

Pharmacy education & training in

NORWAY

Version 2 - 2012

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

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

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

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

The aims and objectives of PHARMINE WP7 are to:

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

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

(see: [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: 4,691,849

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

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

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

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

	Y/N, number or %	Comments.
Community pharmacy		
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 st 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"> - assess the prescription and follow up use of medicines at customer/patient level from a pharmaceutical point of view - have working routines that ensure customer/patient safety - give advice and counselling with the aim of making the customer/patient understand the purpose of his/her treatment - contribute to solving drug-related problems for individual customers/patients - co-ordinate advice and counselling with the local health service - offer pharmaceutical services that support and contribute to the rational use of medicines and promote the objective of the treatment - document their health assistance - evaluate and follow up requests from professional end users - be efficient in supplying medicines and other health-related products <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: http://www.apotek.no/graphics/NAF-bibliotek/Diverse/PDF/Facts_and_Figures_2009.pdf)
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.

		http://www.hio.no/content/view/full/4563 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. http://www.hint.no/ in Norwegian
Duration of studies		3 years
Subject areas		Pharmaceutical technology, Social pharmacy, Medicinal chemistry, Drug Analysis, Pharmacognosy, Pharmacology, Microbiology
Hospital pharmacy		
Does such a function exist?	Yes	
Number of hospital pharmacists	305	M.Sc.Pharm (managers and pharmacists) 305 as of October 1 st 2008.
Number of public hospital pharmacies	32	as of August 1 st 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.
Pharmaceutical and related industries		
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: www.lmi.no 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.
Industrial pharmacy		
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.
Other sectors		
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 : Norges apotekforening (http://www.apotek.no/) Norges Farmaceutiske Forening (http://www.farmaceutene.no/id/696) Legemiddelindustriforeningen (http://www.lmi.no/)</p> <p>Private sector: Food manufacturing and fish farming (very few pharmacists in this sector)</p>
Roles of pharmacists in other sectors		Managers, advisors, technical specialists etc.
Roles of professional associations		
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>http://www.safh.no/english/index.html 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 (http://www.apotek.no/home/standards-for-pharmacy-practice.aspx) 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>http://www.nokut.no/ http://www.nokut.no/en/</p>

Websites	
Norway Pharmacy Association: "Facts and Figures 2009"	http://www.apotek.no/graphics/NAF-bibliotek/Diverse/PDF/Facts_and_Figures_2009.pdf
The Pharmacy Act, March 1 st 2001	http://www.lovdatab.no/cgi-wift/wiftldles?doc=/app/gratis/www/docroot/all/nl-20000602-039.html&emne=apotek*&&

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Chapter 2. Pharmacy HEIs, students and courses

	Y/N, number or %	Comments
Total number of HEIs in your country	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)
Organisation of HEIs		
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
Norway		
Teaching staff		
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 th 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.
Students		
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
Entry requirements (beginning of S1 of B1, following secondary school)		
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.
Advanced entry		
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.
Fees per year		
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
Length of course	5 years	
Specialization		
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 th and 5 th	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
Past and present changes in E&T		
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.
Oslo		
Teaching staff		
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.
Students		
Number of places at entry	80	
Number of applicants for entry	800	There are 10 applicants per place.
Number that become registered pharmacists.	63	
Entry requirements (beginning of S1 of B1, following secondary school)		
Your HEI has a specific pharmacy-related entrance examination	Yes	See before for national entrance requirements
Advanced entry		
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

Fees per year		
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
Length of course	5 years	
Specialization		
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 th and 5 th	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
Past and present changes in E&T		
Have there been any major changes since 1999?	Yes	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?	Yes	2012: Tromsø has decided to change from an integrated five year pharmacy programme to a formal 3+2 programme from the academic year 2012/2013. A government report recently issued concludes that this will be the common model for pharmacy education in Norway in the future. It will take some years, however, before it is enforced. The idea is to harmonize the 3 year bachelor degree given at the university colleges with the 3+2 programmes given at the universities. We are currently discussing admittance criteria <i>etc.</i>
Is your HEI typical of all HEIs in the country?	Yes	

References	
References to texts and articles of national law	Norwegian law on higher education: Univeristets- og høyskoleloven (2004-04-01): www.lovdato.no In English: http://www.lovdato.no/info/lawdata.html

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
Subtotal	2071	1873	1472			8296
Traineeship						960
Hospital				Six months**		
Community				Six months**		
Total traineeship	0	0	0	6 months - 960	0	
Grand total	2071	1873	1471	12 months - 1920	12 months - 1920	9256
*Electives for project work						
Choice	0	0	0	Six months	12 months	
Optional	0	0	0			
Total electives	0	0	0	Six months	12 months	

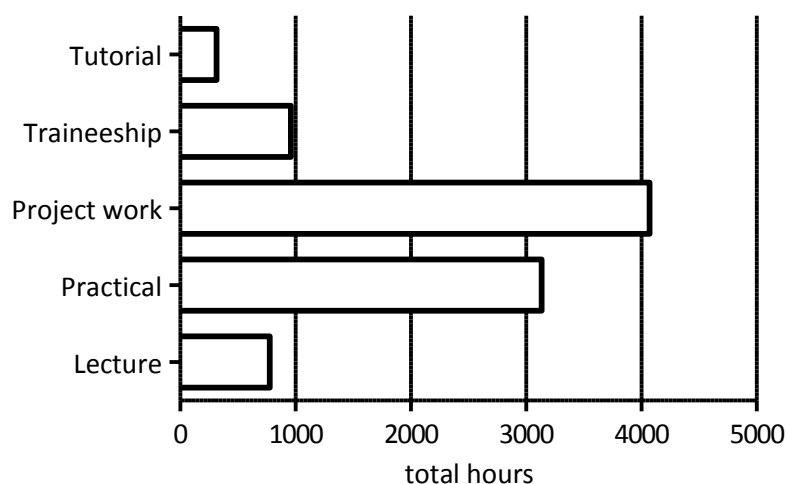
** : The students are at traineeship in either a hospital pharmacy or a community pharmacy for 19 weeks, and have lectures before and after this period, all together six months

Electives:

45 ECTS total in 4th and 5th year.

45 ECTS in master thesis

Student hours by teaching and learning methods



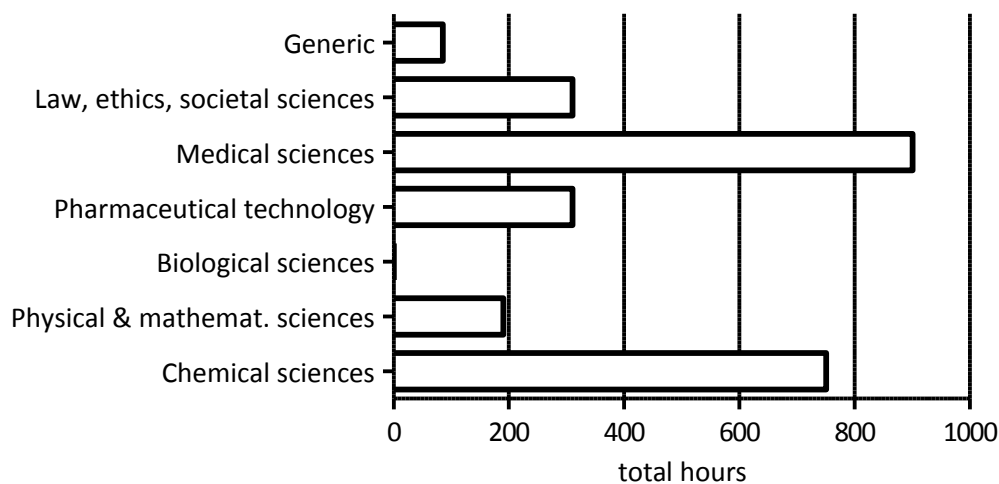
Chapter 4. Subject areas

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
Total	835	601	890	220	2546

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)



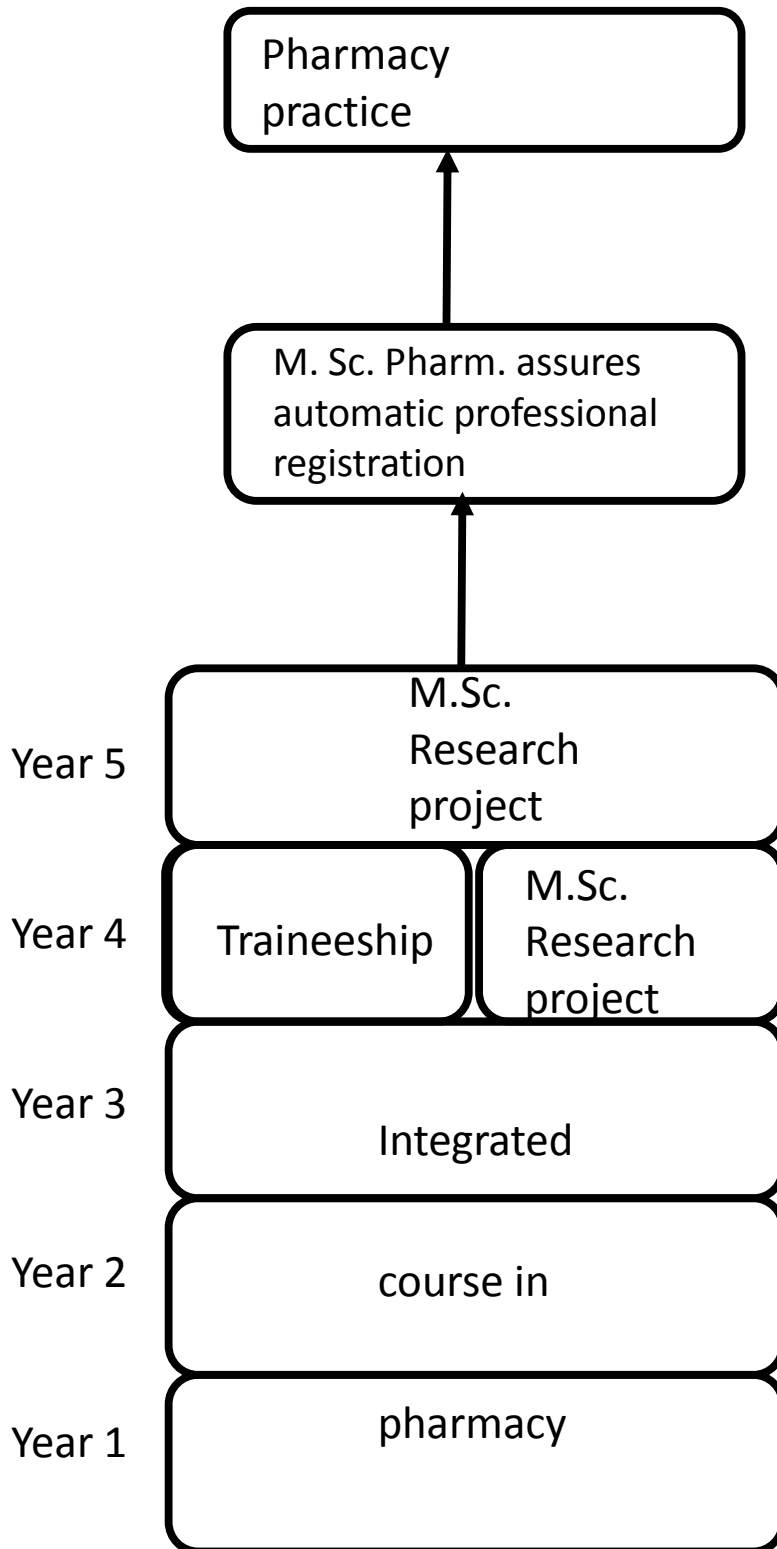
Chapter 5. Impact of the Bologna principles

Bologna principle	Is the principle applied? Y/N or partially	Comments.
1. Comparable degrees / Diploma Supplement	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.
2. Two main cycles (B and M) <u>with entry and exit at B level</u>	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
3. ECTS system of credits / links to LLL		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
4. Obstacles to mobility		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
5. European QA	No	
6. European dimension	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	
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.	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
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