SELF EVALUATION REPORT

December 2003

Ghent University

Faculty of Veterinary Medicine

Salisburylaan 133,
B-9820 Merelbeke,
Belgium

Tel: +32 9 264 75 03
Fax: +32 9 264 77 99

SELF EVALUATION REPORT

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Chapter 1:

OBJECTIVES

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1. Factual information

Veterinary medicine education has undergone substantial changes from a strong occupational oriented training towards training with much diversity in veterinary and life science areas. This evolution has been clearly dictated by the society since the veterinarian became the expert not only in treating animals but also in the prevention of animal diseases, in animal welfare and public health by means of control of foodstuff of animal origin. The broader spectrum of tasks of the veterinarian is reflected in the veterinary education.

The actual educational policy is translated in a very wide first cycle of 3 years, followed by another 3 years of clinical training which also includes elective tracks (options) together with elective courses and a thesis, for training students to search for literature and to develop independent and scientific thinking.

The exponential growth of knowledge in all disciplines of veterinary medicine has led to the new educational policy of the faculty. This policy foresees in a large basic knowledge and guarantees the graduate to have enough start competence in a certain area of Veterinary Medicine. The latter is obtained by introducing the species-directed options and elective courses from which students can choose in their final year of veterinary medicine studies.

The aspect of introducing an obligatory end of study thesis has been of importance. Students became actively engaged in searching literature, in performing active research and in creating scientific documents. Also, a student can choose for a specifically “research oriented” option in the last year.

First cycle

The aim of the first cycle of veterinary medicine at the FVM is for students to develop knowledge, skills and attitudes in order to smoothly continue the second cycle. This implies a basic knowledge in biomedical sciences and a specific insight in the structure and function of the domestic animals, and a specific knowledge of pathogens and/or zoonotic agents. This also implies the competence to independently gather information and scientific data. Critical review of data in relation to scientific, social and ethical relevance is also part of these objectives.

The final qualifications for students of the first cycle can be summarized as follows:

At the end of the first cycle students should have knowledge and insight in:

- physical and chemical principles relevant to biological systems including chemical analysis of food of animal origin.
- animal species and, more specifically, breeds of domestic animals
- plants with either a nutritional or a toxicological importance
- the use of feedstuffs of animal and vegetable origin
- concepts of genetics, hereditary mechanisms and molecular genetics

- microscopic and macroscopic structure and developmental anatomy
- biochemistry, physiology, immunology and pathophysiology of domestic animals
- bacterial, viral and parasitic agents and their relationship with domestic animals including hygienic measures to control illness
- pathological anatomy and pathological changes in organs
- general principles of economy to be applied to animal husbandry, linked to insights in ethology, ethics and animal welfare
- biomedical informatics and statistics

At the end of the first cycle students should have skills to

- perform analysis and measurement of biological systems and/or materials based on their knowledge of physics, chemistry, biochemical and physiological processes
- perform data interpretation based on their knowledge of biostatistics
- recognize animal species and breeds, plants and pathological organisms in relation to veterinary medicine
- identify anatomical and pathological structures, both macroscopic and microscopic
- independently acquire information and knowledge of literature and databases.

At the end of the first cycle students should have developed attitudes to

- operate both independently and in team
- critically evaluate data of scientific and social/ethical relevance
- develop themselves continuously in different aspects

Second cycle

In the second cycle the FVM aims at delivering academically qualified people with sufficient professional knowledge to act successfully as a veterinarian and with the ability to build up a career in every domain linked to biomedical science.

Consequently, for the FVM, the prime skills of a graduate in veterinary medicine are a thorough knowledge of veterinary medicine in its broadest meaning and an analytical mind.

Graduates of the FVM should have knowledge and insight in:

- infectious (bacterial, viral and parasitic) and non-infectious diseases of domestic animals and their immunological and zoonotical consequences
- clinical and anatomo-pathological examination of domestic animals
- diagnostics of diseases of domestic animals, using clinical data, laboratory examinations and techniques of medical imaging
- medicinal and surgical treatment of diseases including principles of pharmacology and pharmacotherapy
- reproduction and obstetrics of domestic animals
- animal breeding, animal nutrition and housing of domestic animals

- prophylactic aspects with regard to domestic animal husbandry (epidemiology, immunoprophylaxis of infectious diseases and herd health control)
- veterinary legislation and deontology
- animal welfare
- food safety and public health, according to the actual list of EU requirements such as legislation, food risk analysis and statistics, foodborn zoonoses including TSE, food processing, animal welfare etc., as well as insight in novel items such as ICT, HACCP, methods for auditing and for personnel training, diagnostic epidemiology, good agricultural practice and environmental aspects of food production etc.

Graduates should have skills to:

- examine, nurse and treat domestic animals in a scientifically and ethical sound manner (curative medicine)
- evaluate the physical and mental state of health and welfare of animals
- give advise to prevent or correct abnormal conditions regarding domestic animals (preventive medicine and herd health control)
- deal and communicate in a responsible way with animals and owners
- deal with and solve problems in an analytical way
- gather knowledge and perform scientific research
- function as official veterinarians in the governmental food chain control programmes and act as sanitary control supervisors in meat industry

Graduates should have developed attitudes to

- operate both independently and in team and be able to manage by objectives
- critically evaluate data, self generated or supplied by third parties, for their scientific and social value
- life long learning
- be aware of their social function as academics and to be an example for society

Besides the training of veterinarians, the FVM offers a wide variety of post academic training and education.

The FVM is involved into providing services to society in different disciplines including laboratory diagnoses, BSE testing, detection of hormones, taking care of patients, performing postmortem examination, herd health, etc.

Curriculum structure

As will be put forward in chapter 4, the Curriculum Committee of the FVM is the most important organ to determine and to revise the objectives of veterinary education. This committee is an advisory committee to the only decision taking organ of the faculty which is the Faculty Council.

2. Comments

The new campus and the regularly revised study curriculum have certainly created the possibility to reach the above mentioned objectives closely. The high number of students enrolled often makes attaining these goals difficult and forms an everyday challenge. Another difficulty is the link which exists at UGent between the number of students enrolled and the funds which the faculty obtains from the university. Less students means less money. The faculty is convinced that the quality of education and particularly the clinical training, could still be improved if a larger budget would be available.

3. Suggestions

A major problem encountered by the education policy makers is the adoption of the veterinary curriculum . Due to the expansion of knowledge and the ever increasing demands of consumers, the Curriculum Committee proposes to evolve to a more in depth training during the undergraduate training programme. (see chapter 4).

The above mentioned objectives could better be reached if the number of enrolled students could be limited and/or more staff members could be acquired so that more problem-based learning with small groups of students could be applied, particularly in clinical training.

Small study curriculum changes are regularly needed (almost every 2 years) to adapt to the evolutions in the veterinary profession.

Chapter 2 :

ORGANISATION

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ORGANISATION

1. Factual information

Details of the establishment

Name of the establishment: **Faculty of Veterinary Medicine**

Address: **Salisburylaan 133, B-9820 Merelbeke, Belgium**

Telephone: **+32 (0)9 264 75 03 (Reception)**

Fax: **+ 32 (0)9 264 77 99** Website: **www.dgk.ugent.be**

The head of the establishment is the **Dean Prof. Dr. Dr. h. c. Aart de Kruif**

The establishment is within a university.

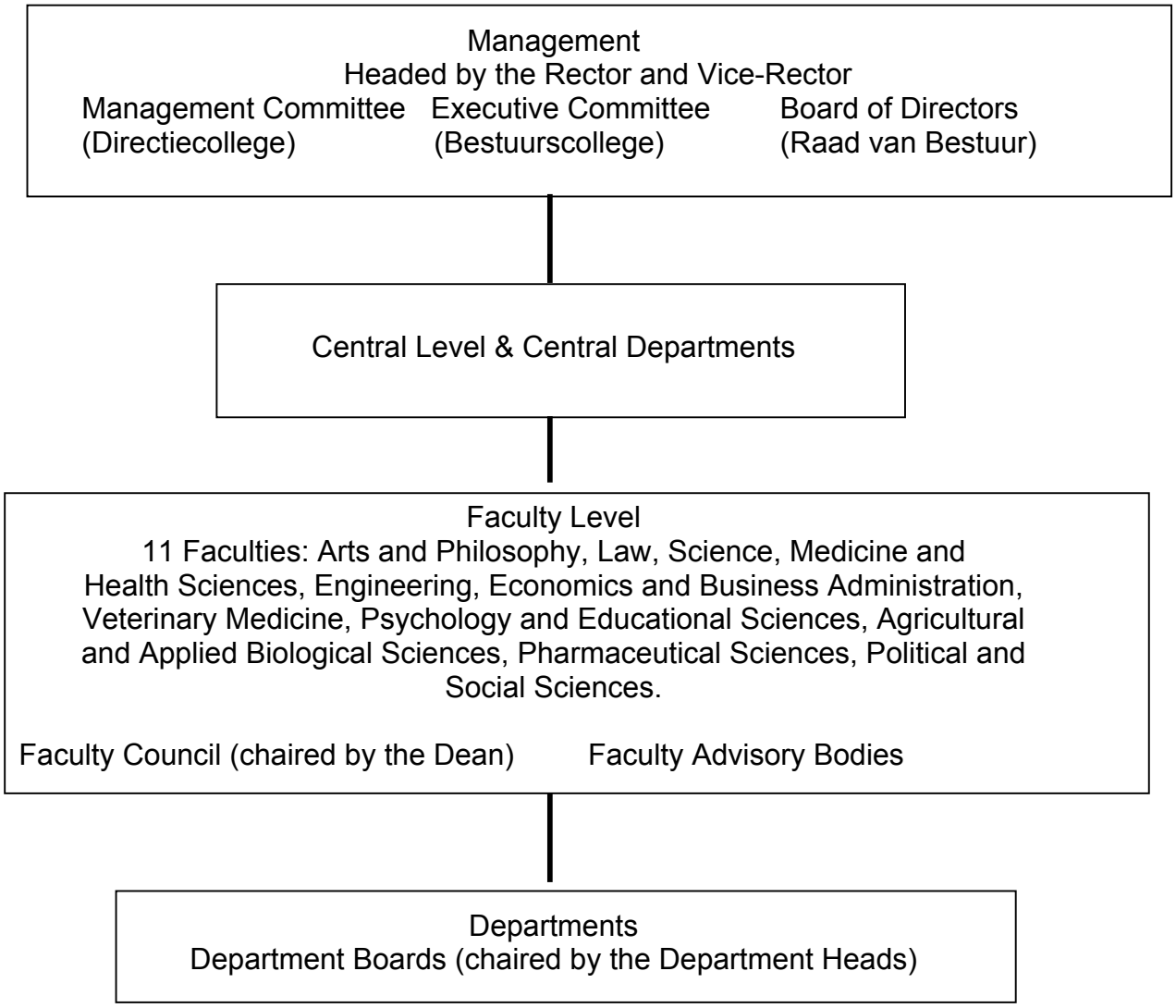
Address of the university:
Ghent University, Sint-Pietersnieuwstraat 25, B-9000 Ghent, Belgium

The competent authority overseeing the establishment is the **Rector of Ghent University: Prof. Dr. A. De Leenheer and the board of directors.**

Ghent University is controlled by the Flemish government. The government provides nearly 74% of the funding (education and research). The remaining 26 % is obtained from the private sector (15%) and international organizations, enrolment fees, examination fees and real estate income (11%). The university can make decisions independently, as long as they are in accordance with the University decree. The university has to report to the Flemish government which controls the financial management. Therefore the university is daily supervised by both a Government Commissioner and a Government Financial Controller.

The FVM is one of the 11 faculties of Ghent university. Ghent University is considerably decentralized. The faculty and departments can make their own human resources plan and investment plan as long as they don't exceed the budget assigned by the university.

Organization Chart of Ghent University



The Faculty is governed by a **Faculty Council**, which is chaired by the Dean. The different fields of study (and related fields of study) are categorized under the various **departments**, which are staffed by the professors and assistants engaged in a particular field, along with their administrative and technical personnel. The departments are in charge of academic education, research and community service within their particular fields of study.
There are 12 departments at the FVM:

- Department of Physiology, biochemistry and biometry (DI01),
- Department of Pharmacology, pharmacy and toxicology (DI02),
- Department of Morphology (DI03),
- Department of Virology, parasitology and immunology (DI04),
- Department of Pathology, bacteriology and poultry diseases (DI05),
- Department of Veterinary public health (DI06),
- Department of Animal nutrition, genetics, breeding and ethology (DI07),
- Department of Obstetrics, reproduction and herd health (DI08),

- Department of Medicine and clinical biology of small animals (DI09),
- Department of Surgery and anaesthesiology of domestic animals (DI10),
- Department of Medical imaging of domestic animals (DI11),
- Department of Internal medicine and clinical biology of large animals (DI12).

The services of the Dean ('Decanaat') consist of the library, the student administration, the Quality Education Cell and an office for the daily administration (human resources, maintenance….).
The Faculty Council is assisted by advisory committees. The most important ones are the Curriculum Committee and the Research Committee.

The Faculty is directed by a Faculty Council which is composed of all full professors (14), representatives of the associate and assistant professors (3), of the assisting academic staff (2), of the administrative and technical staff (2) and of the students (5). The Faculty Council is responsible for the general management of the faculty and decides upon proposals submitted by the advisory committees. The daily management is in the hands of the Dean, who is also the chairman of the Faculty Council.
The Curriculum Committee is composed of representatives of the academic staff (10 professors and 1 assistant) and students (5). It gives advice on the curriculum (courses, study time and credits) for each course, supervises teaching and examination methods for each course, and discusses all educational items suggested by the students or staff members.
The Research Committee is composed of one representative from each department (mostly professors or at least post-doctoral assistants) and one assistant. It gives advice on how to divide the research budget (grants…) and how to stimulate research.

The veterinary profession and general public are not involved in the running of the establishment. In selected matters (e.g. Curriculum development, VET 2020) the veterinary practitioners and National Board of Veterinarians are asked for advice. Academic consultants and guest lecturers are involved in new developments.

All full professors are automatically members of the Faculty Council. The Dean, who has to be a full professor, is elected with at least 2/3 of the votes by all members of the Faculty Council for a two year period, which is renewable.
The Head of a department is chosen by the members of the department for a four year period, which is renewable. This decision must be approved by a group of representative students.

2. Comments

Over the past few years there has been a lot of reorganization in the structure of the university. Decision making processes have become very democratic at all levels. The faculties have become more and more decentralized.

3. Suggestions

We plead for a period of consolidation of the existing and good working multi-leveled structure of the university.

Chapter 3 :

FINANCES

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1. Factual information

3.1. Expenditure

Table 3.1.1 : Annual expenditure of the establishment Calendar year: 2002		
		Euros
a. Personnel		
a.1. Teaching staff		4,947,010
a.2. Support staff for teaching		3,281,071
a.3. Research staff		2,978,156
a.4. Staff for clinical/diagnostic activities		1,984,963
	Total for a	**13,191,200**
b. Operating costs		
b.1. Utilities		431,987
b.2. Expenditure relating specifically to teaching		679,305
b.3. Expenditure relating specifically to research		1,153,235
b.4. Expenditure relating spec. to clinical/diagnostic act.		3,658,048
b.5. General operations (excluding the above)		656,091
	Total for b	**6,578,666**
c. Equipment (*)		
c.1. Teaching		97,441
c.2. Research		609,203
c.2. Diagnostic/clinical activities		453,537
c.3. General (or common) equipment		155,813
	Total for c	**1,315,993**
d. Maintenance of buildings		**1,017,209**
e. Total expenditure		**22,103,068**

Table 3.1.2 : Cost of veterinary training	**Euros**
1. Annual direct cost of training a student	7,625
2. Direct cost of training a diploma	45,748

(*): writings-off of previous years not included, only expenditure 2002

3.2. Revenues

Tabel 3.2.1 : Annual revenues of the establishment

Calendar year: 2002

		Direct (Euros)	Indirect (Euros)
a. revenu from the State or public authorities		971,752	9,471,970
b. revenu from private bodies		1,015,408	
c. revenu from research		4,455,705	
d. revenu earned and retained by the establishment			1,017,209
d.1. Registration fees from students			
d.2. Revenu from continuing education		281,715	
d.3. Revenu from clinical activities		5,988,330	
d.4. Revenu from diagnostic activities			
e. revenu from other sources		52,175	
f. Total revenu from all sources	**23,254,264**	12,765,084	10,489,180

Overheads not included in revenues, via indirect revenues
Direct revenues: directly attributed to veterinary faculty
Indirect revenus: centrally financed and managed

Table 3.2.2. Changes in public funding*

	2002 this year	2001 N-1	2000 N-2	1999 N-3	1998 N-4
Revenu	10,443,722	10,434,169	10,516,887	8,493,899	8,130,439

What percentage of income from the following sources does the veterinary teaching establishment have to give to other bodies (university,..)?

clinical work	
analysis for commercial clients	
analysis for veterinary practitioners	
research grants	
other:	
In total:	12%*

* The faculty has to pay an overhead of 12% on all direct income.

Ghent University gets its major funding for educational purposes from the government. After deduction of the costs for recruiting staff (see chapter 10) and general costs (maintenance, buildings, …) the Board of Directors divides the rest of the money amongst the 11 faculties using the same allocation model used for allocation of staff.

The veterinary training receives for the first cycle (years 1, 2 and 3) the same budget weighing as students from other biomedical studies (e.g. human medicine), while for the second cycle a higher budget weighing (X2) is obtained from the University compared to other (years 4, 5 and 6) disciplines.

For the allocation of the revenue from the State or public authorities (see table 3.2.1.) the faculty has its own allocation model. After deduction of the general costs the allocation of money is based on the number of staff that works in each department (see chapter 10, page 4). Non-clinical departments get more for each staff member than clinical departments.
The revenue from continuing education covers the costs for organizing the different training programs.
The other revenues go directly to each department. Overall the faculty has to pay an overhead of 12% to the university.

While the construction of the campus was entirely paid by the Flemish Government, all additional building work is done by the University. Faculty proposals need to be approved by the University Building Committee and Executive Committee. It takes a lot of planning and lobbying to get projects approved. Once the project is approved, the university does the follow-up and maintenance of the building.

Major items of equipment are purchased through revenue from the State, research, clinical activities or other community services.

The Belgian system is very democratic. Students have to pay a moderate registration fee and no tuition. Depending on the fact whether or not the student gets a grant from the Flemish Government, a fulltime undergraduate student pays each year € 80 to € 488. Both the study grant from the Flemish Government and the registration fee depend on the amount of income of the student or his (her) parents. Students who just failed to obtain a grant pay a registration fee of € 275. The registration fee goes totally to the University.

2. Comments

Top priorities for the use of any increased funding would be:

- to recruit additional staff in order to support the teaching staff/student ratio by increasing the number of highly experienced teachers in the clinical departments
- to purchase and update modern equipment for teaching, laboratory work and clinical activities
- to support the renovation of buildings, such as the modernization of the slaughterhouse.

When allocating its revenues to the different departments, the FVM would prefer to have more financial means available to provide grants for specialist training of postgraduate and postdoctoral students, and for subsidising practical and clinical training of the students. Instead, the FVM has recently been compelled to contribute substantially from its own revenues for financing the routine cleaning of the clinical buildings. It is sorely regretted that these finances cannot be made available for more relevant priorities such as clinical teaching and research.

On the other hand, the FVM very much appreciates the governmental and university grants that were recently obtained for innovating e-learning programmes (see chapter 5.1). Still, a major problem and a cause of much concern is the severe reduction of general public funding of research projects, equipment and infrastructure in recent years in Belgium.

A final comment deals with the salaries of staff members. Financial authorities should be urged to raise salary levels to be equivalent to those of the non-academic sector, in order to prevent highly experienced specialists from leaving the university for the profit sector.

The FVM feels comfortable with its autonomy in allocating the annual revenues of the faculty to the various departments based on a consensus reached in the Faculty Council.

The overhead of 12% on outside services is steep but fair, but the overhead to be paid on external funding and medicines for treating patients has caused a distinct loss of working means for research and equipment.

Chapter 4 :

CURRICULUM

Chapter 4 :

CURRICULUM

1. Factual information

The Faculty of Veterinary Medicine (FVM) provides undergraduate and postgraduate courses. The undergraduate course complies with the European Directives 1026 and 1027.

The organization of the higher education in Flanders is controlled by the decree on higher education issued by the Flemish Minister of Education in 1991. This decree covers the entire management of higher education in Flanders and stipulates the definitions, the jurisdiction and the mission of the Flemish education system. It enumerates the education programs offered by the various institutions of education, gives competence and accreditation to the different institutions to organize specific education programs, and defines the diplomas that are conferred. This decree stipulates that the FVM of Ghent University is qualified to organize the education of “Kandidaat dierenarts” (or future “Bachelor in Veterinary Medicine”) and “Dierenarts” (or future “Master in Veterinary Medicine”).

The Executive Committee of Ghent University installed in each of the faculties "Curriculum Committees" and "Education Quality Cells" to supervise and evaluate all education programmes that are offered. The FVM has one Curriculum Committee which was installed in 1992, and one Education Quality Cell which started in 1999.

The "Education Quality Cell" consists of a Director (full professor), the Dean, the Chairman of the Curriculum Committee, a permanent Secretary (DVM) and a student. They evaluate the quality of the program contents, the didactic methods and equipment that are used for teaching, and the didactic expertise of the teaching staff. They discuss possible innovations of the teaching programs and formulate proposals for curricular adaptations to the Curriculum Committee. In summary, the major task of the Education Quality Cell is to support the facultary Curriculum Committee in its activities related to the assessment of the quality of the veterinary curriculum.

The Curriculum Committee is a permanent advisory committee which is responsible for determining the aims, contents and teaching methods of the curriculum. At least half of the members of this committee are full professors, while students make out one third of all members and assisting academic staff are also represented. The Curriculum Committee discusses eventual educational innovations and revisions, and works out concrete course programmes which are submitted for approval to the Faculty Council.

The final decisions on changes in the veterinary education are taken by the Faculty Council, taking into consideration the prerogatives of the Board of Directors of the University.

The main objective of the FVM is to provide both a scientific academic education and a professional training to the veterinary students, offering the skills and attitudes that graduated veterinarians need in order to easily adapt their services to the fast changing demands of society. These services include the medical care of animals, veterinary

public health control, and research in all domains related to medicine and animal welfare.

Allocation of hours between the various subjects and the balance between theoretical and practical training are thoroughly discussed in the Curriculum Committee, taking into consideration the new evolutions in the veterinary profession (cf. 4.2.), the opinion of the students expressed in the annual enquiries that are organized by the University and assessed by the Education Quality Cell of the Faculty (cf. 4.6), and the opinion of academic staff members with expertise in the novel subjects. After a consensus is reached within the Curriculum Committee, proposals are submitted for approval to the Faculty Council and hence to the Board of Directors of the University for official acceptance.

4.1. Curriculum followed by all students

The number of teaching hours that are scheduled in the veterinary undergraduate teaching program is summarized in Table 4.1.1.
All courses of the first through the fifth year and 2 general courses that are taught in the sixth year are uniform for all students, and are listed under the header "General courses".
In the final (sixth) year, however, students can make a choice between 5 elective tracks (explained in 4.2.) and a number of elective (optional) subjects (explained in 4.3.). Because the study program is not identical in the final year, Table 4.1.1 has been subdivided into 5 categories showing the hours of educational and study activities for each category of the final year students.

4.1.1. Curriculum Hours taken by all students:

Table 4.1.1: **General table of curriculum hours taken by all students**

Curriculum hours taken by the students of the elective track : COMPANION ANIMALS						
Lectures	**Practical work**		**Supervised work**	**Clinical work**	**Other**	**Total**
(d)	**(e2)**	**(e1)**	**(e3)**			
General courses	2125,5	536	258,5	317,5	-	3237,5
Elective track courses*	87,5	217,5	170,5	634,5	-	1110
Elective (optional) subjects**	-	-	10	125***	-	135
Total number of hours	2213	753,5	439	1077	-	4482,5

* Mean number of elective track hours ("optievak-uren") including the thesis taken by the students of this elective track
** Mean number of elective (optional) subject hours ("keuzevak-uren") taken by the students of this elective track
*** Mean number of active clinical duties performed by each student during night and week-end shifts (data are based on the activities of 2002-2003)

Curriculum hours taken by the students of the elective track : HORSE

Lectures (d)	Practical work (e2)	(e1)	Supervised work (e3)	Clinical work	Other	Total
General courses	2125,5	536	258,5	317,5	-	3237,5
Elective track courses*	52,5	153	177	795	-	1177,5
Elective (optional) subjects**	-	-	10	125***	-	135
Total number of hours	2178	689	445,5	1237,5	-	4550

Curriculum hours taken by the students of the elective track : RUMINANTS

Lectures (d)	Practical work (e2)	(e1)	Supervised work (e3)	Clinical work	Other	Total
General courses	2125,5	536	258,5	317,5	-	3237,5
Elective track courses*	52,5	145	170	845	-	212,5
Elective (optional) subjects**	-	-	10	125***	-	135
Total number of hours	2178	681	438,5	1287,5	-	4585

Curriculum hours taken by the students of the elective track : PIG, POULTRY, RABBIT

Lectures (d)	Practical work (e2)	(e1)	Supervised work (e3)	Clinical work	Other	Total
General courses	2125,5	536	258,5	317,5	-	3237,5
Elective track courses*	82,5	250	275	492,5	-	1100
Elective (optional) subjects**	-	-	10	125***	-	135
Total number of hours	2208	786	543,5	935	-	4472,5

Curriculum hours taken by the students of the elective track : RESEARCH & INDUSTRY

Lectures (d)	Practical work (e2)	(e1)	Supervised work (e3)	Clinical work	Other	Total
General courses	2125,5	536	258,5	317,5	-	3237,5
Elective track courses*	37,5	200	225	410	-	872,5
Elective (optional) subjectsI**	52	10	10	58	-	130
Elective (optional) subjectsII**	15	23,5	13,5	4,5***	-	56,5
Total number of hours	2230	769,5	507	790	-	4296,5

* Mean number of elective track hours ("optievak-uren") including the thesis taken by the students of elective track

** Mean number of elective (optional) subject hours ("keuzevak-uren") taken by the students of this elective track

*** Mean number of active clinical duties performed by each student during night and week-end shifts (data are based on the activities of 2002-2003)

4.1.2. Yearly curriculum studies:

Table 4.1.2: **Yearly curriculum studies (hours allocated to each course)**

Year 1: First year first cycle

EU-list	Subject	Hours of training					
		Lectures	Practical work	Supervised work	Clinical work	Other	Total
	Physics I	25,0		7,0			32,0
	Physics II	27,5		8,0			35,5
	General Chemistry I	30,0	8,0				38,0
	General Chemistry II	22,5		7,0			29,5
	Organic Chemistry	60,0		15,0			75,0
	General Histology	45,0	22,5				67,5
	Zoology	45,0	22,5				67,5
	Botany	15,0					15,0
	Ethnography and Exterior Appreciation of Domestic Animals	37,5					37,5
	Biomedical Informatics and Statistics	22,5		7,5			30,0
	Ethology, Ethics and Animal Welfare	30,0					30,0
	Total	360,0	53,0	44,5	0,0	0,0	457,5

Year 2: Second year first cycle

EU-list	Subject	Hours of training					
		Lectures	Practical work	Supervised work	Clinical work	Other	Total
	Analytical Chemistry Applied to Veterinary Medicine	22,5	30,0				52,5
	Chemical analysis of food of animal origin	15,0	15,0				30,0
	General anatomy	90,0	67,5				157,5
	Microscopic anatomy	45,0	45,0				90,0
	Embryology	30,0	8,0	7,0			45,0
	Physiology I	90,0	9,0	36,0			135,0
	Biochemistry	90,0	15,0	7,5			112,5
	Economics of health & animal production	22,5					22,5
	Total	405,0	189,5	50,5	0,0	0,0	645,0

Year 3: Third year first cycle

EU-list	Subject	Hours of training					
		Lectures	Practical work	Supervised work	Clinical work	Other	Total
	Topographic and Applied Anatomy of Domestic Animals	67,5	90,0				157,5
	Physiology II	45,0	7,5	7,5			60,0
	Molecular and General Genetics of Domestic animals	67,5					67,5
	Immunology	22,5	22,5				45,0
	Bacteriology & Mycology	30,0	22,5				52,5
	Virology	22,5	11,0	4,0			37,5
	Parasitology	30,0	15,0				45,0
	General pathology	45,0	45,0				90,0
	General animal nutrition	37,5	5,0	10,0			52,5
	Pathological physiology and biochemistry	22,5					22,5
	Domestic animal hygiene	15,0					15,0
	Total	405,0	218,5	21,5	0,0	0,0	645,0

Year 4: First year second cycle

EU-list	Subject	Hours of training					
		Lectures	Practical work	Supervised work	Clinical work	Other	Total
	Parasitic diseases	45,0	10,0				55,0
	Viral diseases	45,0					45,0
	Bacterial and mycotic diseases	45,0					45,0
	Pharmacology	60,0	10,0				70,0
	Applied animal nutrition	25,5		4,5			30,0
	Housing of animals and principles of epidemiology	22,5		10,0			32,5
	Medical Imaging with clinical training	22,5			35,0		57,5
	Propedeutics, Clinical Chemistry and Medical Pathology (part I) of large animals, with Clinic	22,5	30,0	7,5			60,0
	Small animal propedeutics and medicine with clinical training	45,0		67,5			112,5
	General surgery and large animal surgical clinic	45,0			50,0		95,0
	Special pathological anatomy with autopsy and teratology	52,5	20,0				72,5
	Total	430,5	70,0	89,5	85,0	0,0	675,0

Year 5: Second year second cycle

EU-list	Subject	Hours of training					
		Lectures	Practical work	Supervised work	Clinical work	Other	Total
	Immunopathology	22,5					22,5
	Toxicology and general pharmacotherapy	30,0					30,0
	Stock breeding	30,0					30,0
	Veterinary public health & food safety (part I)	60,0					60,0
	Diseases of poultry, fur-animals and poikilotherms with clinical training	30,0		20,0			50,0
	Large animal medicine (part II) with clinical training and post-mortem examination	67,5			50,0		117,5
	Small animal medicine (part II); clinical training and post-mortem examination	45,0			50,0		95,0
	Special surgery of domestic animals including operative medicine, large animal surgical clinic and clinic of medical imaging	112,5			70,0		182,5
	Reproduction and obstetrics of domestic animals with clinical training	67,5	5,0	10,0	62,5		145,0
	Total	465,0	5,0	30,0	232,5	0,0	732,5

Year 6 : Third year second cycle : general courses

EU-list	Subject	Hours of training					
		Lectures	Practical work	Supervised work	Clinical work	Other	Total
	Deontology and legislation	37,5					37,5
	Veterinary public health & food safety (part II)	22,5		22,5			45,0
	Total	60,0	0,0	22,5	0,0	0,0	82,5

4.1.3. Number of curriculum hours in EU listed subjects taken by every student

NOTES :

- The amount of hours that are listed below in Table 4.1.3 records the total number of hours of the general courses that are taken by all students, i.e., the common courses of the first 5 years of the curriculum and the general courses of the sixth year (see table 4.1.2), and the additional hours that are elected by the final year students in their elective tracks (see table 4.2.). The hours taken by every student in their elective (optional) subjects (see table 4.3.) are not accounted for in this table.
- Several courses of the curriculum (as listed in table 4.1.2.) cover subjects that are listed as different EU-topics. Therefore a separate listing of the hours that are allocated in each course to different EU-topics is given in Annex I of Chapter 4. (Table 4.1.2.bis).

Tables 4.1.3: **Yearly curriculum studies (elective tracks included, elective (optional)subjects excluded)**

	Subject	Hours in course					
		Lectures	Practical work	Supervised work	Clinical work	Other	Total
A.	**Basic subjects**						
A1	Anatomy (incl. histology and embryology)						
A1	General Histology	45,0	22,5				67,5
A1	General anatomy	90,0	67,5				157,5
A1	Microscopic anatomy	45,0	45,0				90,0
A1	Embryology	30,0	8,0	7,0			45,0
A1	Topographic and Applied Anatomy of Domestic Animals	67,5	90,0				157,5
A2	Biochemistry and molecular biology						
A2	Biochemistry	90,0	15,0	7,5			112,5
A3	Biology (incl. cell biology)						
A3	Zoology	45,0	22,5				67,5
A3	Botany	15,0					15,0
A3	Ethnography & exterior appreciation of domestic animals	25,0					25,0
A4	Biophysics						
A4	Physics I	25,0		7,0			32,0
A4	Physics II	27,5		8,0			35,5
A5	Biostatistics						
A5	biomedical informatics & statistics	15,0		5,0			20,0
A5	Applied Biomedical Statistics	15,0		15,0			30,0
A6	Chemistry						
A6	General Chemistry II	22,5		7,0			29,5
A6	Organic Chemistry	60,0		15,0			75,0
A7	Epidemiology						
A7	Housing of animals and principles of epidemiology	7,5		10,0			17,5
A7	Herd health control and epidemiology of ruminants	5,0			5,0		10,0
A7	Herd health control and epidemiology of pigs, poultry and rabbits	3,0			40,0		43,0
A8	Genetics						
A8	Molecular and General Genetics of Domestic Animals	67,5					67,5
A8	Stock breeding	15,0					15,0
A8	Ethology, nutrition and breeding guidance of companion animals	3,0					3,0
A9	Immunology						
A9	Immunology	22,5	22,5				45,0
A9	Immunopathology	12,5					12,5
A10	Microbiology						
A10	Bacteriology & Mycology	26,0	22,5				48,5
A10	Virology	22,5	11,0	4,0			37,5

A11	Parasitology						
A11	Parasitology	30,0	15,0				45,0
A12	Pathological anatomy (macroscopic & microscopic)						
A12	General pathology	45,0	45,0				90,0
A12	Special pathological anatomy with autopsy and teratology	52,5	20,0				72,5
A12	Diseases of poultry, fur-animals and poikilotherms with clinical training			10,0			10,0
A12	Large animal medicine (part II) with clinical training and post-mortem examination				12,0		12,0
A12	Infectious diseases & pathology of companion animals		40,0				40,0
A12	Diseases of special companion animals and poikilotherms, with clinical training	5,0	15,0		30,0		50,0
A12	Infectious diseases and pathology of the horse				40		40,0
A12	Infectious diseases and pathology of ruminants		20,0				20,0
A12	Infectious diseases and pathology of pigs, poultry and rabbits		60	10			70,0
A13	Pharmacy						
A13	Toxicology and general pharmacotherapy	15,0					15,0
A13	Pharmacology and internal diseases of companion animals, with clinical training	4,0					4,0
A13	Pharmacology and internal medicine of the horse, with clinical training	4,0					4,0
A13	Pharmacology and internal medicine of ruminants with clinical training	4,0					4,0
A13	Pharmacology and internal diseases of pig, poultry and rabbit	8,0					8,0
A14	Pharmacology						
A14	Pharmacology	60,0	10,0				70,0
A14	Pharmacology and internal diseases of companion animals, with clinical training	3,5					3,5
A14	Pharmacology and internal medicine of the horse, with clinical training	3,5					3,5
A14	Pharmacology and internal medicine of ruminants with clinical training	3,5					3,5
A14	Pharmacology and internal diseases of pig, poultry and rabbit	7,0					7,0
A15	Physiology						
A15	Physiology I	90,0	9,0	36,0			135,0
A15	Physiology II	45,0	7,5	7,5			60,0
A16	Physiopathology						
A16	Pathological physiology and biochemistry	22,5					22,5
A17	Scientific and technical information and documentation methods						
A17	Biomedical informatics & statistics	7,5		2,5			10,0
A17	Methodology of Animal Experimental Research	22,5		10,0			32,5

A18	Toxicology (incl. environmental pollution)						
A18	Toxicology and general pharmacotherapy	15,0					15,0
B.	**Animal Production**						
B1	Agronomy						
B1	Animal production & Health economics	2,0					2,0
B2	Animal behaviour (incl. behavioural disorders)						
B2	Ethology, ethics & animal welfare	20,0					20,0
B2	Ethology, nutrition and breeding guidance of companion animals	3,0					3,0
B2	Ethology, nutrition and breeding guidance of the horse	2,5	3,0	1,5			7,0
B2	Animal production and ethology of ruminants	4,0					4,0
B2	Animal production and ethology of pigs, poultry and rabbits	4,0					4,0
B3	Animal husbandry (incl. livestock production systems)						
B3	Ethnography & exterior appreciation of domestic animals	12,5					12,5
B3	Animal production & Health economics	3,0					3,0
B3	Housing of animals and principles of epidemiology	10,0					10,0
B3	Stock breeding	15,0					15,0
B3	Ethology, nutrition and breeding guidance of the horse	6,0					6,0
B3	Animal production and ethology of ruminants	10,0					10,0
B3	Herd health control and epidemiology of ruminants				5,0		5,0
B3	Animal production and ethology of pigs, poultry and rabbits	10,0					10,0
B3	Reproduction and artificial insemination in pigs, poultry and rabbits	3,5			50,0		53,5
B3	Herd health control and epidemiology of pigs, poultry and rabbits	3,0			40,0		43,0
B4	Animal nutrition and feeding						
B4	General animal nutrition	36,0	5,0	10,0			51,0
B4	Applied animal nutrition	24,0		4,5			28,5
B4	Ethology, nutrition and breeding guidance of companion animals	3,0		4,5			7,5
B4	Ethology, nutrition and breeding guidance of the horse	4,5	2,0	4,0			10,5
B4	Animal production and ethology of ruminants	4,5	15,0				19,5
B4	Herd health control and epidemiology of ruminants				5,0		5,0
B4	Animal production and ethology of pigs, poultry and rabbits	4,5		15,0			19,5
B4	Herd health control and epidemiology of pigs, poultry and rabbits	3,0					

B5	Animal protection and welfare						
B5	Ethology, ethics & animal welfare	10,0					10,0
B5	Housing of animals and principles of epidemiology	5,0					5,0
B5	Deontology and legislation	3					3,0
B5	Ethology, nutrition and breeding guidance of companion animals	6,0		6,0	4,5		16,5
B5	Ethology, nutrition and breeding guidance of the horse	2,0	3,0	1,5			6,5
B5	Herd health control and epidemiology of ruminants				5,0		5,0
B6	Environmental protection						
B6	Bacteriology & Mycology	2,0					2,0
B6	General animal nutrition	1,5					1,5
B6	Applied animal nutrition	1,5					1,5
B7	Preventive veterinary medicine (incl. health monitoring programmes)						
B7	Domestic animal hygiene	15,0					15,0
B7	Parasitic diseases	10					10,0
B7	Viral diseases	10,0					10,0
B7	Bacterial & mycotic diseases	8,0					8,0
B7	Infectious diseases & pathology of companion animals	5,0		15,0			20,0
B7	Infectious diseases and pathology of the horse	2,5		10,0			12,5
B7	Infectious diseases and pathology of ruminants	5,0					5,0
B7	Herd health control and epidemiology of ruminants	2,5			120,0		122,5
B7	Ambulatory clinic of ruminants				5,0		5,0
B7	Infectious diseases and pathology of pigs, poultry and rabbits	10					10,0
B7	Herd health control and epidemiology of pigs, poultry and rabbits	3,0			40,0		43,0
B8	Reproduction (incl. artificial breeding methods)						
B8	Reproduction and obstetrics of domestic animals with clinical training	15,5		3,0	16,0		34,5
B8	Reproduction, obstetrics artificial insemination in companion animals, with clinical training	2,5	2,5		20,0		25,0
B8	Reproduction, obstetrics, and artificial insemination in the horse, with clinical training	2,5			40,0		42,5
B8	Reproduction, obstetrics and artificial insemination in ruminants, with clinical training				30,0		30,0
B8	Herd health control and epidemiology of ruminants				5,0		5,0
B8	Ambulatory clinic of ruminants				30,0		30,0
B8	Reproduction and artificial insemination in pigs, poultry and rabbits	4,0			47,5		51,5

B9	Rural economics						
B9	Animal production & Health economics	17,5					17,5
B9	Animal production and ethology of ruminants	4,0					4,0
B9	Herd health control and epidemiology of ruminants				5,0		5,0
B9	Animal production and ethology of pigs, poultry and rabbits	4,0					4,0
C.	**Clinical subjects**						
C1	Anaesthetics						
C1	Special surgery of domestic animals including operative medicine, large animal surgical clinic and clinic of medical imaging	15,0			5,0		20,0
C1	Surgery of Pets, with Clinic				5,0		5,0
C1	Surgery of the horse, with clinical training				11,0		11,0
C1	Surgery and medical imaging in ruminants with clinical training				10,0		10,0
C2	Clinical examination and diagnosis and laboratory diagnostic methods						
C2	Propedeutica, Clinical Chemistry and Medical Pathology (part I) of large animals, with Clinic	15,0	20,0	5,0			40,0
C2	Small animal propaedeutics and medicine with clinical training	30,0		40,0			70,0
C2	Reproduction and obstetrics of domestic animals with clinical training	3,0			3,0		
C2	Parasitic diseases	30	10				40,0
C3	Clinical medicine						
C3	Viral diseases	30,0					30,0
C3	Bacterial & mycotic diseases	27,0					27,0
C3	Propedeutica, Clinical Chemistry and Medical Pathology (part I) of large animals, with Clinic	7,5	10,0	2,5			20,0
C3	Small animal propaedeutics and medicine with clinical training	10,0		20,0			30,0
C3	Immunopathology	10,0					10,0
C3	Diseases of poultry, fur-animals and poikilotherms with clinical training	30,0		10,0			40,0
C3	Large animal medicine (part II) with clinical training and post-mortem examination	50,0			30,0		80,0
C3	Small animal medicine (part II); clinical training and post-mortem examination	25,0			30,0		55,0
C3	Infectious diseases & pathology of companion animals	10,0		15,0			25,0
C3	Pharmacology and internal diseases of companion animals, with clinical training	4,0			67,5		71,5
C3	Diseases of special companion animals and poikilotherms, with clinical training	10,0	25,0		35,0		70,0
C3	Infectious diseases and pathology of the horse	5,0		10,0			15,0
C3	Pharmacology and internal medicine of the horse, with clinical training		10,0	30,0	75,0		115,0
C3	Infectious diseases and pathology of ruminants	10,0		10,0	50,0		70,0

C3	Ambulatory clinic of ruminants				35,0		35,0
C3	Pharmacology and internal medicine of ruminants with clinical training		8,0	25,0	39,0		72,0
C3	Infectious diseases and pathology of pigs, poultry and rabbits	12,5	60,0	10,0			82,5
C3	Herd health control and epidemiology of pigs, poultry and rabbits	3,0		50,0	50,0		103,0
C3	Pharmacology and internal diseases of pig, poultry and rabbit		4,0	4,0	20,0		28,0
C4	Diagnostic imaging						
C4	Medical Imaging with clinical training	22,5			35,0		57,5
C4	Medical Imaging and Orthopedics of Pets, with Clinic	7,0			125,0		132,0
C4	Medical imaging of the horse, with clinic	7,5			97,5		105,0
C4	Pharmacology and internal medicine of ruminants with clinical training		2,0	5,0	39,0		46,0
C5	Obstetrics						
C5	Reproduction and obstetrics of domestic animals with clinical training	32,0	5,0	4,0	27,0		68,0
C5	Obstetrics, reproduction and artificial insemination in companion animals, with clinical training	2,5	2,5		10,0		15,0
C5	Obstetrics, reproduction and artificial insemination in the horse, with clinical training	2,5			30,0		32,5
C5	Reproduction, obstetrics and artificial insemination in ruminants, with clinical training				30,0		30,0
C5	Ambulatory clinic of ruminants				20,0		20,0
C6	Reproductive disorders						
C6	Reproduction and obstetrics of domestic animals with clinical training	17,0		3,0	16,5		36,5
C6	Obstetrics, reproduction and artificial insemination in companion animals, with clinical training	2,5	2,5		30,0		35,0
C6	Obstetrics, reproduction and artificial insemination in the horse, with clinical training	2,5			87,5		90,0
C6	Reproduction, obstetrics and artificial insemination in ruminants, with clinical training				30,0		30,0
C6	Ambulatory clinic of ruminants				20,0		20,0
C7	State veterinary medicine, zoonoses, public health and forensic medicine						
C7	Bacteriology & Mycology	2,0					2,0
C7	Parasitic diseases	5,0					5,0
C7	Viral diseases	10,0					10,0
C7	Bacterial & mycotic diseases	10,0					10,0
C7	Ambulatory clinic of ruminants				5,0		

C8	Surgery						
C8	General surgery and large animal surgical clinic	45,0			50,0		95,0
C8	Special surgery of domestic animals including operative medicine, large animal surgical clinic and clinic of medical imaging	97,5			65,0		162,5
C8	Surgery of Pets, with Clinic	10,0	10,0	10,0	95,0		125,0
C8	Medical Imaging and Orthopedics of Pets, with Clinic	3,0			25,0		28,0
C8	Surgery of the horse, with clinical training	7,5	15,0		221,5		244,0
C8	Surgery and medical imaging in ruminants with clinical training				170,0		170,0
C9	Therapeutics						
C9	Small animal propaedeutics and medicine with clinical training	5,0		7,5			12,5
C9	Large animal medicine (part II) with clinical training and post-mortem examination	17,5			8		25,5
C9	Small animal medicine (part II); clinical training and post-mortem examination	20,0			20,0		40,0
C9	Pharmacology and internal diseases of companion animals, with clinical training	3,5			67,5		71,0
C9	Pharmacology and internal medicine of the horse, with clinical training				72,5		72,5
C9	Pharmacology and internal medicine of ruminants with clinical training				39,5		39,5
C9	Ambulatory clinic of ruminants				5,0		
C9	Pharmacology and internal diseases of pig, poultry and rabbit		6,0	6,0	20,0		32,0
D.	**Food Hygiene**						
D1	Certification of food production units						
D1	Veterinary public health & Food safety (part II)	5,0					5,0
D2	Food certification						
D2	Veterinary public health & Food safety (part II)	5,0					5,0
D3	Food hygiene and food quality (incl. legislation)						
D3	Veterinary public health & food safety (part I)	20,0					20,0
D4	Food inspection, particularly food of animal origin						
D4	Veterinary public health & food safety (part I)	30,0					30,0
D4	Veterinary public health & Food safety (part II)			22,5			22,5
D5	Food science and technology						
D5	Analytical Chemistry Applied to Veterinary Medicine	22,5	30,0				52,5
D5	Chemical Analysis of Food	15,0	15,0				30,0
D5	Veterinary public health & food safety (part I)	7,0					7,0
D5	Veterinary public health & Food safety (part II)	10,0					10,0

E.	**Professional knowledge**						
E1	Practice management*						
E1	Herd health control and epidemiology of ruminants				5		
E1	Herd health control and epidemiology of pigs, poultry and rabbits				2,5		
E2	Professional ethics						
E2	Deontology and legislation	7,5					7,5
E2	Herd health control and epidemiology of ruminants				2,5		
E2	Herd health control and epidemiology of pigs, poultry and rabbits				2,5		
E3	Veterinary certification and report writing						
E3	Thesis		120/200[a]	120/200[b]	120/410[c]		**
E4	Veterinary legislation						
E4	Veterinary public health & food safety (part I)	3,0					3,0
E4	Deontology and legislation	27,0					27,0
E4	Veterinary public health & Food safety (part II)	2,5					2,5

* E1 : A specific course on "Practice management" is not programmed, but a number of pertaining items is discussed in other courses such as *Registration procedures*, which are taught in the Deontology and Legislation Course (year 6) and in Herd health control and epidemiology. Additionally, some extracurricular lectures on this topic are organized by professional veterinary organizations at the FVM.

** E3 : Thesis

[a] : Mean hours of thesis work (estimated average) which each student invests in laboratory experiments, dissections, microscopy etc.

[b] : Mean hours of thesis work (estimated average) which each student invests in literature research and in editing the manuscript of the thesis according to the revisions by the mentor

[c] : Mean hours of thesis work (estimated average) which each student invests in clinical work, taking into account that the vast majority of all theses deals with clinical topics.

Table 4.1.4. **Curriculum hours in other subjects taken by every student**

void

4.2. Elective tracks

As stated before in the introduction and in chapter 4.1, veterinary medicine is changing rapidly. The scientific progress in the different veterinary disciplines and the augmenting demands of pet owners and farmers make it very difficult for educational policy makers to elaborate a well balanced curriculum that provides veterinarians with both a broad field of scientific knowledge and a thorough professional competence.

It has become clear that it is no longer possible to train all-round veterinarians that are fully competent in all fields of veterinary medicine. Differentiation within the graduate education by means of elective tracks and elective (optional) subjects forced itself up,

but care was taken that differentiated curricula should still comply with the EC directives for an omnivalent diploma.

Elective (optional) courses were already introduced in the final year of the veterinary under-graduate curriculum as early as 1975. Over the years the number and contents of these elective courses have been adapted in view of curriculum reformations and changing professional demands. The actual list of elective (optional) courses can be found in table 4.3.

After much debate on the *omnivalency* vs. *omni- or polycompentency* of the graduates, the FVM decided in the academic year 1991-1992 to introduce elective tracks in the final year of the veterinary medicine curriculum. Since the academic year 1997-1998 final year students, after having followed the same programme during the first five years of their studies, have to make a choice between four elective tracks, viz., 'Companion animals'; 'Horse'; 'Ruminants'; and 'Pigs, poultry & rabbit'. Together with this innovation it became also compulsory for all final year students to submit a thesis, to which 12 of the 60 credits of the final year were allocated. Although the supervision and evaluation of the numerous theses further increased the workload of the academic staff members, this innovation was a success in terms of self-tuition of the students and in acquiring the major objectives of this assignment, i.e., making students more familiar with scientific literature and research.

In the academic year 2000-2001 a fifth elective track was added, viz. 'Research & Industry'. This track was established for students who have a special affinity for research. It comprises only a few courses but contains a larger thesis of 27 credits, for which the students have to perform a more elaborate research project in one of the faculty departments.

In summary, the final (sixth) year of the veterinary medicine curriculum consists of two general courses ('Deontology & legislation' and 'Veterinary public health & food safety-part II') supplemented by an elective track, a few elective (optional) subjects and a thesis.

Table 4.2.: **Courses organized as Elective tracks *(hours allocated to each course)***

	Hours in course					
Courses within elective	Lectures	Practical work	Supervised work	Clinical work	Other	Total
Year 6 - Elective track 1:						
Companion Animals						
Infectious diseases and pathology of companion animals	15,0	40,0	30,0			85,0
Pharmacology and internal diseases of companion animals, with clinical training	15,0			135,0		150,0
Obstetrics, reproduction and artificial insemination in companion animals, with clinical training	7,5	7,5		60,0		75,0
Surgery of Pets, with Clinic	10,0	10,0	10,0	100,0		130,0
Medical Imaging and Orthopedics of Pets, with Clinic	10,0			150,0		160,0
Diseases of special companion animals and poikilotherms, with clinical training	15,0	40,0		65,0		120,0
Ethology, nutrition and breeding guidance of companion animals	15,0		10,5	4,5		30,0
With approval of the Faculty: courses, to a total amount of 9 credits, to be chosen from the Elective Course List 3rd Year 2nd Cycle Veterinary Science, n° 1,5-8,11-27	See table 4.5. for average of hours					
THESIS		120,0*	120,0**	120,0***		360,0
TOTAL	87,5	217,5	170,5	634,5	0,0	1110,0

Courses within elective	Hours in course					
	Lectures	Practical work	Supervised work	Clinical work	Other	Total
Year 6 - Elective track 2:						
Horse						
Infectious diseases and pathology of the horse	7,5	0,0	20,0	40,0		67,5
Ethology, nutrition and breeding guidance of the horse	15,0	8,0	7,0			30,0
Pharmacology and internal medicine of the horse, with clinical training	7,5	10,0	30,0	147,5		195,0
Obstetrics, reproduction and artificial insemination in the horse, with clinical training	7,5			157,5		165,0
Surgery of the horse, with clinical training	7,5	15,0		232,5		255,0
Medical imaging of the horse, with clinic	7,5		0,0	97,5		105,0
With approval of the Faculty: courses, to a total amount of 9 credits, to be chosen from the Elective Course List 3rd Year 2nd Cycle Veterinary Science, n° 2,4,6-10,13-27	See table 4.5. for average of hours					
THESIS		120,0*	120,0**	120,0***		360,0
TOTAL	52,5	153,0	177,0	795,0	0,0	1177,5

Courses within elective	Hours in course					
	Lectures	Practical work	Supervised work	Clinical work	Other	Total
Year 6 - Elective track 3:						
Ruminants						
Infectious diseases and pathology of ruminants	15,0	20,0	10,0	50,0		95,0
Animal production and ethology of ruminants	22,5	15,0				37,5
Surgery and medical imaging in ruminants with clinical training				180,0		180,0
Reproduction, obstetrics and artificial insemination in ruminants, with clinical training				90,0		90,0
Herd health control and epidemiology of ruminants	7,5			157,5		165,0
Ambulatory clinic of ruminants				120,0		120,0
Pharmacology and internal medicine of ruminants with clinical training	7,5	10,0	30,0	117,5		165,0
With approval of the Faculty: courses, to a total amount of 9 credits, to be chosen from the Elective Course List 3rd Year 2nd Cycle Veterinary Science, n° 3-5, 7-12, 15-27	See table 4.5. for average of hours					
THESIS		120,0*	120,0**	120,0***		360,0
TOTAL	52,5	145,0	170,0	845,0	0,0	1212,5

Courses within elective	Hours in course					
	Lectures	Practical work	Supervised work	Clinical work	Other	Total
Year 6 - Elective track 4:						
Pig, poultry & rabbit						
Infectious diseases and pathology of pigs, poultry and rabbits	22,5	120,0	20,0			162,5
Animal production and ethology of pigs, poultry and rabbits	22,5		15,0			37,5
Reproduction and artificial insemination in pigs, poultry and rabbits	7,5			97,5		105,0
Herd health control and epidemiology of pigs, poultry and rabbits	15,0		50,0	175,0		240,0
Pharmacology and internal diseases of pig, poultry and rabbit	15,0	10,0	10,0	40,0		75,0
With approval of the Faculty: courses, to a total amount of 9 credits, to be chosen from the Elective Course List 3rd Year 2nd Cycle Veterinary Science, n° 4-6, 9-14,17,19-27	See table 4.5. for average of hours					
Work placement			60,0	60,0		120,0
THESIS		120,0*	120,0**	120,0***		360,0
TOTAL	82,5	250,0	275,0	492,5	0,0	1100,0

Courses within elective	Hours in course					
	Lectures	Practical work	Supervised work	Clinical work	Other	Total
Year 6 - Elective track 5:						
Research & Industry						
Methodology of Animal Experimental Research	22,5		10,0			32,5
Applied Biomedical Statistics	15,0		15,0			30,0
With approval of the faculty: courses (animal species specific), to a total amount of 9 credits, to be chosen from the Elective Course List 3rd Year 2nd Cycle Veterinary Science, n° 4-8	See table 4.5. for average of hours					
With approval of the Faculty: courses, to a total amount of 12 credits, to be chosen from the Elective Course List 3rd Year 2nd Cycle Veterinary Science, n° 4-25 (no overlap with the courses taken sub 5)	See table 4.5. for average of hours					
THESIS		200,0*	200,0**	410,0***		810,0
	37,5	200,0	225,0	410,0	0,0	872,5

* Mean hours of thesis work (estimated average) which each student invests in laboratory experiments, dissections, microscopy etc.

** Mean hours of thesis work (estimated average) which each student invests in literature research and in editing the manuscript of the thesis according to the revisions by the mentor

*** Mean hours of thesis work (estimated average) which each student invests in clinical work, taking into account that the vast majority of all theses deals with clinical topics.

NOTE : Several courses of the elective tracks (as listed in Table 4.2.) cover subjects that are listed as different EU-topics. Therefore a separate listing of the hours that are allocated in each course to different EU-topics is given in the Annex II of Chapter 4. (Table 4.2.bis)

4.3. Elective (optional) courses

As mentioned before (see chapter 4.2), each student has to choose a number of additional elective (optional) subjects in the final (sixth) year of his/her studies to complete the undergraduate training. These elective (optional) subject courses amount to a total of 9 Credits (Study points), except for students who follow the elective track “Research & Industry”, who have to take up a total number of elective courses to the amount of 21 Credits.

The hours taken by every student in their elective (optional) subjects are not accounted for in table 4.1.3.

Table 4.3.: **Elective (optional) subjects**:

		Hours in course					
	Elective Courses	Lectures	Practical work	Supervised work	Clinical work	Other	Total
1	Introduction Training and Completions in the Medicine of Pets				100,0	45,0	
2	Introduction Training and Completions in the Medicine of the Horse			10,0	90,0	45,0	
3	Introduction Training and Completions in the Medicine of Ruminants			10,0	90,0	45,0	
4	Clinical Options Pets	67,5			60,0		*
5	Clinical Options Horse	52,5			80,0		*
6	Clinical Options Ruminants	52,5			60,0		*
7	Clinical Options Pig and Industrial Poultry	40,0	10,0	10,0	40,0		
8	Clinical Options Birds, Special Animals and Laboratory Animals	43,5	10,0		50,0		
9	Infections and Pathology of Pets	15,0		22,0			
10	Ethology, Feeding and Breeding Assistance of Pets	15,0		10,5	4,5		
11	Infections and Pathology of the Horse	7,5	30,0	15,0			

12	Ethology, Feeding and Breeding Assistance of the Horse	15,0	7,0	8,0			
13	Infections and Pathology of Ruminants	15,0	35,0	10,0			
14	Animal Production and Ethology of Ruminants	22,5	15,0				
15	Infections and Pathology of Pig, Poultry and Rabbit	15,0	30,0	15,0			
16	Animal Production and Ethology of Pig, Poultry and Rabbit	15,0		15,0			
17	Tropical Veterinary Medicine	20,0	10,0				
18	Veterinary Hygiene	15,0					
19	Laboratory Animal Science	22,5	5,0		5,0		
20	General Didactics	20,0		10,0			
21	Teaching Methodology	30,0					
22	Educative Interaction and Communication	15,0	15,0				
23	One ore Two Subjects from the Programmes of the RUG for 3, 6 or 9 credits						
24	Scientific English	22,5					
25	Quality Systems in Animal Production	22,5					
26	Applied Biomedical Statistics	15,0		15,0			
27	Methodology of Animal Experimental Research	22,5		10,0			

* The volume of these clinical elective (optional) subjects has been substantially increased from October 1, 2003 onwards to a study load of 540 hours and 18 credits (18 Study points).

4.4. Obligatory Extramural Work

Extramural work for students has long been a matter of discussions. Traditionally and historically the FVM has considered the education of veterinary students as the exclusive responsibility of the faculty. In the academic year 2000-2001, however, on demand of the students, an extramural practical period has been institutionalized. Within the framework of the three elective (optional) subjects “Introduction training and completions in the medicine of pets", "Introduction training and completions in the medicine of the horse" and “Introduction training and completions in the medicine of ruminants”, an extramural practical training period was included to make students familiar with veterinary practice.

Students who choose one of these three elective (optional) subjects have, to spend a period of 45 hours in an extramural practice of private veterinarians. The students can perform their extramural work in a veterinary practice of their choice or in a practice allocated to them by the supervisor of the course.

The students have to make a report of their practical training and are evaluated by the practicing veterinarian who fills in an assessment form. Final assessment of the practical training period is based on the evaluation of both documents by the supervisor of the course.

Four weeks of additional extramural work is obligatory for students who choose the elective track “Ruminants”. They have to spend an entire week on a sheep farm in the lamb period to perform obstetric assistance. They pass a second week on the dairy herd farm “Biocentre Agrivet” where they are involved in various activities including oestrus detection, the milking process, feeding of cows and calves, etc. The third week they receive a thorough training in claw management of ruminants in different farms outside the faculty. The fourth week they are involved in animal health programmes in one of the provincial Animal Health Services in Flanders (tasks include visits to problem herds, performing diagnostic necropsies etc...)

Students who have chosen the elective track Pig, Poultry and Rabbit are on extramural duty for 6 weeks : 1 week in a rabbit farm, 2 weeks in a pig farm and 3 weeks in one of the provincial Animal Health Services in Flanders (tasks include visits to problem herds, performing diagnostic necropsies etc...)

4.5. Ratios

Because of the differentiation in the final year of the curriculum, all students have to choose between five different elective tracks and take a number of elective (optional) subjects. Therefore the ratios vary for each student according to the elective tracks and the elective (optional) subjects that were chosen.

The ratios listed below are classified according to the 5 elective tracks, and they contain average data about the elective (optional) subjects that every student has taken in order to finalize his or her curriculum (data of 2002-2003).

		Hours in course: Elective track Companion animals					
		Lectures (d)	**Practical work (e2)**	**Supervised work (e1)**	**Clinical work (e3)**	**Other**	**Total**
	General courses 1st-6th general	2125,5	536,0	258,5	317,5	0,0	3237,5
	Option Companion Animals	87,5	217,5	170,5	634,5	0,0	1110,0
	Electives			10,0	125,0		135,0
Total		2213,0	753,5	439,0	1077,0	0,0	4482,5
	e=e1+e2+e3		2269,5				
	e1+e2		1192,5				
RE=d/e		1 / 1,03					
RC=e3/(d+e1+e2)		1 / 3,16					

		Hours in course: Elective track Horse					
		Lectures (d)	**Practical work (e2)**	**Supervised work (e1)**	**Clinical work (e3)**	**Other**	**Total**
	General courses 1st-6th general	2125,5	536,0	258,5	317,5	0,0	3237,5
	Option Horse	52,5	153,0	177,0	795,0	0,0	1177,5
	Electives			10,0	125,0		135,0
Total		2178,0	689,0	445,5	1237,5	0,0	4550,0
	e=e1+e2+e3		2372,0				
	e1+e2		1134,5				
RE=d/e		1 / 1,09					
RC=e3/(d+e1+e2)		1 / 2,68					

		Hours in course: Elective track Ruminants					
		Lectures (d)	**Practical work (e2)**	**Supervised work (e1)**	**Clinical work (e3)**	**Other**	**Total**
	General courses 1st-6th general	2125,5	536,0	258,5	317,5	0,0	3237,5
	Option Ruminants	52,5	145,0	170,0	845,0	0,0	1212,5
	Electives			10,0	125,0		135,0
Total		2178,0	681,0	438,5	1287,5	0,0	4585,0
	e=e1+e2+e3		2407,0				
	e1+e2		1119,5				
RE=d/e		1 / 1,11					
RC=e3/(d+e1+e2)		1 / 2,56					

		Hours in course: Elective track Pig, poultry & rabbit					
		Lectures (d)	**Practical work (e2)**	**Supervised work (e1)**	**Clinical work (e3)**	**Other**	**Total**
	General courses 1st-6th general	2125,5	536,0	258,5	317,5	0,0	3237,5
	Option PPR	82,5	250,0	275,0	492,5	0,0	1100,0
	Electives			10,0	125,0		135,0
Total		2208,0	786,0	543,5	935,0	0,0	4472,5
	e=e1+e2+e3		2264,5				
	e1+e2		1329,5				
RE=d/e		1 / 1,03					
RC=e3/(d+e1+e2)		1 / 3,78					

		Hours in course: Elective track Research & industry					
		Lectures (d)	**Practical work (e2)**	**Supervised work (e1)**	**Clinical work (e3)**	**Other**	**Total**
	General courses 1st-6th general	2125,5	536,0	258,5	317,5	0,0	3237,5
	Option Res&Ind	37,5	200,0	225,0	410,0	0,0	872,5
	Electives I	52,0	10,0	10,0	58,0		130,0
	Electives II	15,0	23,5	13,5	4,5		56,5
Total		2230,0	769,5	507,0	790,0	0,0	4296,5
	e=e1+e2+e3		2066,5				
	e1+e2		1276,5				
RE=d/e		1 / 0,93					
RC=e3/(d+e1+e2)		1 / 4,44					

4.6. Further information on the curriculum

*** Innovations**

- All academic staff members with teaching assignments are expected to permanently update the contents and syllabi of their courses in view of recent evolutions in their particular field of veterinary medicine and research.

- Every two years each course is evaluated by means of student enquiries that are organized by the University and assessed by the Education Quality Cell of the Faculty. The results of these enquiries and possible recommendations by the Education Quality Cell are imparted to the teaching staff members.

- Numerous initiatives are taken by the teaching staff members to further implement the use of ICT in the learning processes by producing interactive audiovisual material (see Chapters 5 and 8).

- Prospective innovations of the undergraduate curriculum are described in part 2 of Chapter 4 (see Comments).

*** Course attendance**

Attendance in demonstrations and in supervized, practical and clinical activities of all courses, both obligatory and elective, is mandatory. Apart for the lectures given in the frame of general subjects (general courses), attendance in practical and clinical activities is verified by means of attendance mark lists. The permanent evaluation examination system makes it possible to give insufficiency marks for repeated absence.

4.7. Specific information on the practical clinical training

General organization
Practical clinical training is organized for all veterinary students of the fourth, fifth and sixth year, i. e. the 3 clinical years of the curriculum, in various clinics :

- Clinic of Small animal medicine (covering internal medicine and surgery)
- Clinic of Avian and exotic pet medicine
- Clinic of Medical imaging (including orthopaedics in small animals)
- Clinic of Large animal surgery
- Clinic of Large animal internal medicine
- Clinic of Obstetrics and reproduction
- Ambulatory Clinic and herd health

In the fourth year clinics are organized in the Clinics of Small animal medicine (covering internal medicine and surgery), Medical imaging (including orthopaedics in small animals), Large animal surgery, and Large animal internal medicine. An additional week of clinical diagnostic work is scheduled in the Laboratory of Parasitology.
In the fifth year clinics are organized in the Clinics of Small animal medicine (covering internal medicine and surgery), Avian and exotic pet medicine, Medical imaging (including orthopaedics in small animals), Large animal surgery, Large animal internal medicine, and Obstetrics and reproduction.

In the final (sixth) year clinics are organized in the Clinics of Small animal medicine (covering internal medicine and surgery), Avian and exotic pet medicine, Medical imaging (including orthopaedics in small animals), Large animal surgery, Large animal internal medicine, Obstetrics and reproduction, and in the Ambulatory clinic and herd health.

Additional practical training in autopsies is performed in the Departments of Pathology for students of years 4, 5 and 6, and in the Clinic of Avian medicine for students of years 5 and 6.
In the autopsy clinics, each final year student is assigned a corpse of which he has to do a complete autopsy. He is assisted by a student of the fourth and a fifth year (Pathology) or fifth year (Avian medicine), respectively. At the end of the autopsy, the pathological findings of each case are discussed for all the students attending the autopsy clinic. Relevant findings are labelled and exhibited at the windows of the major necropsy room from 10:00 a.m. till 2:00 p.m., where they can be studied by all students of the FVM (cf 6.9).

Concept of clinical training

Students of the fourth year (i.e., the first year of the second cycle) start their clinical training by rotations in the various clinics from Monday through Saturday 8:00 - 10:00 a.m. In each of the clinics they are involved in the daily care of the patients. The major objectives in this first year of clinical training are (1) to become acquainted with the clinical cases that are presented in the different clinics, (2) to become familiar with the organization of the clinical activities, and (3) to learn the specific handling and restraint of animals of various species. Furthermore, basic principles of clinical examination are demonstrated and practised in each of the clinics.
Each Wednesday from 8:30 till 9:30 a.m. both large and small animal patient cases are demonstrated and thoroughly discussed by clinical staff members in group demonstrations that are attended by the fourth year students who are not scheduled in any of the clinical rotations of that day.
Additionally, every morning from 8:00 till 10:00 a.m. students of the fourth year carry out standard analyses in the Laboratory of Parasitology laboratories, in order to define the pathologic agents in samples submitted by the clinics.

Students of the fifth year (i.e., the second year of clinical training) are again scheduled in a clinical rotation system in the various clinics from Monday through Saturday 8:00 - 10:00 a.m. In this clinical setting and under the direct supervision of a teaching staff member, they are confronted with all aspects of diagnosis and treatment of diseases that they have already studied in the theoretical courses.

Final year students (i.e., in the third year of clinical training) obtain hands-on experience in the various clinics belonging to their elective tracks. They are assigned patients for which they are responsible during their stay in the clinic that week. Every day stable visit rounds are held in the different clinics under the supervision of a staff member. Clinical examinations, diagnosis and therapy are discussed and carried out by groups of 3-12 students who act under the direct supervision of staff members.

Practical organization of clinical activities

For all clinical activities students are enlisted in a clinical rotation system.

In the fourth and fifth year students attend clinics from Monday through Saturday from 8:00 a.m. till 10:00 a.m. Theoretical courses start at 10:00 a.m.
In the sixth year, *clinical rotations* are organized from Monday through Saturday. They start at 8:00 a.m. and last till all patients are taken care of. Theoretical courses of the final year are few in number and scheduled in the (late) afternoons in order to enable students to attend lectures after their clinical rotations.
Final year students are additionally enlisted in a *permanency schedule* in the clinics of Small animal medicine, Surgery, Internal medicine and Obstetrics, and in the Ambulatory clinic for large animals. Students who are enlisted in a permanency perform their duties during a full week period, i.e., from Monday 8:00 a.m. till the next Monday 8:00 a.m. Their work consists mainly in (1) taking care of the patients that are hospitalized in the clinics to which they are assigned, (2) receiving and treating emergency cases during the night, and (3) performing ambulatory consultations under the supervision of a staff member (emergencies & Caesarian sections). In the various clinical departments full accommodation is present for the students who are on permanent duty (rooms with shower, bed & desk, kitchen, etc.)

4.8. Specific information on the practical training of Food Hygiene

Undergraduate practical teaching in veterinary meat inspection and food hygiene is organized in establishments inside and outside university premises.
Basics of practical meat inspection are instructed in the experimental slaughterhouse of Ghent University located in Melle, 8 km away from the Faculty of Veterinary Medicine. Slaughter capacity for the year 2002 of this abbatoir was approx. 850 cattle, 270 veal calves, 835 pigs, 575 lambs/sheep, 5 horses and 3 goats. Students are trained (hands-on) under the supervision of a staff member (DVM) during the 6th year of the undergraduate curriculum for 1 week (22.5 hours per student).
These practicals comprise:
- Hand-on inspection of cattle, pigs and sheep (experimental slaughterhouse). Students are operating in groups of 10 (per week)
- Demonstration of laboratory techniques additional to physical inspection (bacteriological examination, trichinoscopy and digestion techniques, inhibitory substances,….)
- Demonstration of sampling for bacteriological examination of carcass surface
- Demonstration of principles of self control and HACCP

Additional visits to industrial cattle and pig slaughtering plants (Zele and Lokeren, at about 25 kms from the Faculty) are organized and are obligatory for final year students.

For a restricted group of about 10 students who take the elective course ‘Quality systems in the production of food animals’, additional visits to 1 or 2 meat processing factories are organized.

Next to the practicals and demonstrations related to veterinary meat inspection and meat hygiene, practicals in chemical analysis of food of animal origin are also organized in the Laboratory for chemical analysis of food of animal origin.
These practicals are organized during the second year of the first cycle of the studies (12 hours/student during 3 half day sessions).

These practicals comprise:
- assessment of water holding capacity of meat and meat products
- analysis of fat and fatty acids in meat and meat products
- azeotropic distillation (determination of water content in meat and meat products)
- colour measurement of meat and meat products
- determination of nitrite, nitrate and sulfite by chemical analysis
- calculation of content of main components (water, protein, fat, ash) in meat and meat products

2. Comments

* **Preparation of the graduates for the veterinary profession**

The Education Quality Cell and the Curriculum Committee regularly discuss prospective changes of the curriculum in view of recent evolutions in national and international EU legislations. This results in innovations of particular course subjects such as the oncoming introduction of a new course on Radioprotection (required because of national legislation) or elaboration of the courses in Veterinary Public Health Control (due to recent EU recommendations).

Before major curricular changes are proposed to the Faculty Council, recent directives of EAEVE are thoroughly scrutinized and prospective innovations are discussed with professional organizations including the National Board of Veterinarians. The final decision rests with the Faculty Council and the definitive approval by the Executive Committee of the University.

* **Structuring and reviewing of the curriculum**

see Chapter 4.1.

*** Local factors influencing the ratios**

The high number of students caused by the absence of student entrance limitations puts a strain on the teaching staff for organizing the practical and clinical training of the students.

* **Actual and prospective development of the curriculum**

Introduction

Veterinary schools are charged with continually rethinking the teaching and learning of veterinary medicine, taking into account not just the expansion of information but also the needs, desires and constraints of society and the individuals involved.

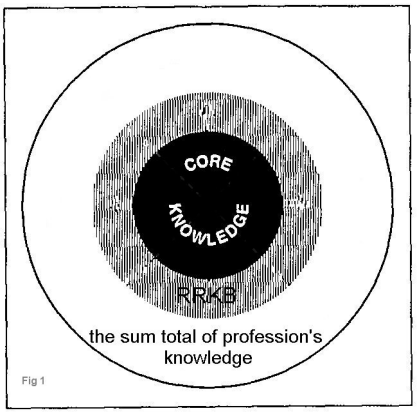
Veterinary curricula have generally responded to the exponential expansion of knowledge by forcefeeding students with increasingly indigestible volumes of factual data which they are then expected to regurgitate in unrealistic situations with little engagement of the intellect. This approach has been sustained by the “cult of coverage” which held that students must learn something about everything. Unfortunately, as knowledge expands, this position becomes increasingly untenable, especially with current political and economic trends providing little encouragement for veterinary courses to be extended in length. It is likely that the concept that we must train each of our veterinary students to be equally competent or equally incompetent, in all the traditional areas of veterinary practice, will soon be a thing of the past.

More flexibility is needed within veterinary curricula to ensure that students graduate having the necessary intellectual, factual and technical resources to succeed within the 21st century.

To explain these thoughts the model described by Hubbell and Shaffer (1998, JAVMA, 212, 186-189) can be used. They developed a circular model for veterinary education that emphasizes formation of a curriculum.

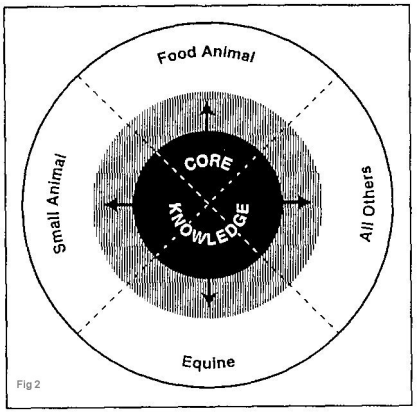
The first component of the circle model (Fig.1) is a large circle, meaning the sum total of the profession's knowledge that is current, used by veterinarians to make their decisions.

Because an individual could not personally have all knowledge represented by the larger circle, a smaller circle is placed within the larger one (Fig. 1). The smaller circle represents the "readily retrievable knowledge base" (RRKB) and reflects the notion that veterinary teachers can teach and students can learn and carry into practice.



What percentage of an individual veterinary graduate's RRKB consists of material that is common to all graduates ? With the traditional curricula of years past, perhaps 90%-100% of each graduate's RRKB would be common to all graduates in that class. The percentage would decrease depending on the amount of student selection allowed within the curriculum, but considerable overlap would remain.

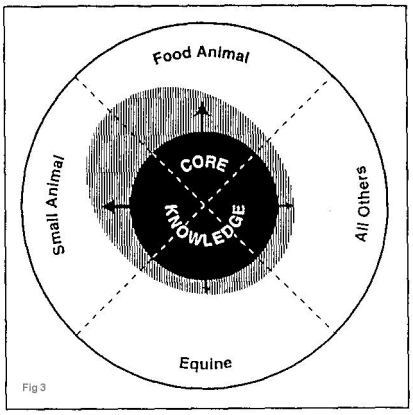
Educators are faced with the task of determining which portion or portions of the circle represent the core knowledge (inner circle, Fig.1) that veterinary graduates must have in their RRKB (ie, the percentage of a graduate's RRKB that should be common of all graduates).



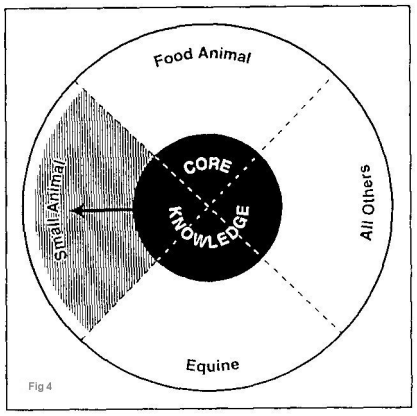
If 50% of each graduate's RRKB consists of core knowledge, then the remaining 50% must be distributed elsewhere within the large circle that represents all that is known in veterinary medicine. How this portion of the RRKB is distributed depends on the student's background and interests and the curriculum of the school.
The RRKB for graduates of schools that do not provide students with curriculum choices, and in which all areas are covered equally, would be evenly distributed (Fig. 2).

The information or facts obtained within these circles can be divided in many ways. One approach might be to divide the circle into sectors labelled small animal veterinarians, equine veterinarians, food animal veterinarians, and veterinarians who do something else (eg, academics, public health officials and basic researchers).

Most veterinary curricula provide some combination of core (ie, required courses) and elective experiences. The required courses are designed to help students acquire the core knowledge that is common to all veterinarians and to provide a basic framework for the rest of their education.



The elective courses are selfselected and allow students to expand their RRKB within particular sectors (Fig. 3). Expansion of the RRKB in 1 sector necessitates contraction in another.



Students could be allowed to “track” within certain areas or interests, for example small animals or food animals (Fig. 4). The portion of the curriculum that is common to all students is similar to the portion in schools with a curriculum consisting of core and elective experiences.

Proposal

As already in the present curriculum, students are confronted with an overload of theoretical course contents, because the amount of scientific information and practical applications is vastly expanding in all fields of veterinary medicine. The increase of course contents is further enhanced by national and international EU legislation, which demand more elaborate training in various fields such as Veterinary public health and Radioprotection

Another major problem is the clinical training of the actual large numbers of students in the various clinics, where they should obtain a professional competence in treating animals of different species ranging from companion animals and exotic pets to horses and production animals such as ruminants, pigs, poultry and rabbits.

In recent years, the Curriculum Committee has studied the possibility to reform the curriculum, in an attempt to reduce the study load and to increase the clinical training in order to improve the starting competence of the graduating veterinarians.

While doing so, it remained of primordial importance to maintain an omnivalent training which is conform to the EAEVE regulations. The latter require the study of all aspects of veterinary medicine, including basic subjects, clinical subjects, animal production, food hygiene and professional knowledge.

After much debate and consultation, an innovated curriculum has recently been proposed. This prospective innovation would reduce the study load and it would simultaneously increase the starting competence of the graduating veterinarians. In order to obtain this goal two major tracks are foreseen in the plan, i.e. Companion animal medicine, and Large animal medicine including Veterinary public health. These tracks would start in the second semester of the fifth year. This should result in a more advanced training during the fifth and sixth year in either track. It was decided to include the horse in the Large animal elective track because horses in Belgium are still considered an important species for food production, and therefore veterinarians who are active in equine practice must be fully competent in Veterinary public health affairs. Furthermore, the clinical infrastructure for examining and treating horses is similar to buiatric equipment.

A schematic survey of the present and prospective curricula is given in the two tables on the next pages.

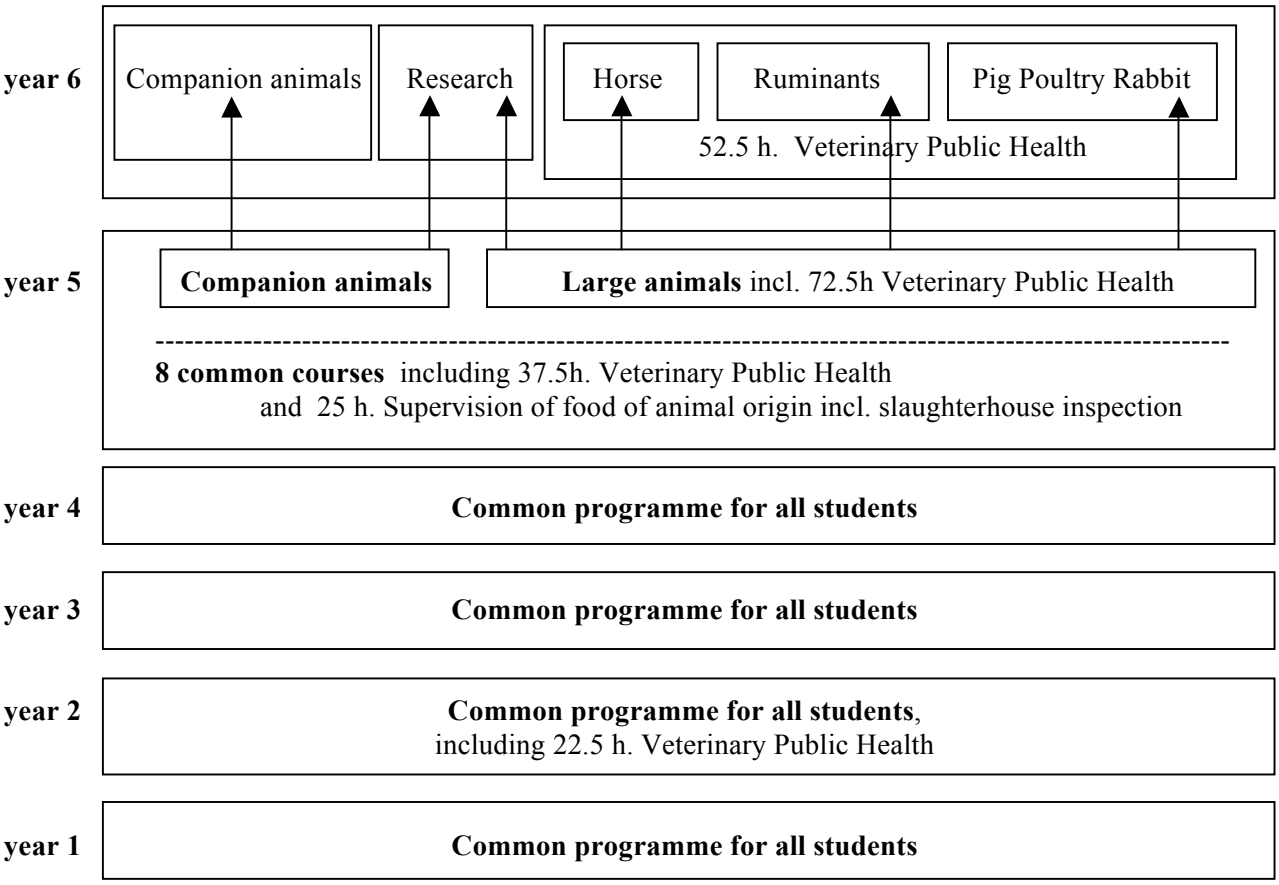
In the prospective new concept, all students would still receive a common training during 4.5 years, viz. during the 3 preclinical years, the fourth year and the first semester of the fifth year of the curriculum. In the second semester of the fifth year, they would have to choose between the two major tracks mentioned above.
In the final year, they would then further focus on one of the 5 elective tracks that will be almost completely free of theoretical courses in order to advance clinical training and/or research activities.

This innovation is fully in line with the 1992 EAEVE recommendation #8 requesting that "Specialization should be encouraged, especially in clinically subjects" (see Introduction p. 9) and with the 2000 ACVT-EAEVE recommendation (Annex I, IV.a.1) that "it is desirable to combine the acquisition of basic knowledge in all fields of veterinary science with more advanced training in one given field. This will enable qualified veterinarians to begin their careers with more confidence and autonomy (up to 20 per cent of the total training time should be devoted to this aspect)"

ACTUAL CURRICULUM

year 6	Companion animals	Research	Horse	Ruminants	Pig Poultry Rabbit	
	2 common courses : Legislation & 45 h Veterinary public health (Part II)					
year 5	**Common programme for all students** incl. 60 h Veterinary public health (Part I) and Small and Large animal clinics					
year 4	**Common programme for all students** incl. Small and Large animal clinics					
year 3	**Common programme for all students**					
year 2	**Common programme for all students** including 30 h. Analytical chemistry of food of animal origin					
year 1	**Common programme for all students**					

NEW CONCEPT



The prospective new concept contains several important advantages :

1. It still provides an omnivalent training in all subjects that are listed in EAEVE requirements. The common study programme of 4.5 years, during which all topics of veterinary medicine are covered, should guarantee an omnivalent diploma.
2. By offering advanced training in the various elective tracks, students would graduate with an increased starting competence in the particular domain of their choice.
3. Course contents overload can be reduced for all students, offering possibilities for either more in-depth training (Companion animals) or for an elaborate competence in expanding fields (Veterinary Public Health)
4. Practical and clinical training of senior students will be much improved as both the number and the size of the clinical rotation groups are reduced.
5. Highly motivated final year students will make optimal use of the patient material that they see in the clinics of their specific elective track.

On the other hand, the new concept contains also some disadvantages:

1. Students must make career choices after 4 years of studies, i.e. one year earlier than before.
2. Graduated veterinarians will have different competences:
   - Veterinarians who studied the elective track 'Companion animals' will have a limited training in clinical skills for treating Large animals and in Veterinary Public Health

- Veterinarians who choose the elective tracks 'Horse', ‘Ruminants' or 'Pig-Poultry-Rabbit' will have only limited training in clinical skills for treating Companion animals
- Graduates who took the elective track 'Research' will have limited training in clinical skills and in Veterinary Public Health.

Graduating students will still have received an omnivalent basic training, but they will no longer have the illusion of being omnicompetent. Instead, they will have a higher starting competence in the specific field of the elective track that they have chosen.

3. Reconversion training programmes will have to be organized for graduated veterinarians who want to acquire other/additional competences.

3. Suggestions

The opinion of the Visitation Committee on the implementation of a more in depth training in one of the specific fields of veterinary medicine within the undergraduate curriculum would be very helpful for the prospective innovation of the study programme at Ghent University.

The FVM would highly appreciate to receive the expert opinion of the Visitation Team on this prospective curriculum reform.

Chapter 5 :

TEACHING: QUALITY & EVALUATION

Chapter 5 :

TEACHING: QUALITY & EVALUATION

1. Factual information

Organization and procedures with regard to teaching and examination are written down in a “Teaching & Examination Regulation”, issued by Ghent University. In 8 chapters it describes all aspects of the academic education and examination in detail.

5.1. The teaching programme

Each year the Board of Directors of Ghent University provides the time schedule concerning the organization of the academic year in each faculty. A number of study programmes are made up of 2 terms (semesters), whereas other programmes are not subdivided and run continuously during the whole academic year. One term comprises 13 weeks of lectures and practical work followed by two weeks of study leave and an examination period of two weeks. The final examination result is obtained at the end of the second term, based on the results achieved in the first and the second term. Annual programmes consist of 26 weeks of lectures and practical work, followed by a study leave of four weeks and examinations during a five weeks period.

Whatever the type of academic year applied, an academic year starts on October 1st. Lessons are suspended for 2 weeks around Christmas and New Year and for 2 weeks around Easter.
At the FVM the first year of the first cycle is organized in a two semester system.
At present, the next five years run on an annual basis. However, starting from 2004-2005 onwards, the semester system will be introduced progressively in the second and subsequent years of the curriculum, except in the final year as this is a clinical year.

As put forward in the introduction and in the previous chapter, at the faculty level the Curriculum Committee is responsible for the teaching process. In this committee every study year is represented by a member of the academic staff and a student. Every year this committee designates the teachers for each course of the whole curriculum after hearing the departments involved and establishes the method of examination for each course as proposed by the teachers. The Curriculum Committee takes care that no overlap occurs between the contents of the different courses taught by teachers of different departments and scientific fields.

Courses are predominantly organized in a traditional way. Lectures are the most frequent type of theoretical teaching. Nevertheless, in the practical work sessions and in clinical training problem based learning is adopted as far as it is possible. The large number of students as compared to the available academic staff is the limiting factor in organizing problem based learning a larger scale. Regarding the newer approaches of educational methods such as computer-assisted learning, the faculty's opinion is that not too much emphasis should be put on the computer at the expense of the real contact between the student and the patient. Many efforts are devoted to a system in

which the contact between the students and the animals (patients) is as frequent as possible. Therefore the Curriculum Committee prefers the students to spend a lot of time in the practical labs and in the clinics. Of course the information and communication technology (ICT) offers possibilities and advantages and a lot of teachers already intensively use it in their teaching programmes. Many teachers have spent a lot of work and time in making up computer presentations that are used during the teaching process. Most of the material used by the teachers is also available for the students on the Internet or on CD-roms (see annex I of Chapter 5).

It is still a general policy of the University that a well documented syllabus is provided to each student for every course in the curriculum. Most syllabi contain a reference list with related basic or veterinary textbooks. Sometimes such information is provided during the lectures. In the report of the previous audit there was the remark that elaborate syllabi oppress the self-activity of the students. This self-activity is now being evoked by the thesis which students are obliged to make in the final year of the curriculum. Apart from that, students have to prepare case reports in various courses for which the use of the library and the Internet are indispensable.

The faculty has special relations with several outside bodies. There are agreements between the faculty and several provincial animal health laboratories (Animal Health Service, Flanders) in which students can achieve a practical training. Students also benefit from the relation of the FVM with the Veterinary & Agrochemical Research centre of the Ministry of Public Health (VAR). Apart from these the FVM maintains specific relations with a lot of farmer- and breeder associations. Moreover, final year students are accepted by many practitioners who help them to become acquainted .with routine practice (see chapters 4.4. and 7.9.6.). There is also the availabi-lity of the university slaughterhouse at Melle and the industrial slaughterhouses at Zele and Lokeren (see chapters 4.8 and 7.3).

Together with the Faculty of Agricultural & Applied Biological Sciences, the FVM runs the “Bio-center Agri-Vet”. This center provides practical facilities for applied biological and veterinary research and education. For this purpose the Bio-center Agri-Vet has a dairy herd with about 60 lactating cows, young stock and a pig herd with about 130 sows, and covers 76 ha of land. In addition there are other species of experimental animals, such as horses, dogs, cats, goats, etc. Management aims for optimal sustainability by integrating all aspects of the production chain from the arable land to the end product, taking into account animal welfare and health.

Starting from September 2003, distance or e-learning is implemented at Ghent University on a university-wide scale. Before that moment, several isolated projects were running at the university. At the veterinary faculty the most elaborated e-learning project was the EDUFORUM STIHO-project which was co-developed by the Department of Physiology, biochemistry and biometrics.

STIHO encourages innovative higher education and is funded by the Flemish Ministry of Education. The STIHO-project ‘Interactive Veterinary and Human Physiology’ is a multidisciplinary project in which Ghent University acts as main partner besides the Louvain University and Artevelde High School of Ghent. Education, course content and research in physiology in each partner institution is very different.

However, the basis of physiology, local and systemic homeostasis, is the same for each partner. The main purpose of the EDUFORUM project at our faculty is to offer students the opportunity to study and train physiology at a distance through interactive and comparative (human and veterinary) learning tools that stimulate to study physiology on basis of problems (e.g. 'how is blood pressure controlled?'). The answer is not directly available on the site but students are dropped in a 'guided' local and world-wide environment that provides tools to go on search for the answer. Contents can be viewed on http://eduforum.Ugent.be/. The next challenge will be to integrate the biochemistry course in this system that uses the same tools.

From September 2003 onwards, Ghent University has implemented the CLAROLINE platform (http://www.claroline.net/) which is an open source platform that will enable distance learning for students. One of the main purposes of the implementation of Claroline is indeed a stimulation of distance learning. Distance learning has to be implemented in order to stimulate the participation of students who cannot obtain a degree through the normal curriculum (for example when they are already working). The volume of distance learning is at this moment limited, but a time table for implementation has been drawn: September 2003 till September 2004 is a pilot phase during which in all faculties training sessions for docents will be organised and during which selected courses will become available on line together with discussion forums etc. (general overview http://zephyr.rug.ac.be/index.php?category=FDI). From October 2004 till September 2005 the first dissemination phase will take place and the goal is to obtain a 30% participation of all faculty and university teachers in the electronic learning platform by September 2005.

The FVM is actively involved in the development of e-learning and for that purpose a faculty wide project for on line presentation of interesting patient cases has started in April 2003, funded by the Flemish government. With full use of available multimedia tools (photos, videotapes, sound) all aspects of examination and treatment of selected patients are covered in a standardized format (http://www.laim.ugent.be). The cases are presented as documentation material or as exercises, and the students are asked to actively participate in the progress of the case (for example: suggesting additional examinations, interpretation of lab / clinical findings / preparing a differential diagnosis, etc.). The project is faculty wide because all species admitted at the faculty are covered and because additional information on the cases is offered by the basic science departments. The participation of the basic sciences helps to convince the students of the first three years of the relevance of their courses and it stimulates the students in the clinical years to refresh their knowledge of the non-clinical courses.

5.2. The teaching environment

Ghent University offers a broad spectrum of high-quality research-based educational programmes that are constantly adapted according to the most recent scholarly and scientific developments.

Teachers are evaluated at least once every three years. Beginning teachers are evaluated more frequently.

The Faculty of Psychology and Educational Sciences of Ghent University organizes a training that is accessible to all lecturers of the university. From 1998 on already 26 training modules have been organized on various topics, including:

- Problem assessment
- Objectives of a university education
- Presentation of different styles of education and instruction
- Teaching theories
- Presentations for a large number of students
- Simulation exercise: designing courses: situation and preparation
- Simulation exercise: giving lectures, presentation and feedback
- Activating teaching techniques
- Evaluation of courses by the students
- Principles in higher education
- Internal regulations on education and examination
- Criteria for an effective examination
- How to design good multiple choice questions

Most new teachers have followed these sessions by now. Many actually changed some of there teaching techniques as a result of the training and are very satisfied with the outcome.

Teaching activities are monitored by the evaluation system described in chapter 5.4. The results are collected in a so-called “education file” which is part of the personal file of a teacher and which is taken into account together with the teacher's research activities and services to society in order to get a possible promotion.

5.3. The examination system

Although in some cases a permanent evaluation process may operate, the majority of teaching is assessed at the end of the term/year by means of written and oral examinations for each of the courses attended (both lectures and seminars). The student's capability to solve problems is tested as thoroughly as possible during the examinations.

External examiners are only appointed in special cases, namely as member of the jury of the final year thesis that is discussed in chapter 13.

In the first cycle the examinations are mainly written, supplemented by an obligatory or optional oral part. In the second cycle the majority of the exams are oral, usually preceded by a written preparation. Marks received for practical exercises, devotion during clinical training, and the results of written and oral tests during the year may also be taken into account for the final result, as part of the permanent evaluation.
In both cases the final result is calculated on the basis of all examinations taken.

All examinations are public. In principle third parties are allowed to be present at the examinations. Mostly supervisors assist the examiners.

Only those students who pass the entire study programme are allowed to move on to the next academic year of study, but in some special cases students can take credits.

Unsuccessful students can take a second chance in the second examination period organized in September, regardless of whether their study is organized in terms (semesters) or not. This means that every examination can be taken at most twice a year. If students decide not to take examinations in the first examination period but only in the second, they voluntarily and irrevocably give up one of both chances.

The most relevant articles of the "Examination Regulation" are added in annex II of chapter 5.

5.4. Evaluation of teaching

In Flanders the working of the universities is controlled by the Act (Decree) on the Universities. It is imposed through the Ministry of Education of the Flemish Community, and stipulates in detail how a university is meant to function. It was issued for the first time in 1991. The decree covers the whole organization of a university, including also the obligation for the universities to carry out a proper quality management in both their research and educational activities. In the three articles of chapter 6 of this decree (articles 122 till 124) it is stated that each university is due to establish internal and external Quality Management.

- **Article 122** states that the university organizes the internal and external quality control:
  - The university has the obligation to monitor the quality of its educational and research activities on a permanent basis.
  - To carry out the processes of internal and external quality control, the university has to rely on
    - Students
    - Alumni
    - External experts from the profession
  - The university has to carry out a procedure for making an assessment (audit) of the educational and research activities, at least once in eight years, in cooperation with domestic and foreign universities. The results of this operation have to be written down in a public report.
  - The university has to take action according to the recommendations of the report in its management.

- **Article 123** specifies how the government controls the quality management carried out by the universities, taking into consideration the ideological, scientific and pedagogic freedom of the university.
    - If the government gives a negative evaluation to a university, the latter has to present a remedial plan within 6 months. Afterwards the university has to report annually about the execution of the plan. After four years the government executes an evaluation of the institution. The results are written down in a public report.

- **Article 124** states that when a certain education is considered persistently negative, the government will withdraw the subsidies for this education or will no longer recognize the diploma, delivered by that institute.

In 1993, after a few years of preparations, the Board of Directors of Ghent University finally introduced the Quality Management of its educational activities in the internal regulations of the University. The instrument to fulfil the internal Quality Management was, and still is, the evaluation of the courses by the students.

Every course is evaluated at least once in three years. This means that when a certain professor gives more than one course, he can be evaluated several times in one academic year. When there is a history of problems for a particular course, this period can be shortened to one year. Recently appointed professors are followed more closely, especially when their first evaluation was not completely satisfactory. The most important instrument in the evaluation process is a questionnaire that has to be filled in by the students.

The questionnaire that is used by the FVM, covers the different topics:

- Teaching process (contact student - teacher, trainer)
In this topic attention is given to the interaction of the lecturer with the students.
- Subject-matter
The questions concern the lectures. Is the quality of the lectures satisfactory? Aren't there too many overlaps with other courses? Are the audio-visual aids of good quality?
- Exercises (practicals and clinics)
Here it is evaluated whether the exercises that are organized with the course are relevant and worthwhile. Are there enough exercises? Are there enough feedback possibilities besides the exercises or practicals within a certain course?
- The exam
In many oral examinations the students can prepare their answers in writing before the oral discussion with the examiner takes place. The questionnaire assesses the attitude of the examiner towards the students and investigates whether the questions were conform to the information given by the lecturer at the beginning of the course.
- Global judgement
In these questions the students can give a global judgement on the course. They are asked for suggestions on amelioration of the course and they are given the possibility to comment on the previous topics in the questionnaire.

The evaluation is done using the Internet. Students evaluate a course in the year after they had it, viz. when every phase of the course including the examination has been completed. Students are not obliged to participate in the evaluation of a certain course.

The evaluation is anonymous and secured by a password. The evaluation questionnaire can be filled in during a period of about seven to eight weeks. As it is done using the Internet, the students can do the evaluation even at home when they have a computer with an Internet connection. Students can also use the PC-classrooms of the FVM. The processing of the answers is done by computer.

There is also built in a statistical component, for assessing the relevance of the given answers.

The lecturer responsible for each course that is evaluated receives the results together with a summary report that is made up by the Education Quality Cell (EQC). In this report problems are stipulated and the lecturer is asked to take these remarks into

consideration. In case of major problems the lecturer is invited to the EQC in order to discuss the problems and to propose possible solutions.
The final evaluation report concerning the teaching process is added to the lecturer's personal education file and is consulted by the promotion committees. A concise summary of the evaluation report is also sent to the head of the department which is responsible for the course.

When remarks were made about the teaching process of a certain teacher, they are taken into consideration during the next evaluation and the EQC checks whether corrections and improvements were made.

5.5. Student Welfare

The university provides a lot of facilities for the students. For their accommodation it has at its disposal six student homes with a total capacity of 1600 furnished rooms, 190 furnished studios and 105 furnished flats. Every room, studio and flat is equipped with a broadband multimedia connection. Students with children can appeal to the university day care centre.

One of the 7 university restaurants is located on the campus of the FVM. The students can have meals at low rates. For those students accommodated in the city of Ghent, 9 university snack bars are at their disposal for breakfast or a fast meal during the day.

The university has its own "rent a bicycle" service where students can rent a bike for one month to one year. It has also its own bicycle repair service.

The social service of the university provides needy students with information and advice, mediation, psycho-social assistance and financial assistance.
A job service is at the disposal of students who want to cover their study expenses.

Students with study problems can appeal to the Students Advisory Centre, where several student counsellors are available. Several information brochures are freely available and regularly updated.

Two general practitioners of human medicine are in the university's service; students can consult them in case of illness.

In order to settle disputes, students can appeal to faculty ombudspersons and to an institutional office of ombudspersons. At the FVM two ombudspersons are active; they are available for students of the first and the second cycle, respectively. The faculty ombudspersons act as contact persons between students and academic staff and mediate when disputes occur; moreover they are present at the examination deliberations. They are members of the academic staff, chosen by the students and are appointed by the FVM for renewable periods of one academic year. The institutional office of ombudspersons deals with matters that concern the "Teaching & Examination Regulation" that cannot be solved by the faculty ombudspersons.

For students who want to spend time at a foreign university, there is the university International Relations Office and the faculty's Socrates/Erasmus Bureau.

Student entertainment is predominantly organized by the veterinary students union (VDK or Vlaamse Diergeneeskundige Kring). For participation in several cultural events, the university provides “Cheques for Culture”. These cheques are full admission tickets for cultural events which students can buy at very low prices.
The university disposes of a big sport centre (GUSB) near the centre of Ghent where several indoor and outdoor sports can be practised. An indoor swimming pool, courts for several sports, etc are available.

2. Comments

The new auditoria equipped with modern audio-visual and ICT equipment in the new campus facilities have largely contributed to the improvement of teaching quality.

A problem encountered today is that students are not so keen anymore on participating in the evaluation of teachers. A major reason they refer to is that situations that they consider as being insufficient are not altered quickly enough.

However, problems that are mentioned by a clear majority of students receive proper attention in the evaluation committee and are included in the concise summary of the evaluation report. When students point out a problem, this can hardly be considered as very significant when only a small percentage of students participate in the evaluation. Therefore students are strongly urged to participate in the evaluation of courses and teachers.

On the other hand the representatives of the students participate very well in the meetings of the Curriculum Committee that discusses the contents of the curriculum.

3. Suggestions

The teaching staff is convinced of the benefit and quality of problem based learning (PBL), which is currently being applied on rather big groups of students during a lot of practicals, demonstrations, discussions of case reports and even by peer teaching.

However, the best results can be expected when the ratio academic staff/students is sufficiently high and when there is enough teacher-student contact time available. A prolonged period of study and an increased amount of academic staff are required to elaborate a high quality PBL-platform.

The application of PBL in smaller groups of students than presently feasible would definitely be an improvement.

Chapter 6 :

Facilities and Equipment

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Facilities and Equipment

1. Factual information

6.1. Premises in General

The campus of the FVM is located in Merelbeke, a small town in the suburb of Ghent. The buildings are divided as follows: the 4-story laboratory building with stables for animal experiments at the south side of the campus, the building for morphology and pathology at the west side, the buildings for clinics at the north side, with offices and laboratories in the front, and stables in the back, a restaurant building and the building for the central administration of the faculty at the entrance of the campus.

The construction of the campus has a long history.
In 1971 the definitive plans were drawn up and in 1974 the construction of a 4-story laboratory building was started. In 1984 this building was finished except for some trifles. It was only in 1990-1991, during the deanship of Professor H. Lauwers and after an impressive student demonstration and prolonged negotiations, that an agreement was reached between Ghent University and the Flemish Government.

Thanks to the agreement, the 4-story building could eventually be used in the late summer of 1994, together with the stables of which the interior arrangement had to be transformed thoroughly.
In the A-wing on the ground floor the Clinic of Avian and exotic animal medicine and the parasitology diagnostic clinic are housed. On the first and second floors respectively the Departments of Physiology, biochemistry & biometry and Pharmacology, Pharmacy & Toxicology are located. The third floor contains (students) laboratories for practicals of several courses and an auditorium for 150 students.
The B-wing houses from top to bottom Bacteriology and mycology (third floor), Virology (second floor), Parasitology and Immunology (first floor) and the Department of Veterinary Public Health (ground floor).

The construction of the remaining buildings was initiated in 1993 and was finished in 1996. The new campus has a remarkable uniform structure, in which stables, clinics, laboratories, auditoria and administrative units completely correspond with each other, partially by virtue of their structures and partially by the choice of building materials. The laying-out of plants and the road construction was the finishing touch. The main accent was put on the central pond that also serves as a basin for water purification.

In the campus-site three functional types of buildings can be found:

- Buildings for general services (offices, laboratories, ...) and research
- Clinics
- Stables

Entering the campus, the first building located on the right is the restaurant. In a self-service facility students and staff members can choose out of a few dishes. The next building is the Deans' office. Apart from general reception hall of the faculty and the general administration offices, the Faculty Student Administration Office, the Education quality control office, the library, the office of the flemish veterinary journal and one of the two computer classrooms are housed here.

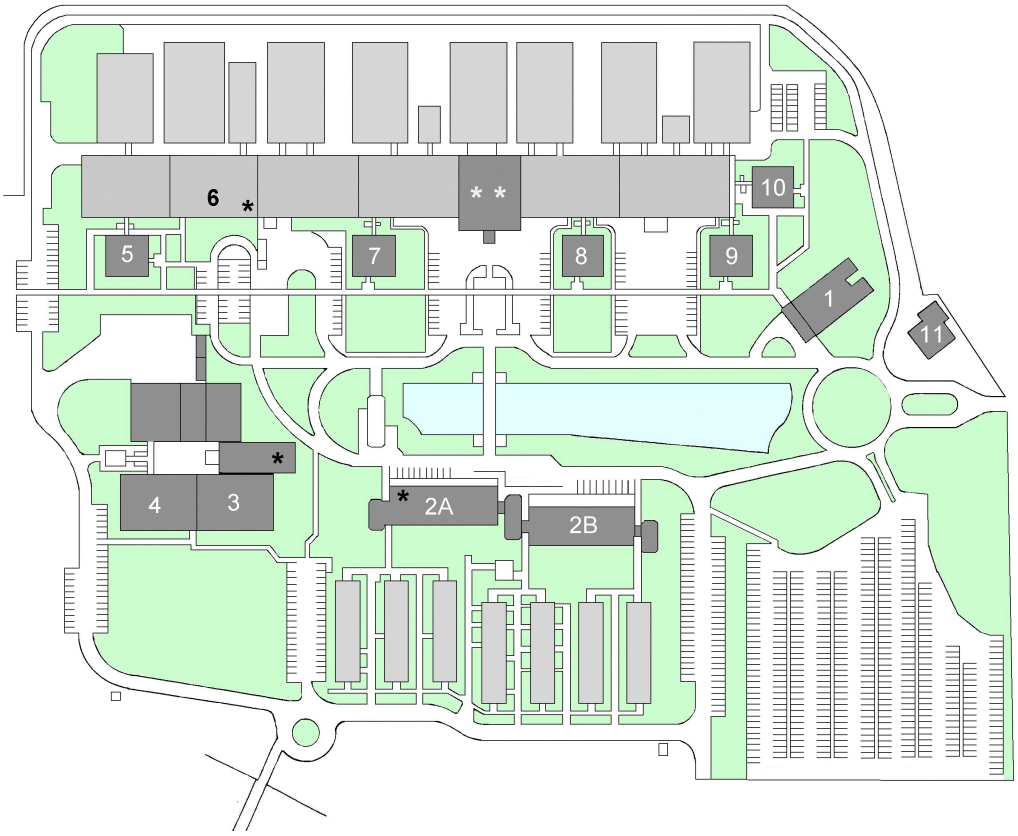
In the largest complex several clinics are established. There are clinics for obstetrics and reproduction, internal medicine, surgery, medical imaging and clinics for small animals. Each of these clinics consists of an administrative building with offices, laboratories, meeting rooms and accommodation for intern students. The animals are housed in the stables behind the clinics.
There are also examination rooms, a manège, a stud room, several operation rooms and a smithy. The stables are equipped with an automatic manure evacuation system, the supply of medicinal gasses and a milking installation and tackles.
In the center of the clinics, there are two auditoria with a capacity of 138 students each (p.6.4).

The Morphology-Pathology building consists of different facilities. As for pathology there is a slaughterroom, a large autopsy room and two large cold rooms. The most important macroscopic pathological findings are demonstrated till in the afternoon. All students are free to come and see what important pathologies were observed that day.
For the education in anatomy, an amphitheatre for demonstrations and a dissection room are used. On the first floor there is a microscopy room with 80 microscopes. Both the anatomy and the pathology museums are housed in this building. The Auditorium Maximum (250 places) is also integrated in this complex and another PC-classroom is located here as well.

In the center of the faculty, a long pond serves as a bufferbasin for rain and as a collecting basin for the water purification station.

Another part of the campus is located at the northern side of the highway. It houses the Department of Animal nutrition, genetics, breeding & ethology and a pilot farm.

Ghent University has an experimental slaughterhouse. It is located in Melle, a village near the campus (cf. chapter 4.8 and 7.3).



1 General Administration

Deans' Office
Students' Administration
Library
The Flemish Veterinary Journal

2A

4- Storybuilding Wing A

groundlevel: Clinic of Poultry diseases and parasitology
1st floor: Physiology, Biochemistry and Biometry
2nd floor: Pharmacology, Pharmacy en Toxicology
3rd floor: *Auditorium 'Hoogbouw' (150 seats) and practical rooms

2B

4- Storybuilding Wing B

groundlevel: Veterinary Food Inspection
1st floor: Parasitology and Immunology
2nd floor: Virology
3rd floor: Bacteriology and Mycology

3 Morphology

*Auditorium 'Maximum' 250 seats

4 Pathology

5 Internal Medicine and Clinical Biology of Small Animals

6 Medical Imaging of Domestic Animals

* Lecture Room Medical Imaging, 50 seats

7 Large Animal Surgery and Anesthesiology

* Clinical auditorium I and II (each 138 seats)

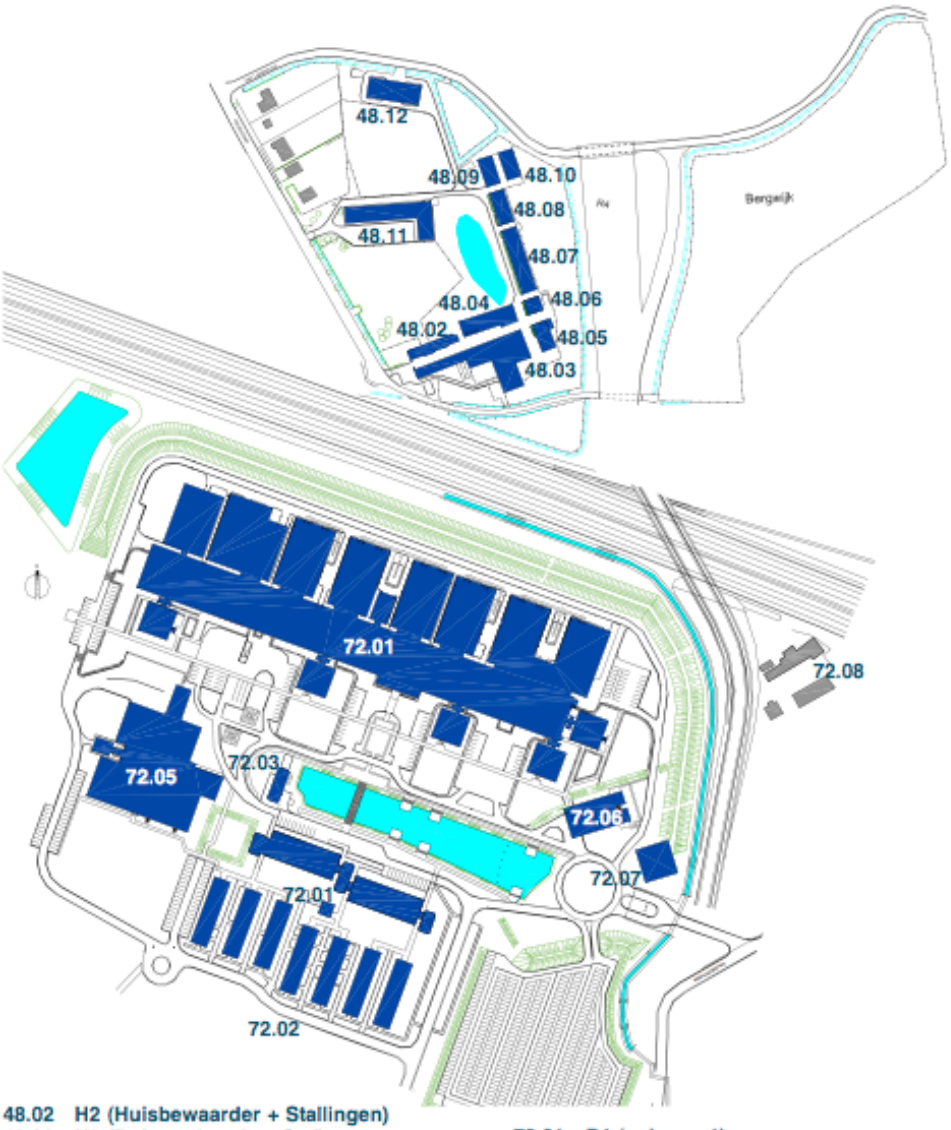
8 Internal Medicine and Clinical Biology of Large Animals

9 Obstetrics and Reproduction

10 Herd Health and Ambulatory Clinic

11 Restaurant

Site Merelbeke



48.02 H2 (Huisbewaarder + Stallingen)
48.03 H3 (Refter + Loods + Stal)
48.04 H4 (Stal 1 - Oude stal)
48.05 H5 (Stal 2 - Hondenstal)
48.06 H6 (Stal 3 - Kleine stal)
48.07 H7 (Stal 4 - Oude Zeugenstal)
48.08 H8 (Stal 5 - Oude Vleesvarkensstal)
48.09 H9 (Stal 6 - Nieuwe Vleesvarkensstal)
48.10 H10 (Stal 7 - Duivenstal)
48.11 H11 (Zoötechnisch Instituut)
48.12 H12 (Stal 8 - Nieuwe Zeugenstal)

72.01 D1 (gebouw 1)
72.02 D2 (diereneenheden 1-2-3-4-5-6-7)
72.03 D3 (waterzuiveringsstation)
72.04 D4 (klinieken + kleine auditoria administratieve gebouwen + stallen)
72.05 D5 (Anatomie, Pathologie + groot auditorium)
72.06 D6 (faculteitsgebouw)
72.07 D7 (cafetaria)
72.08 D8 (boerderijtje)

6.2. Premises used for clinics and hospitalisation

Table 6.2.1: **Places available for clinics and hospitalisation**

- number of hospitalisation places for cattle	98
- number of hospitalisation places for horses	120
- number of hospitalisation places for small ruminants	44
- number of hospitalisation places for pigs	30*
- number of hospitalisation places for dogs	46
- number of hospitalisation places for cats	16

* part of these stables are also used for experimental purposes.

Number of animals that can be accommodated in isolation facilities :

- small animals	10
- farm animals and horses	25

6.3. Premises for animals

Handling of production animals (cattle – horses) is partly taught at the faculty with faculty owned animals that are kept within the faculty in the same facilities available for patients. These animals have access to pasture during the summer months and during winter time they are kept in individual stables (4 by 4 meter for horses) or tied up in stalls (width 132 cm for cattle).
A varying number of horses (on average 8) and cattle (usually 4) are kept at the Department of Large animal internal medicine for that purpose. These animals are also used for clinical demonstrations and as blood and plasma donors.
The Department of Large animal surgery and anaesthesiology has also a varying number of horses and ponies (average 6) for analogue purposes. A limited number of cattle (average 4) are yearly purchased for practical exercises (surgical interventions); these animals are kept only for a limited period (average 1 week).
The Department of Obstetrics, reproduction and herd health has an average of 9 horses, several cows and 3 bulls for teaching purposes.
Another part of the animal husbandry teaching takes place at the University farm “Bio-center Agri-Vet”. Here 60 dairy cows and young stock, 130 sows and sometimes other animals are available for training (cfr. chapter 5.1).

There are facilities to maintain 47 experimental dogs (separate dog kennels). When beagles are used, two dogs can be housed in one large kennel so that about 70 dogs can be maintained. Because the experimental dogs are almost never involved simultaneously in an experiment, about 15 dogs are usually available for teaching purposes.

6.4. Premises used for theoretical, practical and supervised teaching

The students of the first year have all lectures in the centre of Ghent. Ghent University has several large lecture theatres we can use. Practical and/or supervised work of first year students is also mostly performed in the university buildings in Ghent city; i.e. outside the FVM Campus Merelbeke.

Table 6.4.1: **Premises for lecturing**

Number of lecture halls in FVM	8

NAME	**Number of places per lecture Hall**
Auditorium Maximum	250
Auditorium 4- Storybuilding	150
Clinical auditorium I	138
Clinical auditorium II	138
Auditorium Medical Imaging	50
Lecture Room Herd Health	30
Conference Room Morphology	30
Auditorium Zootechnical Institute	60
	874

Table 6.4.2: **Premises for group work**

Number of rooms that can be used for group work (supervised work)	10

Number of places in the rooms for group work:

NAME	**Number of places in the rooms for group work**
Meeting Room DI04	15
Meeting Room DI05	8
Meeting Room DI06	15
Meeting Room DI08	25
Meeting Room DI09	15
Meeting Room DI10	24
Meeting Room DI11	8
Meeting Room DI12	20
Computer Room 1	21
Computer Room 2 (Morphology building)	27
Total number of places in rooms for group work	**178**

Table 6.4.3: **Premises for practical work**

Number of laboratories / practical rooms for practical work by students	13

NAME	**Number of places in the rooms for practical work**
Museum of Morphology	80
Amphitheatre Morphology	80
Microscopy hall	80
Dissecting room Morphology	80
Practical room I 4-Storybuilding	30
Practical room II 4-Storybuilding	70
Avian Pathology 4-Storybuilding	15
Necropsy room	40
Practical room Obstetrics	50
Practical room Small animals	20
Practical room Internal Medicine Large animals	12
Diagnostic Laboratory of Parasitology	8
Practical Room Surgery Large animals	25
Total number of places in rooms for practical work	**590**

All the health and safety measures are written down in the manual: “Ghent University Laboratory and workplace rules, 2003 V1.1”. This manual is handed out to each employee and student.

6.5. Diagnostic laboratories and clinical support services

Diagnostic laboratories:

In the faculty several diagnostic laboratories support the clinical services with their analyses. There are laboratories for biochemistry of small animals, endocrinology, bacteriological examination of uterine and milk samples, histopathology, bacteriology, mycology, virology, parasitology, toxicology and immunology. The students are involved in the interpretation of the test results provided by external laboratories. For most internal examinations they are also involved in the performance of the analyses.

Diagnostic pathology facilities:

The FVM has two central necropsy facilities, one for farm animals, wild animals, dogs and cats, and one for birds, poultry, small fur animals and exotic animals. These facilities are equipped with cool rooms where carcasses can be stored for a short period, large necropsy rooms and facilities for clinical pathology and administration.

For the large animals electric pulleys allow easy transport of the cadavers from the cool room to the specially designed necropsy tables. There are also specially designed necropsy tables for the small animals and for the birds and exotic animals. The equipment of the rooms also includes systems for accurate weighing in the range of 1 g up to 1000 kg. There is an identification system for the cadavers and all samples taken from these cadavers. These samples are registered and can be stored in freezers or in fixative in separate rooms for a fixed period of time (6 months). Paraffin blocks and histological sections are stored in separate rooms for 10 years. Students enter these premises through a separate entrance where they change clothes in dressing rooms separate for male and female students. Necropsies are done daily (except on Sundays). Every day approximately 20 students (from the 4th, 5th and 6th year) carry out necropsies under the continuous supervision of 2 or 3 teachers.

Each day labelled necropsy findings are exhibited at the windows of the demonstration corridor along the major necropsy room, where they can be studied by all students between 10:00 and 14:00.

Diagnostic parasitological facilities:

In the laboratory for Parasitology & parasitic diseases every day approximately 8 students (from the 1st year of the second cycle) carry out parasitological diagnostic techniques on samples from the clinics and practitioners, under the continuous supervision of 1 teacher.

Central clinical support services:

Anaesthesia:
There is no official independent department of anaesthesia. Each clinic has its own anaesthesiologists assuring the essential services under the supervision of a senior anaesthesiologist who is in charge of the practical organization of this service. Support is provided to the Small animal clinic (different subdivisions) and the Large animal surgical clinic but also to other departments including Medical Imaging, Obstetrics of large animals, and Internal medicine of large animals. A close collaboration between the different anaesthesiologists is present including the exchange of residents between the departments, a weekly journal club and the organization of continuing education. Several veterinarians in the FVM are involved fulltime in anaesthesiology and related matters (including intensive care of small animals).

Diagnostic Imaging:
The Department of Medical imaging is a centralized department where several aspects of medical imaging are performed including radiology, ultrasound, computerized tomography (CT) and scintigraphy. These imaging facilities are offered to all the other clinical departments including the Small animal clinic, the Large animal surgery department, the Large animal internal medicine department and the clinic for Exotic animals. It is localized centrally in between the small and large animal clinics, which offers an easy access to all patients. The majority of patients are referred to the department by these clinics, although a small amount is referred by general practitioners which offers the opportunity to the students to get in contact with the aspects of diagnostic imaging in practice which differs from the academical situation.

The department also offers its service during holydays and at night, because an emergency service involving all staff members is organized.

6.6. Slaughterhouse facilities

The FVM has access to 3 different slaughterhouses:
1st the experimental slaughterhouse of Ghent University (Melle) at a distance of 8 km from the faculty (slaughtering of large and small ruminants and pigs)
2nd the industrial (private) slaughterhouse at Lokeren at a distance of 25 km from the faculty (pig slaughtering)
3rd the industrial (private) slaughterhouse at Zele at a distance of 25 km from the faculty (cattle slaughtering)
All three slaughterhouses are EEC approved and give students the opportunity to practice meat inspection (Melle) or to observe special cases (e.g. emergency slaughtering, different causes of condemnation,…) (Lokeren and Zele) under the guidance of an experienced co-worker of the Department of Veterinary public health.

6.7. Foodstuff processing unit

Visits to meat processing plants are restricted to students of the post-graduate course in veterinary food inspection only (10-15 students/training cycle).
The number of graduate students (160-180) is too high to organize regular visits to meat processing plants.

Processing units which are visited include:
- Raw cured ham production (Ganda Ham) Ghent at 10 km from the faculty
- Cooked ham production (Bauwens nv.) Zele at 10 km from the faculty
- Dry sausage production (Ter Beke nv) Waarschoot at 25 km from the faculty
- Cooked sausages, paté, dry cured meat products (Imperial Meat Products-Sara Lee) Lovendegem at 20 km from the faculty.
- Vocational School (meat processing) (Kortrijk) at 35 km from the faculty: technical demonstration of the production of various types of meat products.

6.8. Waste Management

For the disposal of carcasses the university has a contract with the national incineration service (Rendac). All biological materials of animal origin and carcasses after necropsy are considered as risk materials. They are disposed off following a standard procedure. Specially designed containers are purchased by the Department of Pathology, bacteriology and avian diseases from Rendac. All cadavers and other biological materials of animal origin are deposited in these containers. The containers are placed in a separate cool room until collected by Rendac. Rendac collects these containers at least twice a week using specially designed lorries. These are driven to the rendering plant in Denderleeuw where the materials follow the same procedures like other risk materials, i.e. incineration.

The University has to follow the existing laws concerning the excreta of animals (Vlarem II, Manure Action Plan or "Mest aktie plan"). Relatively large quantities of manure are produced, especially in the large animal hospital, and a strict separation of the manure of the different animals (horses, ruminant and pigs) has to be respected. Consequently manure from the large animal patients and the experimental units is selectively stored.
Infectious material from experimental infections in animals is autoclaved before storage. This manure is removed from the FVM for destruction by a specialised waste disposal company.
Manure from normal horses (mixed with straw, several hundred tons a year) is collected using specially designed transportation chains from the stables towards 4 dung hills. This manure is removed from the FVM by a specialised company connected with the mush room industry. Other manure including excreta mixed with sawdust and excreta from ruminants mixed with straw is stored into large containers. A specialized waste disposal company collects these containers for destruction. This is co-ordinated by the central administration of the University (service of environment). Manure of pigs is removed from the FVM using the services of the experimental farm. Excreta from small animal patients and urine from all animals are drained towards the central water purification unit of the FVM. This water purification unit respects the guidelines of Vlarem II and is submitted to a regular control by the Flemish government.

At the present moment, the central administration of the University is negotiating with the central Flemish government to adapt the removal of manure (mainly equine manure mixed with straw) from the FVM to recent rules and laws (obtaining a specific licence number from the central manure bank of the Flemish government). Because of a changing economic situation in the mush room industry (cheap import from abroad), the removal of the manure mixed with straw from the FVM can become a problem in the near future.

All biological materials and their recipients, most chemicals and their recipients and plastics which have been in contact with biological materials and chemicals are first collected for incineration. Infectious materials such as bacterial cultures are first autoclaved. The biological and chemical waste is selectively collected in containers. There are different containers for: 1) pipettes, cell culture flasks, etc ; 2) other potentially contaminated biological waste such as blood tubes, bacterial culture plates, etc. 3) syringes; 4) sharps; 5) clean glass bottles; 6) glass recipients for chemicals; 7) glass medicine bottles; 8) metal or synthetic recipients; 9) chemicals (different receivers for different groups of chemicals).

6.9. Future changes

In the beginning of 2004 the isolation facilities for horses will be upgraded (works start December 2003). The number of places will be reduced, but in stead of two wards for several horses there will be several units each for one individual animal. Each unit will consist of one stable (4 by 4 m), a space for disinfection and changing clothes and a separate entrance. Four of these isolation facilities will be built in the Department of Large animal internal medicine, one in the Department of large animal surgery and one in the Department of obstetrics, reproduction and herd health. The facilities are

designed mainly for horses, but they could be used for cattle when needed.

Next year (in 2004-2005) the facilities for young cattle at the experimental farm will be renovated. The financing and actual building plans have been approved by the University.

In October 2005 there will be a new administrative unit ready for the Department of medical imaging. This building will include a lecture room for 80 people. The financing and actual building plans have been approved by the University.

In October 2006 the FVM will have a new clinical building for poultry, birds and exotic animals. The financing and actual building plans have been approved by the University.

2. Comments

The FVM is very satisfied with its present facilities and equipment. The Faculty is grateful that the university approved the construction of the new building for Medical imaging and the new Clinic of Avian and exotic animal medicine. These were the most urgent needs.

However we feel that more investments will be needed in the near future.

- The slaughterhouse must be renovated according to the new EU-regulations in order to keep its license. Losing the license of the experimental slaughterhouse would cause a severe problem in the training of under- and postgraduate students. The cost for the renovation will be approximately 500.000 Euro. It will be a struggle to convince the Board of Directors for making such an investment.
- There is no L3 Laboratory on the campus. The faculty will need such a laboratory if it wants to continue research on organisms belonging to risk class 3. This class contains all organisms that can cause a severe epizootic outbreak amongst animals or severe disease in men. Due to the governmental strategy to eradicate certain animal pathogens and due to the increased knowledge of the zoonotic potential of certain pathogens more and more pathogenic microorganisms fall in risk class 3.
- The number of students has increased steadily over the last few years. And despite the fact that the clinical lecture halls have been expanded they have no longer the capacity to host the total number of students.
- The number of teaching staff, the patient load and the number of researchers have increased since the new campus was opened. As a consequence there's already a shortage of staff rooms and laboratories. The University provides mobile containers as a short-term solution.

3. Suggestions

The renovation of the slaughterhouse and the installation of a L3-laboratory are absolutely necessary in the near future.

Chapter 7 :

ANIMALS AND TEACHING MATERIAL OF ANIMAL ORIGIN

Chapter 7 :

ANIMALS AND TEACHING MATERIAL OF ANIMAL ORIGIN

1. Factual information

7.1. Basic subjects

For practical training in anatomy, embryology, pathology and physiology animals or material of animal origin are used. In the following, a detailed description of numbers and species can be found.

7.1.1. Anatomy:

Materials used in practical anatomy training:

OSTEOLOGY

Bony specimens (vertebral columns, ribs & sternum, thoracic limbs and pelvic limbs) of 20 dogs, 5 horses, 2 cattle, rabbits, poultry
Fenestrated skulls of 30 dogs, 30 horses, 10 cattle
Large osteologic collection of mounted skeletons of

- domestic mammals
- domestic birds
- laboratory animals
- wild mammals and birds

ARTHROLOGY

Large permanent collection of plastinated joint specimens of various domestic animals (n = 30)
A dozen fresh (unfixed) specimens from the pathology dissection room

MYOLOGY

	2000-2001	2001-2002	2002-2003
- fresh corpses of dogs			
- trunks	56	50	56
- thoracic limbs	85	75	85
- pelvic limbs	85	75	85
- equine thoracic limbs	55	50	55
- equine pelvic limbs	55	50	55
- fresh horse (demonstration)	1	1	1

SPLANCHNOLOGY

- demonstration of viscera of ponies & horses, cattle, dogs, pigs
- dissection of canine viscera :

	2000-2001	**2001-2002**	**2002-2003**
	110	100	110

- dental collection of various domestic mammals
- plastinated specimens of pharynx, gastrointestinal tracts and urogenital tracts (n = 60)

- slaughterhouse specimens:	**2000-2001**	**2001-2002**	**2002-2003**
- bovine kidneys	60	60	60
- porcine kidneys	60	60	60
- male and female genital tracts:			
- bovine	120	120	120
- porcine	120	120	120
- porcine lungs	60	60	60
- equine pharynx	40	44	40

ANGIOLOGY

	2000-2001	**2001-2002**	**2002-2003**
- porcine hearts	60	60	60
- equine thoracic limbs/forefeet	165	150	165
- equine pelvic limbs/hindfeet	165	150	165
- pony for demonstration	1	1	1
- plastinated specimens	large collection permanently available		
- vascular corrosion casts	large collection permanently available		

NEUROLOGY

	2000-2001	**2001-2002**	**2002-2003**
- pony for demonstration	1	1	1
- plastinated specimens	large collection permanently available		
- formalin-fixed brains of dogs/horses	100 specimens collected each year + large permanent collection		
- fresh equine brains for dissection	40	44	40
- fixed equine eyes	80	88	80
- fresh porcine eyes	60	60	60

INTEGUMENT

- plastinated hoofs and horns (permanent collection of 120 specimens)

TOPOGRAPHY

	2000-2001	2001-2002	2002-2003
- ponies	14	16	14
- canine thoracic limbs	70	80	70
- canine pelvic limbs	70	80	70
- cats	40	40	40
- equine thoracic feet	130	160	130
- equine pelvic feet	130	160	130
- bovine thoracic feet	130	160	130
- bovine pelvic feet	130	160	130

LABORATORY ANIMALS

- large osteologic collection
- collection of a dozen plastinated specimens
- a dozen freshly euthanizid specimens

BIRDS

- large osteologic collection
- large collection of plastinated and corrosion specimens
- fresh specimens (n = 85 each year)

FISH

- museum specimens
- fresh specimens (n = 60 each year)

7.1.2. Embryology

- a large permanent collection of formalin-fixed and plastinated specimen
- gravid uteri of cows and sows collected from slaughterhouse (dozens of specimens each year)
- gravid uteri of bithes and queens collected from the Clinic of small animals (a dozen specimens each year)

Annex : OBTAINING AND STORAGE OF ANIMALS (for details : see list above)

- slaughter animals (ponies, chicken, rabbits, fish...): bought from officially registered traders
- dogs and cats : corpses obtained from animal shelters
- limbs, heads, viscera : collected from the necropsy room from the Department of Pathology
- organs (kidneys, genital tracts, eyes, bovine and equine feet) : bought in slaughterhouses
- formaldehyde specimens (brains, embryology) : permanent and yearly renewed institutional collection
- large institutional collection of anatomical specimens (bony specimens, plastinated organs, corrosion casts), anatomical models, videomovies, CD-roms and slides (mostly produced by the institute)

7.1.3. Pathology:

Table of the number of necropsies during the past 3 years.

	species	number of necropsies		
		2002	2001	2000
farm/large	cattle	237	236	331
	equines	113	129	164
	small ruminants	73	50	100
	pigs	124	43	51
deer, kangaroo,	other farm animals	13	17	22
small/pets;	dogs	460	437	462
	cats	257	215	238
	other pets	1016	953	1171
TOTAL		**2293**	**2080**	**2539**

The source of animals on which autopsies are carried out are:
- hospitalized animals which have died in the clinics of the FVM
- animals brought in by third parties involving insurance cases or expertises

Necropsies of “other pets” are performed in the Clinic of Avian and exotic animal medicine.

7.1.4. Other basic subjects

The following animals are used yearly for practical training in physiology :
- an average of 8 rabbits is euthanized yearly for motility studies on isolated intestines.
- an average number of 40 female rats is euthanized yearly for motility studies on the isolated uterus.
- for demonstrations of diuresis and motility of the rumen, two goats are used. From next year on, the use of goats will be replaced by a computer model.

No animals are used for further basic subjects.

7.2. Animal production

a) on the site of the institution

Ghent University has an animal farm at its disposal, the Bio-centre Agri-vet at a distance of 5 kilometers from the faculty. This experimental farm is subject to the joined control of the Faculty of Agricultural and applied biological sciences and the FVM. Regarding the practical teaching of animal production, the students have the opportunity to closely participate in the management of these on site herds. The cattle

herd consists of a dairy cow herd (60 cows + young stock) and a swine herd (130 sows + piglets until 10 weeks of age).

b) on other sites to which the institution has access

There is access to 35 dairy herds (1750 cows and young stock) and to 17 swine herds (2500 sows) which participate in the herd health control programme carried out by the Department of Obstetrics, reproduction and herd health.
Furthermore many other herds are available in the ambulatory practice. The total amount of cows and young stock is about 5000.

7.3 Food Hygiene

For educational purposes, the faculty has an experimental slaughterhouse at its disposal which is located in Melle at a distance of 8 kilometers from the faculty, complying with the European standards and recognized as such (slaughterhouse number: E.E.G. 177). For exercises in meat inspection the number of slaughtered animals per year for inspection by students under the supervision of a staff member of the department in this facility is as follows (data of 2002):
Cattle: 850
Veal calves: 270
Pigs: 835
Lambs/sheep: 575
Horses: 5
Goats: 3
In addition, visits to commercial slaughterhouses and meat processing plants are organized. The faculty can appeal to the slaughterhouses of Lokeren (pigs) and Zele (cattle). Every week approximately 10 students visit these plants for on hand demonstrations and training.
Furthermore demonstrations in laboratory examination procedures are organized for groups of approx. 20 students (bacteriological examination, trichinoscopic examination, inhibitory substances,….) (cfr. chapter 4.8).

7.4. Consultations

Clinic/Department	Weeks / year	Days / week	hours
Clinic of Obstetrics and reproduction	52	5	8:00-17:00
Clinic of Large animal internal medicine	52	7	8:00-17:00
Clinic of Large animal surgery	52	5	8:00-17:00
Department of Medical imaging	52	5	8:00-17:00
Clinic of Small animals	52	5	8:00-17:00
Clinic of Avian and exotic animal medicine	52	5	8:00-17:00
Laboratory of Animal nutrition	52	1	8:00-17:00

Outside these consultation hours, in every clinical department, clinical activity continues throughout the day. Clinical activity includes surgery in both small animal and large animal clinics. Specialized examinations are also scheduled during the whole day.

Emergency services are also not comprised in the description of the consultation hours. Details can be found under 7.7.

Small animal and exotic companion animal consultations are done by 5 different departments, namely the departments of Medicine and clinical biology of small animals (internal medicine and soft tissue surgery of dogs and cats), Medical imaging of domestic animals (imaging and orthopedics of dogs and cats), Department of Pathology, bacteriology and poultry diseases (consultations for birds and exotic pets). Consultations in the Department of Animal nutrition and in the Department of obstetrics and reproduction take place in close cooperation with the Clinic of Small animals.

In table 7.5 the cats of the sterilization programmes organized and paid by the authorities of the surrounding cities (Ghent and Wetteren) are listed separately (cats ster.prog.). In the past three years 480 cats were neutered and the surgery is mainly performed by final year students of the elective track ‘companion animals’ under supervision of a staff member.

Table 7.4: **Number of animals received for consultation in the past three years.**

	species	**Number of consultations**		
		2002	**2001**	**2000**
farm/large	**cattle**	1377	1200	1859
	equines	5810	5528	6424
	small ruminants	164	109	137
	pigs	9	17	3
	other farm animals	13	12	12
TOTAL		**7373**	**6866**	**8435**
small/pets	**dogs**	5950	4240	4170
	cats	1990	1410	1280
	other pets	850	800	750
TOTAL		**8790**	**6450**	**6200**

(Details per clinic/department: see annex I to chapter 7)

7.5. Hospitalization

Table 7.5: **Patients hospitalized in the clinics in the past three years**

	species	Number of hospitalizations		
		2002	**2001**	**2000**
farm/large	**cattle**	802	717	917
	equines	1835	1670	1829
	small ruminants	100	65	66
	pigs	5	5	0
	other farm animals	3	3	4
TOTAL		**2745**	**2460**	**2816**
small/pets	**dogs**	1540	1379	1034
	cats	409	373	286
	cats ster.prog.	170	160	150
	other pets	50	50	10
TOTAL		**2169**	**1962**	**1480**

(Details per clinic/department: see annex II to chapter 7).

7.6. Vehicles for animal transport

The faculty has one truck at its disposal for large animal transportation with a full-time professional driver and a small vehicle to transport small ruminants and calves. Clients are charged for the use of this service.
The Department of Morphology has a trailer and a licence for transport of small animal cadavers and animal organs to the anatomy dissection room and to a number of other departments, in particular the Department of Small animal medicine and the Department of Medical imaging. Transport is performed by the technical personnel of the anatomy dissection room.

7.7. Emergency service

An emergency service is present in all clinics for 24 hrs a day, 7 days a week all year round, except for the Clinic of Avian and exotic animal medicine where emergencies can come in during weekdays but not at night or in weekends.

There is a permanency of final year students, interns and residents. Staff members can be present within 10-20 minutes outside working hours. All necessary equipment and products (resuscitation equipment, slings, padded box, …) are available for emergency procedures.

The emergency services consist in most clinics of pools of different levels. Final-year students together with an intern examine the patients initially. A resident and staff

member are available for necessary interventions. A staff member internist, a medical imaging expert, an anesthesiologist and a surgeon are available at all times. All necessary equipment and products are available for emergency procedures.

7.8. Mobile clinic

Three teams are operating in the Ambulatory Clinic, 2 for farm animals and 1 for horses.
The ambulatory clinic for farm animals is active 7 days/week.
The ambulatory clinic for herd health control works 5 days /week at 3 hrs/day for cattle and 3 days/week at 4 hrs/day for pigs. The ambulatory clinic for horses operates also 7 days/week.

It is a matter of course that an emergency service is available.

The ambulatory clinic uses 5 cars (breaks). Each car has a seating capacity of 1 veterinarian and 3 students.

The average number of visits in a year made by the Ambulatory Clinic to farms, studs and kennels is as follows:
- cattle: 3500
- swine: 400
- equine: 1000
- small ruminants: 200
- dog kennels: 20

It is nearly impossible to express the numbers of animals seen by the Ambulatory Clinic (not all animals visited are sick because there is a lot of regular work such as inseminations in horses, pregnancy diagnosis in swine and cattle, ...). An estimation of these numbers is provided in table 7.4.2. in annex I to chapter 7.

7.9. Other information

7.9.1. Additional outside sources of material for clinical training

The Departments of Obstetrics, reproduction and herd health and Surgery and anaesthesiology of domestic animals very often use material from the slaughterhouse for the practical training of the students. Young calves are used for practising fetotomy. Uteruses are used for the practical training of rectal palpation and pregnancy diagnosis. Equine and bovine limbs, skulls and porc skin are used for practical surgical exercices. Students of the elective track ‘Ruminants’ are obliged to fulfil a one-week practice on a cattle herd (on site) and a sheep stock (outside during the lambing period). Students of the elective track ‘Pig, poultry & rabbits’ have to go to a swine herd and poultry farm (both on site and outside). Furthermore, all those students are obliged to fulfil a one-week training period at one of the provincial Animal Health Services. During this week they participate in visits to specific problem herds (e.g. problems with mastitis, housing and ventilation problems, ...), performing necropsies and further laboratory diagnoses. In one of the electives, students have the opportunity to achieve a one week guided

training with a local practitioner. Finally, students have the opportunity to take part in several outside practical training courses (e.g. claw trimming, artificial insemination, ...)

In the Department of Small animals the sterilization programmes for cats in cooperation with the surrounding cities run for several years. Furthermore, cats and dogs euthanized in animal shelters are used for training in surgery by students of the elective track 'Companion Animals'.

7.9.2. Level of clinical service in comparison with outside practices

The facilities concerning the construction of the clinics including the examination rooms, surgery theatres and stables are provided and maintained by the University. A policy of 24 hours service assures the referral of "normal" and emergency cases (see above). The equipment needed for running a high standard clinic (surgical, anaesthetic and other equipment) is mainly purchased by the income of the clinics (for a minor part by grants). The maintenance of the equipment (including maintenance contracts with commercial companies) is also paid by the income of the clinics.

All clinics are well equipped in order to offer not only primary health care but also very specialized examinations and treatments not available in most outside practices, such as endoscopy equipment, echodoppler machines, CT-scanner, scintigraphy, intensive care units, cryosurgical units and lasers.

Expertise present in the clinics is often consulted by private practitioners by telephone or fax. These questions are addressed together with the students to teach them practical solutions of clinical problems and to learn them how to use books and journals for solving problems.

In the Clinic of Avian and exotic animal medicine specialized equipment for birds and exotic animals (reptiles, fish, rodents, rabbits and others) is present, which is often not available in private practices. This equipment includes dental material for guinea pigs and rabbits, heated cages for nursing and post-surgical recovery, nebulation facilities, special critical care food for herbivoric exotics, crop needles, endoscopic material and hospitalisation facilities for fish and reptiles. A clinical pathology laboratory for clinical chemistry, haematologic, microbiologic and cytologic diagnosis is available. The Clinic works in close collaboration with the Laboratory of Veterinary bacteriology and mycology and the Laboratory of Veterinary pathology. For medical imaging and for specialized surgery, there is cooperation with the Departments of Medical imaging and Small animal medicine.

Continuous education of the staff members in all clinics (attending meetings and congresses, attending specialized courses) assures a high level of expertise whereby newer techniques and equipment are used. Staff members are encouraged to sit the European Diplomates exams in which the system of internships and residents is available (see list of diplomates of several European Veterinary Colleges present at the faculty in table 12.1.1.). This system ensures a high level of expertise.

7.9.3. Primary versus referral cases

Percentage of primary/referred cases:

Department/Clinic	Species	Primary (%)	Referral (%)
Obstetrics and reproduction	equine	70	30
	cattle	90	10
	small ruminants	90	10
	swine	-	-
	pets	20	80
Large animal Internal Medicine		20	80
Large animal Surgery		20-30	80-70
Medical imaging (large and small animals)		10	90
Small animal medicine		50	50
Avian & exotic animal medicine			
		90	10
Animal nutrition		10	90

It is important to have a sufficient primary case load to assure an acceptable student training. The faculty acts also as a referral centre assuring a diversity of cases which are essential for clinical training. The mobile clinic functions as a normal veterinary practice and therefore sees primary cases only.

7.9.4. Areas of clinical specialization covered

All clinics and departments try to cover all aspects of their discipline.

Reproductive and obstetrical work in all current species are the main items of clinical specialization in the **Department of Obstetrics and herd health**. Moreover “swine health” and “cattle health” are specializations.

The **Department of Large animal internal medicine** tries to cover all aspects of equine and bovine internal medicine with the permanent staff. Cardiology, neurology and gastro-enterology are the main topics of interest.

The **Department of Surgery and anesthesiology of large animals** covers the different aspect of equine and ruminant surgery. Clinical specialization is available for the following items:

- orthopaedics in horses (lameness examination): 4 full time positions
- soft tissue surgery / osteosynthesis and arthroscopy in large animals: 3 full time positions
- anesthesiology: 2 full time positions
- ophthalmology : 1 part time position (depending on the case load)

In the **Department of Small animal medicine** (internal medicine and soft tissue surgery) the areas of specialization are:
- internal medicine: 5 days/week
- anesthesiology: 5 days/week
- cardiorespiratory diseases: 4 days/week
- dermatology: 2 days/week
- endocrinology: 5 days/week
- ethology: half a day/week
- neurology and neurosurgery: 5 days/week
- nutritional problems: 1 day/week
- ophthalmology: 1 day/week
- stomatology and dentistry: 1 day/week
- soft tissue surgery: 5 days/week
- echocardiography: 5 days/week

In the **Department of Medical imaging** (medical imaging of large, small and exotic animals, orthopaedics of small animals) the areas of specialization are:
- radiography in large, small and exotic animals: 5 days/week
- ultrasound in large and small animals
- CT-scan in large and small animals: 5 days/week
- scintigraphy: 5 days/week
- arthroscopy in small animals: 5 days/week
- orthopaedics (clinical examination and surgery): 5 days/week

In the **Clinic of Avian and exotic animal medicine** a daily presence of veterinarian(s) with experience in birds, reptiles, amphibians, rabbits, rodents, ferrets and fish is assured.

7.9.5. The fees in comparison with those charged by private practitioners

The fees for consultations and clinical services are decided within the departments and are based on the fees recommended by professional associations of veterinary practitioners. For bovine species and for avian and exotic animals fees tend to be a bit lower than in private practice in order to maintain a fair number of patients of these species in the clinic.

7.9.6. The relationship with outside practitioners

Local practitioners regularly send referral cases to the clinics or invite a team of the clinic towards a herd in the case of a specific herd problem. Afterwards they receive a report of the examinations, the diagnosis and treatment of the referred patients.

In the Small animal clinics about 50 % are referred cases. The referring practitioner receives a detailed printed report by mail and can also contact the specialist involved by telephone, fax or e-mail.

Many practitioners give students the opportunity to have some practical training in their practice. This can be limited to just 'seeing practice' (unofficial during holidays) or may be part of the official schooling during which students participate in the consultations and actively assist the practitioner. The latter practitioners are mainly practitioners with

a certain specialization (e.g. certified specialized practitioner in bovine, equine or small animal medicine).

A few highly experienced and/or specialized practitioners (“praktijkassistenten”) have obtained a clinical teaching appointment (e.g. dermatology, ethology, dentistry, ophthalmology, lectures on calf/sheep medicine) in the clinic (see also chapter 10, Factual Information).

Furthermore practitioners can gain practical and medical information from the staff of all departments by telephone, fax, e-mail and regular mail.

7.9.7. Relationships with outside organisations to provide students with training

There is a close collaboration with provincial and governmental Animal Health Services and State laboratories for the practical training of the students. Students of the elective track ruminants and the elective track pigs, poultry and rabbits have a one, two or three weeks training period at the Animal Health Services during which they participate in performing necropsies, laboratory diagnosis, outside visits towards problem herds (referrals), etc.

7.9.8. The administrative system(s) used for the patients

There is no centralized administrative system for the whole faculty. Every clinic/department has its own system of record keeping.

In the Clinic of Obstetrics and reproduction as well as in the Ambulatory clinic, records of all cases are kept on written reports at the moment. Record keeping is currently changing towards the use of software programs (File Maker Pro, Vetsoft). All invoices are computerized at the moment. According to the new legislation concerning the use of drugs in food producing animals, laptops with appropriate software will be available in the cars of the Ambulatory clinic in the near future.

In the Clinic of Large animal internal medicine, case records are recorded on paper, then transferred into a database (only identification, diagnosis and a brief history).

The Clinic of Large animal surgery has its own computerized record system which is only accessible for staff members.

The Clinic of Avian and exotic animal medicine has a centralized system accessible from all computers present in the clinic, for necropsy as well as for clinical consultations. For clinical consultations, the system offers the possibility to search on all topics entered. The software used is File Maker Pro.

In the Small animal clinics (Department of Small animal medicine and Medical imaging), the administration, registration of patients, appointments, creating and sending of invoices and the registration of prescribed and administered drugs are all

computerized and the same software and clinical databases are used. This system is also linked to the Department of Animal nutrition. In every consultation room and in every office of the Departments of Small animal medicine and Medical imaging these databases can be consulted and used at any time. The computers involved are connected to the central university network and also interconnected via a local network in case of temporary failure of the central network.
As a consequence, every staff member and resident can have access to this system in order to check appointments, to make reports, to do statistics on patient data and gather material for case reports and retrospective clinical studies without time consuming data collection.

7.10. Ratios

7.10.1. Animals available for clinical work

Ratio: students / production animals (see table 7.4)

Number of students graduated in 2003 (i): 171
Number of production animals including horses (f): 7373

R = 171 / 7373 = 1/ 43

Ratio: students / companion animals (see table 7.4)

Number of students graduated in 2003 (i): 171
Number of companion animals (g): 8790 + 170 (cats ster.prog.) = 8960

R = 171 / 8960 = 1 / 52.4

To calculate this ratio, the cats of the sterilization programmes (170 cats) have been taken into account in order to calculate the number of patients.

7.10.2. Animals available for necropsy

Ratio: students / post-mortem examinations

Number of students graduated in 2003 (i): 171
Number of cadavers for necropsy (h): 2293 (see table 7.1.2.)

R = 171 / 2293 = 1 / 13.4

2. Comments

When calculating the ratios, one should take into account the following.
In the final year the students have to choose for a particular elective track, for instance the track ‘companion animals’.

When only the number of students for the track 'companion animals' (75 in 2002, 80 in 2001, 49 in 2000) is taken into account, the ratio students/companion animals equals 1/119.5.
When the total number of students in the final year is taken into account, the ratio equals 1/52.4. However, this is a fictive ratio because students who have chosen another elective track than companion animals are only trained in the clinic of their own track during the final year of their studies.
The same reasoning is true for the other elective tracks.
Anyway, according to the main indicators to be used in the evaluation of veterinary training institutions, the number of patients available for training of students at the FVM, is satisfactory.
The relative small number of pigs and poultry coming into the clinic for consultation or hospitalisation is being compensated by the "work placement" that students have to fulfil. During this stage, students spend 14 days on a pig farm (average 300 sows and 3000 fattening pigs), one week on a rabbit farm (average 10000 rabbits), 6 days in the Animal Health Service (3 weeks, 2 days/week) and 2 weeks full time with a veterinarian involved in pig or rabbit herd health.

3. Suggestions

The ratios mentioned above indicate that the problem of training of a large number of students can be overcome as far as the availability of patients is concerned but this does not solve the problem of a shortage of staff members (teachers as well as technicians).

Measures to reduce the amount of students will not help because the amount of students enrolled is a major factor in the allocation of funds and personnel.

Therefore, in view of the EAEVA requirements for the Staff/Student ratio (1/7.5), and because of the problem-solving clinical training of veterinary students, training in small groups of students is necessary. Therefore a higher allocation of staff by the university is strongly recommended.

Chapter 8 :

Library and learning resources

Chapter 8 :

Library and learning resources

1. Factual information

8.1: Library

The library of the Faculty of Veterinary Medicine (FVM) serves as the basic library for the Faculty, and is complemented by various Departmental libraries. The collection of both the Faculty and the Departmental libraries includes 11,051 books and currently receives about 282 journals and serials a year.
The basic library provides several services to its users e.g. (1) assisting in the overall use of the library by an experienced librarian, (2) access to the electronic databases (60 computers available), and (3) retrieval of journal articles and other documents. The library maintains an open-stack policy, and library users may search for and remove books from the shelves.
Since scientific information is more and more digitalized the library's main assignment shifts from conserving printed journals and books to functioning as a help desk for the digital highway, familiarizing students and researchers with the internet, on line databases such as the Web of Science, Medline and Beast and Vet CD. All students and researchers have access to these databases, full text journals and other electronic resources from home, provided they have an account with the Directory of Information and Communication Technology (DICT) of Ghent University.

Main library:

The principal goal of organizing the library system at UGent was to create a new and modern structure that will be able to adapt itself to future changes. In this library system the central units are: the Library Network Management Unit (formerly known as the Central Library); the Repository Library (also known as the Tower of books); and the Digital Library. These units provide services common to all libraries in the network. They provide the funding for subscriptions to journals and to the digital library.

The Library Management Unit is advised by the Interfaculty Library Board in which each faculty has a representative.

The decentralized units are the libraries at faculties and departments.

The Faculty library reports to the Dean and has its own funding for acquisitions, costs for staff and working resources. The Departmental libraries report to the Department Heads.

State the library's annual operating budget over the past three years:		National currency	Euros
	2003	132,471 €	.....
	2002	148,485 €	.....
	2001	133,636 €	.....
Number of full-time employees		1	
Full time equivalents of part time employees		1	
Working student (2 hours a day)		1	
Number of journals received each year (in addition to books)		282	
Number of student reading places		50	
Library opening hours:		weekdays	Week-ends
	during terms	9h-19h	-
	during vacations	9h-16h30	-
Loans to library users (students, researchers, registered users)		250	

Loan statistics for the departmental libraries are not available in the Aleph statistics

The students have access to the Aleph catalogue (from anywhere) to retrieve books and/or journals in any library of Ghent University libraries.

Subsidiary libraries of the establishment

The faculty library holds the catalogue for all the departmental libraries. The loan policy is done by the departmental libraries. Administration for institutional subscriptions to journals is done by the Library Network Management Unit**.** Each departmental library has its own budget and acquisition policy. In 2002 the departments spent 29,348 € on books and journals.

8.2: Information technology services

(a) Audio-visual service		
- is this specific to the veterinary training establishment?	yes	
Video players and cassettes are provided in the library and in the Department of Morphology. The Faculty of Veterinary Medicine is also actively involved in the development of e-learning, with full use of available multimedia tools (photos, videotapes, sound).		
- is this common to two or more establishments?	no	
Possibilities of ICT in the education:		
Number of full-time employees		1
Full time equivalents of part time employees		1
Total number of videocassettes available		50
Total number of videocassettes that have been produced by the services in the past 5 years	-	See annex 5.I
Is there a viewing room?	yes	2 viewing rooms
If so, indicate:		
- the number of places	10 15	Dean's Office Department of Morphology
- the number of hours it is open each week	50	During terms
- the opening hours:	weekdays	weekends
during term-time	9h-19h	-
during vacations	9h-16h	-

b) Computer service Is the computer service/department:		
- specific to the veterinary training establishment?	no	
Computers and projectors are provided by DICT		
- common to two or more establishments?	yes	
Number of full-time employees	1	
Full time equivalents of part time employees		
Number of computers available in the service:	60	
- less than three years old	57	
- more than three years old	3	
Do students have free access to these computers for their own use?	yes	
Is there a computer room for self-use by students?	yes	
If there is, please indicate:		
- the number of places	60	
- the opening hours:	weekdays	weekends
during terms	9h-19h	-
during vacations	9h-16h30	-
Does the service/department provide teaching in the use of computers?	yes	
Does the establishment use interactive CD-ROM for teaching?	yes	
If so, how many programmes are available?	10	See annex 5.I

2. Comments

Library:

The library of the FVM is in a transitional phase between a centralized structure and a decentralized network structure. In this structure the Library Network Management Unit provides an excellent service and know-how: maintenance of the Aleph catalogue, the Library Network Management website and the follow up of the Swets subscriptions administration. The Library Network Management Unit also provides the budget for all the journals. Due to restrictions of the central university board, however, this budget can't be increased, which will cause problems when new titles are required and/or when journal prices increase. In view of the though price policy pursued by the major publishers, these problems can't be solved on a faculty level.

The Library Network Management Unit no longer provides a budget for the purchase of books. This is partly compensated by the purchase of books by the departments, although a budget not depending on these purchases is indicated.
The library meets the requirements set by the Inter Faculty Library Board regarding the opening hours, having an own website and providing services such as photocopying, library training and interlibrary loan.

IT facilities:
The IT facilities (60 computers and two projectors in two classes and the library) are provided by and maintained in deliberation with the DICT. Students and staff are advised to ask a personal account which provides an email-address, storage room on the university server and the possibility to access databases and full text electronic journals. Research software such as medcalc or SPSS is provided on the network.
The FVM is actively involved in the development of e-learning and for that purpose a faculty wide project for on line presentation of interesting patients has started in April 2003, funded by the Flemish government. With full use of available multimedia tools (photos, videotapes, sound) all aspects of examination and treatment of selected patients are covered in a standardized format (http://www.laim.ugent.be)
Researchers and staff can provide courses, photos, software etc. on the network. Scanning and writing to CD-Rom is possible.
Students may use the PC's for didactic and research purposes and are encouraged to do so. Instructions and help are provided if necessary.
The developments in the ICT facilities are dependent on the DICT and the policy of the Central University Board but have proven to be without major problems because of the efficient communication.

3. Suggestions

The Library management unit currently provides 7680 e-journals, of which 900 are relevant to veterinary sciences. The FVM insists on a further extension of this amount.

Chapter 9:

Admission & Enrolment

Chapter 9:

Admission & Enrolment

1. Factual information

9.1. Student numbers

The following tables (9.1.1 and 9.1.2) include the number of students (under- and postgraduate) for the academic year 2002-2003

Table 9.1.1: **Undergraduate student composition**

a.	Total number of undergraduate students	**1279**
b.	Male students	415
c.	Female students	864
d.	Nationals	1005
e.	Foreign students	274
	- from EU countries	268
	- from non-EU countries	6
f.	1st year students	399
g	2nd year students	167
h.	3rd year students	123
i.	4th year students	194
j.	5th year students	217
k.	6th year students	172
l.	7th, or subsequent year students	-
m	students not in any specific year	7

Table 9.1.2: **Postgraduate student composition**

n.	Total number of postgraduate students	**229**
o.	Male students	95
p.	Female students	134
q.	Nationals	204
r.	Foreign students	25
	- from EU countries	17
	- from non-EU countries	8
s.	GGS Proefdierkunde (Laboratory Animal science)	31 *
t	GGS Toezicht op eetwaren (Advanced Studies in Veterinary Food Inspection)	12 *
u.	PhD training	56 *
v.	PhD	79 *
w.	Others (interns, residents, vakdierenarts (= specialized practitioner))	51 *

Some students have an inscription in more than one discipline (*).

The total number of students in the establishment (a + n) is **1508**

9.2. Student admission

Flemish law stipulates that admission to the studies of veterinary medicine requires a diploma of secondary education. No further intake regulating measures such as a specific entrance exam or a limitation of the number of students to control the amount of students are allowed.

Every student who has a diploma of secondary education (high school) can start the study of veterinary medicine without further requirements. This includes that the scientific knowledge of starting students is heterogeneous. In every information session for future students the advice is given to take the scientific tracks in secondary education in order to have the best preparation to start veterinary medicine.

Funding of university education by the government is linked to the amount of students: the more students, the higher the funding for the university and faculty.

As outlined in chapter 5, the study lasts 6 years. In the first year emphasis is put on basic sciences such as physics, inorganic and organic chemistry and biostatistics.

The fee that students have to pay for one academic year is the same for every education at the university level. This fee varies from € 80 for students who receive a study grant to € 488 for all the other students (see chapter 3).

Table 9.2 contains the number of students applying for admission to the studies of veterinary medicine over the last 10 year (starting for 2002-2003)

Table 9.2: **Intake of veterinary students**

Year	number applying for admission	number admitted	
		'standard' intake	other entry mode (describe)
N = 2002-2003	399	399	0
N - 1	323	323	0
N - 2	279	279	0
N - 3	320	320	0
N - 4	343	343	0
N – 5	363	363	0
N – 6 (a)	379	379	0
N - 7	387	387	0
N - 8	378	378	0
N - 9	343	343	0

9.3. Student flow

9.3.1. Student flow:

Because the duration of the studies in veterinary medicine at Ghent University is at least 6 years, the following table had to be adjusted (N-5 was changed into N-6).

Table 9.3.1 gives the information of the student flow over the years. Of the 379 students starting in N-6 (1996-1997; (a) in Table 9.2) the number of students present in the following years is given up to six years later.

Table 9.3.1: **Student flow**

b.	1st year	0
c.	2nd year	1
d.	3rd year	1
e.	4th year	6
f.	5th year	22
g.	6^{th} year (final year in 2002-2003)	47
h.	how many have graduated	96
i.	how many have dropped out or been asked to leave.	206
j.	how many are not in any identifiable year	0

9.3.2. Annual graduations:

The number of students from undergraduate training who graduated annually over the past five years is represented in table 9.3.2.

Table 9.3.2: **Number of students from undergraduate training graduating annually over the past five years**:

	Year	Number graduating
j.	N (= 2002-2003)	171
	N - 1	193
	N - 2	149
	N - 3	155
	N - 4	127

9.3.3. Average study duration:

Because the duration of studies in veterinary medicine is at least 6 years, the table 9.3.3 had to be adjusted.

The total number of students that graduated in 2002-2003 is 171.
Fifty of them finished their first cycle in another university (this number is NOT included in table 9.3.3.). The results of these 50 students in the second cycle of 3 years are as follows:
3 years: 41 4 years: 4 5 years: 4 6 years: 1

In the case of the 121 students (171 – 50) graduating in year N (figure j of Table 9.3.2), the number of students attending the veterinary curriculum for 6, 7, 8, 9, 10 years or more is represented in table 9.3.3

Table 9.3.3: **Average duration of the studies**:

	Duration of attendance	number
k.	6 years	66
l.	7 years	21
m	8 years	22
n.	9 years	6
o.	10 years	3
p.	11 years	3
q.	12 – 15 years	0
r.	more than 15 years	0
TOTAL		121
Average duration of studies of the students who graduated in year N:		6.89

The Education and Examination Regulation of the university regulates all course requirements at Ghent University. To pass to a subsequent study year, the students

have to obtain a minimum of 50 % on every course (10/20) and a minimum of 55% on the totality of the courses.
A student who does not pass a certain study year is allowed to repeat this year.
The regulation also foresees that an “individually adapted year programme” (IAJ or Individueel Aangepast Jaarprogramma) is made up for students who have not passed a given year but who fulfil specific requirements.
This regulation also foresees for students to combine subsequent study years under certain conditions. The possible combinations of different items of the veterinary education have to be approved by the Faculty Council.

2. Comments

As mentioned above, the standard of students entering veterinary medicine is very heterogeneous. A lot of students underestimate the level of difficulty of the first year and consequently there is a considerable drop-out; an average of 35% of the students passes this first year (see introduction p 4-5).

The faculty has no possibility to fix the number of students starting the studies of veterinary medicine because Flemish law stipulates that everyone who has a diploma of secondary school (high school) has the right to start the study of veterinary medicine. The large drop-out after the first year of studies is mainly a consequence of the present governmental policy.

The facilities in the large new buildings made it possible to train the present high number of students. However, teaching and support staff has to make much efforts for the practical and clinical training of small groups of students. Therefore practical exercises are often taught repeatedly and clinical teaching occurs not only during regular office hours but also in the evenings and weekends.

Progress of students in several courses, and particularly in the clinical subjects, is assessed by permanent evaluation. The establishment is informed about students' viewpoints about the structure of the educational program by the questionnaire that is organized by the Education Quality Cell on a yearly basis. Substantial remarks are forwarded to the teaching staff involved (cfr. Chapter 5).

3. Suggestions

The FVM is not allowed to restrict the number of students admitted. Consequently it can not be held responsible for the relatively high drop-out percentage of its first year students.

As a consequence of the large number of students, an increase in the number of staff is urgently required to assure the high level of education of the students in veterinary medicine.

Chapter 10 :

Academic and support staff

Chapter 10 :

Academic and support staff

1. Factual information

Table10.1: **Personnel in the establishment**

	Budgeted posts (FTE)	Non-budgeted posts (FTE)	Total (FTE)
1. Academic staff			
a) Teaching staff	103.9	13.1	117
b) Research staff		37	37
c) Others (please specify)			
d) Total academic staff	103.9	50.1	154
2. Support staff			
e) responsible for the care and treatment of animals	26		26
f) responsible for the preparation of practical and clinical teaching.	18		18
g) responsible for administration, general services, maintenance, etc.	39.5	3.5	43
h) Engaged in research work	35	29.4	64.4
i) others (cleaning)		19	19
j) Total support staff	118.5	51.9	170.4
3. Total staff (d + j)	222.4	102	324.4

Table 10.2: **Allocation of personnel to the various departments**

Name of Department *(Numbers refer to the departments listed in Chapter 2)*	Academic staff				other	Support staff		
	Full prof. (GHL or HL)	Associate prof. (HD or D)	Assistant prof. (DA) Clinical prof.	Assistant Education and / or Research AP /WM		Technical/animal carers		Admin. / general
						Teaching	Research	
DI01	*2*	*2*		*6*		*1*	*2*	*3*
DI02		*2*	*1*	*4*			*9.5*	*3*
DI03	*1*	*1*		*6*		*2*	*3*	*1*
DI04	*1.2*	*4.2*	*1*	*16*		*3*	*13*	*3*
DI05	*2*	*2*	*2*	*13*		*3*	*10*	*4*
DI06	*2*	*1*	*2*	*5*		*1.5*	*17.9*	*1*
DI07	*1*	*3*		*6*		*2*	*7*	*1*
DI08	*1*	*5*	*1*	*14.6*		*6*	*1*	*3*
DI09	*1*	*2.2*	*2*	*7.8*		*5.5*		*4*
DI10	*1*	*3*		*6.9*		*10*		*3*
DI11	*2*	*3*		*2.7*		*4*	*1*	*1.5*
DI12	*1*		*2*	*4.4*		*4.5*	*1*	*2*
WE05	*1*			*1*				
WE06	*0.5*	*0.5*		*1*				
WE11		*1*		*1*				
LA01	*0.5*							
LA05	*0.5*							
Dean's office						*2*	*1*	*10*
Outsourced (cleaning)					*19*			

The difference in number of staff between table 10.1 and table 10.2 is based on the fact that in table 10.2 the vacancies are included. In table 10.2 the vacancies are not included.

Table 10.3: **Personnel responsible for undergraduate teaching**

A.	Number of budgeted and non-budgeted teaching staff involved in undergraduate teaching	117
B.	Number of research staff involved in undergraduate teaching (see explanation to this table above)	0
C.	Total number of personnel responsible for undergraduate teaching (A + B)	117

Ratios

Ratio: teaching staff/undergraduate students

$$\frac{\text{number of teaching staff}}{\text{number of undergraduate students}} = \frac{117}{1279} = \frac{1}{10.93}$$

Ratio: teaching staff/support staff

$$\frac{\text{number of teaching staff}}{\text{number of support staff}} = \frac{117}{118,5} = \frac{1}{1.01}$$

The great degree of autonomy obliges Flemish institutions of higher education to develop objective criteria for the allocation of personnel and material resources. Ghent University has such allocation models for its financing of the various faculties. This offers the faculties greater opportunities for developing a personnel policy of their own and allows them to address the needs of the departments more flexibly.

Ghent University gets its major funding for educational purposes from the government. A large part of those fundings is for recruiting staff. Ghent University has a complicated allocation model to finance the various faculties.

The number of students per faculty is an important parameter in this model, but other factors are taken into consideration as well. Personnel points are granted on the basis of the following elements:

- the number of different training programmes offered
- the educational load that corresponds to the courses taught by the faculty staff
- the educational load for teaching services rendered by academic staff in other faculties
- a research component.

Ghent University gives each faculty a number of points. With these points the faculty can recruit staff (a full professor corresponds with 2.2 points, an assistant equals 0.9 points and technical staff ranges from 1.1 to 0.5 points). With these points the faculty recruits 222.4 FTE.

Apart from the above mentioned staff the different departments can acquire extra funding by applying for research grants and by providing academic services (mostly clinical work). With these external funding an additional number of staff (102 FTE) is recruited.

For the allocation of the first category of staff (222.4 FTE) the faculty has its own allocation model. The model is based on the university's model and takes into account the number of students, the educational load (80%) and the research output (20%, mostly publications in international peer reviewed journals, chapters in books and PhD theses). This model shows whether a department is virtually under- or overstaffed. This model is only used as a guideline. For each new assignment the real needs of a department are taken into account. Each year a human resources plan is made.

The non-budgeted posts are generated and paid by the income of the individual departments.

2. Comments

In the past, no major difficulties were encountered in recruiting or retaining academic staff. However, because of the increasing demand for specialists and the fixed policy of the University to use the Dutch language for educational purposes, the recruitment in certain specialized disciplines becomes more and more difficult, especially when non-Flemish speaking specialists from abroad would be recruited. Even more, several members of the academic staff left the FVM in recent years because of different reasons such as the lack of promotion or nomination and the low financial remuneration of a full academic position.

The FVM is very happy that 80 % of the budgeted teaching staff (basic sciences included) are veterinarians.

3. Suggestions

To overcome the problem of recruiting and retaining academic staff the FVM made substantial efforts to create a specific staff status which allows diplomate veterinarians teaching in clinics to acquire a further specialization in different disciplines, assuring a good education in a well structured environment. The ultimate goal of the FVM is the presence of different Diplomates of the existing European Colleges who will be responsible for the training of the students, for the organization of the clinical excercises in the different departments or units, and for the supervision of the interns and residents. These Diplomates having no PhD degree will be employed as clinical veterinarians (kliniek dierenartsen) with renewable assignments of 1 to 5 years paid by the University. This proposal was recently accepted by the central administration of the University.

This proposal needs time to be implemented. As a temporary solution for increasing the number of veterinary specialists in the clinical education of students, a gradual start has already been established whereby Diplomates are incorporated into the academic staff as guest professors. Furthermore the system of internships and residencies according to the European guidelines has been introduced. Additionally veterinarians with a high level of practical knowledge or already having the status of Diplomate are presently attracted in different departments as so-called Assistants for practical education (Praktijkassistenten). These positions are paid by the central system of the University but there is only a limited number of positions available. To overcome this limitation, several departments employed veterinarians using the income from the clinics to improve the clinical education of the students. However, this situation, together with the urgent need of purchasing essential but expensive equipment by own means, has reached a critical level so the focus for the future is fixed on the system of clinical veterinarians.

Chapter 11 :
CONTINUING EDUCATION

Chapter 11 :

CONTINUING EDUCATION

1. Factual information

11.1. Continuing Education Courses held at the establishment

Because continuing education is considered an important issue at the FVM, a special body was established for this purpose in 1992. The Institute for Permanent Education (IPE) organizes several courses for Continuing Education. The IPE has a director, two full time secretaries and two half time veterinarians, one for large animal courses and one for small animal courses. It organizes two types of education:

- Modular continuing education (Separate courses)
- “Vakdierenarts”: intensive training of specialized practitioners in a specific species

Each year several modules of permanent education are organized. Each module deals with a specific subject. Every module takes a few days to one day, half a day or one evening. The subjects dealt with in these modules differ from year to year. The complete programme of all the modules for one year can be consulted at the website www.dgk.UGent.be (see booklet: appendix II to chapter 11).
Each module is granted with a certificate of attendance handed out by the FVM. In the near future the attendance of veterinarians to such permanent education courses will become compulsory in order to achieve the "Good Veterinary Practice” certificate.

The purpose of the long term postgraduate courses, specialized practitioner in a specific species (Vakdierenarts), is to update and to extend the knowledge of this specific species. The courses take two (ruminant, pigs & horses) or three (small animals) years on a part time basis (table 11.1.a). Participants of the long term postgraduate course small animals are required to keep a logbook of their activities in their practice, to take an examination at the end of each year and to make a thesis. After three successful examinations, a positive evaluation of the logbook and the thesis, a certificate is handed out by the University. Participants of the large animal courses also have to write a thesis and take an examination after the final year. When they are successful, a certificate is handed out by the University.

table 11.1.a. courses of specialized practitioners organized since 1998

1998-1999	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004
specialized practitioner for pigs 1st year	specialized practitioner for pigs 2nd year	specialized practitioner for ruminants 1st year	specialized practitioner for ruminants 2nd year	specialized practitioner for horses 1st year	specialized practitioner for horses 2nd year
specialized practitioner for small animals 1st year	specialized practitioner for small animals 2nd year	specialized practitioner for small animals 3rd year	specialized practitioner for small animals 1st year	specialized practitioner for small animals 2nd year	specialized practitioner for small animals 3rd year

The lecturers for the continuing education courses belong mostly to the academic staff. In special occasions or for specific subjects guest speakers are invited.

In tables 11.1.1 & 11.1.2 all the modules of the past two years (2000-2001 & 2001-2002) are listed.

Table 11.1.3. contains courses organized in the FVM by outside bodies.

Table 11.1.1: **Courses organized by the establishment itself in the most recent year (2001-2002)**

Activity	**Participants**	**Hours of THEORY**	**Hours of PRACTICE**
A) Long term postgraduate course "Vakdierenarts Rund (Specialized Bovine Practitioner)" (second year)	21	66	47
B) Long term postgraduate course "Vakdierenarts Gezelschapsdieren (Specialized Small Animal practitioner" (first year)	23	105	56
C) Separate courses large animals			
Prescription and use of medicines: day 1 & 2	23	16	-
Capture of wildered animals	9	1	2,5
Parasitology in cattle: novelties	39	3,5	-
The use of ovsynch & timed artificial insemination on cattle farms	26	3,5	-
Problems in young stock on beef farms	63	3,5	-
HACCP, what should a cattle practitioner do?	49	3,5	-
Residues in milk; causes and consequences	47	3,5	-
Herd management (cow) (practical)	2	-	3
Case study cows (practical)	15	3,5	-
Bacteriological and parasitological examination of cows; what is possible?	16	3,5	-
The use of ultrasound in reproduction of cows (practical)	12	1	2,5
Tooth problems and navicular bone diseases	12	3,5	-
Update on respiratory diseases (horses)	41	3,5	-
Ataxia in horses	45	3,5	-
Practical radiographic diagnosis (horse)	3	-	3,5
Practical ultrasound (horse)	5	-	3,5
Practical regional anaesthesia for horses	10	-	3,5
Practical dental care (horse)	11	-	3,5
Porcine circovirus type 2 and porcine multisystemic wasting syndrome	79	3	-
Animal welfare and chemical castration	54	4	-
D) Separate courses small animals			
Respiration problems in dogs and cats	77	6	-
Dermatology: case study: diagnosis and treatment	33	3	-
The internet: use and useful tips for vets	44	1	2
Haematology in small animals	61	6	-
Practical exercise: placement for dysplasia of the hip and the elbow	12	-	3
Contrast medium in practice	36	-	3
Interventional ultra sound	31	3	-
Practical exercise: interventional ultra sound	22	-	3,5
Ear problems in dogs and cats	70	3	-

Practical exercise: ear surgery (dogs and cats)	16	-	3
Tumours and other proliferations in the mouth	33	3	-
Case study: dental problems: diagnosis and treatment	17	-	3
Obstetrics and reproduction in dogs and cats	199	-	6
Canaries and finches	56	6	-
Birds of prey in practice	31	3	-
Case study reptiles: diagnosis and treatment of the most common diseases	34	-	3

Table 11.1.2: **Courses organized by the establishment itself in preceeding year (2000-2001)**

Activity	**Participants**	**Hours of THEORY**	**Hours of PRACTICE**
A) Long term postgraduate course "Vakdierenarts Rund (Specialized Bovine Practitioner)" (First year)	21	85	23
B) Long term postgraduate course "Vakdierenarts Gezelschapsdieren (Specialized Small Animal practitioner" (Third year)	29	105	76
C) Separate courses large animals			
Prescription and use of medicines: day 1 & 2 (Ghent)	30	16	0,5
Prescription and use of medicines: day 1 & 2 (Antwerp)	28	16	0,5
Interaction between metabolism and fertility in highly productive dairy cattle	28	3,5	-
Are there still challenges for the cattle practitioner in 2001 and the following years?	57	3,5	-
Minimal invasive surgery in cattle practice	61	3,5	-
Udder health	79	3,5	-
Abortion and neosporosis in cattle	47	3,5	-
Beef cattle and genetics	53	2,5	-
New opinions in modern cattle nutrition	103	3,5	-
Herd management (cow) (practical)	2	-	3
The use of ultra sound in the examination of thorax and abdomen (practical)	4	-	3,5
Case study cows (practical)	9	-	3,5
The use of ultra sound in the reproduction of cows (practical)	6	1	2,5
Some important aspects of medical care for sheep	80	3,5	-
The latest diagnostic techniques for disorders of the locomotor system (horse)	61	3,5	-
Hereditary disorders in horses	42	2,5	-
Practical radiographic diagnosis (horse)	6	-	3,5
General anaesthesia in horses	43	2,5	-
Practical ultra sound (horse)	11	-	3,5
Practical regional anaesthesia in horses	10	1	2,5
Practical anaesthesia (horse)	7		3,5
Practical dental care (horse)	5	-	3,5
Thesis "vakdierenarts varken" (long term postgraduate course 'Specialized pig practitioner')	5	-	3,5
Nutraceuticals in the pig farm	38	3	-

D) Separate courses small animals			
Congenital heart anomalies in dogs	37	2,5	-
Endocrine disorders	57	2,5	-
Chronic diarrhoea in cats and dogs	46	6,5	-
Practical exercises in radiology	12	-	3
Neurology: case study	34	2,5	-
Oncology in small animals	43	5	-
Practical exercice: ophthalmologic investigation and ophthalmologic surgery	16	-	8
Case study: orthopaedics	31	-	2,5
Dental care in small animals	43	-	7,5
Practical exercise: dental care in small animals	11	-	3,5
Cytology as an aid for diagnosis in birds and special pets	42	2,5	-
Practical exercise: cytology in birds and special pets	20	6	
Endoscopy in special pets en anaesthesia in birds	40	-	2,5
Practical exercise: endoscopy in birds	24	-	3

Table 11.1.3: **Courses organized at the establishment by outside bodies**

Activity	**Participants**	**Hours of THEORY**	**Hours of PRACTICE**
IPVS (International Pig Veterinary Society)		4 times/year	
Vlaamse Rundvee Practici (Flemish Bovine Practitioners)		once/year	
Vlaamse Paarden Practici (Flemish Equine Practitioners)		4 times /year	Lectures and workshops
WVPA (World Veterinary Poultry Association)	40	4 times / year	half a day presentations
Veterinary public health (FASF)	50 / module	3 modules 3 times / year	
Physiotherapy in domestic animals (IRSK-wings)	20 / year	2 years of 20 sessions of half a day each (20)	40

11.2. Distance learning (including via internet)

Besides the modules of distance learning in some courses of the undergraduate education mentioned in chapter 5, no distance learning is provided at the moment for continuing education.

A sort of distance learning is provided by the Flemish Veterinary Journal (Vlaams Diergeneeskundig tijdschrift), published by the FVM. This scientific journal is published bimonthly (six issues per year) and presents mainly clinical topics. It focuses on three different types of public: (1) the local Dutch speaking veterinarians in Belgium and the Netherlands, (2) the international veterinary, agricultural and biomedical research community and (3) the students. Each issue contains different scientific papers in English, and in Dutch with an English abstract. Reviews on clinical issues are normally published in Dutch only. The journal is covered by Current Contents, Web of Science, and other indexing services.

Students are encouraged to subscribe to the journal at a low price. The best end of study thesis is awarded and published by the Flemish Veterinary Journal. A summary of the contents for 2002 is provided in annex I to chapter 11.

2. Comments

After each module and after each year of the long term postgraduate courses, an evaluation is made by means of an evaluation form that every participant is asked to fill in. According to the results of these evaluations, all courses are generally of high quality. The average quotation on a scale from 1 (very bad) to 10 (excellent) is 7.4. The IPE is one of the bodies of the FVM and reports to the Faculty Council yearly. The institute is considered as very important by both veterinary practitioners and the FVM. It functions well and is well established.

3. Suggestions

Because the Flemish Veterinary Associations and some private organizations also offer some forms of continuing education, a close collaboration with these other organizations would be nice. The FVM strives to establish this, but these efforts are not very successful as yet.

Chapter 12 :
POSTGRADUATE EDUCATION

Chapter 12 :

POSTGRADUATE EDUCATION

1. Factual information

The FVM has developed several postgraduate training programmes.

12.1. Postgraduate clinical training (interns & residents)

The FVM has 24 Diplomates of 14 different European Colleges; two of these Diplomates are also recognized by an American College, one Diplomate has been accepted by two colleges (see Table 12.1.1). All Diplomates are recognized as European specialists by the European Board of Veterinary Specialisation (EBVS).

Rotating interns are assigned to one or more departments inside the FVM where Diplomates of different colleges are active; the interns have a broad education in a specific animal species or subject focusing on the essential training before starting a residency (see Table 12.1.2). Residents are supervised by one or more Diplomates of one college.

The internship and residency programmes are organized in a number of formats. Residents can follow an official standard (3 to 5 years) or alternative programs (more than 4 years). The programs of rotating interns and residents are integrated mainly into the clinical organization of the faculty. The final goal of this system is to assure a high standard of all disciplines whereby the resident is encouraged to sit the European exams at the end of his residency program.

All interns/residents are financially supported by the University since they are accepted by the central administration as students. The interns and most of the residents have a study grant and have access to all facilities for students. The FVM gives one grant per College while the remaining interns/ residents are paid by incomes of the clinics or other financial resources. The FVM by means of the IPE and one responsible staff member have a supervising role of the internship/residency system.

Table 12.1.1. Distrubution of Diplomates including number of residents of the different European Colleges at the FVM

European College of Veterinary X	***Number of Diplomates***	***Number of residents standard***	***alternative***	***Duration of standard residency program***
ECV Anaesthesia	1	2	3	3
ECV Surgery	2	4	2	3
ECV Diagnostic Imaging	3*	4	0	4
ECV Internal Medicine CA	3**	5	0	3
ECV Neurology	1	3	0	3

EC Animal Reproduction	3	2	0	4
ECV Pathology	1	2	0	3
ECV Comparative Nutrition	1	0	0	5
EC Laboratory Medicine	1	0	0	3
ECV Public Health	2	0	0	3
ECV Pharmacology and Toxicology	1	0	0	3
EV Dental College	1	0	0	3
ECV Parasitology	3	0	0	3
EC Equine Internal Medicine	1	0	0	3

* one DipI accepted by ECVSurgery; ** also DipI of American College of Veterinary Internal Medicine - CA (n=2)

Table 12.1.2. Distribution of internships at the FVM

	Number of interns	***Responsible departments***
Internship small animals (SA)	6	Small Animals / Medical Imaging
Internship large animals (LA)	4	Surgery and anaesthesiology LA, Medical imaging, Internal medicine LA, Reproduction, obstectrics and herd health LA, Ambulatory clinic LA

12.2. Taught postgraduate courses

Besides the long term postgraduate courses of specialized practitioner discussed in the previous chapter, the FVM organizes two specialized studies (60 study points each), rewarded by a masters degree. Both take two years and are organized part-time.

a) Master in Veterinary Public Health

Since the past decade the veterinary supervision of food of animal origin has undergone an important development.
Originally the supervision focused on an antemortem inspection of the living animal and on the anatomical/pathological examinations of the slaughtered carcasses. Because of the evolution in veterinary science, industrialization of animal production and the environmental pollution, veterinary supervision of food has obtained a new dimension. The protection of food against health damaging effects requires new strategies and new examination methods. Microbiological, histological, physicochemical and immunochemical inspections before and after the slaughtering process are indispensable for the detection of zoonotic agents, residues of pharmacological substances and environmental contaminants.
Moreover, modern meat processing techniques do not always guarantee the safety of the product. That's why processing inspections, such as HACCP, as part of the foodchain surveillance are important topics.
The course enables veterinarians working in the field of Veterinary Public Health, to

extend and to update their knowledge.

In 2002-2003, 12 students were enrolled in this course.

b) Master in Laboratory Animal Science

The use of laboratory animals in experiments and in many different disciplines (ranging from biomedical sciences to cosmetic industry) has been the subject of much controversy. Huge social pressure is resulting in the restriction of the number of laboratory animals and in the substitution by alternative examination methods. Experiments which uncompromisingly require the use of animals, need to be carried out with due regard to the national and international legislations concerning animal welfare and the protection of laboratory animals. The European Council has drawn up a number of guidelines regarding the study- and training programmes for people dealing with laboratory animals. In this respect, a study programme was set up for scientists involved in animal experiments (category C) and for specialists in the field of "Laboratory Animal Science" (category D).
The Advanced Studies in Laboratory Animal Science can be attended by students who hold a second cycle degree in a biomedical discipline. The training, which is taught in English, covers a period of two consecutive years (part-time).
After completing these advanced studies the highest degree ("Master in Laboratory Animal Science"), which is internationally required for specialists in laboratory animal science (category D), can be obtained.

In 2002-2003, 31 students were enrolled in this course.

Students following these master courses do not receive a salary or grant. Some foreign students receive a grant from their home country. Because the courses are part-time, most of the students have already a job.

12.3. Postgraduate research programmes

12.3.a. Masters level

see sub 12.2.

12.3.b. PhD level

The highest academic degree is the doctorate degree (PhD). In order to achieve this degree an extended research programme is required. The results of the research have to be written down in at least 3 publications as first author published or accepted in an international journal with peer review; and in a doctoral thesis. After 4 to 8 years of preparation the doctoral script has to be defended in public.

During the preparation, a PhD study programme can be followed. The duration of this programme is difficult to determine because students can go through this programme during their PhD training. To fulfil the programme a minimum of 60 credits has to be collected.
Several activities can be part of the programme. A minimum of 1 credit has to be collected by regular courses. Other activities where students can get credits for are

scientific publications in international journals with a referee system and with an impact factor higher or equal to 0.3; articles in the proceedings of an international congress; an abstract in an international congress, an abstract at a national congress, co-editor of a book; a key-note lecture at an international congress or workshop; chairperson at an international congress; diplomate of a European College; a study stay at other universities or scientific institutions, both national or international; tutoring of students; lectures at national or international congresses.

Although not compulsory, the faculty strongly recommends the PhD student to follow the programme.

In 2002-2003, 79 students were preparing their PhD of which 56 were following the PhD study programme.

In the following table the total number of PhD's obtained in the past years is listed.

Academic year	Completed PhD's	of which veterinarians
1998-1999	12	11
1999-2000	4	3
2000-2001	9	8
2001-2002	8	6
2002-2003	22	17
Total	**55**	**45**

Students preparing a PhD receive a yearly grant or a monthly salary depending on the funding organization.

Funding organisation	translation	Grant or salary
IWT (Instituut voor Wetenschap en Technologie) – Vlaams Gewest	Institute for Science and Technology – Flemish Community	Grant
Ministerie van Onderwijs	Ministry of Education	Salary
FWO (Fonds Wetenschappelijk Onderzoek)	Fund for Scientific Research	Salary
FOD (Ministerie van Volksgezondheid)	Ministry of Public Health	Salary
Universiteit	University	Grant or salary depending on the situation

12.3.c. Other doctoral level

not applicable

2. Comments

An average of 15-20% of all graduated students follows a postgraduate clinical training, a masters or PhD during their careers.
As already mentioned in item 12.3.b (PhD level) a doctoral thesis is defended after 4 to 8 years of research. In a lot of cases, the students are accepted for only a 4-year-period by their funding organization. Depending on the subject of the doctoral thesis, sometimes this period is too short. This is especially the case when the students aim to follow a PhD study programme.

The FVM encourages and supports the system of internships and residencies. The Diplomates are essential to assure the quality of clinical research, education and services at the FVM. The integration of Diplomates as Clinical Veterinarians into the regular academic staff system was proposed to and accepted by the central administration of the University (see chapter 11). This system assures the high standard of clinical work mainly for educational purposes. In the near future, the "Clinical Veterinarian" will obtain an official recognition by the University.

3. Suggestions

There is a demand for additional post graduate courses, such as animal welfare, equine sciences etc. However because of the limited number of staff at the FVM the organization of new courses is not feasible at the moment.

Chapter 13:

RESEARCH

Chapter 13:

RESEARCH

1. Factual information

Ongoing research projects in all departments of the FVM constitute an important source of new information which is used by all teachers as support and as illustration of their courses. The faculty strongly believes that this is the factor that makes the distinction between university education and other forms of higher education. Most of the research projects conducted by the academic staff of the faculty are directly related to their teaching responsibilities. The vast majority of the research projects is funded by regional governments, the federal government, the European Commission and private companies. Recently Ghent University has created its own research fund, giving grants also to the FVM. (Publications of all the departments of the last two years are listed in annex II to chapter 13)

Since the academic year 1996-1997 all students of the FVM have to make an end of study thesis. The topic of this thesis is usually related to the option the student has choosen in his or her final year. In the option “Research & Industry” the thesis includes a substantial amount of hands-on experimental work and it accounts for 27 credits. In this option the students spend 810 hrs on their thesis. In the other options the thesis may or may not include hands on experimental work, carried out personally by the student. In the case it does not include any experimental work, the thesis is a thorough literature survey on a given topic. The thesis in these other options account for 12 credits. The students in these options spend 360 hrs on their dissertation.

Every thesis is written under the supervision of a senior (major) mentor and in some cases also by a second mentor. The latter is the case when the work on the thesis is carried out outside the faculty. In that case the major mentor can be from outside the faculty, but the second mentor needs to be a full professor (belonging to the teaching staff). Every year all members of the academic staff of the faculty are asked to propose a number of thesis titles for which they are prepared to act as mentor. Students can choose from this list. Students however also have the possibility to propose a title of their own choice. This may involve a mentor from outside the faculty. They can also ask an academic staff member to be their senior mentor. The mentor is directly responsible for the experimental work carried out by the student. The thesis is laid down before the first exam session. For each thesis a jury is appointed. It is composed of the major mentor, the second mentor (when applicable) and two other members. This jury evaluates the thesis and gives marks.

All the procedures and instructions concerning the thesis are laid down in a manual, written by the thesis committee of the faculty. This manual includes detailed instructions on how to write a thesis and on the lay-out of the document.

The end-of study theses of the last two years are listed in annex I to chapter 13.

2. Comments

During their undergraduate training the students hear a lot about results of recent research. Nevertheless it is difficult for them to know exactly what it means to do research. Only those students who carry out experimental work themselves when preparing their thesis really get the feeling of what research is all about. Moreover, students in veterinary medicine do little practical lab work during their training. This to some extent is a handicap for those who want to go into research after graduation. It is obvious that persons with a veterinary degree who at the same time do have laboratory experience, are in demand a.o. in the pharmaceutical industry. Most veterinary students initially are only interested in clinical work. It is during and sometimes after their studies that some take an interest in research. This interest is certainly stimulated when they follow the option “Research and Industry”.

The journal of the faculty (“Vlaams Diergeneeskundig Tijdschrift”, see chapter 11.2.) awards the best thesis with a price. This thesis is published in the journal. It also publishes the abstracts of the best theses.

3. Suggestions

It will probably always be a relatively small minority of the veterinary students who will make a career in research. Since the research labs of the FVM usually cannot cope with large numbers of students it is difficult to introduce all veterinary students to research early on during their studies. One possibility could be to create an opportunity for those who are interested, to become acquainted with research through working in a research lab for a month during the summer holidays after their third year of their undergraduate training.