-kingdom-of-great-britain-and-northern-ireland/publications3/highlights-on-health-in-the-united-kingdom>

Pharmaceutical pricing and reimbursement information UK OBIG 2007, at:

[http://ppri.oebig.at/Downloads/Results/United%20Kingdom\\_PPRI\\_2007.pdf](http://ppri.oebig.at/Downloads/Results/United%20Kingdom_PPRI_2007.pdf)

ECORYS - Study of regulatory restrictions in the field of pharmacies, at :

[http://ec.europa.eu/internal\\_market/services/docs/pharmacy/appendices\\_en.pdf](http://ec.europa.eu/internal_market/services/docs/pharmacy/appendices_en.pdf)

Eurybase - Descriptions of National Education Systems and Policies – UK – England 2010, at:

[http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/national\\_summary\\_sheets/047\\_UK\\_ENG\\_EN.pdf](http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/national_summary_sheets/047_UK_ENG_EN.pdf)

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

	Y/N, number or %	Comments
<b>Community pharmacy</b>		
Number of community pharmacists	21,712	NHS Workforce Review Team (2008). Workforce Summary – Pharmacy Workforce Pharmacists and Pharmacy Technicians. <a href="http://www.cfwi.org.uk/intelligence/previous.../workforce.../pharmacy/.../attachment1">www.cfwi.org.uk/intelligence/previous.../workforce.../pharmacy/.../attachment1</a>
Number of community pharmacies	13,193 (2011) Plus 500 Northern Ireland	Registered pharmacies in Great Britain (England, Wales and Scotland). Mainly in the community but includes those hospital pharmacies that are regulated with the General Pharmaceutical Council In Northern Ireland, pharmacies are registered with the Pharmaceutical Society of Northern Ireland under different legislation to that applying in Great Britain. Estimated number of inhabitants per pharmacy: 5020.
Competences of community pharmacists		There are no standards for proficiency for community pharmacists. The development of standards is part of the General Pharmaceutical Council standards development programme.
Is ownership of a pharmacy limited to pharmacists?	No	Ownership of Community Pharmacies is controlled by the Medicines Act 1969 and by the Pharmacy Order 2009. Pharmacies may be owned and operated by individual pharmacist, partnerships of pharmacists or by corporate bodies which include limited companies, private companies and public limited companies. There are no requirements for pharmacist membership of the Board of such companies.
Are there rules governing the geographical distribution of community pharmacies?	No	The number of pharmacy outlets is not restricted. If a non-pharmacist owns a pharmacy, then a qualified pharmacist must be employed as superintendent pharmacist. Changes of ownership are not subjected to any regulation. The possible business forms of a pharmacy are not restricted. Performance of National Health Services (NHS: government health insurance scheme) is restricted and requires a contract with a local health body. The regulations relating to contracts are negotiated nationally and for further information see Pharmaceutical Services Negotiating Committee (England), Community Pharmacy Wales (Wales) and Community Pharmacy Scotland.
Are drugs and healthcare products available to the general public by channels other than pharmacies?	Yes	The Medicines Act 1968 includes the legislation covering medicines classification and supply. General Sales List Medicines (GSL) can be supplied from any retail outlet – including garages, and other outlets. Internet pharmacies are allowed to sell and supply both prescription and OTC drugs. Websites must display the owner of the business, the address of the pharmacy to which it is connected and the name of the superintendent pharmacist.
Are persons other than pharmacists involved in community practice?	Yes	An estimated 76592 persons work in pharmacies in GB. Pharmacy technicians undertake work to support, develop or provide these pharmaceutical services. Community pharmacy also employ medicines counter assistants and dispensing assistants.

Titles and number	14,838	Registered pharmacy technicians in January 2011. Mandatory registration comes in July 2011 and the full number of registered technicians will not be known until this point in time.
Their qualifications		
Organisation providing and validating the E&T		Pharmacy Technicians and pharmacists are regulated by the statutory pharmacy regulator, the General Pharmaceutical Council. Both professions are listed in a single register. The GPHC sets the educational standards for both groups.
Duration of studies (years)		2 years training in a wide range of science and pharmacy subjects. This is a National Vocational Qualification (NVQ) level 3.
Subject areas		General Science, physiology and pharmacology, pharmaceutics and dispensing, law relating to medicines, clinical use of medicines.
Competences and roles		Complete dispensing process prior to checking by registered pharmacist. Accredited Checking Technicians have an additional qualification and may check and sign off dispensing undertaken by other staff for supply to patients.
<b>Hospital pharmacy</b>		
Does such a function exist?	Yes	Pharmacists are employed in both National Health Service hospitals and in Private Hospitals. Under the Medicines Act 1968 there is no legal requirement for employment of pharmacists in hospitals which are exempt from most of the provisions of the Act in relation to medicines supply.
Number of hospital pharmacists	6,213 fte	NHS Workforce Review Team (2008). Workforce Summary – Pharmacy Workforce Pharmacists and Pharmacy Technicians. <a href="http://www.cfwi.org.uk/intelligence/previous.../workforce.../pharmacy/.../attachment1">www.cfwi.org.uk/intelligence/previous.../workforce.../pharmacy/.../attachment1</a> .
Number of hospital pharmacies	505 : 171 (England), 187 (Scotland), 137 (Wales) 10 (N. Ireland)	Hospital pharmacies are organised in substantially the same way in England, Scotland, Wales and Northern Ireland
Competences and roles of hospital pharmacists		<b>As for community pharmacists, there are currently no national standards for proficiency for hospital pharmacists.</b> The development of standards for pharmacists is part of the General Pharmaceutical Council standards development programme but there is no indication that there will be separate standards for community and hospital practice.
<b>Pharmaceutical and related industries</b>		
Number of companies with production, R&D and distribution		150 research based pharmaceutical companies operate in the UK. They are represented by the Association of the British Pharmaceutical Industry (ABPI). <a href="http://www.abpi.org.uk/Pages/default.aspx">http://www.abpi.org.uk/Pages/default.aspx</a>
Number of companies with production only		National data differentiating production, distribution and R&D is not available.
Number of companies with distribution only		National data differentiating production, distribution and R&D is not available.
Number of companies producing generic drugs only	18	Generic Medicines account for around 85% of medicines used in the UK. There are 20 major generic suppliers that are members of the The

		British Generic Manufacturers Association (BGMA) <a href="http://www.britishgenerics.co.uk/">http://www.britishgenerics.co.uk/</a>
<b>Industrial pharmacy</b>		
Number of pharmacists working in industry	1137	NHS Workforce Review Team (2008). Workforce Summary – Pharmacy Workforce Pharmacists and Pharmacy Technicians. <a href="http://www.cfwi.org.uk/intelligence/previous.../workforce.../pharmacy/.../attachment1">www.cfwi.org.uk/intelligence/previous.../workforce.../pharmacy/.../attachment1</a> .
Competences and roles of industrial pharmacists		There are no national standards on the competencies of industrial pharmacists other than the standards for a Qualified Person. Pharmacists are one of a number of groups that may become QPs (including Chemists and Biologists).
<b>Other sectors</b>		
Number of pharmacists working in other sectors	Number: 2372 (primary care organisations, 270 academia),	NHS Workforce Review Team (2008). Workforce Summary – Pharmacy Workforce Pharmacists and Pharmacy Technicians. <a href="http://www.cfwi.org.uk/intelligence/previous.../workforce.../pharmacy/.../attachment1">www.cfwi.org.uk/intelligence/previous.../workforce.../pharmacy/.../attachment1</a> .  The NHS health services outside hospitals are managed through Primary Care Organisations (Primary Care Trusts in England, Boards in Wales and in Scotland). Over 85% of the total health spend is via these organisations since hospital services are purchased by the organisations on behalf of patients. The major primary care services (general medical practitioners, pharmacists, dentists etc) are provided by independent contractors through national contracts with the relevant primary care organisation.
<b>Roles of professional associations</b>		
Registration of pharmacists	Yes	Registration is compulsory with General Pharmaceutical Council (GPhC, <a href="http://www.pharmacyregulation.org/">www.pharmacyregulation.org/</a> )
Creation of community pharmacies and control of territorial distribution	Partially	Local Primary Care Trusts (or Health Boards in Wales or Scotland) decide whether it is necessary to grant the pharmacy application to secure adequate provision of pharmaceutical services in a given neighbourhood (NHS Act 1977; NHS Pharmaceutical Services Regulations 2005). Automatic contracts are given to pharmacies that will open for more than 100 hours per week or ones located in major retail developments (see contract terms). A pharmacist, partnership or limited company can own an unlimited number of pharmacies. Thus the community pharmacy network consists of a number of large and medium-sized chains owning between 20 and 2,000 pharmacies; and smaller businesses, including sole traders.
Ethical and other aspects of professional conduct	Yes	Controlled by fitness to practice requirements operated by the pharmacy regulator. Revocation in the case of: Death Non-payment Unfit to practice (e.g. breach of code of Ethics and Standards, health issues, performance failures.)
Quality assurance and validation of HEI courses for pharmacists	Yes	Programmes are accredited on a maximum cycle of 5 years by the General Pharmaceutical Council. Lesser periods of accreditation may be given when there are issues of concern with an individual school.

References	
National law	<p>ECORYS 2007:  <i>“Requirements regarding registration with, and membership of the professional association are laid down in various laws; the Medicines Act 1968, the Pharmacy Order 2009. The powers of the General Pharmaceutical Council as the national pharmacy regulator are derived from the Pharmacy Order 2009. A number of other Acts of Parliament provide for secondary legislation affecting pharmacy and the roles of pharmacists as health professionals.</i>  <i>The Pharmacy Order 2010.</i>  <a href="http://www.legislation.gov.uk/ukdsi/2010/9780111487358/contents">http://www.legislation.gov.uk/ukdsi/2010/9780111487358/contents</a></p> <p><i>The Medicine Act 1968 further regulates the scope of the professional monopoly and sets conditions on ownership. The Act outlines the requirement to have a pharmacist present at all times. It also imposes the so-called 3-year clause on the ownership and management of pharmacies by pharmacists from other EU countries.</i>  <i>Medicines Act 1968.</i> <a href="http://www.legislation.gov.uk/ukpga/1968/67">http://www.legislation.gov.uk/ukpga/1968/67</a></p> <p><i>The NHS Act 1977 requires that in order to be allowed to perform NHS services, approval from the local health body is required on the establishment of a pharmacy.”</i>  Medicines Act 1968:  <a href="http://www.opsi.gov.uk/RevisedStatutes/Acts/ukpga/1968/cukpga_19680067_en_1">http://www.opsi.gov.uk/RevisedStatutes/Acts/ukpga/1968/cukpga_19680067_en_1</a>  NHS Act 1977: <a href="http://www.sochealth.co.uk/law/nhsact1977.htm">http://www.sochealth.co.uk/law/nhsact1977.htm</a></p>
Websites	<p>General Pharmaceutical Council: <a href="http://www.pharmacyregulation.org">http://www.pharmacyregulation.org</a>  National Pharmacy Association : <a href="http://www.npa.co.uk/index.php">http://www.npa.co.uk/index.php</a>  Pharmaceutical and Healthcare Sciences Association: <a href="http://www.phss.co.uk/">http://www.phss.co.uk/</a>  Pharmaceutical Society of Northern Ireland: <a href="http://www.psn.org.uk">http://www.psn.org.uk</a>  PharmWeb: <a href="http://www.pharmwab.net/">http://www.pharmwab.net/</a></p>

General Pharmaceutical Council (GPhC)

129 Lambeth Road

London SE1 7BT

020 3365 3400

info@pharmacyregulation.org

[www.pharmacyregulation.org](http://www.pharmacyregulation.org)

Pharmaceutical Society of Northern Ireland (PSNI)

[www.psn.org.uk](http://www.psn.org.uk)

Standards of conduct, ethics and performance

Student Fitness to Practise Procedures in Schools of Pharmacy

Professional Membership Organisations

Royal Pharmaceutical Society (RPharmS)

[www.rpharms.com](http://www.rpharms.com)

Association of Pharmacy Technicians UK

<http://www.aptuk.org/>

#### Other Organisations

British Pharmaceutical Students' Association (BPSA)

[www.bpsa.co.uk](http://www.bpsa.co.uk)

Council of University Heads of Pharmacy (CUHOP)

[www.cuhop.ac.uk](http://www.cuhop.ac.uk)

Quality Assurance Agency for Higher Education

<http://www.qaa.ac.uk/>

## Chapter 2. Pharmacy HEIs, students and courses

	Y/N, number or %	If you wish to expand your answer, please add your comments below.
<b>Total number of HEIs in the UK</b>	25	<ol style="list-style-type: none"> <li>1. Aston Pharmacy School, <a href="#">Aston University</a></li> <li>2. School of Pharmacy and Pharmacology, <a href="#">University of Bath</a></li> <li>3. School of Pharmacy, <a href="#">The Queen's University of Belfast</a></li> <li>4. School of Pharmacy, <a href="#">University of Bradford</a></li> <li>5. Department of Pharmacy, <a href="#">University of Brighton</a></li> <li>6. School of Pharmacy and Pharmaceutical Sciences, <a href="#">University of Central Lancashire</a></li> <li>7. Leicester School of Pharmacy, <a href="#">De Montfort University</a></li> <li>8. School of Chemical Sciences and Pharmacy, <a href="#">University of East Anglia</a></li> <li>9. Medway School of Pharmacy, <a href="#">University of Greenwich at Medway</a></li> <li>10. School of Pharmacy, <a href="#">University of Hertfordshire</a></li> <li>11. School of Pharmacy, <a href="#">University of Huddersfield</a></li> <li>12. School of Pharmacy, <a href="#">Keele University</a></li> <li>13. School of Pharmacy, <a href="#">University of Kingston</a></li> <li>14. Department of Pharmacy, <a href="#">King's College London</a></li> <li>15. School of Pharmacy and Chemistry, <a href="#">Liverpool John Moores University</a></li> <li>16. School of Pharmacy, <a href="#">University of London</a></li> <li>17. School of Pharmacy and Pharmaceutical Sciences, <a href="#">University of Manchester</a></li> <li>18. School of Pharmaceutical Sciences, <a href="#">University of Nottingham</a></li> <li>19. School of Pharmacy and Biomedical Science, <a href="#">University of Portsmouth</a></li> <li>20. School of Pharmacy, <a href="#">University of Reading</a></li> <li>21. School of Pharmacy, <a href="#">Robert Gordon University</a></li> <li>22. School of Pharmacy, <a href="#">University of Strathclyde</a></li> <li>23. School of Pharmacy, <a href="#">University of Sunderland</a></li> <li>24. Welsh School of Pharmacy, <a href="#">University of Wales</a></li> <li>25. Department of Pharmacy, <a href="#">University of Wolverhampton</a></li> </ol>
Public	25	
<b>Organisation of HEIs</b>		
Independent faculty	1	School of Pharmacy, London.
Attached to a science faculty	23	The majority are part of a larger organisational unit – either a Faculty or a School of Studies. In some cases, this unit will be the resource centre. However, all schools must report pharmacy specific resources to the pharmacy regulator on an annual basis.
Attached to a medical faculty	1	School of Pharmacy and Pharmaceutical Science, Manchester.
Do HEIs offer B + M degrees?		In the UK all schools offer an integrated masters degree with exit at Masters level. All schools can award a bachelors level degree after three years study but this is not the normal pattern.
<b>Great Britain</b>		
<b>Teaching staff</b>		
Number of teaching staff (nationals)	902	2008 Figure derived from the last national census undertaken by the Royal Pharmaceutical Society of Great Britain.

Number of international teaching staff (from EU MSs)	-	No Data Available
Number of international teaching staff (non EU)	-	No Data Available
Number professionals (pharmacists and others) from outside the HEIs, involved in E&T	Circa 250  3500	Each HEI will involve pharmacist professionals in teaching. Many will be employed in hospitals or community pharmacy and therefore the number varies from year to year and can only be estimated.  Involved in pre-registration training
<b>Students</b>		
Number of places at traditional entry (beginning of S1 of B1, following secondary school)	4400	This is the total entry data for pharmacy, pharmacology and toxicology which is a single code within the UK application system (Data Source UCAS Statistics).  Entry numbers for pharmacy in the same year were circa 3500.
Number of applicants for entry	29,000 for entry 2010	This data is for the subject area of pharmacy, pharmacology and toxicology which is a single code within the UK application system. (Data Source UCAS Statistics).
Number of graduates that become registered pharmacists.	Greater than 95%	
Number of international students (EU)		
Number of international students (non EU)		
<b>Entry requirements (beginning of S1 of B1, following secondary school)</b>		
Specific pharmacy-related, national entrance examination	No:	
Other form of entry requirement at a national level	Yes:	All applications for entry to undergraduate degree programmes are made through a central admissions system – University Central Admissions Scheme (UCAS). Individual HEIs will set specific entry requirements and these will be detailed on their web site.
Is there a national <i>numerus clausus</i> ?	No	The annual number allowed to begin a course on pharmacy is not limited. Each HEI has a limited number of government funded places and pharmacy is banded with science and engineering (Band B).  Each HEI must not exceed the funded number for the band but may vary numbers between subjects within the band.
<b>Advanced entry</b>		
At which level?		Limited number of graduates is admitted to pharmacy undergraduate degree programmes but must complete the full four years of the programme.
<b>Fees per year</b>		
EU		£3290
Overseas		Typically £14,500 but variable with institution
<b>Length of course</b>	<b>4 years</b>	
<b>Specialization</b>		
Do HEIs provide specialized courses?		No. There is a single MPharm programme for entry to the pharmacy register.

<b>Past and present changes in E&amp;T</b>		
Have there been any major changes since 1999?	Yes	A new set of educational standards was introduced in 2003 for education and training up to registration (Royal Pharmaceutical Society). The General Pharmaceutical Council replaced the Royal Pharmaceutical Society as the national regulator for pharmacy in 2010. It is currently consulting on a major revision to the educational and training standards for registration as a pharmacist and new standards will be introduced in 2011.
Are any major changes envisaged before 2019?		The modernising pharmacy careers programme run by the Department of Health has proposed a move to a five year integrated degree in pharmacy which incorporates the pre-registration year. This proposal is to be considered by government later in 2011. There is a major review of the Medicines Act 1969 and it is proposed to introduce a new set of consolidated medicines regulations in 2012. This review will also cover those parts of the Medicines Act relating to the profession of pharmacy including the role of the pharmacist in relation to other members of the pharmacy team. Electronic transfer of national health prescriptions is being introduced and the prescription system will become paperless at some point in the near future.
<b>Aston University</b>		
<b>Teaching staff</b>		
Number of teaching staff (nationals)	29	
Number of international teaching staff (EU)	1	
Number of international teaching staff (non EU)	0	
Number professionals (pharmacists and others) from outside the HEIs, involved in E&T	14	
<b>Students</b>		
Number of places	150	Entry 2010
Number of applicants	1600	Entry 2010
Number of graduates that become registered pharmacists.	97%	
Number of international students (EU)	4	Entry 2010
Number of international students (non EU)	23	Entry 2010
<b>Entry requirements (following secondary school)</b>		
Your HEI has a specific pharmacy-related entrance examination	No	For most places, entry is conditional upon the academic achievement in the relevant national qualification (Advanced levels in England, Wales and Northern Ireland and Scottish Higher Qualifications in Scotland)
<b>Advanced entry</b>		
At which level?		A small number of graduates enter the programme – these are graduates in other disciplines. They must complete all four years of the programmed and pay overseas (non EU) fees.
What are the requirements?		First or upper second in a relevant degree.

<b>Fees per year</b>		
EU	£ 3375 pa	Scheduled to rise to £9000 in 2012
Overseas	€ 14,750 pa	
<b>Length of course</b>	<b>4 years</b>	
<b>Specialization</b>		
Does your HEI provide specialized courses?	No	
<b>Past and present changes in E&amp;T</b>		
Have there been any major changes since 1999 at your HEI?	Yes	Major change to programme to meet the 2003 Educational Standards of the then regulator, Royal Pharmaceutical Society of Great Britain. Major revision of programme 2008 with workbased learning in all four years of the programme, move to electronic support for all modules. Now major revision to develop the programme in line with the anticipated educational standards of the GPHC to be introduced 2011.
Are any major changes envisaged before 2019 at your HEI?	Yes	Advanced planning for an integrated five year programme as proposed by the Modernising Pharmacy Careers programme. This will involve a significant increase in the clinical content of the programme.
<b>Is your HEI typical of all HEIs in the country?</b>	Yes	
<b>If your HEI is not typical, how do HEIs differ (e.g. in terms of organisation, subject areas, specialization...)?</b>		Individual HEIs will have different structures and will have detailed differences in operation and in organisation and curricular structure but all that provide an MPharm degree must meet the educational standards set by the statutory regulator for pharmacy (General Pharmaceutical Council in GB and the Pharmaceutical Society of Northern Ireland in Northern Ireland).
<b>Manchester University MPharm</b>		
<b>Teaching staff</b>		
Number of teaching staff (nationals)	30	
Number of international teaching staff (EU)	4	
Number of international teaching staff (non EU)	1	
Number professionals (pharmacists and others) from outside the HEIs, involved in E&T	20	
<b>Students</b>		
Number of places	130	
Number of applicants	1900	
Number of graduates that become registered pharmacists.	95%	
Number of international students (EU)	1	
Number of international students (non EU)	1	

<b>Entry requirements (following secondary school)</b>		
Your HEI has a specific pharmacy-related entrance examination	NO	For most places, entry is conditional upon the academic achievement in the relevant national qualification (Advanced levels in England, Wales and Northern Ireland and Scottish Higher Qualifications in Scotland)
<b>Advanced entry</b>		
At which level?		A small number of graduates enter the programme – these are graduates in other disciplines. They must complete all four years of the programmed and pay overseas (non EU) fees.
What are the requirements?		First or upper second in a relevant degree.
<b>Fees per year</b>		
EU	£ 3290	
Overseas	€ 14,200	
<b>Length of course</b>	<b>4 years</b>	
<b>Specialization</b>		
Does your HEI provide specialized courses?	Y/N: Y	Yes Post Registration
In which years?	Years:	Hospital Diploma PIAT – any year (s) after B
In which specialisation (industry, hospital...)?		
What are the student numbers in each specialization?	Number:	Hospital Diploma 40 over 2 years
<b>Past and present changes in E&amp;T</b>		
Have there been any major changes since 1999 at your HEI?	Y/N: Y	4 new PIAT Programmes since 2007
<b>If your HEI is not typical, how do HEIs differ (e.g. in terms of organisation, subject areas, specialization...)?</b>		Unique role of PIAT in distance learning programmes designed for pharmaceutical industry
<b>Manchester – postgraduate Pharmaceutical Industrial Advanced Training (PIAT)</b>		
<b>Teaching staff</b>		
Number of teaching staff (nationals)	Number:	Diploma – 30 PIAT - 48
Number of international teaching staff (from EU MSs)	Number:	Diploma – 0 PIAT - 2
Number of international teaching staff (non EU)	Number:	Diploma – 0 PIAT - 2
Number professionals (pharmacists and others) from outside the HEIs, involved in E&T	Number:	Diploma – 0 PIAT - 30
<b>Students</b>		
Number of applicants for entry	Number:	Diploma – 20/year PIAT - 168

Number of graduates that become registered/professional pharmacists.	Number:	N/A
Number of international students (from EU member states)	Number:	Diploma – 1 PIAT - 40
Number of international students (non EU)	Number:	Diploma – 1 PIAT - 15
<b>Entry requirements (beginning of S1 of B1, following secondary school)</b>		
Your HEI has a specific pharmacy-related entrance examination	Y/N:	
<b>Advanced entry</b>		
At which level?		PGT
What are the requirements?		B level
Specific requirements for international students (EU or non EU).		
<b>Fees per year</b>		
For home students	Amount (€):	Diploma - € 1324 PIAT - € 1464
For EU MS students	Amount (€):	Diploma - € 1324 PIAT - € 1464
For non EU students	Amount (€):	Diploma - € 5216 PIAT - € 1464
<b>Length of course</b>	<b>Number of years:</b>	Diploma - 2 PIAT - 5
<b>Specialization</b>		
Does your HEI provide specialized courses?	Y/N: Y	
In which years?	Years:	<b>Hospital Diploma – 7-10</b> <b>PIAT – any year (s) after B</b>
In which specialisation (industry, hospital...)?		
What are the student numbers in each specialization?	Number:	<b>Hospital Diploma 40 over 2 years</b> <b>PIAT 168</b>
<b>Past and present changes in E&amp;T</b>		
Have there been any major changes since 1999 at your HEI?	Y/N: Y	4 new PIAT Programmes since 2007

Are any major changes envisaged before 2019 at your HEI?	Y/N:	
Is your HEI typical of all HEIs in the country?	Y/N: N	
If your HEI is not typical, how do HEIs differ (e.g. in terms of organisation, subject areas, specialization...)?		Unique role of PIAT in distance learning programmes designed for pharmaceutical industry

## Chapter 3. Teaching and learning methods

### Student hours: Aston University MPharm Degree

Method	Year 1	Year 2	Year 3	Year 4
Lecture	233	207	232	103
Tutorial	30	11	12	16
Practical	82	78	103	72
Project work	-	-	-	200
Hospital	6	12	12	30
Community	12	80	-	-
Industrial (academic or industrial)	-	-	-	
Other (please specify)	14 workshops	Workshops 34 hours	Workshops 44 hours	Clinical Workshops 47 hours
Choice	Nil	Nil	Nil	Project Area
Optional	Nil	Nil	Nil	Nil
<b>Total</b>	<b>377</b>	<b>422</b>	<b>403</b>	<b>468</b>

Programme Total Contact: 1670 hours. Total Study hours 4800 (including directed study and private study).

The pre-registration training programme takes place after the award of the degree. This is run by and assessed by the pharmacy regulator, the General Pharmaceutical Council. The requirements are: "All trainees must complete 52 week's of satisfactory supervised and assessed training in employment and pass the Registration Examination for admission to the Register. There are staged assessments every 13 weeks. Trainees are eligible to sit the Registration Examination after a satisfactory 39-week progress report and after completing 45 weeks of training. There is a final assessment at 52 weeks and a final declaration by the tutor, which must be satisfactory. Once the Registration Examination has been passed, the 52 weeks (or more in some cases) of satisfactory training have been completed and the other requirements met (such as providing a Health Declaration), then applicants can be entered on the Register."

### Student hours: Manchester MPharm

Method	Year 1	Year 2	Year 3	Year 4
Lecture	168	243	264	134
Tutorial	80	33	35	108
Practical	270	216	173	130
Project work	-	-	-	150
Hospital	-	33	33	-
Community	2	-	-	-
Industrial (academic or industrial)	-	-	-	
Other (please specify)	-	-	-	
Choice				
Optional	-	-	-	48

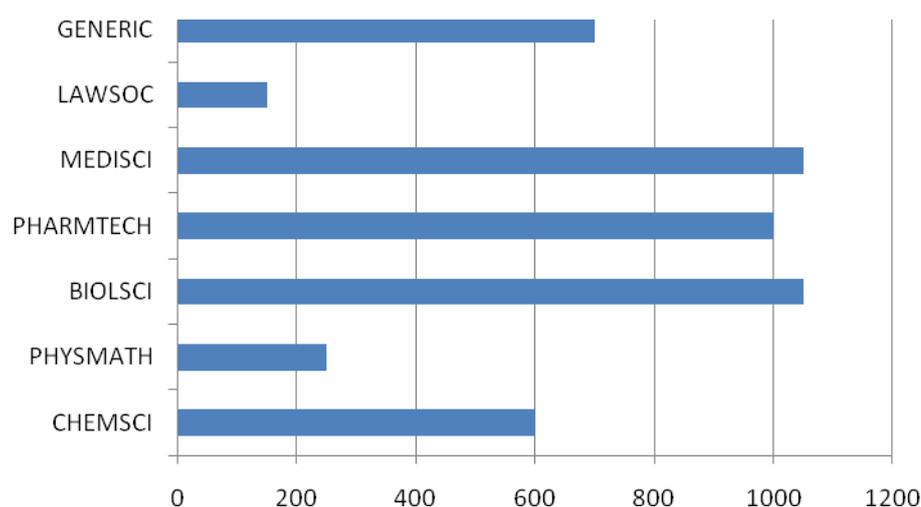
## Chapter 4. Subject areas

### Student hours: Aston University MPharm Degree

Subject area	Year 1	Year 2	Year 3	Year 4
CHEMSCI	200	200	200	0
PHYSMATH	100	50	50	50
BIOLSCI	300	400	300	50
PHARMTECH	300	250	250	200
MEDISCI	150	200	200	500
LAWSOC	50	0	100	0
GENERIC	100	100	100	400*

\* This is the research project which will be within one of the broad subject areas.

These hours include formal contact hours, directed study and self directed student learning. Each year of the programme involves 1200 hours of study equivalent to 120 credits on the English Qualifications Framework<sup>1</sup>. This study is made up of 3600 hours (360 credits) of study up to level 6 on the English Qualifications Framework and 120 credits of study at level 7 (Masters)<sup>2</sup>. The pre-registration is work based and not included in the curriculum hours

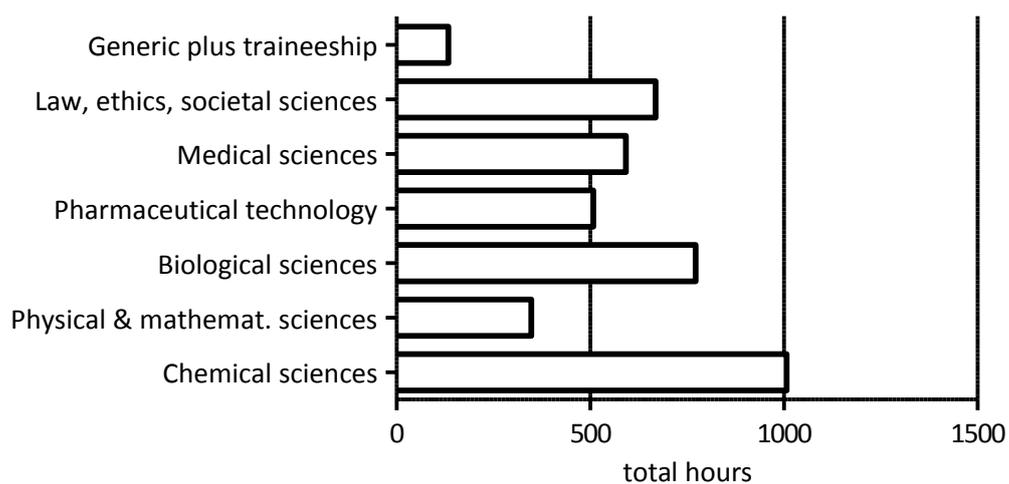


<sup>1</sup> QUALITY ASSURANCE AGENCY 2008. Higher Education credit framework for England: guidance on academic credit arrangements in higher education in England. Gloucester: QAA.

<sup>2</sup> QUALITY ASSURANCE AGENCY 2008. The framework for higher education qualifications in England, Wales and Northern Ireland. Gloucester: QAA.

**Student hours: Manchester MPharm**

Subject area	Year 1	Year 2	Year 3	Year 4
<b>CHEMSCI</b>	<b>366</b>	<b>271</b>	<b>220</b>	<b>150</b>
<b>PHYSMATH</b>	348	-	-	-
<b>BIOLSCI</b>	250	149	373	-
<b>PHARMTECH</b>	-	220	211	77
<b>MEDISCI</b>	-	122	204	266
<b>LAWSOC</b>	4	95	209	361
<b>GENERIC</b>	-	-	70	64



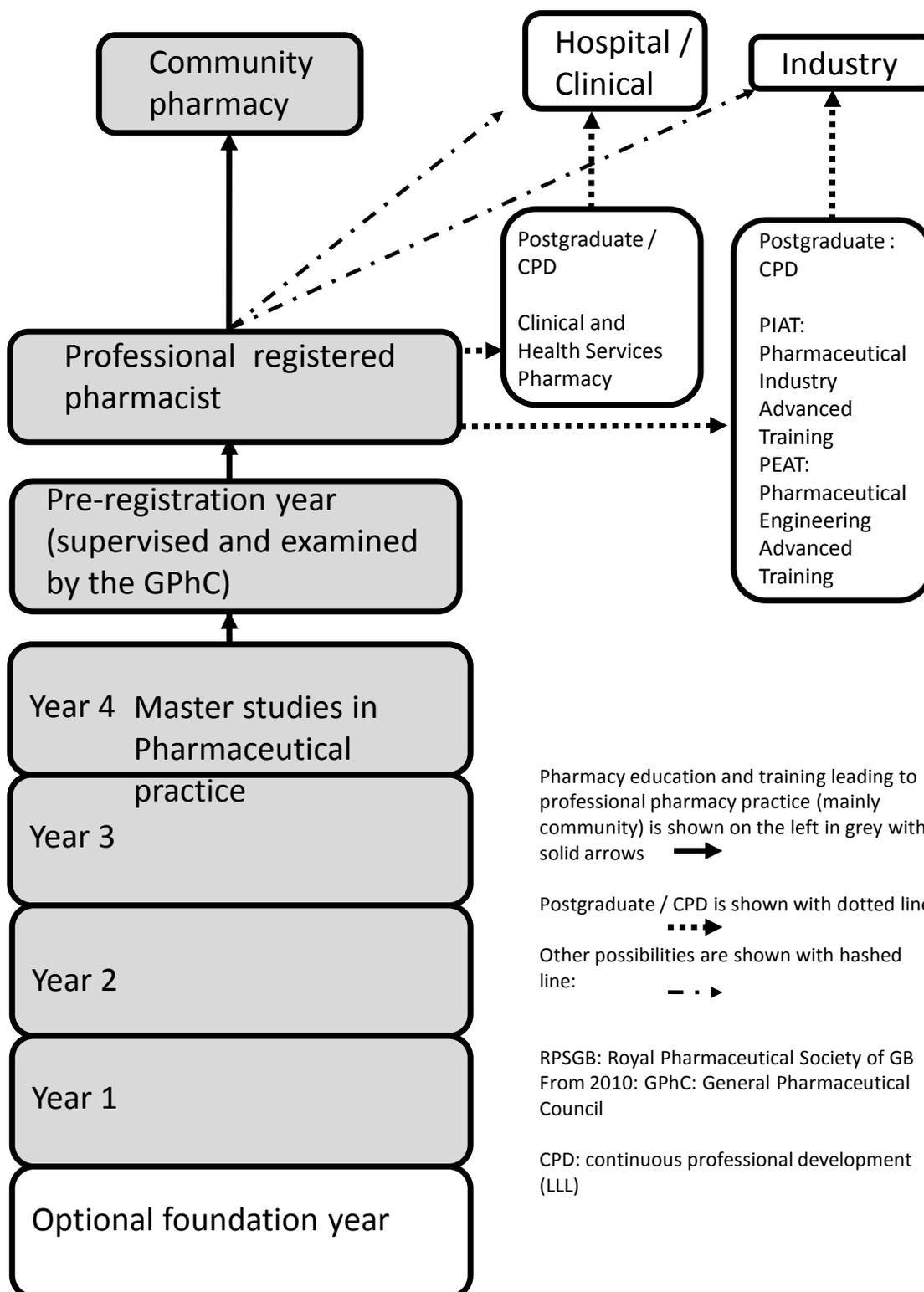
## Chapter 5. Impact of the Bologna principles

Bologna principle	Is the principle applied? Y/N or partially	How is it applied? Does your HEI have multilateral recognition and agreements? Other comments. (Aston University Programme)
1. Comparable degrees / Diploma Supplement	Yes	A diploma Supplement is awarded.
2. Two main cycles (B and M) with entry and exit at B level	No	The UK MPharm is a four year integrated Masters programme. Exit at level 6 (BSc) is possible but entry at this level is not.
3. ECTS system of credits / links to LLL	No	Credit rating is according to the English Credit Framework but this has formal linkage to ECTS credits. The UK has a mandatory requirement for CPD for pharmacists empowered by the Pharmacy Order 2010.
4. Obstacles to mobility		The programme is taught in English.
5. European QA	No	
6. European dimension	No	
ERASMUS staff exchange to your HEI from elsewhere	Number of staff months:	Nil
ERASMUS staff exchange from your HEI to other HEIs	Number of staff months:	Nil
ERASMUS student exchange to your HEI from elsewhere	Number of student months:	6
ERASMUS student exchange from your HEI to other HEIs	Number of student months:	Nil

## 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 UK programme is fully compliant with the directive.	
“ <u>...four years of full-time theoretical and practical training</u> at a university or at a higher institute of a level recognised as equivalent, or under the supervision of a university;”	The UK programme is fully compliant with the directive.	
“ <u>...six-month traineeship in a pharmacy</u> which is open to the public or in a hospital, under the supervision of that hospital's pharmaceutical department.”	The UK programme is fully compliant with the directive.	
“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 UK programme is fully compliant with the directive.	
Directive annex	How does / will this directive annex affect pharmacy E&T?	If you wish to expand your answer, please add your comments below. Do you consider the directive annex valid? If not how would you change it?
V.6. PHARMACIST 5.6.1. <i>Course of training for pharmacists</i> 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 UK programme is fully compliant with the directive.	It is of questionably validity. It gives no indication of depth of study or curricular balance. It is dated and gives insufficient recognition to clinical practice as a pharmacist including medical ethics, diagnosis, prescribing and therapeutics.

## The UK pharmacy education and training scheme





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

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