

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](#))

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

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

with the help of:

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

Roberto FRONTINI  
EAHP  
(Direktor der Apotheke)  
Apotheke des Universitätsklinikums Leipzig  
AöR  
Liebigstr. 20  
04103 Leipzig  
Germany  
[Roberto.Frontini@medizin.uni-leipzig.de](mailto:Roberto.Frontini@medizin.uni-leipzig.de)  
<http://www.eahp.eu/>

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

Prof. Dr. Regine Süß  
University of Freiburg  
Sonnenstr. 5  
79104 Freiburg  
Germany  
[regine.suess@pharmazie.uni-freiburg.de](mailto:regine.suess@pharmazie.uni-freiburg.de)  
<http://portal.uni-freiburg.de/pharmazie>

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

Linda HAKES  
Armin HOFFMAN  
EIPG  
WIV-Apotheker  
c/o Dr. Armin Hoffmann  
UCB Pharma GmbH  
Alfred-Nobel-Straße 10  
40789 Monheim am Rhein  
Germany  
[Linda.Hakes@ucb.com](mailto:Linda.Hakes@ucb.com)  
[Armin.Hoffmann@ucb.com](mailto:Armin.Hoffmann@ucb.com)  
<http://www.ucb.de/home>  
<http://www.eipg.eu/>

## Contacts in Germany.

	First contact	Second contact
Name	Prof. Dr. Regine Süß	Pr. Dr. Rolf Schubert
HEI	University of Freiburg	
Street	Sonnenstr. 5	Herman-Herder Str. 9
City, zip	79104 Freiburg	
Country	Germany	
Telephone	+49 761 203 6327	+49 761 203 6336
Fax	+49 761 203 6326	
e-mail	<a href="mailto:regine.suess@pharmazie.uni-freiburg.de">regine.suess@pharmazie.uni-freiburg.de</a>	<a href="mailto:Rolf.schubert@pharmazie.uni-freiburg.de">Rolf.schubert@pharmazie.uni-freiburg.de</a>
Website	<a href="http://portal.uni-freiburg.de/pharmazie">http://portal.uni-freiburg.de/pharmazie</a>	

## **Index**

	<b>Page</b>
<b>Summary</b>	<b>6</b>
<b>Introduction</b>	<b>7</b>
<b>Chapter 1. Organization of the activities of pharmacists, professional bodies</b>	<b>8</b>
<b>Chapter 2. Pharmacy HEIs, students and courses</b>	<b>11</b>
<b>Chapter 3. Teaching and learning methods</b>	<b>13</b>
<b>Chapter 4. Subject areas</b>	<b>14</b>
<b>Chapter 5. Impact of the Bologna principles</b>	<b>15</b>
<b>Chapter 6. Impact of EC directive 2005/36/EC</b>	<b>16</b>
<b>The German scheme for pharmacy education and training.</b>	<b>17</b>

## 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
<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: <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. 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> </ul>
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	<p>PTA: 6704   Pharmaziepraktikanten 73   Apothekerassistenten 285   Pharmazieingenieure 130   PKA: ca. 5000</p> <p><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, 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</b> (Pharmazeutisch kaufmännische/r Assistent/in: 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</p>
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<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 drugs</li> <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>		
Length of course	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>

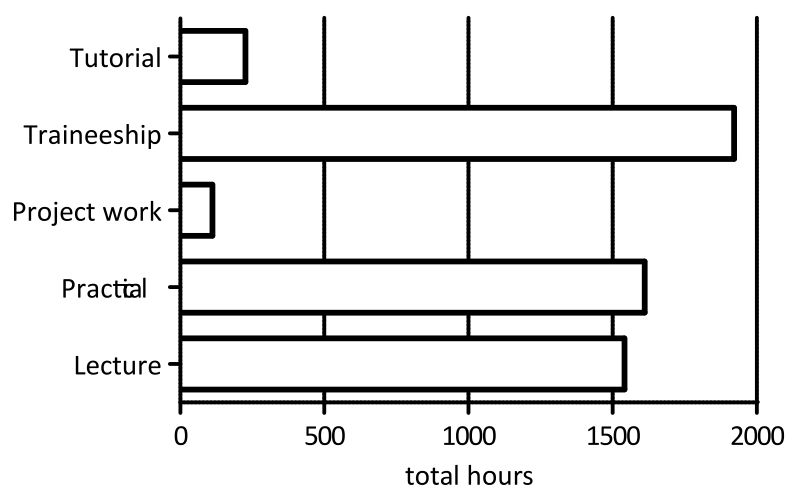
<b>References</b>	
Approbationsordnung für Apotheker	Deutscher Apotheker Verlag Stuttgart 2002 ISBN 3-7692-2872-3
University of Freiburg	<a href="http://portal.uni-freiburg.de/pharmazie">http://portal.uni-freiburg.de/pharmazie</a>

### 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	-	1540
Tutorial	72	28	56	70	-	226
Practical	400	540	320	350	-	1610
Project work	-	28	-	84	-	112
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	1920
Optional	-	-	-	98	-	98
Total	952	956	806	1192	1600	5506

Student hours by teaching method



## Chapter 4. Subject areas

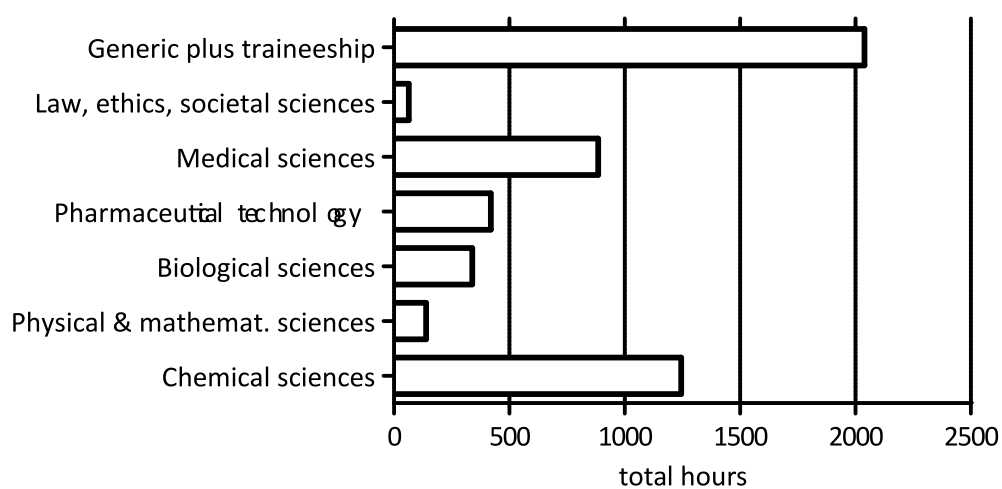
### Student hours\*

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

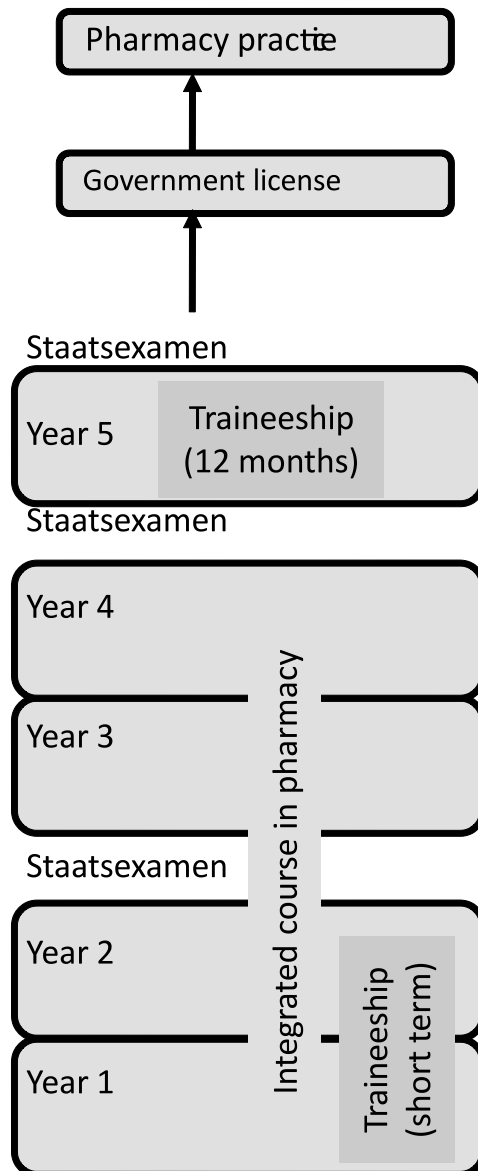
Bologna principle	Is the principle applied? Y/N or partially	Comments.
1. Comparable degrees / Diploma Supplement	Partially (2)	Most universities (19) do not offer bachelor/master degrees as there is the " <i>Staatsexamen</i> " (federal examination).
1. Two main cycles (B and M)	Partially (2)	Most universities (19) do not offer bachelor/master degrees as there is the " <i>Staatsexamen</i> " (federal examination).
1. ECTS system of credits / links to LLL	Partially (2)	Most universities (19) do not offer bachelor/master degrees as there is the " <i>Staatsexamen</i> " (federal examination).
1. Obstacles to mobility		It is difficult to have courses accepted as the regulations are very different at each university.
1. European QA	No	The Bologna Process it is not applied.
1. European dimension		
ERASMUS staff exchange to Freiburg from elsewhere	0	
ERASMUS staff exchange from Freiburg to other HEIs	0	
ERASMUS student exchange to Freiburg from elsewhere	60 student months	
ERASMUS student exchange from Freiburg to other HEIs	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 <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.”	12 months 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> ”	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 .





Education and Culture DG

Lifelong Learning Programme

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*Pharmacy Education  
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*Université  
Henri Poincaré*



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

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