Pharmacy education & training in

DENMARK

2012 – Version 2

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 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 set up and divided into 7 work-packages (WP).

The aims and objectives of PHARMINE WP7 are to:

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

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

(see:
http://www.pharmine.org/losse_paginas/Country_Profiles/)

The "PHARMINE survey of European higher education institutions delivering pharmacy education & training – DENMARK" 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@univ-lorraine.fr

This second version was produced in the fall of 2012.

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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 pharmacy education at two universities (University of Copenhagen, KU and University of Southern Denmark, SDU). There are *circa* 200-225 pharmacy graduates per year.

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

KU´s program in the 4th year and a 5th 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 close collaboration with industry.

SDU´s program in the 4th and 5th year is branching into two alternative sub-programs, pharmaceutics 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

See also:

Health Systems in Transition Denmark Vol. 14 No. 2 2012

http://www.euro.who.int/__data/assets/pdf_file/0004/160519/e96442.pdf

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

	Y/N, number or %	Comments
Community pharmacy		
Community pharmacists	952	Association of Danish Pharmacies http://www.apotekerforeningen.dk/default.asp?cat=13&ID=28
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?	*Farmakonom* 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. http://www.pharmakon.dk/pages/International.aspx?PageID=118
Duration of studies	3 years	
Competences and roles		Bachelors in pharmacy have no competence to work at pharmacies
Hospital pharmacy		
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.
Pharmaceutical and related industries		
Number of companies with production, R&D and distribution	39	The Danish Association of the Pharmaceutical Industry http://www.lifdk.dk/sw167.asp 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	http://www.lifdk.dk/sw167.asp

Industrial pharmacy		
Number of pharmacists working in industry	1900	Danish union for pharmacists - Pharmadanmark http://www.pharmadanmark.dk/
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.
Other sectors		
Number of pharmacists working in other sectors	550	Danish union for pharmacists http://www.pharmadanmark.dk/
Sectors in which pharmacists are employed		Biotech companies, chemical industry, medico industry, food industry, public laboratories, educational institutions (universities, technical high schools)
Roles of professional associations		
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	http://www.etiskraad.dk/sw293.asp
Quality assurance and validation of HEI courses for pharmacists	Yes	http://www.acedenmark.dk/index.php?id=100

Websites	
Pharmakon is specialised in training, developing and counselling on pharmaceutical practice in pharmacies and in the pharmaceutical industry.	In English: http://www.pharmakon.dk/pages/International.aspx?PageID=118
Association of Danish Pharmacies	http://www.apotekerforeningen.dk/default.asp?cat=13&ID=28
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.	http://www.iff.nu
Pharmadanmark - the Danish union for Pharmacist (representing both community and industry pharmacists).	http://www.pharmadanmark.dk
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.	http://www.lifdk.dk
Information on Medicon Valley, the Life Science (Biotech) cluster of companies / research centres in the Greater Copenhagen and Southern Swedish area.	http://www.mediconvalley.com/

Chapter 2. Pharmacy HEIs, students and courses

	Y/N, number or %	Comments
HEIs in Denmark	2	Copenhagen (KU): The faculty in Copenhagen has the following departments: • Department of Pharmaceutics o Drug techniques o Drug delivery and formulation o Drug oriented analytical and physical chemistry o Toxicology and environmental chemistry o Social pharmacy • Department of Drug Design and Pharmacology o *In vitro* and *in vivo* pharmacology o Immuno-pharmacology o Biochemical pharmacology o Cellular neuro-pharmacology o Molecular pharmacology o Clinical pharmacy o Biostructural research o Pharmacognocy o Natural product research o Medicinal chemistry o Chemical biology University of Southern Denmark (SDU): Education is a joint venture between Faculty of Science and Faculty of Health Sciences. Faculty of Science: - Department of Biochemistry and Molecular Biology - Institute of Biology - Department of Mathematics and Computer Science (IMADA) - Department of Physics and Chemistry Faculty of Health Science: - Institute of Molecular Medicine - Institute of Public Health - Institute of Clinical Research - Institute of Sports Science and Clinical Biomechanics - National Institute of Public Health - Institute of Regional Health Services Research - Institute of Psychology - Institute of Forensic Medicine - Biomedical Laboratory
Public	2	
Organisation of HEIs		
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

Copenhagen		
Teaching staff		
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	
Students		
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
Entry requirements		
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 *numerus clausus*?	Yes	Government funding for universities sets a limit to the possible number of students.
Fees per year: 0 €		
Length of course	**5 years including 6-month compulsory traineeship**	
Specialization		
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 n 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?	4th and 5th	
What are the student numbers in each specialization?		75 in BIOLSCI/MEDSCI/LAWSOC 50 in CHEMSCI 50 in PHARMTECH
Past and present changes in E&T		
Have there been any major changes since	Yes	Until 2002 the University of Pharmaceutical Sciences was an independent university; it merged in 2002 with University of Copenhagen and became

1999?		Faculty of Pharmaceutical Sciences; it merged in 2012 with Faculty of Health Sciences and the veterinary parts of Faculty of Life Sciences and became School of Pharmaceutical Sciences at Faculty of Health and Medical Sciences
Are any major changes envisaged before 2019?	Yes	From autumn 2010 the University of Southern Denmark started a course of education of Pharmacists.

University of Southern Denmark		
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.
Teaching staff		
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
Students		
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
Entry requirements		
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 *numerus clausus*?	No	
Fees per year: 0 €		
Length of course	**3+2 years including 6-month compulsory traineeship**	
Specialization		
Industry		The Master programme offers two profiles: Clinical Pharmacy and Technological Pharmacy.

		- MSc in Pharmacy (Clinical Pharmacy) - MSc in Pharmacy (Pharmaceutics)
Other specialized courses?	Yes	See above
In which years?	4th and 5th	
What are the student numbers in each specialization?	-	No data available yet
Past and present changes in E&T		
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		**685**
Tutorial	124	83	53	51		**311**
Practical	200	249	198			**647**
Project work		46	101	20		**167**
Traineeship						
Community				6 month (30 ECTS)		**1040**
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	**1181 hours**
Tutorial	164	173	93	59	20 [(2)]	**509 hours**
Practical	119	109	102	67	80 [(2)]	**477 hours**
Project work	100		200	20		**320 hours**
Traineeship				[(2)] 3 months (15 ECTS)	[(2)] 3 months (15 ECTS) [(1)] 6 months (30 ECTS)	[(1)] **30 ECTS** [(2)] **30 ECTS**
Community						**-**
Other			10	8	20 6 month (30 ECTS) M. Thesis project	**38 hours** **30 ECTS**
Electives/choice						**-**

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

	1	2	3	4	5
HEI courses	50	60	60	[2] 45 ECTS [1] 60 ECTS	[2] 15 ECTS 30 ECTS M. Thesis project
Traineeship				[2] 15 ECTS	[2] 15 ECTS [1] 30 ECTS
Electives	10				

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

Chapter 4. Subject areas

Copenhagen University

Student hours

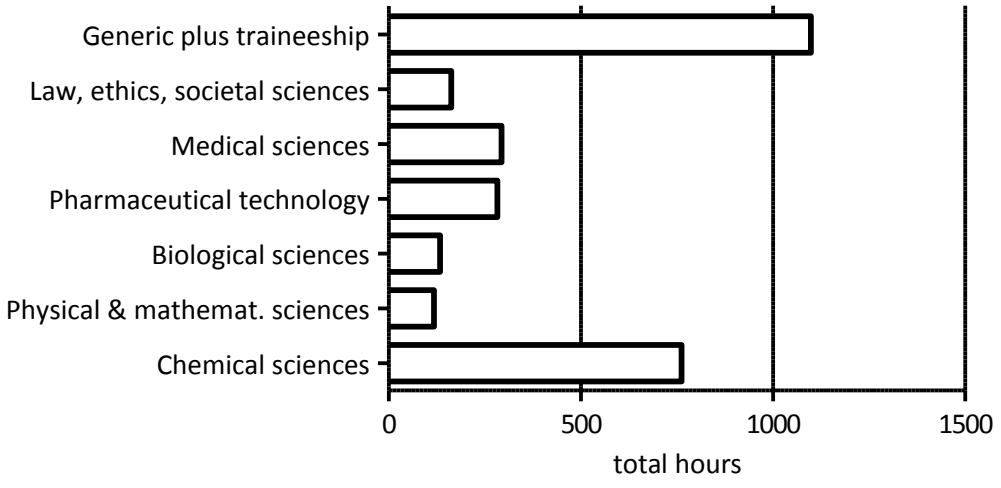
Subject area	Year 1	Year 2	Year 3	Year 4	Total	%
CHEMSCI	327	284	94	57	**762**	**42**
PHYSMATH	118				**118**	**7**
BIOLSCI		134			**134**	**7**
PHARMTECH			283		**283**	**16**
MEDISCI		85	84	125	**294**	**16**
LAWSOC		72	50	41	**163**	**9**
GENERIC	59				**59**	**3**
Subtotal					**1813**	
GENERIC PLUS TRAINEESHIP	59			1040	**1099**	

Internship: 4th year – 6 months (30 ECTS)
Elective courses: 5th year – 6 months (30 ECTS)
M. Thesis project: 5th 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: 5th year – 30 ECTS
M. Thesis project: 5th 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					**421**
PHYSMATH	200			28				**228 (1)** **200 (2)**
BIOLSCI	95	94						**189**
PHARMTECH			136		86			**136 (1)** **222 (2)**
MEDISCI			181	274	194			**455 (1)** **375 (2)**
LAWSOC	45		20	100	40			**165 (1)** **105 (2)**
GENERIC	167	216	259			20 30 ECTS (M. Thesis project)	20 30 ECTS (M. Thesis project)	**592** **30 ECTS**
GENERIC PLUS TRAINEESHIP				50	50 plus 15 ECTS (Trainee-ship)	30 ECTS (Trainee-ship)	15 ECTS (Trainee-ship)	**50 plus** **30 ECTS**

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

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

(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:
ERASMUS staff exchange to your **HEI from elsewhere**	Number of staff weeks: 55 (TS + admin staff)
ERASMUS staff exchange from your HEI to other HEIs	Number of staff weeks: 27
ERASMUS student exchange to your HEI from elsewhere	Number of student months: 3365
ERASMUS student exchange from your HEI to other HEIs	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?
"Evidence of formal qualifications as a pharmacist shall attest to training of at least five years' duration,…"	Copenhagen complies. University of Southern Denmark complies
"…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;"	Copenhagen complies. University of Southern Denmark complies
"…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."	Copenhagen complies. University of Southern Denmark complies
"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."	Copenhagen complies. University of Southern Denmark complies
Directive annex	**How does / will this directive annex affect pharmacy E&T?**
V.6. PHARMACIST **5.6.1.** ***Course of training for pharmacists*** **Plant and animal biology / Physics / General and inorganic chemistry / Organic chemistry / Analytical chemistry / Pharmaceutical chemistry, including analysis of medicinal products / General and applied biochemistry (medical) / Anatomy and physiology; medical terminology / Microbiology / Pharmacology and pharmacotherapy / Pharmaceutical technology / Toxicology / Pharmacognosy / Legislation and, where appropriate, professional ethics.**	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 Regularory Affairs

Bjarne Fjalland, 6th April 2009
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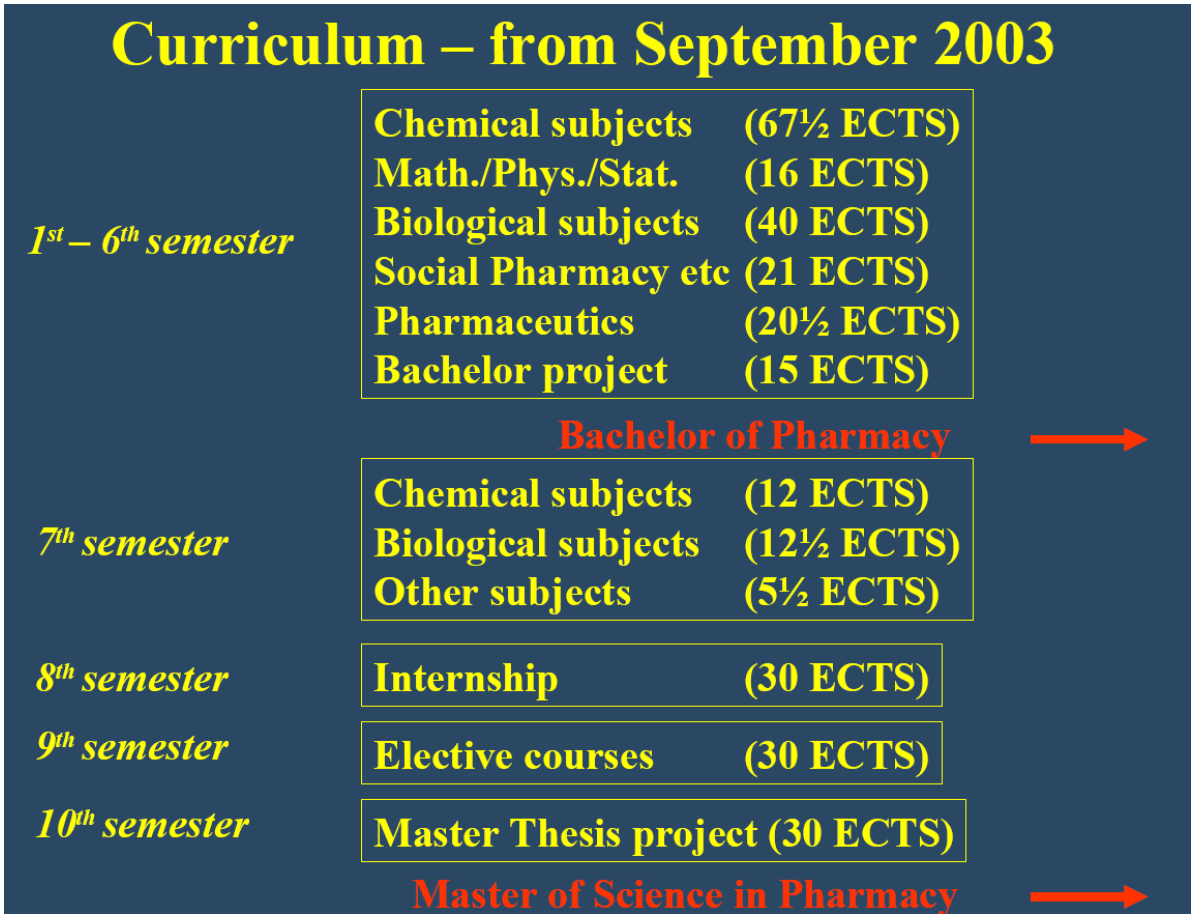
Curriculum – from September 2003
1st – 6th semester
Chemical subjects (67½ ECTS)
Math./Phys./Stat. (16 ECTS)
Biological subjects (40 ECTS)
Social Pharmacy etc (21 ECTS)
Pharmaceutics (20½ ECTS)
Bachelor project (15 ECTS)
Bachelor of Pharmacy
7th semester
Chemical subjects (12 ECTS)
Biological subjects (12½ ECTS)
Other subjects (5½ ECTS)
8th semester
Internship (30 ECTS)
9th semester
Elective courses (30 ECTS)
10th semester
Master Thesis project (30 ECTS)
Master of Science in Pharmacy

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 pharmacologi		Pharmaco therapy	Internship	Elective courses	Master thesis project
Matematics	Pharmakopé-project	Biochemistry	Social pharmacy		Pharmacognosy and natural product chemistry	Toxico-logi			
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		Bioinfor-matics			
Spektro-skopy	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
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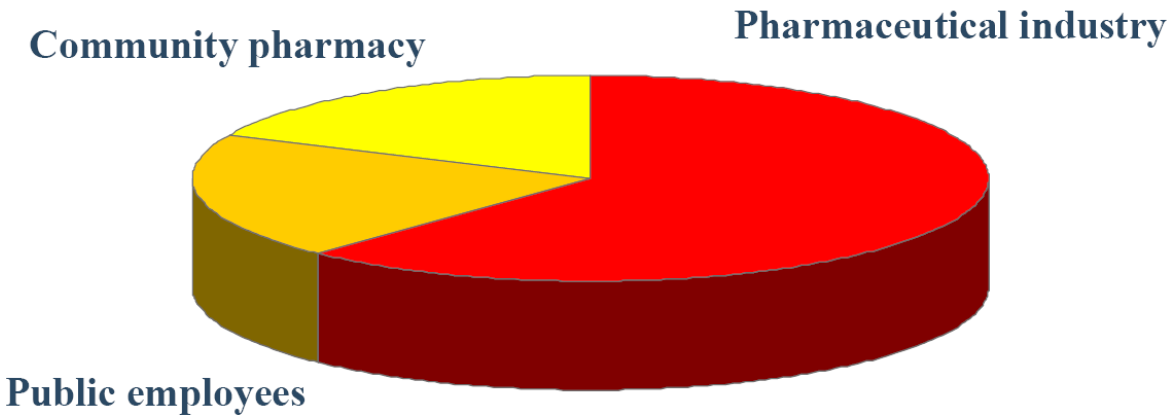
Area of employment



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

Bjarne Fjalland, 6th April 2009
Dias 11

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Website: www.pharmine.org