

SELF EVALUATION REPORT - STAGE 1

FACULTY OF VETERINARY MEDICINE

GHENT UNIVERSITY

2013



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INTRODUCTION

General information/organization including major changes since last visitation

Ghent University (UGent) functions under an act (decree) of the Flemish Government and resides under the Ministry of Education and has 11 faculties.

UGent is headed by a Rector, a vice-Rector, 2 administrators (chief academic administrator and logistics administrator) and 2 representatives of the Flemish government (Government Commissioner, Government Delegate for Finance. They govern the UGent together with the Board of Governors. In this board, each faculty is represented by one Full Professor (elected within his/her faculty for a period of 4 years). The Board of Governors is presided by the Rector and assisted by the vice-Rector, and further composed of 12 professors, 3 representatives of the academic assistant staff (non-professorial, also called scientific assistants), 3 representatives of the administrative and technical staff, 4 representatives of the student body, 10 members from outside the university (employers, unions, politicians, ...), 2 administrators and the Government Commissioner. The Board of Governors meets every month.

The Executive Board is the body which is responsible for the everyday functioning of the UGent and consists of the Rector, the vice-Rector, 2 administrators, the Government Commissioner, 2 Full Professors, 2 representatives of the academic assistant staff, 1 member of the administrative and technical staff, 1 person of the study body and 1 member from outside the university (all of them, members of the Board of Governors). The Executive Board meets every fortnight.

UGent has a very large autonomy for most of the decisions to be made on nominations, study programme changes, evaluations and other matters of university organization. The Government Commissioner assists in most decisions, and is the liaison person between the Flemish Government and the university.

The Council on Educational Affairs of the UGent is the council that advises the Board of Governors and the Executive Board on all matters that are related to education. All faculties are represented in this council, mostly by their Director of Studies. The students, the administrative and technical staff and the academic assistant staff also have their representatives in this council. This council meets on an approximately monthly basis and advises on proposals of the faculties relating to study programme changes or changes in the organization of education. This council also reflects on the entire education process at the UGent, and the main goal is to improve the quality of the education, e.g. by funding projects on education innovation. Another major task of the Council on Educational Affairs is the redaction of the Education and Examination Code (EEC – see annex I.1 and <http://www.ugent.be/en/teaching/studentadmin/OEREnglish>), which describes the code of conduct that has to be followed by all members of the UGent.

The Research Council of the UGent advises the Board of Governors and the Executive Board on all matters that are related to research. All faculties are represented in this council, mostly by the chair of the Faculty Research Committee of the individual faculty. Also the

students, the administrative and technical staff and the academic assistant staff have their representatives in this council. The council meets on an approximately monthly basis and advises on proposals of the faculties related to research. This council also reflects on the entire research process at the UGent. The main goal is to improve the quality of the research, e.g. by funding projects.

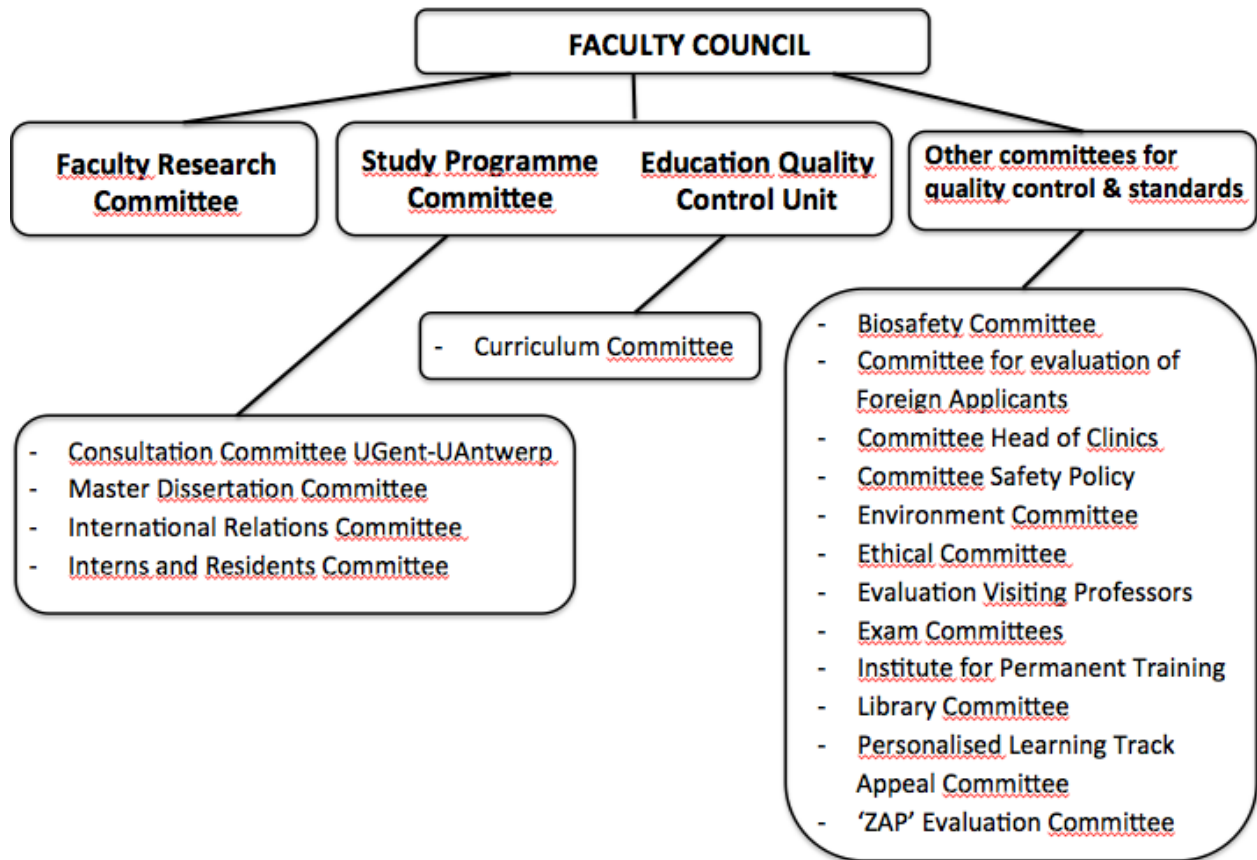
The School of Veterinary Medicine at UGent was founded in 1933. It first functioned as “School of Veterinary Medicine” and was part of the Faculty of Medicine. In 1968, it became a separate faculty (Faculty of Veterinary Medicine, FVMG) within the UGent.

The FVMG is the only faculty in the region of Flanders (Flemish speaking region of Belgium with 6.5 million inhabitants), which is allowed to hand out the degree of “Master in Veterinary Medicine” (Master in de Diergeneeskunde). Another full veterinary faculty is located in the French-speaking region of Belgium, which is the Walloon region (4.5 million inhabitants), and is part of the University of Liège (located in Sart-Tilman). However, the first cycle of veterinary studies (first, second and third bachelor years) in Flanders can also be followed at the University of Antwerp (also located in Flanders, 50 km east of Ghent). All students who have performed their first cycle studies in Antwerp are Flemish (= Dutch) speaking, and will join the FVMG for the second cycle (three master years including clinical training) for obtaining their Master in Veterinary Medicine.

Each faculty is presided by a Dean. In the present system, the Dean is not assisted by (a) vice-Dean(s) but rather by an Academic Secretary, academic co-workers and many committees, such as the Study Programme Committee including an Education Quality Control Unit, the Faculty Research Committee, the Institute for Permanent Training and several others which will be described later in this report (Figure 1.1). All these committees have an advisory function, and they may be presided by the Dean or by another Chairman. Final decisions on proposals by committees have to be approved by the Faculty Council, which meets monthly.

The Faculty Council consists of all Senior Full Professors (= 14) (“gewoon hoogleraar”) including the Dean, all (= 6) Full Professors (“hoogleraar”), 6 elected representatives of the professors in the rank of Senior Lecturer (“hoofddocent”) and professors in the rank of Lecturer (“docent”), 2 elected representatives of the academic assistant staff without professorial status (assistants), 2 elected representatives of the non-academic (administrative and technical) staff, 6 elected representatives of the student body and a representative of different committees/departments without voting rights. In total, there are 39 members in the Faculty Council. The Dean fulfills his/her function next to his/her other duties related to teaching, research and service to the community (see chapter 2).

Figure 1.1: Main committees at the FVMG



The FVMG has 12 departments, which will be described further in this report. Each department is supervised by a Head of Department who is elected within the department for a period of 4 years. The Head of Department fulfils this function next to his/her other duties related to teaching, research and service to the community. The Head of Department is assisted by the Department Council, which is composed of all the Professors belonging to this department, representatives of the academic assistant staff and of the administrative and technical personnel.

The Heads of Department regularly meet the Dean for discussing and preparing matters including the budgeting and allocation of personnel (academic points) within the faculty in the scope of a management plan (an assistant is equivalent to 1 academic point, a post-doc/beginning head of clinic 1.2; a professor in the rank of Lecturer 1.3; professors in the rank of Senior Lecturer, as well as Full and Senior Full Professors 1.85). Academic points are yearly allocated by the UGent to the faculties on the basis of a key system based on the number of students, course load and research accomplishments (including the number of doctoral dissertations (Ph.D. degrees) in the last 5 years). Within the faculty, the academic points received from the UGent are further allocated to the different departments on the basis of

similar criteria, such as teaching load and research accomplishments (publications in A1 rated journals and Ph.D. degrees).

During the last years, research has been intensively stimulated by the UGent: BOF Research Professors (“Bijzonder Onderzoeks Fonds”, Special Research Funds) have been assigned to the different faculties. The FVMG has been able to attract 4 positions in this area (Immunology, Genetics, Bacteriology and Aquatic Veterinary Medicine) in order to expand the different research domains. A fifth position has recently been assigned to the Reproduction of Equines. Additionally, these positions have been used to increase the incorporation of the research into teaching.

The system of tenure tracks in a defined research area was also introduced in 2009 by the UGent: four additional positions could be obtained by the FVMG (Physiology, Molecular Parasitology, Embryology and Food Chemistry). New tenure tracks will be announced in the near future (2013-2014) for Medical Imaging, Pharmacology and Food Hygiene.

As part of the strategic spearhead research policy plan promoting excellence in research, five multidisciplinary research partnerships were established. Five consortia were selected on the basis of their established expertise, the added value of their multidisciplinary collaboration and their potential to become world leaders in their fields (Biotechnology for a Sustainable economy, Bio-informatics, Nanophotonics and Biophotonics, Neurosciences, Inflammation and Immunity). Each of these five groups was allocated 2.5 million euros. Different departments of the FVMG were involved in this process, and high-level projects were put forward together with other departments of the other faculties. These projects were not withheld.

In order to keep the standard of the clinical work and teaching on a high level, the permanent position of the Heads of Clinic was approved by the UGent in 2007. These positions ensure that the clinical teaching of students is appropriately supervised by Diplomate

s of different clinical European colleges. Up to now 10 positions of “Head of Clinic” are filled in by different Diplomates (neurology, nuclear medicine, medical imaging, dermatology of small animals, internal medicine small animals, surgery of small animals, anaesthesiology, obstetric large animal, obstetrics small animals, pathology). Several positions are still vacant (surgery large animals, internal medicine large animals, poultry).

Study programme/enrolment including major changes/decisions since last visitation

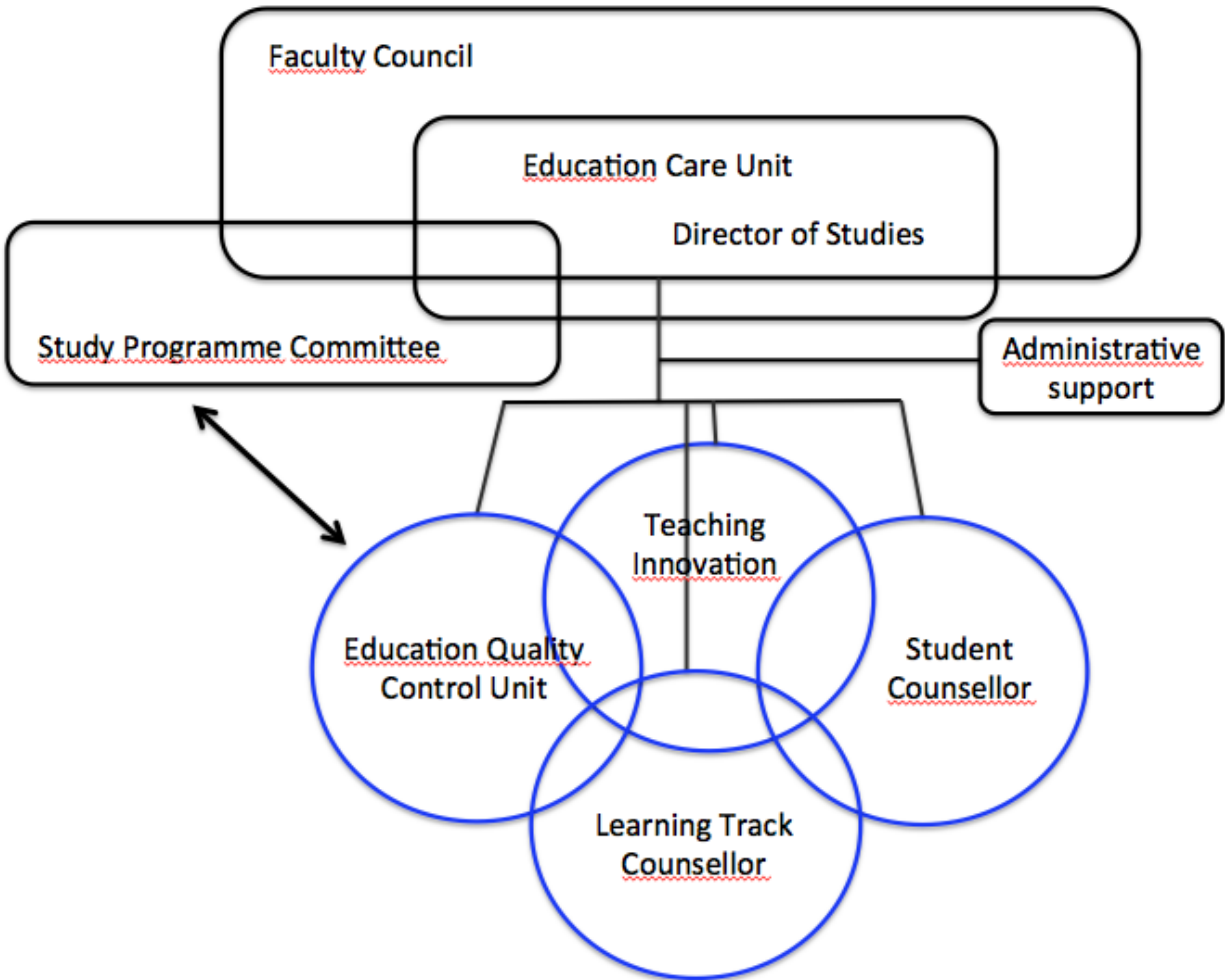
The study duration of Veterinary Medicine at UGent is 6 years. The Bachelor-Master system was gradually introduced from 2004 till 2010, while the study programme of Veterinary Medicine has been revised several times. The second last revision of the study programme in 1995-1996 was quite drastic in so far that courses were revised in all of the 6 years. Moreover, animal-species related elective tracks (called “opties” in Dutch) were introduced in the final year, and an obligatory “end of study” dissertation was introduced for every final year student. The last study programme reform included the replacement of the “end of study” thesis by the “Master dissertation” (initially spread over 3 years, finally spread over 2 years) and the introduction of the species-related elective tracks after 4.5 years of study (instead of 5 years).

This new study programme started in 2006 in the 1st bachelor year and was finalized in the academic year of 2012. Small adaptations were made between 2006 and 2010, when it was indicated or required.

In each faculty, Study Programme Committees were installed in 1992. The responsibility of such a committee not only includes all matters related to the study programme and study programme revisions, but it also involves teaching quality assessment. In 1993, the first quality assessment by the students took place based on the evaluation of lectures, examinations and courses performed. Since 1993, these evaluations have been annually held, and are considered to be the most important part of the quality assessment of veterinary education. Educational evaluations by the students are thus organized on a yearly basis ever since and represent a valuable tool for the improvement of the quality of education.

In 1999, an Education Quality Control Unit was installed at every faculty of the UGent. The major task of the Education Quality Control Unit is to support the Study Programme Committee in its activities related to the assessment of quality of veterinary education. Originally, it consisted of one full-time veterinarian with a permanent position, who was appointed Secretary, the Professor Director of the Education Quality Control Unit (= Director of Studies), the Dean, the Chairman of the Study Programme Committee and two students. In 2005, a position of Learning Track Counsellor was created, and in 2007, a part-time position of monitor (student counselor) became available at the FVMG. In 2010, all these positions were unified in a structure called the Educational Care Unit (“Cel Onderwijs”) of the FVMG. The structure currently consists of the Education Quality Control Unit, the Learning Track Counsellor, the Faculty Student Administration and the Monitoring Service (Figure 1.2). The unification of these different structures allows a more efficient approach towards student support. More detailed information can be read in further chapters of this self-evaluation report.

Figure I.2: Education quality control at the FVMG.



The FVMG is in charge of every part of its permanent training programme. This training has undergone a substantial evolution during the last 10 years. The amount of modules for permanent training has strongly increased. Post-academic education programmes “Specialized Veterinarian” (“vakdierenarts”) have been installed for different animal species (horse, pig, ruminants, companion animals). Advanced Master studies for graduated master students (Master-after-Master, ManaMa), including ManaMa in Veterinary Public Health and ManaMa of Laboratory Animal Science, are no longer offered. The Advanced Studies in Veterinary Public Health were stopped in 2007 because most of the topics had been introduced in the regular study programme. The Advanced studies of Laboratory Animal Science were stopped in 2009 because of the advice of a visitation committee to enlarge and broaden the scope of this study. Actually, the re-introduction of an advanced study programme on Laboratory Animal Science in an enlarged and multi-disciplinary version is under study.

The system of interns and residents was incorporated into the FVMG, not only in the clinical disciplines but also in the non-clinical areas. The number of Diplomates of different European Colleges of Veterinary Medicine who followed a residency, and sat a European exam,

has substantially increased over the years (see below). Specialization in all areas is accepted to be of major importance to keep up a high level of education and research. The FVMG has created a number of fixed positions for a dozen Diplomates of clinical colleges, the so-called Head of Clinics (see further on).

One of the peculiarities of university education in Flanders is that there is no limitation in the number of students who start university studies (except for studies in Human Medicine and Dentistry, where an entrance examination is required). This is due to the Flemish Government that stipulates that education has to be democratic and free. Subsequently, study fees are very moderate. Every youngster who finishes high (secondary) school is allowed to enroll at the university. This means that the population of students in the 1st year is very heterogeneous regarding basic scientific knowledge. The number of graduates may vary largely from one academic year to the other. Since veterinary medicine is appealing very much to young people, the student number enrolled in the first year is high. This situation creates difficulties with regard to staff/student ratio, which theoretically should have to be changed and adapted from one year to the next. Additionally, as no restrictions for enrolment are set to students of Belgian nationality, no requirements can be imposed on citizens of other EU-member states (EU-legislation). This is the reason why students from The Netherlands also enroll at UGent, since a limitation of students allowed to perform veterinary studies is imposed in The Netherlands. As there is no language problem, considering that the Dutch language is essentially the same as the Flemish language, there are no difficulties for students from The Netherlands to follow courses at UGent where all courses are taught in Dutch. At this moment, 26 % of the undergraduate students of the FVMG originate from the Netherlands.

The number of drop-outs after the 1st year is high (up to 65%, exact figures are given later in this report). The number of students is unpredictably high in the 1st bachelor and this is also the case in the 4th year (1st master), since students who have finished their first cycle of 3 years of study at University of Antwerp join the FVMG at UGent to complete their clinical training and to obtain their Master degree in Veterinary Medicine.

All prospective and starting students are at different occasions properly informed about the essential requirements of the studies of Veterinary Medicine, including information about the drop-out rates over the years and the prospective job opportunities of future veterinarians. The “SID-in’s” (Student Information Days) are organized in all 5 Flemish provinces to give adequate information while a yearly information afternoon is organized at the FVMG. Although very objective data concerning the pass rates in function of the previous high school curriculum are provided, the number of first-generation students remains constant and fairly high (around 300 new students per year). Attempts to introduce an entrance examination for the studies of Veterinary Medicine over the last years have not been successful, mainly because of regional political decisions to allow a maximum of students the opportunity to start an education at university level.

Infrastructure including major changes/decisions since last visitation

A very radical change in the infrastructure of the FVMG of the UGent occurred in 1992 with the move to new, up-to-date facilities in Merelbeke, 10 km east of the center of Ghent city, the so called “Campus Merelbeke”. In 1994, a number of preclinical departments moved to the

4-level building in Merelbeke. Two years later, the rest of the FVMG (Morphology, Pathology, Clinics, Administration, etc.) moved into the new buildings. The Department of Nutrition, Genetics and Ethology had already moved to Merelbeke in 1972 in premises that are very close to the new campus. The highway Brussels-Ostend separates this department from the campus but a bridge connects both parts. Details of the present infrastructure of the campus are provided further on in the report.

New buildings for the Department of Veterinary Medical Imaging and Small Animal Orthopedics (new administration building) and for the Clinic for Exotic Companion Animals including the Department of Bacteriology were realized in 2005 and 2007, respectively. Additionally, a state-of-the-art veterinary nuclear unit (scintigraphy, nuclear therapy) has been installed, and plans for adaptation because of nuclear security reasons are presently under construction. A magnetic resonance unit has also been installed in the Department of Veterinary Medical Imaging and Small Animal Orthopedics. Over the years, all clinical and non-clinical departments have made major financial investigations in order to update or renew the material for research or teaching purposes. The experimental farm is equipped with new stables (housing of dairy cows and young cattle) while investigations to renew or adapt the whole site have been done or are planned.

The expansion of the FVMG by constructing new buildings is presently in the pipeline. The financial requirements for this expansion have been approved by the UGent and the construction planning is fixed. The construction of a state-of-the-art Veterinary Research Building including A3 stables and L3 labs was started in January 2013. The pig unit of the experimental farm will be incorporated into a large unit by means of the joint venture of 3 partners (50% Flemish Institute for Agriculture, 30% UGent, 20% University College Ghent). The construction of this unit will be started in 2014. Finally, the Clinic of Small Animals will be substantially expanded, including a new surgical unit, extra stables for patients and extra consultation rooms. The start of the construction is also planned for 2014.

In order to increase the number of first-line cases for the final year students of the track 'Small Animals', a dispensary for small animals was opened in the city of Ghent in October 2012. This project is a joint venture between the city of Ghent (building), the FVMG (staff, equipment obtained by a teaching innovation project, and overall organization) and the Prince Laurent Foundation (financial support). This foundation has already 4 similar dispensaries (Liège, Antwerp, Brussels and Charleroi), where less fortunate owners of small animals can benefit from essential veterinary services but only under strict conditions. The project has the full support of the UGent (including financial support).

Suggestions and comments of the previous evaluation

The EAEVE performed the previous evaluation at the FVMG in 2004. The suggestions or comments, which were made in the evaluation report, are represented below using numbers corresponding the numbers in the site report and the follow up which occurred at the FVMG (*in italic*).

1/ Suggestions which, if not implemented, mean that the establishment does not reach the minimum level specified in the EU veterinary training directives (Directive 78/1027/EC and its appendix) as interpreted in the 'Guidelines, requirements and main indicators' (contained within document XV/E/8488/2/98).

In the view of the visiting team, there are no suggestions in this category.

2/ Suggestions whose implementation does not affect the conformity of the teaching at the University with EU veterinary training directives as interpreted in the 'Guidelines, requirements and main indicators'.

1. OBJECTIVES

1.1 There should be a means of measuring and monitoring the Faculty's objectives so that they can be updated if necessary.

The UGent Department of Educational Affairs and the FVMG have developed a system to record and regularly review the final competences (i.e. the faculty's objectives) of the study programme. The quality control system for the study programmes and study activities includes several formal assessment procedures that take place at fixed intervals. Both internal (students, academic staff) and external (alumni, international visitations) evaluation procedures are provided. At the FVMG, the Study Programme Committee evaluates the study programme every year at the meetings of the Study Programme Committee, in which every department has one representative. Additionally, the Chair of the Study Programme Committee meets with the academic staff every 3 years, and then reports its observations to the Study Programme Committee and to the Faculty Council. The conclusions are used for the improvement of the study programme.

Additionally, the Study Programme Committee organizes a survey for alumni every 6 years. This survey is composed of questions that are specific for the veterinary profession. The Education Quality Control Unit of the FVMG also evaluates each member of the academic staff every 2-3 years. This committee is also responsible for the organization of the learning time evaluation performed after each study programme update, in order to evaluate the study load of the study programme. The UGent Department of Educational Affairs organizes evaluations of all study programmes, with emphasis on the obtained final competencies. These include (1) an evaluation of the entire Bachelor's and Master's programmes by the students who just graduated, every 2 years and (2) inquiries of the alumni every 4 years. Finally, the faculty is

submitted to external control by the NVAO (Nederlands-Vlaamse Accreditatie Organisatie (www.nvao.net) approximately every 8 years and, of course, to the EAEVE evaluation.

Informal activities, such as regular dialogue with internal and external stakeholders and ad hoc reflections concerning educational matters forwarded by students and staff to responsible persons (e.g. Director of studies, Heads of departments, Dean, Ombudspersons) also play an important role in the continuous improvement of the study programme.

Summary of the evaluation of the veterinary study programme by the concerned parties

	Time interval
Study Programme Committee - Global study programme evaluation - Report of the chair of the study program committee - Alumni (specific information for veterinary medicine)	yearly 3 years 6 years
Education Quality Control Unit - Academic Staff evaluation - Learning time evaluation	3 years after curricular changes
UGent Department of Educational Affairs - Bachelor/Master study programme - Alumni (general information on all the study programmes)	2 years 3 years
National or International accreditation organisms - NVAO - EAEVE	8 years 10 years

2. ORGANIZATION

2.1 The clinical departments should be restructured so that both space and teaching time can be released to the advantage of the small animal clinic and the development of problem-based learning.

2.1.1. A substantial extension of the clinic of small animals has been approved by the university and is planned for 2014. Additionally, a state-of-the-art clinic for non-conventional small animals and birds is fully operational, and works in close collaboration with the small animal department. Extra teaching hours have been granted to the section of small animals (40 hours internal medicine, 15 hours medical imaging in the 2nd master year, 10 hours theory and 60 hours practicum/clinical activities on companion animal food science in the 3rd master year) From 2004 up to 2012, additional academic personnel points were granted to the companion animal department (assistants, heads of clinic, professors in the rank of lecturer) (see Table I.1).

Since October 1st 2012, a small animal dispensary has been operational in the centre of Ghent to provide first-line cases to small groups of students in companion animal medicine.

Table I.1: Additional staff members allocated to the companion animal department over the period 2004 till 2012

Year	Position	Speciality	Personnel points
2005	Prof in rank of lecturer	Soft tissue surgery	1.3
2006	Head of clinic	Dermatology	0.4
	Assistant	Companion animals	0.2
2007	Assistant	Medical Imaging	0.5
2008	Head of clinic	Internal Medicine	0.2
	Prof in rank of lecturer	Nutrition	0.1
	Assistant	Companion animals	0.5
	Assistant	Medical Imaging	0.5
2009	Assistant	Companion animals	0.5
2011	Prof in rank of lecturer	Avian medicine	0.1
2012	Visiting prof	Behavioural medicine	0.26
Total			4.56

2.1.2. Problem-based learning has been implemented in the clinical and several non-clinical departments. In table I.2 a non-exhaustive list is provided of the disciplines where PBL is being used. In addition these case discussions or presentations in small groups, most of the lecturers include cases and case discussions during the plenary lectures.

Table I.2: Problem-based learning at the FVMG

Discipline	Standard learning track year	Details
Pathology	1,2 and 3 master	Case discussions during necropsy
	3 master	Presentation and group discussion on clinical cases
Parasitology	1 master	Case discussions during parasitological analyses
Zoology	1 bachelor	Evolutionary / morphological problem discussions during practicals
Immunology / Bacteriology / Virology / Parasitology / Pathology	3 master	Presentation and group discussion on clinical cases
Herd health (ruminant track)	3 master	Herd health problems during herd visits
Large Animal Internal Medicine	3 master	Weekly case presentations and discussions
Animal nutrition	3 master	Case presentations and discussions

<i>Porcine medicine</i>	<i>3 master</i>	<i>Herd health problems during herd visits</i>
<i>Scientific English</i>	<i>3 master</i>	<i>Problem solving group work</i>
<i>Food and Environmental Chemistry</i>	<i>2 bachelor</i>	<i>Problem solving and presentations during practicals</i>
<i>Companion animal medicine and surgery</i>	<i>3 master</i>	<i>Weekly case presentations and discussions</i>

2.1.3. At this moment no major restructuring of the clinical departments has been implemented.

3. FINANCES

3.1 The faculty should have a plan for financing its intended future developments in teaching and services. Additional staff and facilities will be needed to develop certain specializations and to introduce problem-based learning.

The financial and teaching planning is based on the yearly financial budget and the so-called “personnel point system” of the university granted to the different faculties of the UGent. The budget/personnel points of the FVMG are further distributed between the different departments using a distribution code based on the teaching responsibilities and scientific output of the different departments. When indicated, corrections are done on an annual basis. A policy is formulated and has to be approved by the Faculty Council at the beginning of each academic year. Subsequently, the policy has to be approved by the UGent. If possible, extra needs for teaching positions can be granted after approval by the Faculty Council. The extra positions are formulated by the Study Programme Committee after an in-depth screening of the existing needs.

4. CURRICULUM AND TEACHING

4.1 GENERAL

4.1 Lessons in basic economics, practice management and communication skills should be considered.

The courses basic economics and practice management have been included in the standard study programme since 2007 (basic economics in the 2nd bachelor year) respectively since 2008 (practice management in the 3rd bachelor year). Communication skills are practised at different levels, including oral presentation of clinical work in the different clinics, daily activities during the clinical work in and outside the faculty, extra murals, etc.

4.2 A more structured approach to curriculum development should be considered, with the involvement of both FVMG staff and the veterinary profession.

The Study Programme Committee is responsible for the study programme development in which students, staff members and the veterinary profession are consulted (see 1.1)

4.3 Lessons in quality assurance and quality management systems should be considered in order to give the students a basic knowledge of working with these systems either in practice/clinic (GVP), laboratories (GLP) or in the field of food safety (HACCP).

GLP and HACCP are incorporated into the courses of Veterinary Food Safety and Laboratory Animals. GVP is incorporated in the course of Practice Management in the 3rd Bachelor year (practitioners give information about this item); practical information is given to the students during the clinical work inside and outside the FVMG. Additionally, students are confronted with GVP when doing their extramural stages, and are required to make an analysis (with the pros and cons) of the veterinary practices of their extramural stages.

4.4 Basic animal handling should be taught in the second year of the first cycle, together with an obligatory period of EMS. Leaving animal handling until the fourth year is considered to be too late (see also suggestion 4.9 and 5.2).

Basic animal handling has been incorporated into the extramural stages of the 2nd and 3rd bachelor years (small and large animals, both one week). Since the academic year 2012 - 2013, a part-time veterinarian has been working as a staff member, and is responsible for this item at the pilot farm (pigs and cattle handling and other relevant basic information) for all students of the 3rd bachelor year. Furthermore, in the courses of clinical anatomy of the 2nd and 3rd bachelor, basic animal handling is practiced during the practical training on living animals (dogs, horses, cattle)

4.5 The team suggests that a group is formed for regular discussion of the curriculum and that it includes representatives from FVMG, the veterinary profession and employers of veterinarians.

See 1.1 and 4.2

4.6 There should be improved integration between the basic and clinical subjects (see also suggestion 4.8).

The integration between basic and clinical subjects is improving every year, mainly because of the increased contacts between lecturers of the bachelor and master years. Pathophysiology and clinical chemistry (3rd bachelor year) are a direct continuation of physiology (2nd bachelor year). medical imaging (3rd bachelor) covers an important part of imaging

anatomy. There is a close collaboration between the lecturers of anatomy and medical imaging. They organize practical sessions of imaging anatomy. Clinical lecturers are also involved in the practical sessions organized by the lecturers of physiology (60 hours in 2nd bachelor year). On the other hand, lecturers of basic subjects (virology, bacteriology, parasitology, immunology) and those who are responsible for clinical subjects are both involved in practical sessions (clinical case discussions) organized in the 3rd master year (30-40 hours depending on the track). Further integration between basic and clinical subjects is one of the major objectives of the next study programme update.

4.2 BASIC SUBJECTS AND BASIC SCIENCES

4.7 Hours in anatomy should be reduced and should concentrate more on clinical anatomy and improved integration /coordination with bio-imaging.

In the last study programme update, the theoretical hours of anatomy were reduced by 15 hours. Recently, 3 hours of medical imaging anatomy have been incorporated into the practical sessions of anatomy. A reform of the anatomy teaching programme has been planned for the next study programme update. The aim is to obtain an optimal integration between the 2 disciplines as well as between anatomy and surgical anatomy. Additionally, discussions are ongoing about the most appropriate implementation of the practical teaching of anatomy in the future. Several meetings have already been organized between the anatomists and the chairman of the Study Programme Committee on this matter. A new study programme a transfer of some the courses from the master years to the bachelor years, also reducing several courses, including anatomy.

4.8 Better vertical integration of basic and applied subjects is required (see also suggestion 4.6)

Up till now, the reorganization of different courses of the basic sciences (Physics, Organic chemistry, Zoology, Botany) has been performed whereby a better vertical integration of the basic and applied subjects has been achieved. This strategy was accomplished by replacing the previous lecturers of the Faculty of Sciences, who mainly focused on basic subjects without the integration of specific items of veterinary medicine, by teaching staff of the FVMG. The FVMG realizes that there is still a lot of work to be done in order to achieve an optimal vertical integration.

4.9 Students should be introduced to handling live animals during the first cycle, possibly by using the farm and slaughterhouse facilities (see also suggestions 4.4 and 5.1 and section 4.3.2). Knowledge of animal handling could also help the students in their choice of option.

See 4.4. The renovation of the slaughterhouse facilities of the university has not been approved by the university due to financial constraints. The FVMG is aware of the fact that

handling of animals can help students in making their choice of track. However, the FVMG also has the experience that most students have already decided from beginning of their studies of veterinary medicine, which track they are going to choose.

4.3 ANIMAL PRODUCTION

4.10 Students who want to work with both large or small animals would appreciate the opportunity to work with farm animals during the first cycle in order to help them with the decision of following either the large or small animal track. The Faculty should provide this opportunity.

See 4.4 and 4.9

4.11 Animal housing and animal hygiene (such as climate control and animal environment) should be a discipline of the Zootechnic Institute and taught by a veterinarian, working in close collaboration with the Faculty of Agriculture.

At the moment, two veterinarians (R. Ducatelle DI05 and D. Maes DI08) are involved in the courses of animal housing and hygiene. Furthermore, for practical training in housing and hygiene, the FVMG mainly collaborates with the Institute for Agricultural and Fisheries Research (ILVO), which has a substantial expertise in these matters. Staff members of the Zootechnic Institute are not involved. Nevertheless, the FVMG is convinced that the items are adequately presented to students, even though the Zootechnic Institute is not involved. The major reason is that the expertise of the Zootechnic Institute is more directed towards nutrition and genetics rather than towards housing and hygiene.

4.12 Animal production should be more integrated with the case studies in the 6th year options “Ruminants” and “Pigs, Poultry and Rabbits”

The aspect of animal production and related zootechnical aspects are incorporated into the regular herd health visits for ruminants, pigs, poultry and rabbits outside the faculty. In addition, theoretical courses are provided for these students in the other standard learning track years.

4.4 CLINICAL SCIENCES

4.13 Some of the subjects currently taught in the second cycle should be taught in the first cycle of the course as this will result in a more integrated curriculum. Animal handling and management, basic principles of surgery and diagnostic imaging are subject areas which need to be considered for such integration.

Animal handling and diagnostic imaging have been transferred from the second to the first cycle. Basic surgery is still in the first master year, mainly because of the connection with the clinical activities organized in the master years. Management is also provided in the bachelor and master years. The FVMG realizes that some of the courses, but not all of them, can be transferred to the first cycle. This item will be addressed during the next revision of the study programme.

4.14 The lack of space and large size of student groups in the small animal clinic needs to be addressed (see also section 6.2).

The planned extension of the small animal clinic will help to solve this problem partly. Basically, the high inflow of students at the beginning of the studies ends up in a high number of students during the following years. The lack of an entrance exam is a political issue (see below). Since October 1st 2012, a small animal dispensary has been operational in the centre of Ghent to provide first-line cases to small groups of students.

4.15 A mobile clinic for commercial poultry and rabbits should be developed within the current Mobile Clinic so that students can obtain practical experience in herd and flock visits (see also suggestion 6.7).

In order to fulfil this need, a part-time Visiting Professor has been employed. This professor is responsible for the practical teaching during the herd and flock visits of commercial poultry and rabbits. Entering these facilities with groups of students is not always self-evident because of hygienic reasons.

4.16 Students should receive teaching in practice management, communication skills and practice structure; also in veterinary certification and prescription writing.

See 4.1. Veterinary certification and prescription writing have been incorporated into the clinical activities in all animal species, and are additionally taught in the course Deontology and Legislation (3th master year).

4.5 FOOD HYGIENE

4.17 The subjects taught in food safety control must include practical training in meat products, including poultry, milk, milk products and fish. For this, an increase in hours, as stated in the planned future curriculum, is necessary.

By increasing the number of teaching hours for the course Food Safety, all 21 topics listed by the EC have been covered and implemented into the curriculum. All students, including the

students of the track small animals, follow the basic courses, and the students of the track small animals or research can choose additional elective courses on these topics.

The practical training of all mentioned aspects is covered by extra murals in different specific facilities.

4.18 The experimental slaughterhouse should be renovated in order to permit increased commercial use of the slaughterhouse which in turn, would bring about greater economic and teaching benefit i.e. more outside commercial income and more carcasses.

The renovation of the slaughterhouse of the UGent has not been approved, mainly because of the very high cost. Alternatively, well organized access to external state-of-the-art slaughterhouses, organized in concert with the governmental Institute for Veterinary Inspection ("IVK"), assure the essential education in this matter.

4.19 The laboratories in the Department of Veterinary Public Health should be used more for teaching and research, thus attracting more research grants and enabling the employment of more staff.

Attracting research grants is a never-ending task of all staff members, including the staff of Veterinary Public Health. The number of grants has been increasing over the years. However, the Department of Veterinary Public Health and Food Safety has been confronted with a grant competition with other official institutes, departments and universities.

Underneath there is an overview of research progress in the Department of Veterinary Public Health and Food Safety (2004-2011):

<i>new projects</i>	<i>36</i>
<i>researchers involved</i>	<i>25</i>
<i>doctoral (PhD) dissertation</i>	<i>23</i>

5. TEACHING: QUALITY AND EVALUATION

5.1 Teaching time to help to develop PBL should be created by improving the internal organisation at the FVMG.

See 2.1.2

5.2 More time needs to be allocated to hands-on teaching (see also suggestions 4.4 and 4.9).

See 4.4 and 4.9

5.3 The faculty should consider increasing the use of external examiners for undergraduate students to ensure impartiality.

The FVMG is aware of the principle of this suggestion, but neither at the FVMG nor at the UGent, it is common practice to involve external examiners in the process of examination. Moreover, the EEC stipulates in art 54: "The lecturer-in-charge is responsible for the examination and may seek assistance from the co-lecturer(s) and other academic staff members."

The presence of external examiners is therefore not allowed. However, the input of the person responsible for all extra murals is incorporated in the evaluation of the students for this item.

5.4 The proposals for introducing 'tracking' in the new curriculum and for the development of Problem Based Learning, have implications for the future allocation of space throughout the Faculty. The FVMG should soon begin to assess its future needs in this matter, looking 10-15 years ahead.

The global building master plan of the FVMG is ongoing: several buildings have already been constructed and are fully operational (clinic for poultry and non-conventional small animals, bacteriology, administration medical imaging); other new buildings are in the pipeline (veterinary research building 2013, new pig stable 2014, extension of the small animal clinic 2014, new restaurant 2015).

5.5 There should be correlation of examinations between the University of Antwerp and FVMG for the first cycle of training with teachers from the FVMG participating in the structure and content of examinations for students at the University of Antwerp.

A special commission is responsible for the contacts between the University of Antwerp and FVMG. A collaboration has been set up for exchanging curricula and ideas. Agreements concerning the exchange of students and requirements of the courses have been established. The FVMG realizes that this item is not easy to accomplish, mainly because of the independency of all universities.

6. PHYSICAL FACILITIES AND EQUIPMENT

6.1 A Faculty-wide computer network should be re-established, with the aim of developing a single database system, which could be accessed by all departments on the campus (see also suggestion 8.3).

Up till now, all departments have their individual, computerized network. A central network to exchange all data of clinical patients is a long-term goal of the FVMG, but it will have a major financial impact, which is hardly justifiable at the present moment. However, nearly all the clinical departments have already been working with the same database software (File Maker Pro), which will facilitate further integration.

6.2 There should be better integration and more use made of the Zootechnical Institute.

A professor in the rank of Lecturer in food sciences of companion animals has been appointed (M. Hesta). Clinics on this matter for small animals and horses are organized by the Department of Nutrition, Genetics and Ethology in the 3rd master year for students of these specific tracks. Animal handling, ethology and animal behavior have been incorporated into the extra muros training (3rd bachelor) as part of the integration of the Zootechnical Institute. The Department of Ethology has been expanded with 4 visiting professors and a clinic for animal behaviour has been integrated in the 3rd master year.

6.3 The Dean should instigate a root and branch review of the current and future accommodation requirements of all the clinical departments, with the aim of determining the optimum use of the current accommodation and that which is planned, so that none of the clinics will be restrained by lack of accommodation for their clinical work or their staff.

See 2.1 and 5.4

6.4 Urgent consideration will need to be given to increasing the accommodation in the small animal department.

See 2.1 and 4.14

6.5 The Faculty should consider the provision of a central laboratory for the use of all the clinical departments (see also chapter 2), and the staff should include the appointment of a clinical pathologist (haematology, biochemistry, etc.)

Because of practical considerations and because of the financial impact of the maintenance of specific lab's and personnel, the FVMG prefers to work with external laboratories. Up till now, the collaboration has been excellent (fast results, good communication and advice). Smaller in-house equipment is available in the clinics for daily routine work, where students are involved, while lab's of other departments provide essential information when required (parasitology, bacteriology, virology, pathology, immunology, etc.). According to the ECVP, there are 4 primary areas of veterinary clinical pathology: a) clinical biochemistry, including endocrinology and immunology testing and molecular diagnostics, b) haematology, c) cytology and d) general clinical pathology, including laboratory management. The FVMG covers the abovementioned aspects of veterinary clinical pathology, and has employed two Diplomates of the ECVP. There is no clinical pathologist specialized in haematology and biochemistry, but all aspects are covered by the departments of internal medicine (where several Diplomates are present).

6.6 The team suggests that the commercial poultry and rabbits facility should be integrated within the Farm Animal departments, in particular the Mobile Clinic (see also suggestion 4.15).

See 4.15. At the present moment, the integration of a commercial poultry and rabbit facility into the pilot farm is not possible.

6.7 The review of the Department of Medicine and Clinical Biology of Small Animals, (see suggestion 10.2), must include the incorporation of small animal orthopaedic surgery.

Several unsuccessful attempts have been done to reunite these sections. However, the soft tissue and bone sections have a close collaboration and work smoothly, even without a common administrative unit.

6.8 The activities of the exotic pets and non-commercial animals now being carried out within the sub-department of exotic animals and poultry, should be integrated within the small animal department.

The exotic pets and non-conventional animals have been incorporated into a new clinic with its own identity, but a close collaboration with the small animal department has been established. Students of the track 'Companion Animals' attend clinical activities in both facilities. The needs of a Companion Animal Clinic and the needs of a Clinic for Exotic Companion Animals are different. Hence, the separation of both sections is justified.

6.9 The Faculty needs to have discussions with the Department of Medicine and Clinical Biology of Small Animals, to see how its future plans can be accommodated, possibly within the current clinical building in the short to medium term, in addition to its needs for the long term.

See 2.1, 4.14 and 6.4

7. ANIMALS AND TEACHING MATERIAL OF ANIMAL ORIGIN

7.1 The curriculum should be changed so that basic handling of animals takes place during the first or second year of training, rather than during the second cycle of training (see also suggestions 4.4 and 4.9).

See 4.4 and 4.9

7.2 It would be advisable for 6th year students to visit a practice or/and a health service and to undertake practical work rather than laboratory work, for a minimum of 4 weeks. This will help to prepare them for work after graduation.

All students of the 2nd master year of all tracks follow extra murals (“kennismakingstage”/ introduction) in veterinary practices (2 weeks). Students of the 3rd master year of all tracks have the opportunity to follow extra murals for at least another 2 weeks.

8. LIBRARY AND EDUCATIONAL RESOURCES

8.1 The amount of material available in the central library needs to be improved to enable students to have a central resource.

All students have access to the electronic databases (to conduct the master’s dissertation and other clinical work); furthermore, the amount of e-books available to students has been increasing substantially over the last years.

8.2 There needs to be an updated central registration of books kept in departmental libraries and this should be regularly checked by the library staff.

The library of the FVMG has a detailed inventory of all books kept in the different departmental units. On a regular basis, requests are distributed for information and book/journal purchase recommendations.

8.3 There should be an integrated database assembling the elements from different departments. The Computer Commission could be reactivated for this purpose (see also suggestion 6.1).

see 6.1

9. ENROLMENT AND ADMISSION REQUIREMENTS

9.1 There should be closer contact between the FVMG and the University of Antwerp throughout the first cycle of studies as to the number and competence of their students.

See 5.5

9.2 Although the visiting experts know that it is a political issue, they recommend that the Flanders’ authorities consider introducing a form of educational assessment of school leavers applying for veterinary studies at the FVMG and at the University of Antwerp.

This issue is a purely political matter. Several negotiations on the introduction of an entrance exam have been unsuccessful (only the Faculties of Human Medicine and Dentistry have a Flemish entrance exam).

10. ACADEMIC AND SUPPORT STAFF

10.1 The Faculty should explore with the profession, the need for veterinary nursing support staff and should assist in the training and provision of such persons.

The FVMG is involved in the study programme of veterinary nursing (professional bachelor of “dierenzorg”) of the University Colleges (“Hogescholen”). For these students, extra murals are organized at the FVMG. Several technical staff members with this specific training are being employed in the clinics of the FVMG.

10.2 The Department of Medicine and Clinical Biology of Small Animals should develop a plan and set out its aims for a fully equipped and fully staffed department in all the major disciplines to ensure a capability for teaching clinical activity and research.

1. *soft tissue surgery: professor in the rank of Lecturer (H. de Rooster) and Head of Clinic (B. Van Goethem).*
2. *bone surgery: professor in the rank of Senior Lecturer (B. Van Ryssen) and an Assistant Professor (Y. Samoy).*
3. *neurology: Full Professor (L. Van Ham) and Head of Clinic (S. Bhatti).*
4. *dermatology: Head of Clinic (S. Van den Abeele) and Visiting Professor (J. Declercq).*
5. *internal medicine: professor in the rank of Senior Lecturer (S. Daminet) and Head of Clinic (I. Van de Maele) each having their own speciality (endocrinology, urology: S. Daminet – medical oncology: I. Van de Maele).*
6. *ophthalmology: part-time Teaching Assistant (E. Capiou).*
7. *anaesthesiology/intensive care: professor in the rank of Senior Lecturer (I. Polis).*
8. *cardiology: part-time Teaching Assistant (D. Binst) and Resident-in-training cardiology (option to stay when Diplomate).*
9. *dentistry: part-time Teaching Assistant (L. Verhaert).*

11. CONTINUING EDUCATION

11.1 The faculty should look at increasing its collaboration with other bodies offering CPE, such as the Flemish Veterinary Association.

Because there are 2 different professional organizations in Flanders with a conflict of interest (“Vlaamse Dierenartsen Vereniging” and “Interest Veterinaire/Dierenartsen Belangen”),

the FVMG is not in the position to make a commitment to work closely with only one of the 2 organizations. However, the FVMG has close connections and a good collaboration with other professional organizations, including for example the Belgian Equine Practitioners Society, de “Wetenschappelijke Vereniging van de Gezondheid van het Paard” (Scientific Society of Equine Health), the International Pig Veterinary Society, the World Poultry Society and the Small Animal Veterinary Association of Belgium.

12. POSTGRADUATE EDUCATION

None

13. RESEARCH

None



1 CHAPTER 1 – OBJECTIVES

1.1 Factual information

1.1.1 Official list of the overall objectives of the Faculty

The FVMG is one of the eleven faculties of the UGent.

The overall objectives of the University are listed in the mission statement of the University (<http://www.ugent.be/en/ghentuniv/mission.htm>) and summarized below:

Ghent University...

- distinguishes itself as a socially committed and pluralistic university that is open to all students, regardless of their ideological, political, cultural or social background;
- defines itself in a broad international perspective, all the while accentuating its individuality in terms of language and culture;
- aims to encourage its students to adopt a critical approach within a creative, development-oriented educational and research environment;
- offers a broad spectrum of high-quality research-based educational programmes that are constantly being adapted to the most recent scholarly and scientific developments;
- aims to develop in a selective manner the advanced degree programmes, as well as postgraduate and permanent education;
- aims to situate its educational and research activities within the broader social context and to remain in continual dialogue with all parties concerned;
- aims to promote and further develop fundamental independent research in all faculties and to be a world player in the selected fields of endeavour;
- aims to be an enterprising university with a focus on the social and economic applications of its research findings;
- attaches particular importance to the social facilities made available for students;
- creates a stimulating environment for its staff and provides them with the fullest scope of opportunities for developing their potential;
- attaches particular importance to the participation of students, staff and social representatives in the formulation of policy;
- desires strong interaction with its alumni;
- opts for a decentralised, dynamic organization model.

The FVMG adheres to this mission and implements this mission statement in its triple dedication (see [Faculty Brochure](#)): education, research and service to the community in all matters dealing with the life and health of animals, including the sanitary quality control of animal products.

Research and service to the community are very important to the FVMG.

Scientific research is a top priority for all departments, and large amounts of personnel, time and finances are invested in a wide range of research (see chapter 13).

As a service to the community, all faculty staff members consider it both a duty and a privilege to share their scientific and clinical expertise by active participation in academic and professional advisory boards and committees on regional, national and international levels.

Providing high quality education however remains the first and most important objective of the faculty.

Education at the FVMG is composed of undergraduate teaching and postgraduate teaching.

Postgraduate teaching comprises the continuing professional development courses for the profession and the postgraduate education courses (see chapters 11 and 12).

The undergraduate study programme remains the primary educational responsibility of the FVMG.

Veterinary medicine education has evolved from a strong professionally / technically oriented training (“*medicus veterinarius*”) towards a training as a health care professional, who is devoted to the “one health” principle, including and combining animal and human health and well-being.

The broader spectrum of fields of expertise and possible tasks of the veterinarian has led to substantial changes in the study programme.

The actual educational policy is translated in a very wide first cycle to continue with a more focused system of elective tracks (options) together with elective courses and a master dissertation, which allows the students to independently acquire knowledge and to develop critical and scientific thinking.

The exponential growth of knowledge in all disciplines of veterinary medicine has led to this new educational policy of the faculty. This policy foresees in a large basic knowledge and guarantees the graduate to have enough day one competences in specific areas of Veterinary Medicine. The latter is obtained by introducing the species-directed options and elective courses from which students can choose in the final years of the veterinary study programme.

A student driven study programme is only offered from the second half of the fifth year. The FVMG has taken care that the first four and a half years are identical for each student, meaning that the faculty keeps a solid grip on the basic study programme allowing a core study programme that guarantees a broad education in all fields of veterinary medicine.

* in the present document (with exception of the Introduction part and the titles of the chapter/subchapters), the term “study programme” will be used to define the general of the veterinary studies. The term “curriculum” will be used for individual programmes from students.

The intended learning outcomes and essential competences of the veterinary medicine study programme at graduation have been determined and are published in the Programme Catalogue of the UGent. A detailed description of these learning outcomes is available at the following sites and in annex 1.1:

Companion Animal track (click on ‘Learning outcome’):

<http://studiegids.ugent.be/2012/EN/FACULTY/G/MABA/GMDIERGD/GMDIERGD.html>

Equine track (click on ‘Learning outcome’):

<http://studiegids.ugent.be/2012/EN/FACULTY/G/MABA/GMDIERPA/GMDIERPA.html>

Ruminant track (click on ‘Learning outcome’):

<http://studiegids.ugent.be/2012/EN/FACULTY/G/MABA/GMDIERHK/GMDIERHK.html>

Pig, Poultry and Rabbit track (click on ‘Learning outcome’):

<http://studiegids.ugent.be/2012/EN/FACULTY/G/MABA/GMDIERVP/GMDIERVP.html>

Research track (click on ‘Learning outcome’):

<http://studiegids.ugent.be/2012/EN/FACULTY/G/MABA/GMDIERON/GMDIERON.html>

1.1.2 Redaction of objectives of the Faculty

These objectives have been redacted by the teaching staff of the FVMG and have been discussed and approved by the Study Program Committee and the Faculty Council.

The published version on the website at the present moment has been finalised in 2007. This version is a more elaborated version of the previous version, but is still a document that is mainly focused on the entire study programme and therefore does not make a clear distinction between the learning outcomes of the Bachelor’s and Master’s programmes. A preliminary and rather concise version of the specific Bachelor learning outcomes had been created during the implementation of the BaMa structure. This document can be found in annex 1.2 and on:

<http://studiegids.ugent.be/2012/EN/FACULTY/G/BACH/GBDIER/GBDIER.html> (click on ‘Programme goals’).

1.1.3 Revision of the objectives

A project was started in 2010 to update the 2007 version to the changing needs of the profession and to the changes in the study programme, especially the implementation of the BaMa system. These new objectives were prepared by staff members of the FVMG, especially the coordinators of the different tracks within the study programme, and were afterwards discussed with the students and alumni.

The students were involved by means of a survey during which they could score to what extent the learning outcomes of the Bachelor's and Master's programmes were reached during these study. The alumni were contacted through the different veterinary organisations (equine, bovine and swine practitioners, small animal organisations and the society of veterinarians working in public offices or industry) to give their opinion on the relevance of the proposed learning outcomes.

In annex 1.3 till 1.9 the 2012 versions of the learning outcomes for the bachelor and master study programme are presented.

The results of the surveys will be discussed during the forthcoming meetings of the Study Programme Committee and actions will be taken to adapt either the description of the learning outcomes or to adapt the study programme.

The revised version of the learning outcomes of the Bachelor's and Master's programmes will be published in the Programme catalogue of the academic year 2013-2014.

1.1.4 System for permanent assessment of the achievement of the Faculty's general objectives

The achievement of these objectives is assessed by frequently distributed surveys among the Flemish veterinarians. A survey is generated and distributed by the FVMG every 6 years. Two other surveys are organized by the central administration of the UGent: one biannual evaluation of the Bachelor and Master degrees amongst recent graduates and one triannual evaluation amongst the veterinary profession concerning the achievement of the overall learning objectives. The information coming from these surveys is discussed both within the FVMG and the university and is part of the quality assurance system of the UGent (see chapters 4 and 5).

1.2 Comments

The revised study programme with the differentiation in the last one and a half years of the study programme has made it possible to achieve the objectives of the FVMG to a large extent. The main reason is that due to this differentiation, there are fewer students within each track, which makes it possible to give them a higher level of hands-on training with the number of staff members available at the FVMG than the previous, more uniform study programme. The downside of this system is that the hands-on competences for species outside the chosen track are less developed. However, with a system of clinical demonstrations in all species (fourth

year) and the possibility of taking elective practical courses outside the chosen track, the FVMG is convinced that its graduates have an adequate broad basic training and an excellent practical training within their track. This aspect is highly appreciated by e.g. incoming Erasmus students.

1.3 Suggestions

The above mentioned objectives could be achieved to a greater extent if either the number of enrolled students could be limited or more staff members could be employed so that more problem-based learning with small groups of students could be applied, particularly in clinical training.

A major issue in training, both theoretically and practically, is the use of problem-based learning with small groups of students. This is practised in the final years to a large extent, but is less applied in the Bachelor's programme. Limitations in staff numbers and the high pressure on staff members to have an outstanding scientific output are mainly responsible for the current, rather "classical" way of teaching. The main suggestion of the FVMG in this respect is a better valorisation of the teaching activities within the university. At this moment, a new evaluation system for permanent staff members is being implemented, and it seems that this new system may be beneficial for rewarding educational efforts and excellence.

Additionally, the FVMG needs to continue investing in improvements of the study programme, since the veterinary profession keeps evolving. These improvements will imply a constant change of both the objectives and the study programme.



2 CHAPTER 2 - ORGANIZATION

2.1 Factual information

2.1.1 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: <http://www.ugent.be/di/en>

Title and name of head of the establishment: Dean Prof. Dr. Frank Gasthuys

Is the establishment within a university? Yes

If so, please give address of the university.

Ghent University, Sint-Pietersnieuwstraat 25, B-9000 Ghent, Belgium

Details of the competent authority overseeing the establishment:

Rector Prof. Dr. P. Van Cauwenberge

Additional information:

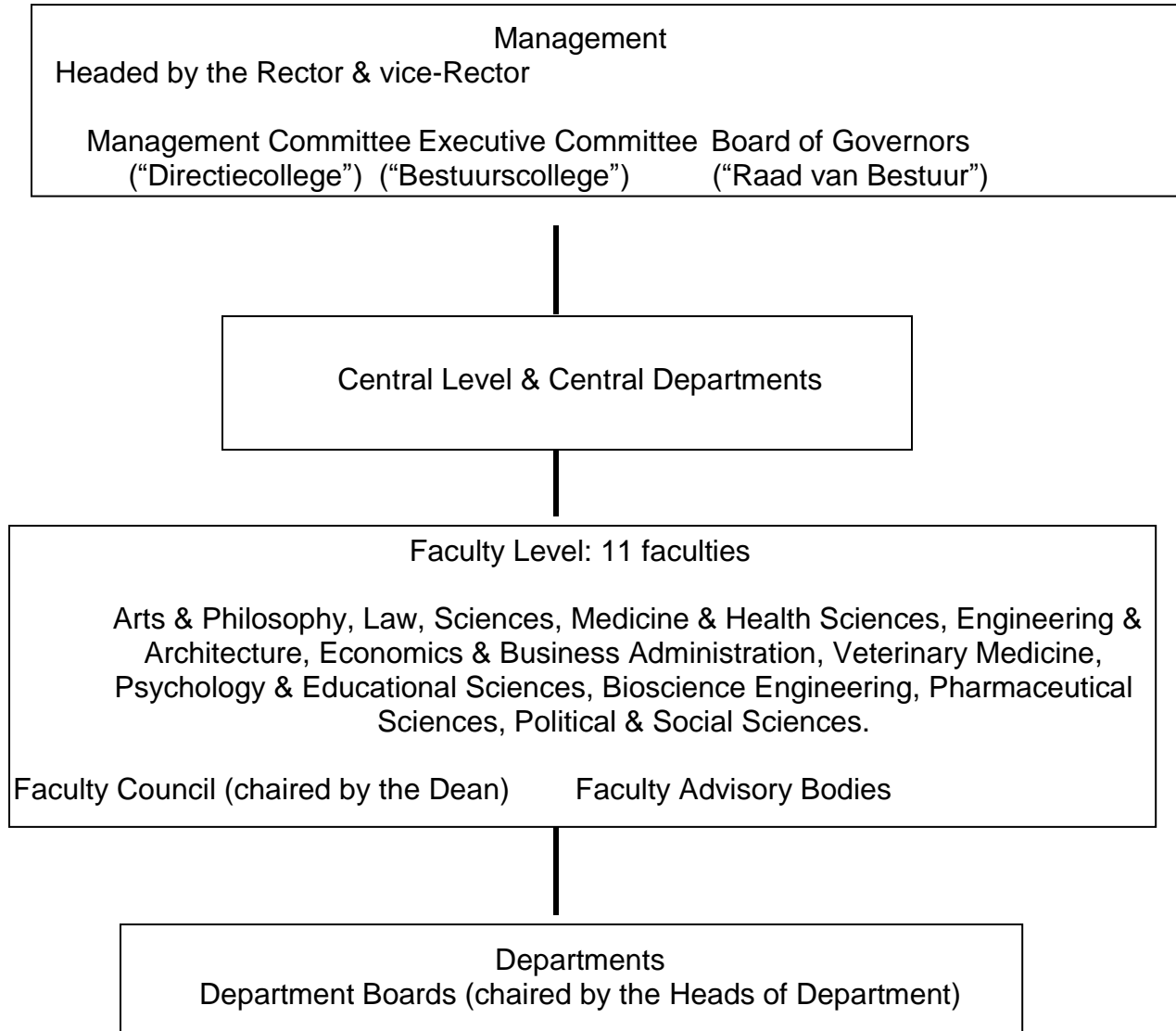
<http://www.ugent.be/en/ghentuniv/presentation/focus.htm>

<http://www.ugent.be/en/ghentuniv/presentation>

UGent is controlled by the Flemish government. The government provides 76,14% of the funding (education and research). The remaining 23,86 % is obtained from the private sector (7,84%) and international organizations, enrolment fees, examination fees and real estate income (16,02%). 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 who controls the financial management. Therefore, UGent is daily supervised by both a government commissioner and a government financial controller.

The FVMG is one of the 11 faculties of UGent. UGent is considerably decentralized. The faculty and its 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



2.1.2 Organization of the faculty

The FVMG is governed by the 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 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 FVMG:

- Department of Comparative Physiology and Biometrics (DI01),
- Department of Pharmacology, Toxicology and Biochemistry (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 and Food Safety (DI06),
- Department of Animal Nutrition, Genetics 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 Veterinary Medical Imaging and Small Animal Orthopaedics (DI11),
- Department of Internal Medicine and Clinical Biology of Large Animals (DI12).

Additional information can be found in the [Faculty brochure](#).

The services of the Dean ('decanaat') consist of 'two cells':

- Logistics and human resources: office for the daily administration and maintenance, human resources, the Institute for Permanent Training, the library and the Flemish Veterinary Journal (A1 journal)
- The Education Care Unit: the Faculty Student Administration, the Education Quality Control Unit and the Monitoring service.

The Faculty Council is assisted by advisory committees. The most important ones are the Study Programme Committee and the Faculty Research Committee.

The FVMG is directed by the Faculty Council, which is responsible for the general management of the FVMG 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 Study Programme Committee is composed of one representative from each department (12 professors), one representative of the assistant academic staff and students (8). It gives advice on the study programme (courses, study time and credits), teachers responsible for each course,... There is also a (non-voting) representation: 2 from the Education Quality Control Unit (administrative staff), the University of Antwerp (1 professor) and the Dean.

The Faculty 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 the general public are not involved in the running of the establishment. In selected matters (e.g. study programme development, VET 2020) the veterinary practitioners and National Board of Veterinarians are asked for advice. Academic consultants and visiting 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 4 year period, which is renewable. This decision must be approved by a group of representative students.

2.2 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 although some aspects require major efforts of all departments (including the complicated SAP system for finances, human resources etc.).

2.3 Suggestions

We plead for a period of consolidation of the existing and good working multileveled structure of the UGent. Also, administrative simplification is certainly justified on all levels

3 CHAPTER 3 - FINANCES

3.1 Factual information

3.1.1 General information

UGent gets its major funding for educational purposes from the Flemish government. After deduction of the costs for recruiting staff (see chapter 10) and general costs (for maintenance, buildings, etc.), the Board of Governors of the UGent divides the remainder of the money amongst the 11 faculties using the same allocation model used for the allocation of staff.

For the veterinary training of the first cycle, the FVMG receives the same budget weighing as for students from other biomedical studies (e.g. human medicine), while for the second cycle, a fixed number of allocated points for veterinary clinical education ('Klinieksokkel' of 77.40 FTE personnel points: 1 FTE ranges from 1.85 to 0.65 points) is obtained from the UGent.

For the allocation of the revenue from the Flemish government or public authorities (see table 3.1.), the FVMG has its own allocation model. After deduction of the general costs, the allocation of money is based on the number of staff members working in each department. However, non-clinical departments get more funding for each staff member than clinical departments because there is no revenue involved in the organization of education in the non-clinical departments.

The revenue from continuing education covers the costs for the organization of the training programmes. The other revenues obtained by the various departments by rendering services to the community go directly to each department. However, the FVMG has to pay an overhead of 17% of these revenues to the university.

While the construction of the campus was entirely paid by the Flemish government, all additional buildings have been constructed and financed by the university. Faculty proposals for new constructions need to be approved by the Building Committee and the Executive Board of the UGent. 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 Flemish government, research, clinical activities or other community services.

3.1.2 Information on extra income

The FVMG has to pay an overhead of 17% on all direct income to the university

clinical work	17%
analysis for commercial clients	17%
analysis for veterinary practitioners	17%
research grants	17%
other:	17%
In total:	17%

Tuition and registration fee:

The Belgian system of higher education is very democratic and social. Students have to pay a moderate registration fee and no tuition. Depending on whether the student gets a grant from the Flemish Government, a full-time undergraduate student pays each year € 80 (grant student), € 340 (students who are on the border of having a grant) or € 578 (non-grant students). Both the study grant from the Flemish government and the registration fee depend on the income of the student or his (her) parents.

3.1.3 Overview income (revenue) and expenditure

Table 3.1: Income/Revenue (in euro)

Year	State (Flemish government)		Income generated by the faculty		Total
	To university administered outside the faculty	Direct to faculty	Income from services provided	Research	
2011	13,940,129	1,534,140	9,812,543	7,215,382	32,502,194
2010	13,689,185	1,536,942	8,791,559	8,804,310	32,821,997
2009	13,442,939	1,557,734	7,785,506	7,527,624	30,313,804

Extra info: Detailed Revenue for 2011:

Extra info: annual revenues (in euro) of the establishment			
Calendar year: 2011			
	Direct	Indirect	
a. revenue from the State or public authorities	1,534,140	13,940,129	
b. revenue from private bodies	992,342		
c. research revenue	7,215,382		
d. revenue earned and retained by the establishment		1,668,070	
d.1. registration fees from students	11,400		
d.2. revenue from continuing education	418,794		
d.3. revenue from clinical activities	6,704,088		
d.4. revenue from diagnostic activities			
e. revenue from other sources	17,849		
f. total revenue from all sources	16,893,995	15,608,199	32,502,194
Overheads not included in revenues, via indirect revenues			
Direct revenues: directly attributed to FVMG			
Indirect revenues: centrally financed and managed			

Extra info: Changes in public funding					
	2011 present year	2010 N-1	2009 N-2	2008 N-3	2007 N-4
Revenue	15,474,269	15,226,127	15,000,674	14,746,199	14,482,918

Table 3.2: Expenditure (in euro)

Year	Pay	Non Pay				Total
	Salaries	Teaching support	Research support	Clinical support	Other ¹⁾	
2011	18,112,997	840,865	3,770,311	5,258,947	3,974,863	31,957,982
2010	17,357,371	705,226	3,722,931	5,197,435	3,896,923	30,879,886
2009	15,974,046	714,577	2,949,005	4,754,444	3,816,771	28,208,843

1) See table "Extra Info" below: = sum (utilities (b1) + general operations (b5), + general (or common) equipment (c4) + maintenance of buildings (d))

Extra info: Detailed expenditure for 2011

Extra info: Annual expenditure of the establishment	
Calendar year: 2011	
	Euro
a. Personnel	
a.1. Teaching staff	7,780,166
a.2. Support staff for teaching	3,853,171
a.3. Research staff	3,683,061
a.4. Staff for clinical/diagnostic activities	2,796,600
Total a	18,112,997
b. Operating costs	
b.1. Utilities	764,510
b.2. Expenditure relating specifically to teaching	806,945
b.3. Expenditure relating specifically to research	3,414,788
b.4. Expenditure relating spec. to clinical/diagnostic act.	4,675,839
b.5. General operations (excluding the above)	1,391,993
Total b	11,054,075
c. Equipment (*)	
c.1. Teaching	33,920
c.2. Research	355,523
c.3. Diagnostic/clinical activities	583,108
c.4. General (or common) equipment	150,290
Total c	1,122,840
d. Maintenance of buildings (*)	1,668,070
e. Total expenditure	31,957,982

(*): writings-off of previous years not included, only expenditure 2011

Extra info: Cost of veterinary training	Euro
1. Annual direct cost of training a student	9,059
2. Direct cost of training a diploma	54,354

3.2 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 both the clinical and non-clinical departments.
- to recruit additional staff in order to support the veterinary research by keeping more post-doctoral researchers at the FVMG.
- to purchase and update modern equipment for teaching, laboratory work and clinical activities
- to support the renovation of buildings, such as the modernization of some of the infrastructure.

When allocating its revenues to the different departments, the FVMG prefers to have more financial means available to provide grants for specialist training of post-graduate and post-doctoral students, and for subsidizing practical and clinical training of students.

On the other hand, the FVMG very much appreciates the federal and university grants that have recently been obtained for innovating e-learning programmes (see chapter 5.1). However, 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.

An additional 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 in favour of the profit sector.

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

The overhead of 17% 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.

3.3 Suggestions

Because of the current economic crisis, there are central plans from the national government to cut the budget for education and aid to developing third world countries. Both items are of major importance for all universities including the FVMG. Moreover, EU grants are more and more difficult to obtain while the income of the clinics also decrease.

All the above mentioned changes have a major impact on the essential education and research in the FVMG.



4 CHAPTER 4 – CURRICULUM

4.1 Factual information

The FVMG provides undergraduate, graduate and postgraduate courses. The undergraduate course complies with the European Directive 2005/36/EC, which was translated in the national Royal Decree of June 2 2008.

The organization of the higher education in Flanders is controlled by the decree on higher education issued by the Flemish Minister of Education in 2003 (Structuur decreet). 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 programmes offered by the various institutions of education, gives competence and accreditation to the different institutions to organize specific study programmes, and defines the diplomas that are conferred. This decree stipulates that the FVMG is qualified to organize the education of “Bachelor of science in Veterinary Medicine and “Master of veterinary medicine in Veterinary Medicine” or “Dierenarts” (“veterinary surgeon”).

The specific contents of the study programme are developed by the FVMG, since there is no specific national study programme. Therefore the Executive Board of UGent installed in each of the faculties Study Programme Committees and Education Quality Control Units to develop, supervise and evaluate all education programmes that are offered. The FVMG has one Study Programme Committee which was installed in 1992, and one Education Quality Control Unit which started in 1999. The contents and structure of the study programme, as proposed by the FVMG, have to be approved by the UGent and additionally by the Flemish Government. For this purpose an accreditation system has been installed that evaluates all curricula and study programmes in Flanders and in the Netherlands. This organization is “Nederlands-Vlaamse Acreditatie Organisatie” (NVAO). Specific for the veterinary education in Flanders and in the Netherlands, the NVAO uses the EAEVE accreditation for the local accreditation.

The Education Quality Control Unit consists of a Director of Studies (Full Professor), the Dean, the Chair of the Study Programme Committee, a permanent Secretary (DVM) and two students. They evaluate the quality of the programme 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 study programme and formulate proposals for curricular adaptations to the Study Programme Committee. In summary, the major task of the Education Quality Control Unit is to support the Study Programme Committee of the FVMG in its activities related to the assessment and maintenance of the quality of the veterinary study programme.

As every faculty at UGent, FVMG has a Study Programme Committee acting as a permanent advisory body with regard to general policy and organization of the veterinary studies.

According to the rules from UGent,

- at least half of each Study Programme Committee is made up of tenured academic staff, with the inclusion of the tenured scientific staff who are involved in educational activities and,
- at least one third of each Study Programme Committee is made up of students.

The Study Programme Committee at FVMG includes one representative from each department (corresponding in total to 12 members), 1 representative from the academic assistant staff and 8 students (with at least one student from every study year) for a total of 21 voting members. The Study programme Committee has a Chair and a Secretary, assigned by the Faculty Council and chosen within the department representatives.

Additionally, the Dean of the FVMG, the head of the Education Quality Control Unit, the Learning Track Counsellor and a representative of the University of Antwerp are advisory members (without right to vote).

The Study Programme Committee is in charge of:

- setting the objectives, the way in which the educational and learning activities are organized and given shape and the practical elaboration of the substance and content of the education, the course of proceedings and the coaching and guidance of the educational learning processes and shall be responsible for the results thereof.
- consistently optimizing the quality of the education on offer.
- setting up the entire study programme construction (development, implementation and evaluation).

The Study Programme Committee is an advisory committee and has to report all its proposals to the Faculty Council for agreement.

Therefore the final decisions on changes in the veterinary education are taken by the Faculty Council, taking into consideration the prerogatives of the Board of Governors of the UGent.

The main objective of the FVMG 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 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.

Changes to improve the study programme, e.g. allocation of hours between the various subjects, the balance between theoretical and practical teaching, and course content, are

thoroughly discussed in the Study Programme Committee, taking into consideration the evolution in veterinary profession, the guidelines from the university, the Flemish Government and Europe, the opinion of the students expressed in the annual enquiries that are organized by the university and assessed by the Education Quality Control Unit of the FVMG, and the opinion of academic staff members with expertise in the novel subjects. After a consensus is reached within the Study Programme Committee, proposals are submitted for approval to the Faculty Council and hence to the Board of Governors of the UGent for official acceptance. The FVMG therefore has a relatively large degree of freedom concerning study programme changes, as long as the final competences as required by the different accreditation organizations, are reached.

With the introduction of the Bachelor/Master structure at UGent in 2004, a rather profound change in conceptualization of achieving the degree of Veterinary Surgeon took place. The emphasis shifted from study years to (ECTS-)credits by the implementation of the European Credit Transfer and Accumulation System (ECTS). The ECTS is a student-centred system based on the student workload required to achieve the objectives of a programme, objectives preferably specified in terms of the learning outcomes and competences to be acquired. From this moment on, the subdivision in study years has ceased to exist. As a result there is an increased flexibility in which a student can choose the (amount of) courses to be followed during an academic year, of course, taking into consideration the proper course sequence. In a standard learning track, completion of all the courses taught in the Bachelor's programme takes at least three academic years (60 credits per annum, 180 credits in total). Also for the Master's programme a standard learning track takes three years to complete. In total, the standard learning track to obtain a masters degree in Veterinary Medicine is six years. The students however are not required to take all subjects (60 credits) of a standard learning track year. They can decide to take less or even more, depending on their personal abilities. This is stipulated in the flexibility decree (2004).

One ECTS credit stands for 30 hours of study activities. Total study load can hereby be calculated per subject and per standard learning track year. Part of the quality control system of the UGent consists of a study time measurement per subject (see 5.1.4).

The total study duration (the overall time that a student needs to complete an education) is limited by the 'learning credit' ("leerkrediet"). This system provides every starting student with 140 credits to be used or re-earned (on successful completion of a course) during their study. Once the 140 credits are lost due to unsuccessful study progress the student can permanently be suspended from Veterinary Medicine study or even all academic studies in Flanders.

The whole of the education at the FVMG of the UGent is regulated by the university's '[Education and Examination Code](#)' (EEC). This code is adapted annually.

4.1.1 Power of Subjects and types of training

4.1.1.1 Power of subject

The total veterinary education programme (i.e. Bachelor AND Master) comprises three basic types of education:

- “Core” subjects taken by every student (from the first year till the first semester of the fifth year)
- “Electives” (from the fifth year second semester and in the final year)
- “Obligatory extramural work” (in the third and the fifth year)
- The details concerning these categories are presented in the next paragraphs.

4.1.1.2 Types of training

A definition of the teaching methods used at the UGent is given in part IX section I (p. 82-84) of the [EEC](#). The teaching methods used in each course are listed in the course sheet of the respective courses. This annually updated course sheet is published in the university’s study guide.

Because the definitions of the EAEVE types of training differ significantly of those of the UGent, a survey was organized in which all lecturers were asked to describe the types of training they use in their courses according to the definitions used by the EAEVE. The results of this survey provided the basis of the figures in table 4.2, 4.3 and 4.4.

4.1.2 Undergraduate study programme followed by all students

4.1.2.1 General structure of the programme

The Flemish study programme is divided into two cycles of 3 years namely the Bachelor’s programme, in which predominantly all pre-clinical subjects are taught, and the Master’s programme which comprises most of the clinical education.

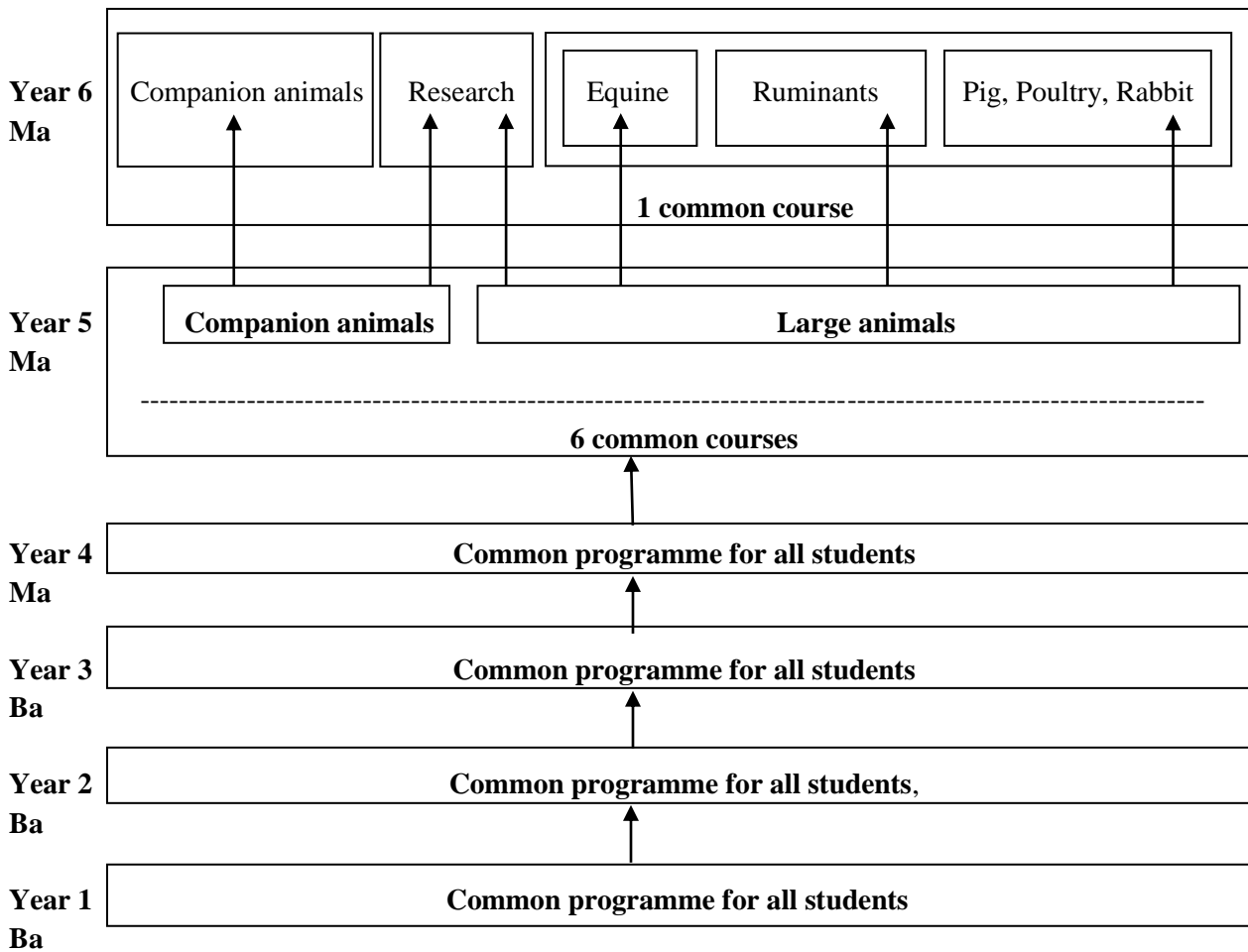
The entire study programme in veterinary medicine consists of a common track of 4,5 years (Ba1 + Ba2 + Ba3 + Ma1 + first half of Ma2). All courses in this common track are identical for all students, and are listed under the header "General courses".

In the second semester of the second master year (fifth year of study) students have to choose between a ‘Companion Animal Medicine’ trunk (Ma2k) or a ‘Large Animal Medicine’ trunk (Ma2g).

In the final (sixth) year, students have to make a choice out of 5 elective tracks (‘Companion Animal Medicine’, ‘Equine Medicine’, ‘Ruminant Medicine’, ‘Pig, Poultry and Rabbit Medicine’ or ‘Research’) (Ma3g, Ma3p, Ma3h, Ma3v or Ma3o respectively) supplemented with a number of elective (optional) subjects. These elective subjects amount to 6 credits for the clinical tracks or 15 credits for the ‘Research’ track.

Students who have chosen the 'Companion Animal Medicine' trunk in the fifth year, have to proceed towards the elective track 'Companion Animal Medicine' or 'Research' in the sixth year. Students from the 'Large Animal Medicine trunk' can continue in the Equine track, Ruminant track, Pig, Poultry, Rabbit track or the Research track in the sixth year (Figure 4.1).

Figure 4.1: Schematic overview of the study programme at the FMVG



Self-directed learning is integrated in many courses. An average of about 10% of the total study time (as foreseen in the study guide) minus the other teaching methods (also written down in the study guide for each subject) has been used to allocate to category C. About one hour per day is allocated for self-directed learning during the Clinical Rotations. A complete list of all courses in the bachelor and master programme of the FVMG is given in annex 4.1.

The tables 4.1 with the study programme hours are represented below. Due to the tracking system, the tables are represented for each track.

In the tables 4.2 the study programme hours in EU-listed subjects are also represented for the different tracks .

Table 4.1.a: General table of study programme hours within the Companion Animal track (electives excluded).

Year	Standard learning track year	Lectures	Seminars	Self Directed Learning	Laboratory & desk based work	Non-clinical animal work	Clinical training	Total
		A	B	C	D	E	F	
First	Ba1	373.25	24.75	1302.5	91.25	8.25	0	1800.00
Second	Ba2	440.00	12.50	1152.50	185.00	10.00	0.00	1800.00
Third	Ba3	435.00	31.00	1040.00	174.00	120.00	0.00	1800.00
Fourth	Ma1	472.00	16.00	1208.00	20.00	6.00	78.00	1800.00
Fifth	Ma2 + Ma2k	420.50	12.00	1172.50	15.00	30.00	150.00	1800.00
Sixth	Ma3 + Ma3g	108.00	7.00	605.00	80.00	110.00	710.00	1620.00
Total		2248.75	103.25	6480.50	565.25	284.25	938.00	10620.00

In the sixth year, students have to take electives (ma3z) for 6 ECTS-credits or 180 hours

Ba= Bachelor - Ma= Master - Ma2k= 2nd year Master Companion Animal trunk - Ma3g= 3th year master Companion Animal track

Table 4.1.b: General table of study programme hours within the Equine track (electives excluded).

Year	Standard learning track year	Lectures	Seminars	Self Directed Learning	Laboratory & desk based work	Non-clinical animal work	Clinical training	Total
		A	B	C	D	E	F	
First	Ba1	373.25	24.75	1302.5	91.25	8.25	0	1800.00
Second	Ba2	440.00	12.50	1152.50	185.00	10.00	0.00	1800.00
Third	Ba3	435.00	31.00	1040.00	174.00	120.00	0.00	1800.00
Fourth	Ma1	472.00	16.00	1208.00	20.00	6.00	78.00	1800.00
Fifth	Ma2 + Ma2g	403.00	7.00	1172.50	10.00	42.50	165.00	1800.00
Sixth	Ma3 + Ma3p	90.50	59.50	562.50	45.00	100.00	762.50	1620.00
Total		2213.75	150.75	6438.00	525.25	286.75	1005.50	10620.00

In the sixth year, students have to take electives (ma3z) for 6 ECTS-credits or 180 hours

Ba= Bachelor - Ma= Master - Ma2g= 2nd year Master Large Animal trunk - Ma3p= 3th year master Equine track

Table 4.1.c: General table of study programme hours within the Ruminant Medicine track (electives excluded).

Year	Standard learning track year	Lectures	Seminars	Self Directed Learning	Laboratory & desk based work	Non-clinical animal work	Clinical training	Total
		A	B	C	D	E	F	
First	Ba1	373.25	24.75	1302.5	91.25	8.25	0	1800.00
Second	Ba2	440.00	12.50	1152.50	185.00	10.00	0.00	1800.00
Third	Ba3	435.00	31.00	1040.00	174.00	120.00	0.00	1800.00
Fourth	Ma1	472.00	16.00	1208.00	20.00	6.00	78.00	1800.00
Fifth	Ma2 + Ma2g	403.00	7.00	1172.50	10.00	42.50	165.00	1800.00
Sixth	Ma3 + Ma3h	73.00	44.50	580.00	50.00	40.00	832.50	1620.00
Total		2196.25	135.75	6455.50	530.25	226.75	1075.50	10620.00

In the sixth year, students have to take electives (ma3z) for 6 ECTS-credits or 180 hours

Ba= Bachelor - Ma= Master - Ma2g= 2nd year Master Large Animal trunk - Ma3h= 3th year master Ruminant track

Table 4.1.d: General table of study programme hours within the Pig, Poultry and Rabbit Medicine track (electives excluded).

Year	Standard learning track year	Lectures	Seminars	Self Directed Learning	Laboratory & desk based work	Non-clinical animal work	Clinical training	Total
		A	B	C	D	E	F	
First	Ba1	373.25	24.75	1302.5	91.25	8.25	0	1800.00
Second	Ba2	440.00	12.50	1152.50	185.00	10.00	0.00	1800.00
Third	Ba3	435.00	31.00	1040.00	174.00	120.00	0.00	1800.00
Fourth	Ma1	472.00	16.00	1208.00	20.00	6.00	78.00	1800.00
Fifth	Ma2 + Ma2g	403.00	7.00	1172.50	10.00	42.50	165.00	1800.00
Sixth	Ma3 + Ma3v	118.00	12.00	640.00	140.00	130.00	580.00	1620.00
Total		2241.25	103.25	6515.50	620.25	316.75	823.00	10620.00

In the sixth year, students have to take electives (ma3z) for 6 ECTS-credits or 180 hours

Ba= Bachelor - Ma= Master - Ma2g= 2nd year Master Large Animal trunk - Ma3v= 3th year master Pig, Poultry and Rabbit track

Table 4.1.e: General table of study programme hours within the Research track (coming from the Companion Animal trunk) (electives excluded).

Year	Standard learning track year	Lectures	Seminars	Self Directed Learning	Laboratory & desk based work	Non-clinical animal work	Clinical training	Total
		A	B	C	D	E	F	
First	Ba1	373.25	24.75	1302.5	91.25	8.25	0	1800.00
Second	Ba2	440.00	12.50	1152.50	185.00	10.00	0.00	1800.00
Third	Ba3	435.00	31.00	1040.00	174.00	120.00	0.00	1800.00
Fourth	Ma1	472.00	16.00	1208.00	20.00	6.00	78.00	1800.00
Fifth	Ma2 + Ma2k	420.50	12.00	1172.50	15.00	30.00	150.00	1800.00
Sixth	Ma3 + Ma3o	135.50	67.50	1062.50	84.50	0.00	0.00	1350.00
Total		2276.25	163.75	6938.00	569.75	174.25	228.00	10350.00

In the sixth year, students of Research track have to take a clinical elective (ma3zo) for 9 ECTS-credits or 270 hours and non-clinical electives (ma3z) for 6 ECTS-credits or 180 hours

Ba= Bachelor - Ma= Master - Ma2k= 2nd year Master Companion Animal trunk - Ma3o= 3th year master Research track

Table 4.1.f: General table of study programme hours within the Research track (coming from the Large Animal trunk) (electives excluded).

Year	Standard learning track year	Lectures	Seminars	Self Directed Learning	Laboratory & desk based work	Non-clinical animal work	Clinical training	Total
		A	B	C	D	E	F	
First	Ba1	373.25	24.75	1302.5	91.25	8.25	0	1800.00
Second	Ba2	440.00	12.50	1152.50	185.00	10.00	0.00	1800.00
Third	Ba3	435.00	31.00	1040.00	174.00	120.00	0.00	1800.00
Fourth	Ma1	472.00	16.00	1208.00	20.00	6.00	78.00	1800.00
Fifth	Ma2 + Ma2g	403.00	7.00	1172.50	10.00	42.50	165.00	1800.00
Sixth	Ma3 + Ma3o	135.50	67.50	1062.50	84.50	0.00	0.00	1350.00
Total		2258.75	158.75	6938.00	564.75	186.75	243.00	10350.00

In the sixth year, students of Research track have to take a clinical elective (ma3zo) for 9 ECTS-credits or 270 hours and non-clinical electives (ma3z) for 6 ECTS-credits or 180 hours

Ba= Bachelor - Ma= Master - Ma2g= 2nd year Master Large Animal trunk - Ma3o= 3th year master Research track

Table 4.2.a Study programme hours in EU-listed subjects taken by the Companion Animal track (electives excluded)

EU listed subject	Code	Lectures	Seminars	Self Directed Learning	Laboratory & desk based work	Non-clinical animal work	Clinical training	
		A	B	C	D	E	F	Total
1. Basic Subjects								
a) Physics	1a	30.0		85.0	5.0			
b) Chemistry	1b	82.5	15.0	247.5	15.0	0.0	0.0	
c) Animal biology	1c	30.0	6.3	135.0	4.5	4.3		
d) Plant biology	1d							
e) Biomathematics	1e	22.0	0.0	51.5	17.0	0.0	0.0	
Total basic subjects		164.5	21.3	519.0	41.5	4.3	0.0	750.5
2. Basic Sciences								
a) Anatomy (incl. histology and embryology)	2a	244.5	1.0	652.5	176.8	2.3	0.0	
b) Physiology	2b	125.0	0.0	357.0	40.0	15.0	5.0	
c) Biochemistry. cellular and molecular biology	2c	142.0	7.5	422.0	25.0	0.0	0.0	
d) Genetics (including molecular genetics)	2d	68.5	0.0	177.5	0.0	0.0	0.0	
e) Pharmacology and pharmacy	2e	75.0	0.0	255.0	0.0	0.0	0.0	
f) Toxicology (including environmental pollution)	2f	30.5	0.0	67.5	5.0	0.0	0.0	
g) Microbiology (including virology. bacteriology and mycology)	2g	149.0	0.0	357.5	57.5	0.0	0.0	
h) Immunology	2h	52.0	0.0	147.5	38.5	0.0	0.0	
i) Epidemiology (including scientific and technical information and documentation methods)	2i	8.0	0.0	106.0	8.0	0.0	0.0	

j) Professional ethics	2j	2.0	0.0	4.0	0.0	0.0	1.0	
Total basic sciences		896.5	8.5	2546.5	350.8	17.3	6.0	3825.5
3. Clinical Sciences								
a) Obstetrics	3a	15.0		10.0				
b) Pathology (including pathological anatomy)	3b	120.0	1.3	377.0	49.0	131.8	28.0	
c) Parasitology	3c	41.0	0.0	89.0	14.0	0.0	1.0	
d) Clinical medicine and a surgery (including anaesthetics)	3d	351.0	0.0	443.0	20.0	0.0	606.0	
e) Clinical lectures on various domestic animal, poultry and other animal species including	3e	36.8	1.3	70.0	0.0	0.0	4.0	
f) Field veterinary medicine (ambulatory clinics)	3f							
g) Preventive Medicine	3g	19.0	0.0	37.5	6.0	0.0	20.0	
h) Diagnostic imaging (including radiology)	3h	95.0	6.0	185.0	0.0	6.0	176.0	
i) Reproduction and reproductive disorders	3i	35.0	5.0	145.0	15.0	5.0	20.0	
j) Veterinary state medicine and public health	3j	8.0	0.0	22.0	0.0	0.0	0.0	
k) Veterinary legislation and forensic medicine	3k	44.0	0.0	67.0	0.0	0.0	2.0	
l) Therapeutics	3l	22.0	0.0	45.0	5.0	0.0	5.0	
m) Propaedeutics (including laboratory diagnostic methods)	3m	59.0	10.0	181.0	0.0	0.0	34.0	
Total Clinical sciences		845.8	23.5	1671.5	109.0	142.8	896.0	3688.5
4. Animal Production								
a) Animal production	4a	37.5		142.5				
b) Animal nutrition	4b	54.5	10.0	139.0	20.0	0.0	26.0	
c) Agronomy	4c							
d) Rural economics	4d	20.0	5.0	50.0				

e) Animal husbandry	4e	53.5	0.0	187.5	0.0	0.0	0.0	
f) Veterinary hygiene	4f	16.0	0.0	42.5	0.0	0.0	0.0	
g) Animal ethology and protection	4g	50.0	21.0	30.0	4.0	120.0	10.0	
Total Animal Production		231.5	36.0	591.5	24.0	120.0	36.0	1039.0
5. Food Hygiene/ Public Health								
a) Inspection. and control of animal foodstuffs or foodstuffs of animal origin and the respective feedstuff production unit	5a	37.5	0.0	80.0	0.0	0.0	0.0	
b) Food hygiene and technology	5b							
c) Food science including legislation	5c	58.0	0.0	140.5	25.0	0.0	0.0	
d) Practical work (including practical work in places where slaughtering and processing of foodstuffs takes place)	5d			17.0	10.0			
Total Food Hygiene / Public Health		95.5	0.0	237.5	35.0	0.0	0.0	368.0
6. Professional Knowledge								
a) Practice management	6a	9.0	0.0	34.5	5.0	0.0	0.0	
b) Veterinary certification and report writing	6b	6.0	14.0	880.0	0.0	0.0	0.0	
c) Career planning and opportunities	6c							
Total Professional Knowledge		15.0	14.0	914.5	5.0	0.0	0.0	948.5
								10620.0
Total		2248.75	103.25	6480.50	565.25	284.25	938.00	10620.0

Table 4.2.b Study programme hours in EU-listed subjects taken by the Equine Medicine track (electives excluded)

EU listed subject	Code	Lectures	Seminars	Self Directed Learning	Laboratory & desk based work	Non-clinical animal work	Clinical training	
		A	B	C	D	E	F	Total
1. Basic Subjects								
a) Physics	1a	30.0		85.0	5.0			
b) Chemistry	1b	82.5	15.0	247.5	15.0	0.0	0.0	
c) Animal biology	1c	30.0	6.3	135.0	4.5	4.3		
d) Plant biology	1d							
e) Biomathematics	1e	22.0	0.0	51.5	17.0	0.0	0.0	
Total basic subjects		164.5	21.3	519.0	41.5	4.3	0.0	750.5
2. Basic Sciences								
a) Anatomy (incl. histology and embryology)	2a	244.5	1.0	652.5	176.8	2.3	0.0	
b) Physiology	2b	125.0	0.0	357.0	40.0	15.0	5.0	
c) Biochemistry. cellular and molecular biology	2c	142.0	7.5	422.0	25.0	0.0	0.0	
d) Genetics (including molecular genetics)	2d	68.5	0.0	177.5	0.0	0.0	0.0	
e) Pharmacology and pharmacy	2e	75.0	0.0	255.0	0.0	0.0	0.0	
f) Toxicology (including environmental pollution)	2f	30.5	0.0	67.5	5.0	0.0	0.0	
g) Microbiology (including virology. bacteriology and mycology)	2g	147.0	8.0	357.5	49.5	0.0	0.0	
h) Immunology	2h	48.5	4.0	147.5	24.5	0.0	0.0	
i) Epidemiology (including scientific and technical information and documentation methods)	2i	8.0	0.0	106.0	8.0	0.0	0.0	
j) Professional ethics	2j	1.0	0.0	2.0	0.0	0.0	0.0	

Total basic sciences		890.0	20.5	2544.5	328.8	17.3	5.0	3806.0
3. Clinical Sciences								
a) Obstetrics	3a	27.0	0.0	20.0	0.0	4.0	100.0	
b) Pathology (including pathological anatomy)	3b	119.0	5.3	359.5	45.0	81.8	22.0	
c) Parasitology	3c	39.0	4.0	87.0	10.0	0.0	0.0	
d) Clinical medicine and surgery (including anaesthetics)	3d	296.5	24.5	460.5	5.0	0.0	576.0	
e) Clinical lectures on various domestic animal, poultry and other animal species including	3e	16.8	1.3	50.0	0.0	0.0	0.0	
f) Field veterinary medicine (ambulatory clinics)	3f	3.0		6.0				
g) Preventive Medicine	3g	26.5	0.0	47.5	8.5	4.0	15.0	
h) Diagnostic imaging (including radiology)	3h	73.5	14.0	210.5	0.0	6.0	111.5	
i) Reproduction and reproductive disorders	3i	30.0	0.0	16.5	0.0	9.5	120.0	
j) Veterinary state medicine and public health	3j	8.0	0.0	22.0	0.0	0.0	0.0	
k) Veterinary legislation and forensic medicine	3k	44.0	0.0	67.0	0.0	0.0	2.0	
l) Therapeutics	3l	14.5	0.0	20.0	7.5	0.0	5.0	
m) Propaedeutics (including laboratory diagnostic methods)	3m	56.5	10.0	171.5	0.0	0.0	24.0	
Total Clinical sciences		754.3	59.0	1538.0	76.0	105.3	975.5	3508.0
4. Animal Production								
a) Animal production	4a	37.5		142.5				
b) Animal nutrition	4b	51.0	10.0	122.0	20.0	0.0	25.0	
c) Agronomy	4c							
d) Rural economics	4d	20.0	5.0	50.0				
e) Animal husbandry	4e	62.5	0.0	200.0	0.0	0.0	0.0	

f) Veterinary hygiene	4f	16.0	0.0	42.5	0.0	0.0	0.0	
g) Animal ethology and protection	4g	50.0	21.0	30.0	4.0	120.0		
Total Animal Production		237.0	36.0	587.0	24.0	120.0	25.0	1029.0
5. Food Hygiene/ Public Health								
a) Inspection, and control of animal foodstuffs or foodstuffs of animal origin and the respective feedstuff production unit	5a	37.5	0.0	80.0	0.0	0.0	0.0	
b) Food hygiene and technology	5b	30.5		32.5				
c) Food science including legislation	5c	85.0	0.0	170.5	25.0	0.0	0.0	
d) Practical work (including practical work in places where slaughtering and processing of foodstuffs takes place)	5d	0.0	0.0	52.0	25.0	40.0	0.0	
Total Food Hygiene / Public Health		153.0	0.0	335.0	50.0	40.0	0.0	578.0
6. Professional Knowledge								
a) Practice management	6a	9.0	0.0	34.5	5.0	0.0	0.0	
b) Veterinary certification and report writing	6b	6.0	14.0	880.0	0.0	0.0	0.0	
c) Career planning and opportunities	6c							
Total Professional Knowledge		15.0	14.0	914.5	5.0	0.0	0.0	948.5
								10620.0
Total		2213.75	150.75	6438.00	525.25	286.75	1005.50	10620.0

Table 4.2.c Study programme hours in EU-listed subjects taken by the Ruminant Medicine track (electives excluded)

EU listed subject	Code	Lectures	Seminars	Self Directed Learning	Laboratory & desk based work	Non-clinical animal work	Clinical training	
		A	B	C	D	E	F	Tot
1. Basic Subjects								
a) Physics	1a	30.00		85.00	5.00			
b) Chemistry	1b	82.50	15.00	247.50	15.00	0.00	0.00	
c) Animal biology	1c	30.00	6.25	135.00	4.50	4.25		
d) Plant biology	1d							
e) Biomathematics	1e	22.00	0.00	51.50	17.00	0.00	0.00	
Total basic subjects		164.50	21.25	519.00	41.50	4.25	0.00	750.5
2. Basic Sciences								
a) Anatomy (incl. histology and embryology)	2a	244.50	1.00	652.50	176.75	2.25	0.00	
b) Physiology	2b	125.00	0.00	357.00	40.00	15.00	5.00	
c) Biochemistry. cellular and molecular biology	2c	142.00	7.50	422.00	25.00	0.00	0.00	
d) Genetics (including molecular genetics)	2d	68.50	0.00	177.50	0.00	0.00	0.00	
e) Pharmacology and pharmacy	2e	75.0	0.0	255.0	0.0	0.0	0.0	
f) Toxicology (including environmental pollution)	2f	30.50	0.00	67.50	5.00	0.00	0.00	
g) Microbiology (including virology. bacteriology and mycology)	2g	150.00	0.00	365.00	57.50	0.00	0.00	
h) Immunology	2h	50.00	0.00	152.50	28.50	0.00	0.00	
i) Epidemiology (including scientific and technical information and documentation)	2i	8.00	5.00	106.00	8.00	0.00	30.00	

methods)								
j) Professional ethics	2j	1.00	0.00	2.00	0.00	0.00	0.00	
Total basic sciences		894.50	13.50	2557.00	340.75	17.25	35.00	3858.0
3. Clinical Sciences								
a) Obstetrics	3a	25.00	0.00	20.00	0.00	4.00	85.00	
b) Pathology (including pathological anatomy)	3b	120.50	1.25	364.50	49.00	21.75	82.00	
c) Parasitology	3c	40.50	0.00	92.00	14.00	0.00	0.00	
d) Clinical medicine and a surgery (including anaesthetics)	3d	296.50	14.50	460.50	0.00	0.00	466.00	
e) Clinical lectures on various domestic animal, poultry and other animal species including	3e	16.75	1.25	50.00	0.00	0.00	0.00	
f) Field veterinary medicine (ambulatory clinics)	3f	3.00	0.00	6.00	0.00	0.00	280.00	
g) Preventive Medicine	3g	24.00	0.00	47.50	1.00	4.00	5.00	
h) Diagnostic imaging (including radiology)	3h	58.50	9.00	205.50	0.00	6.00	11.50	
i) Reproduction and reproductive disorders	3i	27.00	0.00	16.50	0.00	9.50	50.00	
j) Veterinary state medicine and public health	3j	8.00	0.00	22.00	0.00	0.00	0.00	
k) Veterinary legislation and forensic medicine	3k	44.00	0.00	67.00	0.00	0.00	2.00	
l) Therapeutics	3l	12.00		20.00				
m) Propaedeutics (including laboratory diagnostic methods)	3m	56.50	10.00	171.50	0.00	0.00	24.00	
Total Clinical sciences		732.25	36.00	1543.00	64.00	45.25	1005.50	3426.0
4. Animal Production								
a) Animal production	4a	37.50	5.00	142.50	0.00	0.00	15.00	
b) Animal nutrition	4b	51.00	17.50	122.00	25.00	0.00	10.00	
c) Agronomy	4c							

d) Rural economics	4d	20.00	5.00	50.00				
e) Animal husbandry	4e	62.50	2.50	200.00	0.00	0.00	10.00	
f) Veterinary hygiene	4f	16.00	0.00	42.50	0.00	0.00	0.00	
g) Animal ethology and protection	4g	50.00	21.00	30.00	4.00	120.00		
Total Animal Production		237.00	51.00	587.00	29.00	120.00	35.00	1059.0
5. Food Hygiene/ Public Health								
a) Inspection. and control of animal foodstuffs or foodstuffs of animal origin and the respective feedstuff production unit	5a	37.50	0.00	80.00	0.00	0.00	0.00	
b) Food hygiene and technology	5b	30.50		32.50				
c) Food science including legislation	5c	85.00	0.00	205.50	40.00	40.00	0.00	
d) Practical work (including practical work in places where slaughtering and processing of foodstuffs takes place)	5d			17.00	10.00			
Total Food Hygiene / Public Health		153.00	0.00	335.00	50.00	40.00	0.00	578.0
6. Professional Knowledge								
a) Practice management	6a	9.00	0.00	34.50	5.00	0.00	0.00	
b) Veterinary certification and report writing	6b	6.00	14.00	880.00	0.00	0.00	0.00	
c) Career planning and opportunities	6c							
Total Professional Knowledge		15.00	14.00	914.50	5.00	0.00	0.00	948.5
								10620.0
Total		2196.25	135.75	6455.50	530.25	226.75	1075.50	10620.0

Table 4.2.d Study programme hours in EU-listed subjects taken by the Pig, Poultry and Rabbit track (electives excluded)

EU listed subjects	Code	Lectures	Seminars	Self Directed Learning	Laboratory & desk based work	Non-clinical animal work	Clinical training	
		A	B	C	D	E	F	Total
1. Basic Subjects								
a) Physics	1a	30.00		85.00	5.00			
b) Chemistry	1b	82.50	15.00	247.50	15.00	0.00	0.00	
c) Animal biology	1c	30.00	6.25	135.00	4.50	4.25		
d) Plant biology	1d							
e) Biomathematics	1e	22.00	0.00	51.50	17.00	0.00	0.00	
Total basic subjects		164.50	21.25	519.00	41.50	4.25	0.00	750.5
2. Basic Sciences								
a) Anatomy (incl. histology and embryology)	2a	244.50	1.00	652.50	176.75	2.25	0.00	
b) Physiology	2b	125.00	0.00	357.00	40.00	15.00	5.00	
c) Biochemistry. cellular and molecular biology	2c	142.00	7.50	422.00	25.00	0.00	0.00	
d) Genetics (including molecular genetics)	2d	68.50	0.00	177.50	0.00	0.00	0.00	
e) Pharmacology and pharmacy	2e	75.0	0.0	255.0	0.0	0.0	0.0	
f) Toxicology (including environmental pollution)	2f	30.50	0.00	67.50	5.00	0.00	0.00	
g) Microbiology (including virology. bacteriology and mycology)	2g	153.00	0.00	363.50	57.50	0.00	0.00	
h) Immunology	2h	51.50	0.00	150.50	28.50	0.00	0.00	
i) Epidemiology (including scientific and technical information and documentation methods)	2i	8.00	0.00	106.00	8.00	0.00	0.00	

j) Professional ethics	2j	1.00	0.00	2.00	0.00	0.00	0.00	
Total basic sciences		899.00	8.50	2553.50	340.75	17.25	5.00	3824.0
3. Clinical Sciences								
a) Obstetrics	3a	25.00	0.00	20.00	0.00	4.00	25.00	
b) Pathology (including pathological anatomy)	3b	122.00	1.25	362.50	49.00	21.75	142.00	
c) Parasitology	3c	42.00	0.00	90.00	14.00	0.00	0.00	
d) Clinical medicine and a surgery (including anaesthetics)	3d	291.50	0.00	460.50	0.00	0.00	148.50	
e) Clinical lectures on various domestic animal, poultry and other animal species including	3e	24.25	1.25	117.50	0.00	0.00	75.00	
f) Field veterinary medicine (ambulatory clinics)	3f	15.00	0.00	6.00	30.00	30.00	180.00	
g) Preventive Medicine	3g	24.00	0.00	47.50	1.00	4.00	5.00	
h) Diagnostic imaging (including radiology)	3h	58.50	6.00	205.50	0.00	6.00	11.50	
i) Reproduction and reproductive disorders	3i	37.00	0.00	16.50	30.00	39.50	70.00	
j) Veterinary state medicine and public health	3j	8.00	0.00	22.00	0.00	0.00	0.00	
k) Veterinary legislation and forensic medicine	3k	44.00	0.00	67.00	0.00	0.00	2.00	
l) Therapeutics	3l	12.00		20.00				
m) Propaedeutics (including laboratory diagnostic methods)	3m	56.50	10.00	171.50	0.00	0.00	24.00	
Total Clinical sciences		759.75	18.50	1606.50	124.00	105.25	683.00	3297.0
4. Animal Production								
a) Animal production	4a	37.50		142.50				
b) Animal nutrition	4b	51.00	15.00	122.00	25.00	0.00	0.00	
c) Agronomy	4c							
d) Rural economics	4d	20.00	5.00	50.00				

e) Animal husbandry	4e	75.50	0.00	200.00	30.00	30.00	135.00	
f) Veterinary hygiene	4f	16.00	0.00	42.50	0.00	0.00	0.00	
g) Animal ethology and protection	4g	50.00	21.00	30.00	4.00	120.00		
Total Animal Production		250.00	41.00	587.00	59.00	150.00	135.00	1222.0
5. Food Hygiene/ Public Health								
a) Inspection. and control of animal foodstuffs or foodstuffs of animal origin and the respective feedstuff production unit	5a	37.50	0.00	80.00	0.00	0.00	0.00	
b) Food hygiene and technology	5b	30.50		32.50				
c) Food science including legislation	5c	85.00	0.00	170.50	25.00	0.00	0.00	
d) Practical work (including practical work in places where slaughtering and processing of foodstuffs takes place)	5d	0.00	0.00	52.00	25.00	40.00	0.00	
Total Food Hygiene / Public Health		153.00	0.00	335.00	50.00	40.00	0.00	578.0
6. Professional Knowledge								
a) Practice management	6a	9.00	0.00	34.50	5.00	0.00	0.00	
b) Veterinary certification and report writing	6b	6.00	14.00	880.00	0.00	0.00	0.00	
c) Career planning and opportunities	6c							
Total Professional Knowledge		15.00	14.00	914.50	5.00	0.00	0.00	948.5
								10620.0
Total		2241.25	103.25	6515.50	620.25	316.75	823.00	10620.0

Table 4.2.e Study programme hours in EU-listed subjects taken by the Research track coming from the Companion Animal trunk (electives excluded)

EU listed subject	Code	Lectures	Seminars	Self Directed Learning	Laboratory & desk based work	Non-clinical animal work	Clinical training	
		A	B	C	D	E	F	Total
1. Basic Subjects								
a) Physics	1a	30.0		85.0	5.0			
b) Chemistry	1b	82.5	15.0	247.5	15.0	0.0	0.0	
c) Animal biology	1c	30.0	6.3	135.0	4.5	4.3		
d) Plant biology	1d							
e) Biomathematics	1e	36.5	0.0	124.5	36.5	0.0	0.0	
Total basic subjects		179.0	21.3	592.0	61.0	4.3	0.0	857.5
2. Basic Sciences								
a) Anatomy (incl. histology and embryology)	2a	244.5	1.0	732.5	201.8	2.3	0.0	
b) Physiology	2b	125.0	0.0	357.0	40.0	15.0	5.0	
c) Biochemistry, cellular and molecular biology	2c	154.0	7.5	472.0	35.0	0.0	0.0	
d) Genetics (including molecular genetics)	2d	79.0	0.0	205.5	0.0	0.0	0.0	
e) Pharmacology and pharmacy	2e	76.5	0.0	258.0	0.0	0.0	0.0	
f) Toxicology (including environmental pollution)	2f	30.5	0.0	67.5	5.0	0.0	0.0	
g) Microbiology (including virology, bacteriology and mycology)	2g	148.0	0.0	366.5	49.5	0.0	0.0	
h) Immunology	2h	48.5	0.0	232.5	49.5	0.0	0.0	
i) Epidemiology (including scientific and technical)	2i	10.0	0.0	126.0	8.0	0.0	0.0	

information and documentation methods)									
j) Professional ethics	2j	6.0	5.5	14.0	0.0	0.0	0.0		
Total basic sciences		922.0	14.0	2831.5	388.8	17.3	5.0	4178.5	
3. Clinical Sciences									
a) Obstetrics	3a	15.0		10.0					
b) Pathology (including pathological anatomy)	3b	117.0	1.3	364.5	45.0	21.8	28.0		
c) Parasitology	3c	38.0	0.0	89.0	10.0	0.0	0.0		
d) Clinical medicine and a surgery (including anaesthetics)	3d	351.0	0.0	443.0	0.0	0.0	146.0		
e) Clinical lectures on various domestic animal, poultry and other animal species including	3e	36.8	1.3	70.0	0.0	0.0	4.0		
f) Field veterinary medicine (ambulatory clinics)	3f								
g) Preventive Medicine	3g	14.0	0.0	37.5	1.0	0.0	0.0		
h) Diagnostic imaging (including radiology)	3h	65.0	6.0	185.0	0.0	6.0	14.0		
i) Reproduction and reproductive disorders	3i	35.0	5.0	75.0	5.0	5.0	5.0		
j) Veterinary state medicine and public health	3j	8.0	0.0	22.0	0.0	0.0	0.0		
k) Veterinary legislation and forensic medicine	3k	44.0	0.0	67.0	0.0	0.0	2.0		
l) Therapeutics	3l	17.0	0.0	45.0	0.0	0.0	0.0		
m) Propaedeutics (including laboratory diagnostic methods)	3m	67.0	10.0	206.0	5.0	0.0	24.0		
Total Clinical sciences		807.8	23.5	1614.0	66.0	32.8	223.0	2767.0	
4. Animal Production									
a) Animal production	4a	37.5		142.5					
b) Animal nutrition	4b	44.5	10.0	139.0	10.0	0.0	0.0		

c) Agronomy	4c								
d) Rural economics	4d	20.0	5.0	50.0					
e) Animal husbandry	4e	58.5	0.0	193.5	0.0	0.0	0.0		
f) Veterinary hygiene	4f	19.0	0.0	46.5	0.0	0.0	0.0		
g) Animal ethology and protection	4g	56.0	21.0	39.0	4.0	120.0	0.0		
Total Animal Production		235.5	36.0	610.5	14.0	120.0	0.0		1016.0
5. Food Hygiene/ Public Health									
a) Inspection. and control of animal foodstuffs or foodstuffs of animal origin and the respective feedstuff production unit	5a	37.5	0.0	80.0	0.0	0.0	0.0		
b) Food hygiene and technology	5b								
c) Food science including legislation	5c	58.0	0.0	140.5	25.0	0.0	0.0		
d) Practical work (including practical work in places where slaughtering and processing of foodstuffs takes place)	5d			17.0	10.0				
Total Food Hygiene / Public Health		95.5	0.0	237.5	35.0	0.0	0.0		368.0
6. Professional Knowledge									
a) Practice management	6a	10.5	0.0	37.5	5.0	0.0	0.0		
b) Veterinary certification and report writing	6b	6.0	54.0	920.0	0.0	0.0	0.0		
c) Career planning and opportunities	6c	20.0	15.0	95.0	0.0	0.0	0.0		
Total Professional Knowledge		36.5	69.0	1052.5	5.0	0.0	0.0		1163.0
									10350.0
		2276.25	163.75	6938.00	569.75	174.25	228.00		10350.0

Table 4.2.f Study programme hours in EU-listed subjects taken by the Research track coming from the Large Animal trunk (electives excluded)

EU listed subject	Code	Lectures	Seminars	Self Directed Learning	Laboratory & desk based work	Non-clinical animal work	Clinical training	
		A	B	C	D	E	F	Total
1. Basic Subjects								
a) Physics	1a	30.00		85.00	5.00			
b) Chemistry	1b	82.50	15.00	247.50	15.00	0.00	0.00	
c) Animal biology	1c	30.00	6.25	135.00	4.50	4.25		
d) Plant biology	1d							
e) Biomathematics	1e	36.50	0.00	124.50	36.50	0.00	0.00	
Total basic subjects		179.00	21.25	592.00	61.00	4.25	0.00	857.5
2. Basic Sciences								
a) Anatomy (incl. histology and embryology)	2a	244.50	1.00	732.50	201.75	2.25	0.00	
b) Physiology	2b	125.00	0.00	357.00	40.00	15.00	5.00	
c) Biochemistry, cellular and molecular biology	2c	154.00	7.50	472.00	35.00	0.00	0.00	
d) Genetics (including molecular genetics)	2d	79.00	0.00	205.50	0.00	0.00	0.00	
e) Pharmacology and pharmacy	2e	76.5	0.0	258.0	0.0	0.0	0.0	
f) Toxicology (including environmental pollution)	2f	30.50	0.00	67.50	5.00	0.00	0.00	
g) Microbiology (including virology, bacteriology and mycology)	2g	148.00	0.00	366.50	49.50	0.00	0.00	
h) Immunology	2h	48.50	0.00	232.50	49.50	0.00	0.00	
i) Epidemiology (including scientific and technical information and documentation methods)	2i	10.00	0.00	126.00	8.00	0.00	0.00	
j) Professional ethics	2j	5.00	5.50	12.00	0.00	0.00	0.00	
Total basic sciences		921.00	14.00	2829.50	388.75	17.25	5.00	4175.5

3. Clinical Sciences								
a) Obstetrics	3a	25.00	0.00	20.00	0.00	4.00	25.00	
b) Pathology (including pathological anatomy)	3b	117.00	1.25	359.50	45.00	21.75	22.00	
c) Parasitology	3c	37.00	0.00	87.00	10.00	0.00	0.00	
d) Clinical medicine and a surgery (including anaesthetics)	3d	291.50	0.00	460.50	0.00	0.00	128.50	
e) Clinical lectures on various domestic animal, poultry and other animal species including	3e	16.75	1.25	50.00	0.00	0.00	0.00	
f) Field veterinary medicine (ambulatory clinics)	3f	3.00		6.00				
g) Preventive Medicine	3g	24.00	0.00	47.50	1.00	4.00	5.00	
h) Diagnostic imaging (including radiology)	3h	58.50	6.00	205.50	0.00	6.00	11.50	
i) Reproduction and reproductive disorders	3i	27.00	0.00	16.50	0.00	9.50	20.00	
j) Veterinary state medicine and public health	3j	8.00	0.00	22.00	0.00	0.00	0.00	
k) Veterinary legislation and forensic medicine	3k	44.00	0.00	67.00	0.00	0.00	2.00	
l) Therapeutics	3l	12.00		20.00				
m) Propaedeutics (including laboratory diagnostic methods)	3m	64.50	10.00	196.50	5.00	0.00	24.00	
Total Clinical sciences		728.25	18.50	1558.00	61.00	45.25	238.00	2649.0
4. Animal Production								
a) Animal production	4a	37.50		142.50				
b) Animal nutrition	4b	41.00	10.00	122.00	10.00	0.00	0.00	
c) Agronomy	4c							
d) Rural economics	4d	20.00	5.00	50.00				
e) Animal husbandry	4e	67.50	0.00	206.00	0.00	0.00	0.00	
f) Veterinary hygiene	4f	19.00	0.00	46.50	0.00	0.00	0.00	
g) Animal ethology and protection	4g	56.00	21.00	39.00	4.00	120.00	0.00	
Total Animal Production		241.00	36.00	606.00	14.00	120.00	0.00	1017.0
5. Food Hygiene/ Public Health								
a) Inspection, and control of animal foodstuffs or foodstuffs of animal origin and the respective feedstuff production unit	5a	37.50	0.00	80.00	0.00	0.00	0.00	

b) Food hygiene and technology	5b	30.50		32.50				
c) Food science including legislation	5c	85.00	0.00	170.50	25.00	0.00	0.00	
d) Practical work (including practical work in places where slaughtering and processing of foodstuffs takes place)	5d	0.00	0.00	17.00	10.00	0.00	0.00	
Total Food Hygiene / Public Health		153.00	0.00	300.00	35.00	0.00	0.00	488.0
6. Professional Knowledge								
a) Practice management	6a	10.50	0.00	37.50	5.00	0.00	0.00	
b) Veterinary certification and report writing	6b	6.00	54.00	920.00	0.00	0.00	0.00	
c) Career planning and opportunities	6c	20.00	15.00	95.00	0.00	0.00	0.00	
Total Professional Knowledge		36.50	69.00	1052.50	5.00	0.00	0.00	1163.0
								10350.0
Total		2258.75	158.75	6938.00	564.75	186.75	243.00	10350.0

4.1.2.2 Elective (optional) courses

Apart from the tracking system, each student has to choose within the chosen track a number of additional elective (optional) subjects in the final year (3rd master year) of his/her studies to complete the undergraduate training. These electives can be clinical (e.g. clinical training in a species different from their track) or non-clinical (e.g. tropical medicine).

For the 'Companion Animal Medicine', 'Equine Medicine', 'Ruminant Medicine' and 'Pig, Poultry and Rabbit Medicine' tracks, a total amount of 6 ECTS-credits have to be taken as elective subjects. These electives can be chosen out of a track-specific list (see tables 4.3.a. till 4.3.d) or can be selected from the general course catalogue of the UGent or even from courses in other universities. The Curriculum Committee of the faculty has to approve the selection of elective courses.

Students attending the track 'Research' have to take up 15 ECTS-credits of electives of which 9 credits are to be chosen out of a specified list of clinical elective subjects (Table 4.3.e). This mandatory selection of 9 clinical credits has been implied to ensure that even students from the Research tract graduate with sufficient clinical competencies. Additionally the students from the Research tract have to select an additional 6 credits within a list of non-clinical courses. These electives can be chosen out of the track-specific list (see tables 4.3.f) or can be selected from the general course catalogue of the UGent or even from courses in other universities. The Curriculum Committee of the faculty has to approve the selection of elective courses.

A list of electives for each track is presented in the tables 4.3.

Table 4.3.a Electives for the Companion Animal Medicine track

Credits	CONTACT HOURS	Course name	EU listed subject	Lectures	Seminars	Self Directed Learning	Laboratory & desk based work	Non-clinical animal work	Clinical training
				A	B	C	D	E	F
3	7.5	Advanced Practice Management	6a	7.50					
3	25.0	Applied Biomedical Statistics	1e	13.00			10.00		
			2i	2.00					
3	30.0	Cellular Biological and Molecular Techniques for Biomedical Research	2c	12.00					
			2d	6.00					
			2g	2.00					
			2h	2.00					
			3m	8.00					
6	145.0	Introduction Training and Completions in the Medicine of Pets	3d						145.00
3	40.0	Laboratory Animal Science	2d	4.50					
			1e	1.50			4.50		
			2j	4.00	5.50				
			4e	5.00					
			4g	6.00					
			4f	3.00					
			2e	1.50					
			2g	3.00					
			6a	1.50					
3	22.5	Methodology of Animal Experimental Research	6c	20.00		2.50			
3	45.0	Scientific English	6b		40.00				
			6c		5.00				
6	50.0	Scientific reasoning and communication	6a	2.00					
			6b	6.00	40.00				
			6c	2.00					
3	65.0	Tropical Veterinary Medicine	3c	30.00			15.00		
			3g	4.00			5.00		
			4e	6.00			5.00		
6	112.5	Veterinary Public Health	5a	15.00					
			5b	22.50					
			5c	20.00					
			5d				15.00	40.00	

Table 4.3.b Electives for the Equine Medicine track

Credits	CONTACT HOURS	Course name	EU listed subject	Lectures	Seminars	Self Directed Learning	Laboratory & desk based work	Non-clinical animal work	Clinical training	
				A	B	C	D	E	F	
3	7.5	Advanced Practice Management	6a	7.50						
6	159.0	Ambulatory Clinic and Herd Health Control of Ruminants	3f						100.00	
			4a	3.00					30.00	
			4b	3.00						10.00
			4e	3.00						10.00
3	25.0	Applied Biomedical Statistics	1e	13.00			10.00			
			2i	2.00						
3	30.0	Cellular Biological and Molecular Techniques for Biomedical Research	2c	12.00						
			2d	6.00						
			2g	2.00						
			2h	2.00						
			3m	8.00						
6	159.0	Herd Health Control of Pigs, Poultry and Rabbits	3f				5.00	5.00	69.00	
			4e				5.00	5.00	70.00	
6	145.0	Introduction Training and Completions in the Medicine of the Horse	3d						145.00	
3	40.0	Laboratory Animal Science	2d	4.50						
			1e	1.50			4.50			
			2j	4.00	5.50					
			4e	5.00						
			4g	6.00						
			4f	3.00						
			2e	1.50						
			2g	3.00						
6a	1.50									
3	22.5	Methodology of Animal Experimental Research	6c	20.00		2.50				
3	45.0	Scientific English	6b		40.00					
			6c		5.00					
6	50.0	Scientific reasoning and communication	6a	2.00						
			6b	6.00	40.00					
			6c	2.00						
3	65.0	Tropical Veterinary Medicine	3c	30.00			15.00			
			3g	4.00			5.00			
			4e	6.00			5.00			

Table 4.3.c Electives for the Ruminant Medicine track

Credits	CONTACT HOURS	Course name	EU listed subject	Lectures	Seminars	Self Directed Learning	Laboratory & desk based work	Non-clinical animal work	Clinical training
				A	B	C	D	E	F
3	7.5	Advanced Practice Management	6a	7.50					
3	25.0	Applied Biomedical Statistics	1e	13.00			10.00		
			2i	2.00					
3	30.0	Cellular Biological and Molecular Techniques for Biomedical Research	2c	12.00					
			2d	6.00					
			2g	2.00					
			2h	2.00					
			3m	8.00					
6	159.0	Herd Health Control of Pigs, Poultry and Rabbits	3f				5.00	5.00	69.00
			4e				5.00	5.00	70.00
6	145.0	Introduction Training and Completions in the Medicine of Ruminants	3a						36.00
			3d						37.00
			3f						36.00
			3i						36.00
3	40.0	Laboratory Animal Science	2d	4.50					
			1e	1.50			4.50		
			2j	4.00	5.50				
			4e	5.00					
			4g	6.00					
			4f	3.00					
			2e	1.50					
			2g	3.00					
6a	1.50								
3	22.5	Methodology of Animal Experimental Research	6c	20.00		2.50			
3	17.5	Radioprotection	3h	15.00				2.50	
3	45.0	Scientific English	6b		40.00				
			6c		5.00				
6	50.0	Scientific reasoning and communication	6a	2.00					
			6b	6.00	40.00				
			6c	2.00					
3	65.0	Tropical Veterinary Medicine	3c	30.00			15.00		
			3g	4.00			5.00		
			4e	6.00			5.00		

Table 4.3.d Electives for the Pig, Poultry and Rabbit Medicine track

Credits	CONTACT HOURS	Course name	EU listed subject	Lectures	Seminars	Self Directed Learning	Laboratory & desk based work	Non-clinical animal work	Clinical training	
				A	B	C	D	E	F	
3	7.5	Advanced Practice Management	6a	7.50						
6	159.0	Ambulatory Clinic and Herd Health Control of Ruminants	3f						100.00	
			4a	3.00					30.00	
			4b	3.00						10.00
			4e	3.00						10.00
3	25.0	Applied Biomedical Statistics	1e	13.00			10.00			
			2i	2.00						
3	30.0	Cellular Biological and Molecular Techniques for Biomedical Research	2c	12.00						
			2d	6.00						
			2g	2.00						
			2h	2.00						
			3m	8.00						
3	40.0	Laboratory Animal Science	2d	4.50						
			1e	1.50			4.50			
			2j	4.00	5.50					
			4e	5.00						
			4g	6.00						
			4f	3.00						
			2e	1.50						
			2g	3.00						
6a	1.50									
3	22.5	Methodology of Animal Experimental Research	6c	20.00		2.50				
3	17.5	Radioprotection	3h	15.00				2.50		
3	45.0	Scientific English	6b		40.00					
			6c		5.00					
6	50.0	Scientific reasoning and communication	6a	2.00						
			6b	6.00	40.00					
			6c	2.00						
3	65.0	Tropical Veterinary Medicine	3c	30.00			15.00			
			3g	4.00			5.00			
			4e	6.00			5.00			

Table 4.3.e Table of clinical electives for the Research track

Credits	CONTACT HOURS	COURSE	EU listed subject	Lectures	Seminars	Self Directed Learning	Laboratory & desk based work	Non-clinical animal work	Clinical training
SP	CONTACT		subject	A	B	C	D	E	F
9	200.0	Ambulatory clinic and clinical training in reproduction, obstetrics and herd health management of ruminants	3a		5.00				25.00
			3f					50.00	
			3i		5.00			25.00	
			4a		5.00			25.00	
			4b		5.00			25.00	
			4e		5.00			25.00	
9	200.0	Clinical training in birds and exotic animals	3b						50.00
			3d					50.00	
			3g					20.00	
			3h					20.00	
			3i					30.00	
			3m					30.00	
9	200.0	Clinical training in internal diseases of horses	3d	24.50					167.50
			3h	8.00					
9	200.0	Clinical training in medical imaging of small animals	3h				20.00		180.00
9	200.0	Clinical training in Medicine of Companion Animals	2j						1.00
			3c						1.00
			3d						180.00
			3h						2.00
			3m						5.00
			4b						1.00
			4g						10.00
9	200.0	Clinical training in reproduction and obstetrics of horses	3a						80.00
			3i						120.00
9	200.0	Clinical training in Surgery and Anesthesia of Companion Animals	3d						200.00
			3d				20.00		180.00
9	200.0	Herd Health Control of Pigs, Poultry and Rabbits	3f				10.00		90.00
			4e				20.00		80.00

Table 4.3.f Non- clinical electives for the Research track

Credits	CONTACT HOURS	Course name	EU listed subject	Lectures	Seminars	Self Directed Learning	Laboratory & desk based work	Non-clinical animal work	Clinical training
				A	B	C	D	E	F
3	7.5	Advanced Practice Management	6a	7.50					
3	17.5	Radioprotection	3h	15.00					2.50
6	50.0	Scientific reasoning and communication	6a	2.00					
			6b	6.00	40.00				
			6c	2.00					
3	65.0	Tropical Veterinary Medicine	3c	30.00			15.00		
			3g	4.00			5.00		
			4e	6.00			5.00		
3	55.0	Veterinary Public Health (for students from the Large Animal trunk)	5d				15.00	40.00	
6	112.5	Veterinary Public Health (for students from the Companion Animal trunk)	5a	15.00					
			5b	22.50					
			5c	20.00					
			5d				15.00	40.00	

Table 4.4 : Not applicable, all study programme hours are listed in the previous tables

4.1.3 Further information on the study programme

4.1.3.1 Study programme changes:

As already mentioned, two major changes to the study programme have been implemented since the last EAEVE visit. The tracking system was brought forward by one semester. In the second semester of the fifth standard learning track year students have to choose between a 'Companion Animal Medicine' trunk and a 'Large Animal Medicine' trunk. Implementation of the Bologna Bachelor/Master structure in higher education was the second most important change in the veterinary study programme of UGent.

The new veterinary study programme in the new 'Bologna'-Bachelors-Masters organization was finally introduced in 2006, year after year, over a six-year period and was completed in 2011.

Minor adjustments in the study programme have been implemented throughout the introduction of the BaMa system, aimed at improving this study programme. These changes

were brought on by changes in lecturers, based on the results of the student evaluations of the courses or the results of the study time measurements. Based on the results of the study time measurements, several topics from the final year (e.g. ethology and nutrition) were moved to earlier years and a reduction in the quantity of the course material was implemented in fifth year.

4.1.3.2 Participation of students in educational activities

Attendance of demonstrations and supervised, 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. Absence at these activities makes it possible to give insufficiency marks for repeated absence.

4.1.3.3 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 study programme, in various departments:

- Clinic of Small Animal Medicine (covering internal medicine, surgery and anaesthesia)
- Clinic of Avian and Exotic Pet Medicine
- Clinic of Medical Imaging (including orthopaedics in small animals)
- Clinic of Large Animal Surgery and Orthopaedics (including anaesthesia)
- Clinic of Large Animal Internal Medicine
- Clinic of Obstetrics and Reproduction
- Ambulatory Clinic and Herd Health
- Laboratory of Pathology

In the fourth year clinical training is organized in the Clinics of Small Animal Medicine (covering internal medicine, surgery and anaesthesia), Avian and Exotic Pet Medicine, Medical Imaging (including orthopaedics in small animals), Large Animal Surgery, Orthopedics and Anesthesia, and Large Animal Internal Medicine. An additional week of clinical diagnostic work is scheduled in the Laboratory of Parasitology.

In the fifth year clinical training is organized in the departments of Small Animal Medicine (covering internal medicine and surgery), Avian and Exotic Pet Medicine, Medical Imaging (including orthopaedics in small animals), Large Animal Surgery and Orthopaedics, Large Animal Internal Medicine, Obstetrics and Reproduction.

In the final (sixth) year clinics are organized concerning Small Animal Medicine (covering internal medicine and surgery), Avian and Exotic Pet Medicine, Medical Imaging (including radioprotection and orthopaedics in small animals), Large Animal Surgery, Large Animal Internal Medicine, Obstetrics and Reproduction, Large and Small Animal Nutrition and Ambulatory Clinic and Herd Health Medicine.

Additional clinical training in autopsies is performed in the Laboratory of Pathology for students of years 4, 5 and 6, and in the Clinic of Avian Medicine for students of years 5 and 6.

Concept of clinical training

Students of the 4th 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 and/or receive a practical training in clinical examination and techniques (e.g. bandaging). 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 practiced in each of the clinics.

Twice weekly 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 4th year students who are not scheduled in any of the clinical rotations of that day.

In the Laboratory for pathology, each final year student is assigned a cadaver of which he/she has to do a complete autopsy. He/she is assisted by a student of the 4th and a 5th year (Pathology) or 5th 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 FVMG.

Additionally, every morning from 8:00 till 10:00 a.m. students of the 4th year carry out standard analyses in the Laboratory of Parasitology, in order to define the pathologic agents in samples submitted by the clinics and by veterinary practices.

Students of the 5th year (i.e., the second year of clinical training) are again scheduled in a clinical rotation system in the various clinics from Monday through Friday or Saturday 8:00 - 10:00 a.m. In this clinical setting and under the direct supervision of a teaching staff member, they are confronted and challenged with all practical aspects of examination, diagnosis and treatment of diseases.

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 whom they are responsible during their stay in the clinic that week. Every day clinical rounds are held in the

different clinics under the supervision of staff members. 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 4th and 5th year students attend clinics from Monday through Friday or Saturday from 8:00 a.m. till 10:00 a.m. Theoretical courses start at 10:00 a.m.

- In the 6th year, clinical rotations are organized from Monday through Friday or Saturday, depending on the clinical activities. Clinical work for the day shift starts at 8.00 and ends around 17.00. Theoretical courses of the final year are few in number and usually 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 Small Animal and Large Animal Clinics. These Students perform between 48 and 60 hours clinical duty per week (including the weekend), as stipulated in the Belgian legislation (Royal Decree dd. 12/12/2010), divided over shifts from 8 to 12 hours. Their work consists mainly in, (1) receiving and treating emergency cases, (2) performing ambulatory consultations under the supervision of a staff member (emergencies & Caesarian sections) and (3) taking care of the patients that are hospitalized in the clinics to which they are assigned. In the various clinical departments full accommodation is available for the students who are on permanent duty (rooms with shower, bed & desk, kitchen, etc.).

4.1.4 Obligatory extramural work

Obligatory extramural work is scheduled in the 3rd and 5th year of model track programme, but can be done during the previous year if this is more convenient within the specific curriculum of the student.

- In the 3rd year the aim of the extramural work is to become acquainted with animal handling and husbandry both in companion animals and production animals. Therefore the students spend 2 weeks on premises such as regular farms, stud farms, riding schools, animal shelters, dog kennels, catteries, etc. Students have to spend at least one week with companion animals and at least one week with production animals. Additionally students spend one week on the pilot farm Agrivet, where they participate in pig and dairy farming under direct supervision of a staff member.

- In the 5th year students spend two weeks extramural in veterinary practices: one week in a small animal veterinary practice and one week in a large animal veterinary practice. The aim of this extramural work is to experience the daily work and routine in these practices, which will assist them in choosing their final year track.

The extramural work in the 3rd and 5th year is assessed by the faculty coordinators of this practical training based on the assessment of the external training supervisors (farmer or practitioners) and on the written report of the student (see annex 4.2 Assessment sheet of practitioner and farmer).

Additionally, within the framework of the 3 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", a practical training period has been included to allow the students to spend more time extramural. Students who choose one of these 3 elective (optional) subjects can spend one or several weeks, according 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 'Ruminant Medicine'. 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 "Biocenter 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 FVMG. 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 extra mural duty for 7 à 8 weeks: 1 week in a rabbit farm, 1 week on a poultry farm, 2 weeks in a pig farm and at least 3 weeks in one of the provincial Animal Health Services in Flanders (tasks include visits to problem herds, performing diagnostic necropsies etc.) and/or in a veterinary practice specialised in pigs, poultry of rabbits.

Table 4.5: Obligatory extramural work that students must undertake as part of their course

Nature of work	Period		Year in which ¹⁾ work is carried out
	hours	% of total yearly study time	
Animal handling on farms	120	6 %	3 th bachelor
Veterinary practice	80	4,4 %	2 st master
Herd health (ruminant track)	160	8,8 %	3 th master
Herd health and farm management (porcine track)	120	6 %	3 th master

¹⁾The periods of extra mural works can be taken in the previous year, but this is not compulsory

4.1.5 Specific information on the practical training of Food Hygiene / Public Health

During the 4th year of the studies, practical exercises are organized at the faculty (10 hrs/student, groups of about 20 students). Each practical is given by one trainer.

These practical exercises comprise:

- Research of legislation (EU and national level) about subjects connected with the food chain production and interpretation of the legal documents involved in the specific subject
- Interpretation of pathologic abnormalities found in slaughterhouses and decisions to be made by the official veterinarian
- Evaluation of data related to the control of cleaning and disinfection – use of contact plate methods
- Process hygiene criteria: evaluation of results over time.
- Interactive discussion on the slaughter hygiene in a pig slaughterhouse based on a movie showing the slaughter process of pigs in detail.

During the final year of the studies, practical exercises in veterinary meat inspection and food hygiene is organized (in total 55h). Forty hours are organized outside the FVMG (in food businesses) while 15h are organized inside the FVMG.

4.1.5.1 Practicals outside the FVMG

These practicals are organized for 4 students/group during a 2 weeks period whereby 4 groups are trained during one period. Each practical is given by one trainer. The trainer in the meat processing plant (dried ham) is an experienced co-worker of the Department of Veterinary Public Health. The trainer in the meat cutting plant (pig carcasses) is a veterinarian supporting the quality department of the plant. In all other meat processing plants the trainer is an official veterinarian with a good experience in the control of the specific type of food processing plant.

Each group of students visits the following food processing plants:

- Pig slaughterhouse
- Cattle slaughterhouse
- Broiler slaughterhouse and connected meat cutting plant
- Meat cutting plant (pig carcasses)
- Meat processing plant (heat treated meat products)
- Meat processing plant (dried ham)
- Fish auction

In all processing plants the students see the production process and have to discuss the applied technology and hygiene measures taking the HACCP principles into account. In

slaughterhouses the students have also training in ante mortem and post mortem inspection and decisions to be made based on the observations collected during these inspections.

The federal government has the obligation to train all their new veterinarians in the veterinary public health/food safety sector for 200 hours.

4.1.5.2 Practicals inside the FVMG

These practicals are organized for 16 students/group. Each practical is given by 1 trainer.

These practicals comprise:

- Bacteriological analysis of a sample of broiler meat (total count, entero-bacteriaceae and E. coli) by each student. Calculation of the bacterial load and the measurement uncertainty)
- Methods for identification and characterization of bacteria by phenotypic and genotypic methods
- Prediction of growth/survival of bacteria during storage of food products using predictive models
- Development of a HACCP plan for one of the plants the student have visited and discussion of this plan for the whole group

Beside to the practicals and demonstrations related to veterinary meat inspection and meat hygiene, practicals in food and environmental analysis are also organized in the Laboratory of Chemical Analysis of the Department of Veterinary Public Health and Food Safety. These practicals are organized during the 2nd year of the studies (30 hours/student). Additionally two documentaries relating to actual environmental and food related topics are shown and some questions and critical reflections regarding these are requested.

These practicals comprise:

- Glazing of fish and fish products
- Analysis of fat and fatty acids in food products of animal origin
- Azeotropic distillation (determination of water content in meat and meat products)
- Assessment of water holding capacity and pH of meat and meat products
- Color measurement of meat and meat products
- Determination of nitrite, nitrate and sulfite and ureum by chemical analysis
- Calculation of content of main components (water, protein, fat, ash) in meat and meat products
- Calculation of caloric value of food commodities within the daily diet

4.1.6 Ratios

4.1.6.1 General indicators types of training

Because of the differentiation in the study programme, the ratios vary for each student according to the track and the electives (optional) subjects that were chosen (see 4.1.2). Due to the tracking system, these ratios are given for all 5 tracks separately.

Table 4. 6. Ratios (per track)

Table 4.6.a Ratios Companion Animal Medicine track (electives excluded)

R6 =	$\frac{\text{Theoretical training}}{\text{Supervised practical training}}$	=	$\frac{A+B+C}{D+E+F}$	=	$\frac{3000,05}{1787,50}$	=	1,67835	=	$\frac{1}{0,59582}$	Denominator range (0,51-0,36)
R7 =	$\frac{\text{Clinical work}}{\text{Lab.desk + non-clin anim}}$	=	$\frac{F}{D+E}$	=	$\frac{938,00}{849,50}$	=	1,10418	=	$\frac{1}{0,90565}$	(1,88-2,21)
R8 =	$\frac{\text{Self directed learning}}{\text{Teaching load}}$	=	$\frac{C}{A+B+C+D+E+F+G}$	=	$\frac{648,05}{4787,55}$	=	0,13536	=	$\frac{1}{7,38762}$	(0,51-7,87)
R9 =	$\frac{\text{Tot curr hours FH/VPH}}{\text{Tot curr hours in vet cur}}$	=	$\frac{368}{10620,00}$	=	$\frac{368}{10620,00}$	=	0,03465	=	$\frac{1}{28,8587}$	(open)
R10 =	$\frac{\text{Tot curr hours FH/VPH}}{\text{extra-mur vet inspection}}$	=	$\frac{368}{40}$	=	$\frac{368}{40}$	=	9,2	=	$\frac{1}{0,1087}$	(open)

Table 4.6.b Ratios Equine Medicine track (electives excluded)

R6 =	$\frac{\text{Theoretical training}}{\text{Supervised practical training}}$	=	$\frac{A+B+C}{D+E+F}$	=	$\frac{3008,3}{1817,50}$	=	1,65519	=	$\frac{1}{0,60416}$	Denominator range (0,51-0,36)
R7 =	$\frac{\text{Clinical work}}{\text{Lab.desk + non-clin anim}}$	=	$\frac{F}{D+E}$	=	$\frac{1005,50}{812,00}$	=	1,2383	=	$\frac{1}{0,80756}$	(1,88-2,21)
R8 =	$\frac{\text{Self directed learning}}{\text{Teaching load}}$	=	$\frac{C}{A+B+C+D+E+F+G}$	=	$\frac{643,8}{4825,80}$	=	0,13341	=	$\frac{1}{7,49581}$	(0,51-7,87)
R9 =	$\frac{\text{Tot curr hours FH/VPH}}{\text{Tot curr hours in vet cur}}$	=	$\frac{578}{10620,00}$	=	$\frac{578}{10620,00}$	=	0,05443	=	$\frac{1}{18,3737}$	(open)
R10 =	$\frac{\text{Tot curr hours FH/VPH}}{\text{extra-mur vet inspection}}$	=	$\frac{578}{40}$	=	$\frac{578}{40}$	=	14,45	=	$\frac{1}{0,0692}$	(open)

Table 4.6.c Ratios Ruminant Medicine track (electives excluded)

R6 =	$\frac{\text{Theoretical training}}{\text{Supervised practical training}}$	=	$\frac{A+B+C}{D+E+F}$	=	$\frac{2977,55}{1832,50}$	=	1,62486	=	$\frac{1}{0,61544}$	Denominator range (0,51-0,36)
R7 =	$\frac{\text{Clinical work}}{\text{Lab.desk + non-clin anim}}$	=	$\frac{F}{D+E}$	=	$\frac{1075,50}{757,00}$	=	1,42074	=	$\frac{1}{0,70386}$	(1,88-2,21)
R8 =	$\frac{\text{Self directed learning}}{\text{Teaching load}}$	=	$\frac{C}{A+B+C+D+E+F+G}$	=	$\frac{645,55}{4810,05}$	=	0,13421	=	$\frac{1}{7,45109}$	(0,51-7,87)
R9 =	$\frac{\text{Tot curr hours FH/VPH}}{\text{Tot curr hours in vet cur}}$	=	$\frac{578}{10620,00}$	=	$\frac{578}{10620,00}$	=	0,05443	=	$\frac{1}{18,3737}$	(open)
R10 =	$\frac{\text{Tot curr hours FH/VPH}}{\text{extra-mur vet inspection}}$	=	$\frac{578}{40}$	=	$\frac{578}{40}$	=	14,45	=	$\frac{1}{0,0692}$	(open)

Table 4.6.d Ratios Pig, Poultry and Rabbit Medicine track (electives excluded)

R6 =	$\frac{\text{Theoretical training}}{\text{Supervised practical training}}$	=	$\frac{A+B+C}{D+E+F}$	=	$\frac{2996,05}{1760,00}$	=	1,7023	=	$\frac{1}{0,58744}$	Denominator range (0,51-0,36)
R7 =	$\frac{\text{Clinical work}}{\text{Lab.desk + non-clin anim}}$	=	$\frac{F}{D+E}$	=	$\frac{823,00}{937,00}$	=	0,87834	=	$\frac{1}{1,13852}$	(1,88-2,21)
R8 =	$\frac{\text{Self directed learning}}{\text{Teaching load}}$	=	$\frac{C}{A+B+C+D+E+F+G}$	=	$\frac{651,55}{4756,05}$	=	0,13699	=	$\frac{1}{7,29959}$	(0,51-7,87)
R9 =	$\frac{\text{Tot curr hours FH/VPH}}{\text{Tot curr hours in vet cur}}$	=	$\frac{578}{10620,00}$	=	$\frac{578}{10620,00}$	=	0,05443	=	$\frac{1}{18,3737}$	(open)
R10 =	$\frac{\text{Tot curr hours FH/VPH}}{\text{extra-mur vet inspection}}$	=	$\frac{578}{40}$	=	$\frac{578}{40}$	=	14,45	=	$\frac{1}{0,0692}$	(open)

Table 4.6.e Ratios Research track, coming from the Companion Animal trunk (electives excluded)

R6 =	$\frac{\text{Theoretical training}}{\text{Supervised practical training}}$	=	$\frac{A+B+C}{D+E+F}$	=	$\frac{3133,8}{972,00}$	=	3,22407	=	$\frac{1}{0,31017}$	Denominator range (0,51-0,36)
R7 =	$\frac{\text{Clinical work}}{\text{Lab.desk + non-clin anim}}$	=	$\frac{F}{D+E}$	=	$\frac{228,00}{744,00}$	=	0,30645	=	$\frac{1}{3,26316}$	(1,88-2,21)
R8 =	$\frac{\text{Self directed learning}}{\text{Teaching load}}$	=	$\frac{C}{A+B+C+D+E+F+G}$	=	$\frac{693,8}{4105,80}$	=	0,16898	=	$\frac{1}{5,91784}$	(0,51-7,87)
R9 =	$\frac{\text{Tot curr hours FH/VPH}}{\text{Tot curr hours in vet cur}}$	=	$\frac{368}{10350,00}$	=	$\frac{368}{10350,00}$	=	0,03556	=	$\frac{1}{28,125}$	(open)
R10 =	$\frac{\text{Tot curr hours FH/VPH}}{\text{extra-mur vet inspection}}$	=	$\frac{368}{40}$	=	$\frac{368}{40}$	=	9,2	=	$\frac{1}{0,1087}$	(open)

Table 4.6.f Ratios Research track, coming from the Large Animal trunk (electives excluded)

R6 =	$\frac{\text{Theoretical training}}{\text{Supervised practical training}}$	=	$\frac{A+B+C}{D+E+F}$	=	$\frac{3111,3}{994,50}$	=	3,12851	=	$\frac{1}{0,31964}$	Denominator range (0,51-0,36)
R7 =	$\frac{\text{Clinical work}}{\text{Lab.desk + non-clin anim}}$	=	$\frac{F}{D+E}$	=	$\frac{243,00}{751,50}$	=	0,32335	=	$\frac{1}{3,09259}$	(1,88-2,21)
R8 =	$\frac{\text{Self directed learning}}{\text{Teaching load}}$	=	$\frac{C}{A+B+C+D+E+F+G}$	=	$\frac{693,8}{4105,80}$	=	0,16898	=	$\frac{1}{5,91784}$	(0,51-7,87)
R9 =	$\frac{\text{Tot curr hours FH/VPH}}{\text{Tot curr hours in vet cur}}$	=	$\frac{488}{10350,00}$	=	$\frac{488}{10350,00}$	=	0,04715	=	$\frac{1}{21,209}$	(open)
R10 =	$\frac{\text{Tot curr hours FH/VPH}}{\text{extra-mur vet inspection}}$	=	$\frac{488}{40}$	=	$\frac{488}{40}$	=	12,2	=	$\frac{1}{0,08197}$	(open)

4.2 Comments

4.2.1 Preparation of the graduates for the veterinary profession

The Education Quality Control Unit and the Study Programme Committee regularly discuss prospective changes of the study programme in view of recent evolutions in national and international EU legislations. This results in innovations of and/or additions to particular course subjects such as the Radioprotection, the introduction of an obligatory course in Laboratory Animal Science for those students who will be engaged in experiments with animals (e.g. during their Master Dissertation) (required because of national legislation), further elaboration of the courses in Veterinary Public Health Control (due to recent EU recommendations) and the recent introduction of a first line medical service for companion animals in the city of Ghent (Dispensary of the Prince Laurent Foundation) .

4.2.2 The way the study programme is structured and reviewed

The tracking system as proposed to the EAEVE visitation in 2004 has been implemented. It was gradually taken into effect from 2006 till 2011.

Reviewing the study programme is a complex and dynamic process. The Department of Educational Affairs of the UGent and the FVMG have developed a system to record and regularly review the final competences of the study programme. This reflects the faculty's objectives, i.e. maintaining an up to date study programme. The quality control system for the study programmes and study activities includes several formal assessment procedures that take place at fixed intervals. Both internal (students, academic staff) and external (alumni, international visitations) evaluation procedures are provided.

At the FVMG, the Study Programme Committee evaluates the study programme every year during formal meetings. Additionally, the Chair of the Study Programme Committee meets with the academic staff every 3 years and then reports its observations to the Study Programme Committee and to the Faculty Council. The conclusions are used for the improvement of the study programme. Additionally, the Study programme Committee organizes a survey for alumni every 6 years. This survey includes questions that are specific for the veterinary profession.

Also at the FVMG, the Education Quality Control Unit evaluates each member of the academic staff at least every 3 years. This Committee is also responsible for the organization of the learning time evaluation performed after each study programme update to evaluate the weight of the study programme).

The Department of Educational Affairs of the UGent organizes evaluations of all study programmes. These include (1) an evaluation of the full Bachelor's and Master's degrees by the students that just graduated every 2 years and (2) inquiries for alumni every 6 years.

Finally, the education is submitted to external control by the NVAO (Nederlands-Vlaamse Accreditie Organisme - <http://www.nvao.net/>) approximately every 8 years and, of course, the EAEVE evaluation.

Informal activities such as regular dialogue with internal and external stakeholders also play an important role in the continuous improvement of the study program.

Summary of the evaluation of the veterinary study programme by the concerned parties

	Time interval
Study Programme Committee - Global study programme evaluation - Report of the chair of the study program committee - Alumni (specific information for veterinary medicine)	yearly 3 years 6 years
Education Quality Control Unit - Academic Staff evaluation - Learning time evaluation	3 years after curricular changes
UGent Department of Educational Affairs - Bachelor/Master study programme - Alumni (general information on all the study programmes)	2 years 3 years
National or International visitation organisms - NVAO - EAEVE	8 years 10 years

4.2.3 The major developments in the study programme, now and in the near future.

The FVMG is planning to implement an additional profound study programme change in 2013. The Study Programme Committee is satisfied about the general structure of the actual study programme (general track/common training during 4.5 year and specific track for 1.5 year) and would like to maintain the principles of this tracking system. The results of the alumni enquiries have also shown that more than half of our graduates (56%) are in favour of this level of differentiation, some even requested more differentiation (35%) and only a minority (8.5 %) was in favour of a more general study programme.

However, the study load in the actual study programme is still excessive for the students with an overload of theoretical course contents (similar comment as in 2004), partly caused by the implementation of a Master dissertation (30 credits) and because of the recent changes in national and international EU legislation which necessitated the implementation of a more elaborated and extensive training in for example veterinary public health, laboratory animal sciences and radioprotection. Even if the FVMG could limit the yearly, more or less hidden increase of content in individual courses caused by the ongoing expansion of scientific information in all fields of veterinary medicine, the study load undeniably needs a significant reduction in our new study programme. The study programme changes will inevitably include a course reorganization allowing a more vertical integration and thereby allowing a decrease in overlap between courses. Additionally, when looking at the level of individual courses, self-learning and active learning have to be significantly increased throughout the complete study programme, keeping in mind that the total study load should not exceed 1800 hours per year.

The new study programme should ideally be comparative across species, should integrate material vertically and horizontally, and should be taught using clinical cases (case and problem based), group discussions with tutors. Due to the current organization of the FVMG, it will probably still be centred more on disciplines than on body systems. According to the guidelines of UGent and the current evolution in academic teaching, the study programme will probably slowly evolve from teacher-centred to student-centred.

During the first 4.5 years, the students will basically still receive a general education. This will start with the basic subjects, then evolve to the basic sciences, animal production and food hygiene (non pathologic/healthy animal) and finally to the clinical sciences (diseased animal). However, due to an integration between these subjects, clinical items will already be covered in the Bachelor's programme, e.g. anatomy and medical imaging and surgery or physiology, pathophysiology and internal medicine. This will allow to reduce the total study load and, more important, will motivate the students to study the basic sciences, since their relevance with the final competences will become clear right from the start of their studies. This evolution has already been started within the basic sciences such as physics, chemistry, biology and botany. During the second half of the 5th year, the students will receive a dedicated teaching in small animals (dogs, cats, exotics) or in large animals (equines, bovines, pig, poultry, rabbit). For the 6th year, the students will still emphasize on one of the five tracks: 'Companion Animal Medicine', 'Equine Medicine', 'Ruminant medicine', 'Pig, Poultry and Rabbit Medicine' and 'Research'. This final year will be free of theoretical courses and be completely dedicated to clinical experience and the Master dissertation, except for the 'Research' track.

This study programme will still be fully in line with the 1992 EAEVE recommendation #8 requesting that "Specialisation should be encouraged, especially in clinical 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.



5 CHAPTER 5 – TEACHING QUALITY & EVALUATION

5.1 Factual information

The education at the FVMG is regulated by the university's 'Education and Examination Code' (EEC) (<http://www.ugent.be/en/teaching/studentadmin/OEREnglish>). This code is adapted annually and the 2012-2013 code is included in the annex to the introduction (I.1).

5.1.1 The teaching programme

5.1.1.1 Organisation of the teaching programme

Each year the Board of Governors of UGent provides the time schedule concerning the organization of the academic year for all of the 11 faculties. All study programmes of the UGent are made up of 2 terms (semesters). One term comprises 12 weeks of lectures and practical work followed by one week of catch-up activities and an examination period of four (first semester) or six (second semester) 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. Lessons are suspended for 2 weeks around Christmas and New Year, and for 2 weeks around Easter. Clinical activities continue during these recesses. A second examination session of 4 weeks for exam retakes is organized in the summer recess.

5.1.1.2 Co-ordination of teaching between different departments, sections, institutes and services.

As mentioned in the introduction and in the previous chapter, the Study Programme Committee of the FVMG is responsible for the teaching process at the faculty level. The Study Programme Committee includes a member of the academic staff of each department and a representative of the students of every model track year (1st bachelor to 3rd master). Every year (in February or in March), this committee designates the lecturers for each course of the whole study programme after hearing the departments involved, and establishes the method of examination for each course as proposed by the lecturers.

The Study Programme Committee supervises and regulates the quality, quantity and structure of the study programme (e.g. succession and integration of the courses). This is achieved by discussions during the different meetings and is prepared by the Chairman of this committee during individual brain storming sessions with the individual lecturers and in the Quality Control Unit.

A continuous monitoring system (evaluations by the students of the individual courses and the entire study programme) ensures that the goals set by the study programme committee are reached. When problems are reported in this monitoring system, the Study Programme Committee takes measures to remediate these problems.

5.1.1.3 Pedagogical approach of the institution, the use of newer approaches, such as problem-based learning, interactive computer-assisted learning, etc.

The pedagogical approach of the FVMG is based on acquiring a basic knowledge in the first years and gradually integrating and using this knowledge during the later years of the study programme in a problem-based environment, i.e. in the clinics. In these clinics, the clinical problems (cases) are the ideal tools for integrating basic and practical knowledge. This is also expressed in the educational vision of the university, where it is described as “creative knowledge development” (“Onderwijsconcept UGent: Creatieve Kennisontwikkeling” – annex 5.1).

Courses in the Bachelor’s programme are predominantly based on lectures, complemented by a substantial amount of practicals. These practicals include traditional sessions, such as lab experiments, cadaver dissections, microscopy etc. Additionally a large variety of newer approaches is being implemented.

A (non exhaustive) list of new teaching methods is given below:

- interactive computer-assisted practicals (Biomedical statistics, Computational biology and information acquisition, ...)
- computer-assisted learning (Virtual microscopy: General Pathology / Cell Biology and General Histology, Parasitology, ...)
- Self directed learning based on scientific articles (Analytical Chemistry, Zoology, ...)
- Micro-teaching (Ethology)

In the Master’s programme, clinical activities become increasingly important from the first to the third standard learning track year. In the first and second standard learning track year, students participate in the clinical activities between 8.00 and 10.00 a.m. while students of the third standard learning track year participate in the clinical activities during the whole day, including nights and weekends. During these clinical activities, students work together with staff members in small groups, where the supervisor stimulates and challenges the students to think actively and critically, to cooperate and to involve themselves in the examination and treatment of the patients.

Additionally, newer teaching methods are also implemented in the Master’s programme.

Over the last years, a skills lab has been developed, supported by university teaching innovation funding. This skills lab comprises phantoms for practicing IV injections/ blood sampling (“Koken rat” / dog leg phantom), endotracheal intubation (dog model), rectal palpation (Breeding Betsy), large animal rescue (horse dummy).

The university teaching innovation funding has also allowed developing various digital databases to assist and promote self directed learning and training by the students. Some examples of these databases are: DBS radiography small and large animals, equine obstetrics

and large animal clinical cases. These innovation fundings were also used to equip the clinics with cameras in the surgical lights, video-otoscopes and electronic stethoscopes in order to allow all students to participate digitally in these clinical activities, either in real time or at a later moment at their own convenience.

In order to provide the students with an easy access to this digital teaching material, a portal site has been created in Minerva, also supported by central university funding, where (ideally) all this material will become available. This portal site is called the Digital Veterinary Portal Site (“Digitaal Diergeneeskundig Platform”) and will, in due course, contain recordings of clinical activities, case descriptions, links to relevant veterinary sites and recordings of seminars and lectures (e.g. CPD, lectures).

Especially in the final year, several microteaching activities and integration seminars are organized. Next to the daily informal discussions with the students during the clinical rounds, more formal weekly case discussions are organized within or between the clinical departments. Additionally several joint case discussion sessions with the preclinical departments (virology, parasitology, bacteriology, immunology) are organized during the final year within each track.

5.1.1.4 Use of course notes and standard veterinary textbooks.

Concerning teaching and course material it remains a general university policy that a well-documented syllabus has to be provided to each student for every course in the study programme. Most syllabi or course sheets contain a reference list with related basic or veterinary textbooks, and supplementary information on selected literature sources is provided during the lectures. In order to keep the cost of studies low, the obligatory and sole use of standard veterinary textbooks is not encouraged by the UGent.

Additionally, the electronic learning platform (Minerva) is extensively used for distributing free learning material (e.g. course and seminar slides, training material such as exam sample questions, references to textbooks, articles and electronic databases) to the students. Moreover the FVMG library contains almost all relevant textbooks and is expanding its portfolio of e-books in order to guarantee an easy, free and on-line access to textbooks for the students.

5.1.1.5 Established or contractual arrangements between the Faculty and outside bodies supporting undergraduate teaching

The FVMG has formal or informal collaboration agreements with several outside bodies. The most important collaboration is with the Board of Veterinarians (“Orde der Dierenartsen”), which formally supports the extra muros training of the students in veterinary practices. This support guarantees that all students can easily find a place for their extra muros training.

Contracts with the Food Safety Agency and several slaughterhouses facilitate the practical training of the students in veterinary public health. This formal agreement is important since the former slaughterhouse of the university in Melle has been closed.

An intensive collaboration exists between the FVMG and the Flanders Animal Health Service. Students from the pig, rabbit and poultry track receive their training in necropsy and farm visits. Additionally the contacts of faculty members with farmer and breeding organizations ensure that students are welcome on farms for training.

For the 'Ruminant Medicine' track, collaborations exist with the Flanders Animal Health Service and several companies (e.g. AVEVE (large Flemish agricultural group), Milk Control Centre (MCC), Pfizer, ...). These contacts offer the opportunity to organize visits on farms with specific health problems (mastitis, respiratory problems, metabolic diseases, ...).

For practical training in food producing animals the FVMG also has an agreement with the Institute for Agricultural and Fisheries Research (ILVO): a joint project is ongoing to build a new pig housing facility where all third year students and porcine track students can develop their skills in pig farming (3rd year) and porcine medicine (final year).

Students of the companion animal track benefit from the cooperation of the FVMG with the Prince Laurent foundation through the recently opened dispensary in the city of Ghent. This allows all students from this track to acquire additional training on first line cases.

For the students of the 'Equine' track, cooperation exists with a large embryo transfer farm, amongst others for training of dental work on the recipient mares.

5.1.1.6 General learning objectives underlying the veterinary curriculum, how they are ensured and how data required to ensure students are equipped with these Day- one skills (evidence of learning) are recorded.

The general learning objectives are listed in chapter 1 (Objectives). Basically the learning objectives aim to provide all students with a broad knowledge and basic skills on veterinary medicine of all major domestic animal species. On top of that, the FVMG allows the students to acquire more elaborate competencies within a limited number of species, i.e. the species included in a specific track.

This is ensured and recorded by several evaluation mechanisms.

Firstly, the system of tracking allows a close contact between small groups of students and the academic staff. This ensures that the students obtain an intensive practical training within their track. The system of tracking also allows close monitoring of the progress made by each student based on permanent evaluations, next to the final exams at the end of the Master's programme. This combined system of permanent evaluation and final exams allows to accurately verifying the acquisition of the necessary Day One skills by the students. This is formally recorded on custom score sheets and this information is used to give feedback to the students at frequent intervals.

Secondly, evaluations by the students give feedback to the lecturers concerning the achievement of the learning objectives. Teaching evaluations are organized on the level of individual courses and on global bachelor and master level (see chapter 4).

Thirdly, the achievement of the learning objectives is regularly evaluated by the alumni. The Study Programme Committee of the FVMG organizes a survey for alumni every 6 years. This survey is composed of questions that are specific for the veterinary profession. The UGent central department of education also organizes evaluations of all study programmes. These include (1) an evaluation of the full Bachelor's and Master's degrees by the recently graduated students every 2 years and (2) inquiries of the alumni every 3 years.

5.1.2 The teaching environment

5.1.2.1 Available staff development facilities, particularly in relation to teaching skills.

To maintain the teaching skills of the academic staff at a high level, the UGent organizes a series of training sessions. These sessions are highly attended and have become an important part of the educational portfolio of the academic members. Trainings are organized both for lecturers ("docenten training") and assistants ("assistent training").

For lecturers, several modules are available:

- Basic teaching training module
- Presentation techniques level I and II
- Multiple choice exams
- English for lecturers
- Voice clinic
- Smartboard training
- Turning Point training

For the academic assistant staff, two modules are available: basic assistant training and feedback training.

Additionally several educational seminars are organized yearly on specific topics, for example teaching for large audiences, use of digital media in teaching,

5.1.2.2 Systems for reward of teaching excellence (e.g., accelerated promotion, prizes, etc).

Teaching excellence has become more important at the UGent over the last decade. Whereas promotion previously used to be based mainly on research achievements, in recent years it has become mandatory for promotion that teaching quality has to be evaluated at least as "good" in the annual student evaluations. In the most recent guidelines for promotions even more stringent rules for the quality of teaching are implemented and additionally, these guidelines also offer the possibility for academic staff to focus more on a teaching career while still maintaining their chances to promote. These guidelines are summarized in the note

Reference Guidelines for promotion of permanent staff (“Referentiekader ZAP bevordering”) see annex 5.2).

To reward teaching excellence, several awards are presented at the level of the UGent. The best known award is the “Wijste prof” (Wisest professor) award, which is annually awarded since 2007 by the students after a university-wide voting. In the past two professors from the FVMG have obtained this prize: Prof. Simoens (Morphology) in 2007 and Prof. de Kruif (Reproduction and herd health) in 2010.

Furthermore, since 2011 the UGent awards three prizes for excellence in respectively teaching, research and public and scientific engagement. The Minerva Award for education is granted based on outstanding quality of lectures, exceptional contribution to educational innovation, organization or study programme development and excellence in student coaching and advising. Candidates are nominated by students and university personnel and the final decision is made by the central administration and the Rector. Prof. Ann Van Soom (Department of Obstetrics, Reproduction and Herd Health) was granted the Prometheus Award for excellence in research in 2012. The Hermes price is dedicated to excellent work in the domain of public engagement (see also <http://www.ugent.be/nl/actueel/nieuws/laureaten-onderscheidingen-2012.htm>).

5.1.2.3 Additional measures taken to improve the quality of teaching and of learning opportunities.

The improvement of the quality of teaching is supported by yearly grants from the UGent for innovation in teaching. Annually between 40,000 and 50,000 euro is granted to the FVMG. This money has been used for several projects, as mentioned under 5.1.1.3.

Next to the initiatives at the level of the faculty, initiatives from the university central administration also aim at improving the quality of teaching. These include:

- Symposia on teaching quality and innovation (e.g. Millennium class 2012)
- Facilities for streaming video (streaming video portal)
- Educational research vouchers (financial support for research on teaching)
- Rental of voting system (Turning point)
- Extending the teleclassing facilities at the university by progressively equipping all faculties with these facilities
- ...

5.1.3 The examination system

5.1.3.1 The centrally regulated examination policy for the Faculty and the form(s) of examination used (written papers, multiple-choice questions, oral, practical, clinical examination, continuous assessment, etc.)

The examination procedure at the FVMG is strictly regulated by the university’s ‘[Education and Examination Code](#)’ (EEC) (PART III – EXAMINATION CODE).

The evaluation methods as proposed by the teacher are submitted every year to the Study Programme Committee for approval. The different evaluation methods that can be used are described in the EEC (SECTION II – GLOSSARY OF EVALUATION METHODS) and can be found in the course sheet of every course in the university's study guide. Basically every examiner is free to use any kind of examination method, as long as it is mentioned in the EEC and approved by the Study Programme Committee.

In general two types of assessment are used: permanent evaluation (continuous assessment) (for skills and attitudes) and assessment by examination during the defined examination period (knowledge and insight). A combination of permanent evaluation and examination is frequently used and the importance of permanent evolution increases considerably during the clinical training.

5.1.3.2 Periods (without teaching) during the year for examinations

The periods during which periodical evaluations can be organized, are specified every year by the Board of Governors (Executive Council) of the UGent and are published in the 'academic calendar' (<http://www.ugent.be/en/teaching/studentadmin/academiccalendar>). Basically after each semester there is a 4 to 6 week examination period, during which all teaching activities (except the clinical activities) are stopped.

5.1.3.3 Exam retakes

Unsuccessful students can take a second chance in the "second chance examination period" in August and September (4 weeks). If the student fails again, this course has to be reincluded in his/her curriculum in the following year. In theory the student is allowed to retake these two examination chances per course per year for an indefinite period of time. There are however some limitations. A first limitation is described in the EEC (article 22) that defines a set of rules to ascertain a minimal study progression per year. Secondly, the availability of remaining learning credit (see chapter 9) can be another limiting factor for the number of exam retakes.

Failing for one or more courses does not completely block the study progress of the students. Due to a high flexibility in individual curriculum composition, students can include courses from higher years in their curriculum. The basic rule is that all previously failed courses have to be included in the curriculum when registering for courses of a higher year.

5.1.3.4 External examiners

External examiners are infrequently used at the FVMG, since this is not supported by the Flemish Government. The lecturer is entirely and solely responsible for the evaluation. In case of disagreement the student can ask mediation of the Faculty Ombudsperson. If no consensus can

be found, there is additionally a system allowing students to appeal in a very easy and affordable way in case of disagreement with the exam results or procedure (EEC article 95).

According to the EEC (article 78), students do have the right to be attended by an observer during oral examinations.

5.1.4 Evaluation of teaching and learning

Evaluation of teaching is organized both by the FVMG and the Department of Educational Affairs of the UGent. This is performed by using several formal assessment procedures that take place at fixed intervals. Both internal (students, academic staff) and external (alumni, international visitations) evaluation procedures are organized.

At the FVMG, the Education Quality Control Unit evaluates each member of the academic staff and each course at least every 3 years through an anonymous electronic survey submitted to the students. This evaluation is predominantly a measure for the quality of teaching: this includes the teaching style, the course content, the organization of the course, the teaching material and the examinations. An example of questionnaires used in these surveys is included in annex 5.3.

The results of these evaluations are discussed within the Education Quality Control Unit in the presence of student representatives, and are reported to the lecturer, the Head of the Department and the Study Programme Committee. The final evaluation report concerning the teaching process is added to the lecturer's personal education file and can be consulted by promotion committees. Whenever the Education Quality Control Unit judges that improvements are possible or needed, a meeting with the lecturer is organized to discuss and monitor possible ways of remediation. In these cases the course is re-evaluated the following year to measure the effects of the changes. In cases of continuing problems with the quality of teaching, the department involved can be requested to propose a change of teacher.

Additionally the Education Quality Control Unit is also responsible for the organization of the study (or learning) time measurement, which is performed at least after each study programme update to evaluate the study load of each course. This allows to monitor and avoid an excessive study load per course and hence in the overall study programme. An example of the results of the study time evaluation over the period 2005-2009 are presented in annex 5.4.

The Study Programme Committee organizes a survey of the alumni every 6 years. This survey gathers information concerning the quality of teaching content and teaching methods with respect to the needs of the profession.

Finally the Department of Educational Affairs of the UGent organizes general evaluations of all study programmes. These include (1) every 2 years an evaluation of the full bachelor and master degrees by the students that recently graduated, and (2) every 3 years inquiries amongst alumni. These surveys aim at measuring the quality of the education provided by the faculties, and specifically for the alumni, the way the study programme has adequately prepared the students to the profession. These centrally collected results are discussed within the Department on Educational Affairs of the UGent and distributed to the respective Study

Programme Committees for interpretation and feedback. Within the frame of the University Quality Control system, the results and eventual remediation are annually reported and evaluated by the Office for Educational Quality Control of the central administration of the UGent.

Table 5.1: Summary of the methods for evaluation of teaching and learning quality by the different stakeholders

	<i>Time interval</i>
Study Programme Committee - Alumni (specific information for veterinary medicine)	<i>6 years</i>
Education Quality Control Unit - Academic Staff evaluation - Learning time evaluation	<i>3 years</i> <i>After curricular changes</i>
UGent Department of Educational Affairs - Bachelor/Master programme - Alumni (general information on all the study programs)	<i>2 years</i> <i>3 years</i>

5.1.5 Student Welfare

5.1.5.1 Protection of students from zoonoses and physical hazards.

Specific knowledge and training on prevention against zoonoses, biohazards and physical hazards is mandatory in a veterinary environment.

Safety and biosafety guidelines are documented in manuals that are provided to all students.

Manuals for safe conduct in laboratories have been generated at university level (see annex 5.5 and [Laboratory and Workplace regulation](#)) as well as at department level. These manuals are distributed to and signed by the students during the first practicals in the Bachelor's and the Master's programmes.

A health and safety committee is active at faculty level. It aims to identify risks and maintain the safety of staff, students, general community and environment, and works in close collaboration with the health and safety department of the UGent (<http://www.ugent.be/en/ghentuniv/healthandsafety>). In each department, allocated personnel is responsible for the application of the health and safety regulations, under supervision of the head of the lab/department. Additionally, trained first-aid personnel ("First Intervention Unit") is available in every department. Finally, a defibrillation unit is present at the

faculty and is centrally located in the Department of Surgery and Anesthesiology of Domestic Animals.

The health and safety committee also comprises a radioprotection unit, which is assigned to control and implement the radioprotection rules and to represent the University Radiation Protection Service at the faculty level. The prime objects of the Radiation Protection Service and its peripheral units are the supervision of the departments where radioactive agents and ionizing radiation are used, controlling radioactive waste policy, monitoring individual radiation exposure (dosimetry), and providing information on radiation protection.

A Biosafety Committee is also active at faculty level. It oversees all work with microbiological agents and, like the safety committee, aims to maintain the safety of staff, students, general community and environment in a pro-active way. It works in close collaboration with the environmental department of the university (<http://www.ugent.be/nl/univgent/welzijnmilieu>). The Faculty Biosafety Committee has compiled a [manual with biosafety guidelines](#) specific for the faculty.

During their third bachelor year, students receive training on and a copy of these faculty biosafety guidelines during the course of Hygiene, where the general principles of biosecurity and containment of biohazards are also discussed. In the biosafety guidelines book detailed information of the practical implications of the general principles in the faculty setting is given. These guidelines are updated on a regular basis.

Students enter the clinical departments in their 4th year. They receive plenary instructions on safety guidelines in the clinics during the first session of clinical demonstrations and receive additional instructions at every clinical department. During the 4th and 5th year, the students only work under close supervision of a staff member, ensuring that all quality and safety standards are met.

In the final year, students will often work without immediate supervision, and therefore additional measures to ensure the safety of the students are put into place:

- at the end of the 5th year a general introductory lesson is organized and the notes of these lesson are distributed amongst the students. This lesson covers all sorts of topics, including hygiene and biosafety rules.
- during the final year, staff members ensure that continuous attention is maintained to respect the biosafety guidelines (e.g. protective clothing, hand hygiene, compliance with restricted access to isolation wards, ...) during the clinical activities.

Finally, a medical service is provided for the students. This medical service is available for first line consultation (<http://www.ugent.be/en/teaching/studysupport/medical>), while for emergencies the University Hospital can be contacted. All students also have to pass a medical examination before starting their extramural activities: if needed, adequate vaccinations will be provided to the students based on the geographical location and/or specific risks at the extramural workplace (e.g. zoo animals, primates, ...).

5.1.5.2 Guidance for Students

The UGent provides ample opportunities for guidance and counselling to the students, both at the central level as at the level of the FVMG.

5.1.5.2.1 Centrally organized student guidance

The Advisory Centre for Students of UGent offers information, professional advice and counselling concerning the different aspects of a study career, before, during and after the period of study. This service is at the disposal of all students, prospective students or anyone else interested in studying at Ghent University.

(<http://www.ugent.be/en/teaching/studysupport/counselling/studycareerservice.htm>).

Firstly, this support includes advice for prospective students in making the right study choice (<http://www.ugent.be/en/teaching/studysupport/makingchoices>).

Secondly, the University Advisory Centre for students provides a continuous and broad support throughout the study of the students. This support includes the following topics:

- Information desk

The information desk is the starting point in the Advisory Centre. The staff members try to find an immediate answer to questions and problems by giving information; if necessary an appointment is made with an advisor or counsellor. Information for international students as well as information brochures concerning all branches of study at UGent can be obtained from the information desk, to be reached by phone or e-mail.

- Information library

The Advisory Centre for Students disposes of 2 libraries:

> for prospective students looking for information concerning (academic) study programmes: first year (bachelor degree) course books, information from other Flemish universities and other institutions of Higher Education. This information library is accessible every working day.

> for students looking for information about postgraduate studies in Belgium: information on the Belgian labour market; information for graduates who want to enter the labour market; labour market surveys and trends, application and selection procedures, job vacancies, etc.

- Study career counselling

For each step or problem in a student's study career, a team of advisers is available to discuss study matters and study choices, e.g. information and counselling on the curricula, required foreknowledge and aptitudes, examination regulations, switch-over possibilities, bridging courses, etc.

- Study problems and study skills

A psychologist is available to guide students in finding the appropriate study attitude and functional study skills. Students are helped to remedy problematic matters as lack of concentration, study planning and time management, problems with writing a paper or dissertation, declining motivation, procrastination,... Each semester workshops on study skills and related topics are organized in small groups (in Dutch). Booking is necessary.

- Personal / psychological problems

A psychologist is available for confidential counselling for students who cope with study problems because of personal distress; (pre)exam nerves, strain, fear of failure, relational problems, self-assertion, home sickness, depression,... Yearly workshops in small groups are organized about how to deal with fear of failure (in Dutch).

- Counselling for Handicapped Students (organized by vzw [Cursief](#))

This section offers material, technical, and social aid to students with special needs. This service acts as an intermediary between disabled students, staff and fellow students concerning study and examination facilities, transport, accommodation, software support, etc.

- Postgraduate studies

Extensive information about (advanced) Master's programmes and other further study possibilities at UGent is supplied by the Advisory Centre for Students. In the information library information on study programmes at other Belgian universities and institutions of Higher Education is also available. Individual counselling (by appointment) may help to consider a motivated choice that suits into specific professional ambitions.

- Career guidance

The Student Advisory Centre also provides help to students in the best way to find a job by giving insight into the labour market: <http://www.ugent.be/en/teaching/studysupport/careers>

5.1.5.2.2 Student guidance at the FVMG

At the FVMG, students can contact the "Monitoring service", which provides individual personal assistance. The Monitoring service consists of Student counsellors and Learning Track Counsellors who are available for individual advice and guidance concerning specific study choices, all matters related to the chosen study or to discuss possible re-orientation. The Monitoring service acts as the first point of contact for students with study-related or personal problems.

Also at the FVMG, 3 ombudspersons are active; they are available for students of the first and the second cycle and the doctoral (PhD) researchers, respectively. The faculty ombudspersons act as contact persons between students and academic staff and mediate when disputes occur; moreover they participate in the examination deliberations. They are members of the academic staff, are chosen by the students and are appointed by the FVMG for renewable

periods of one academic year. The institutional ombudsperson deals with matters that concern the "Teaching & Examination Regulation" that cannot be solved by the faculty ombudspersons.

5.1.5.3 Facilities (not related to the study programme) which the establishment provides for students

UGent provides a vast array of facilities for the students. For their accommodation it has 6 student homes at its disposal with a total capacity of 1400 furnished rooms, 200 furnished studios and 100 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 FVMG. The students can have meals at low student 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 disposes of a big sports 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.

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.

All information concerning student facilities provided by the University can be found on the following URL: <http://www.ugent.be/en/facilities> .

5.2 Comments

The FVMG considers that the quality and content of teaching is adequate and appropriate to the needs of the profession and to European standards. The current teaching evaluation system allows to monitor and continuously improve the quality of teaching. The substantial input from the students, through regular evaluations and through their presence in all faculty councils (Study Programme Committee, Educational Quality control unit, Faculty Council, ...) provides permanent input concerning organization, quality and content of the study programme.

The FVMG is aware of the fact that teaching at present remains for a large part based on traditional teaching methods, such as lectures and practicals, especially during the first years of the study programme. New teaching methods, such as self-directed learning, microteaching and integration seminars, are progressively being implemented. However, the educational policy of the faculty is based on providing the students with a broad basis of knowledge during the first years and progressively integrating these different fields of knowledge in the later stages of the curriculum, i.e. during the clinical training, where a problem-based approach is used.

5.3 Suggestions

The quality control system used at the FVMG seems adequate in providing timely and specific information to the Study Programme Committee in order to adapt and improve the curriculum. However, the number of surveys submitted to the students seems to have reached a saturation point: a progressive decline in response rate can be seen over the course of the study programme. Therefore extending the number of evaluations should be done very cautiously.

One area of improvement in the quality control system at the FVMG might be a more formal collaboration with the profession for the evaluation of the study programme in view of the current and future needs of the profession.



6 CHAPTER 6 – FACILITIES AND EQUIPMENT

6.1 Factual information

6.1.1 Premises in general

The campus of the FVMG is located in Merelbeke, a small town in the suburb of Ghent. The buildings are divided as follows: the 4-story laboratory building with housing facilities for laboratory animals at the south side of the campus, the buildings for morphology; pathology and avian/non conventional small animal clinic plus bacteriology at the west side, the buildings for small and large animals clinics at the north side, with offices and laboratories in the front, and stables/riding hall/examination hall in the back, a restaurant and the building for the central administration of the faculty including the library and 2 houses for the housekeepers at the entrance of the campus.

The construction of the campus has a long history. In 1971, the 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 that an agreement was reached between UGent and the Flemish Government.

Thanks to this agreement, the 4-story building could be used in the late summer of 1994, together with the animal housing facilities of which the interior arrangement had to be transformed thoroughly. This building mainly contains laboratories, offices and teaching facilities.

- In the A-wing on the ground floor, a part of the Department of Veterinary Public Health and Food Safety is housed. On the first and second floors respectively, the Departments of Comparative Physiology and Biometry and Pharmacology, Toxicology and Biochemistry are located. The third floor contains laboratories for practical exercises of several courses, an auditorium for 150 students and rooms for first aid facilities/medical examination of students.

- In the B-wing from top to bottom, Immunology (3th floor), Virology (2nd floor), Parasitology (1st floor and ground floor) and the second part of the Department of Veterinary Public Health and Food Safety (ground floor) are housed.

- Both wings have an underground floor where several laboratories, meeting/storage rooms, offices and a PC class (40 places) are located

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

gardens and the road construction were the finishing touch. The main accent was put on the central pond that also serves as a buffer basin for rain and a basin for waste water treatment.

On the campus, four functional types of buildings can be found:

- Buildings for general services (offices, restaurant, library, ...)
- Laboratories
- Clinical areas
- Animal facilities

When entering the campus, the first building located on the right side is the restaurant. In a self-service facility, students and staff members can choose out of a few dishes. In order to fulfil the needs of the students, a smaller sandwich bar is located next to the auditoria of the clinics. The next building is the Deans' Office. Apart from the general reception hall of the FMVG and the general administration offices, the Faculty Student Administration Office, the Education Care Unit, the library and the office of the Flemish Veterinary Journal are housed here.

In the largest complex, several clinics are established. There are clinics for obstetrics, reproduction and herd health, 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 interns and students on call. The animals are housed in the stables behind the clinics. Additionally there are examination rooms, a riding hall, 2 stallion semen collection rooms, several surgical theatres and a smithy, which is connected to the central working place. The stables of the large animals are equipped with an automatic manure evacuation system, a supply of medicinal gasses, milking facilities and tackles.

In the centre of the clinics, there are two auditoria with a capacity of 165 students each.

The Morphology-Pathology building consists of different facilities. As for Pathology, there are a slaughter floor, a large autopsy room, two large cold rooms and an external deep freezer. The most important macroscopic pathological findings are demonstrated daily at observation windows of a corridor along the autopsy room. All students are free to come and have a look at the important pathologies observed that day, taking strictly into account the biosecurity system for entering the autopsy room. For the education of anatomy, an amphitheatre for demonstrations and a dissection room are used. A strict protocol of bio-security is respected in the departments of both morphology and pathology.

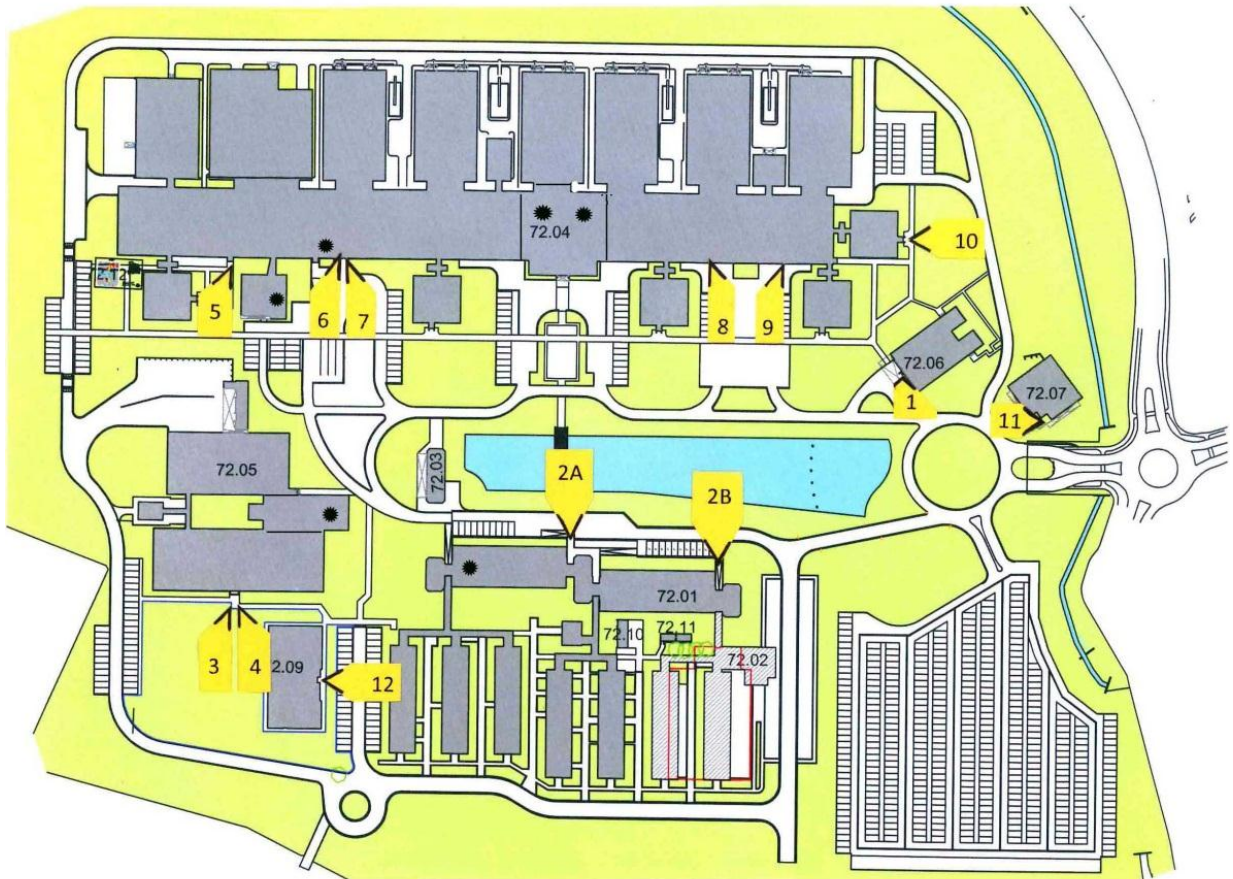
On the first floor, there is a microscopy room (80 microscopes). Both the anatomy and pathology museums are housed in this building, and are easily accessible for students (study room, practical exercises). The auditorium "Maximum" (250 places) is also located in this complex, and a second PC-classroom is located here as well.

Another part of the campus is located at the northern side of the highway Brussels - Oostende. It houses the Department of Animal Nutrition, Genetics and Ethology and a part of

the pilot farm “Biocentrum Agrivet” with facilities for pigs, faculty owned horses and laboratory animals such as cats and dogs.

The other part of the pilot farm with mainly dairy cattle facilities is located in Melle, a village near the campus (cf. chapter 4.8 and 7.3).

Map of the site Salisburylaan FVMG



1 General Administration

Deans' Office / Students' Administration / Library / The Flemish Veterinary Journal / IPV (Institute Permanent Education)

2A 4- story building Wing A

Level -1: PC class / storage room / Ground level: Veterinary public health & food safety / 1st floor: Comparative physiology & biometrics / 2nd floor: Pharmacology, Toxicology & Biochemistry / 3rd floor: auditorium 'Hoogbouw' & practical rooms

2B 4- story building Wing B

Level -1: Meeting rooms, storage / Ground level: Veterinary public health & food safety / 1st floor: Parasitology / 2nd floor: Virology / 3rd floor: Immunology

3 Pathology auditorium "Maximum" / PC class

4 Morphology central necropsy room + fridge

5 Medicine and clinical biology of small animals

6 Veterinary medical imaging & small animal orthopaedics auditorium D & C

7 Surgery and anaesthesiology of domestic animals auditorium A & B

8 Internal medicine & clinical biology of large animals

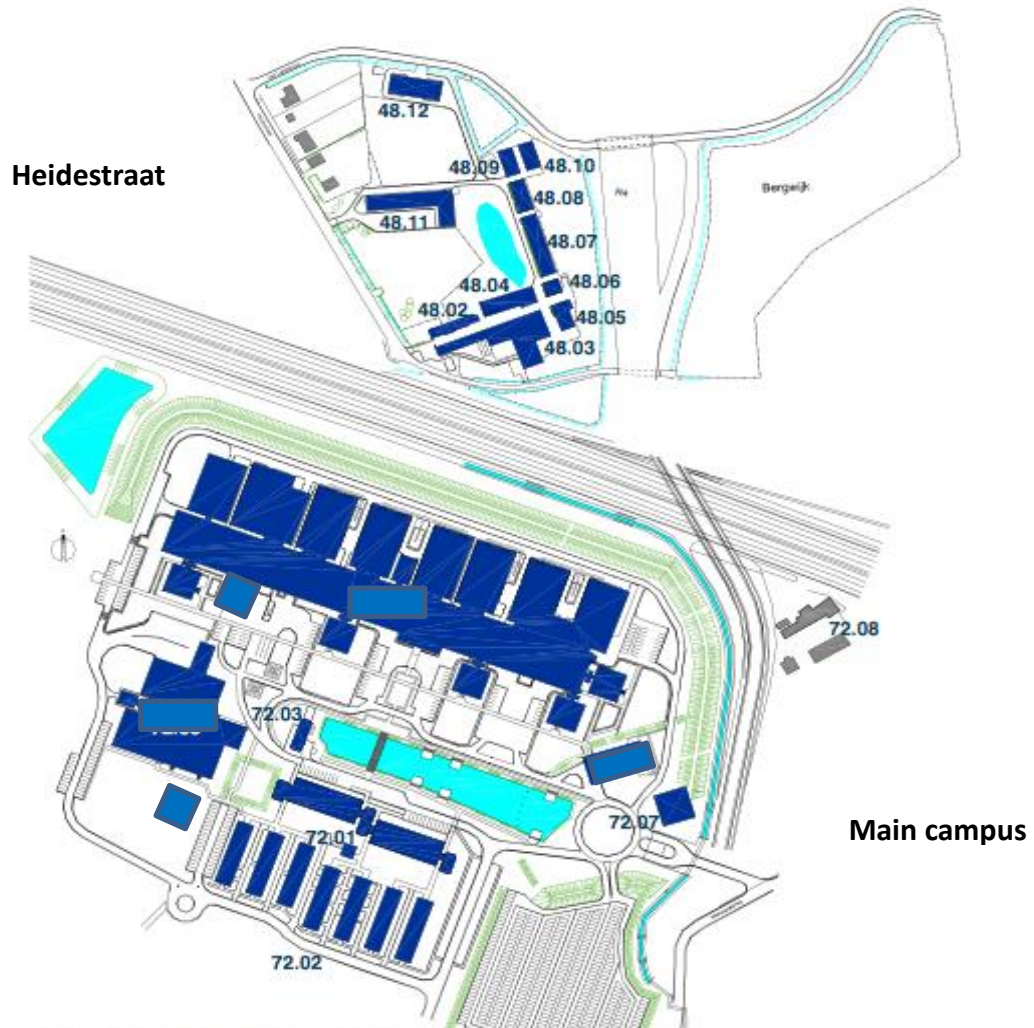
9 Obstetrics & reproduction

10 Heard health & Ambulatory Clinic

11 Restaurant

12 2-story building Groundlevel: Clinic of poultry & non-conventional small animals / 1st floor: Bacteriology

Map of the site Heidestraat and main campus



Heidestraat:

48.11: Department of food sciences, genetics & ethology

48.xx : stables Biocentre Agrivet / FVMG

6.1.2 Premises used for clinics and hospitalization

Table 6.1: Places available for hospitalisation and animals to be accommodated (DI xx= number of department)

	Species	No. places	Total
Regular hospitalisation	cattle	24 (DI08) + 15 (DI10) + 18 (DI12)	57
	horses	27 (DI08) + 50 (DI10) + 48 (DI12)	125
	small ruminants	22 (DI08) + 12 (DI10) + 10 (DI12)	44
	pigs	27 (DI08) + 3 (DI10)	30
	dogs (DI09)	30 + 6 ICU	36
	cats (DI09)	8 + 2 ICU	10
	other1 (DI05)	60	60
	other2 (DI10)	3	3
Isolation facilities	farm animals and horses	2 (DI10) + 4 (DI12)	8
	dogs (DI09)	6	6
	cats (DI09)	4	1
	other3 (DI05)	1	1

other1 Non-conventional small animals (mammals, birds, reptiles, fish etc.)

other2 lama's

other3 isolation room 13 m² (non-conventional small animals; multiple housing facilities)

6.1.3 Premises for normal animals for teaching purposes

Handling of large animals (cattle – horses) is partly taught at the FVMG 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 (pastures inside the FVMG or in the Heidestraat) and during wintertime they are kept in individual stables (4 by 4 meter for horses/cattle) or tied up in stalls (width 132 cm for cattle).

A varying number of horses (on average 10) and cattle (usually 4) are kept at the Department of Internal Medicine and Clinical Biology of Large animals for that purpose. These animals are also used for clinical demonstrations and as blood and plasma donors.

The Department of Surgery and Anesthesiology of Large Animals has also a varying number of horses and ponies (average 10) for similar purposes. A limited number of cattle (average 8) are yearly purchased for practical exercises (surgical interventions); these animals are kept only for a limited period (average 1 week). A variable amount of animals kept for experimental purposes (on internal or external demands) including sheep, goats, lama's and pigs are also housed inside the stables of this clinic; the students are actively involved in daily care and treatment.

The Department of Obstetrics, Reproduction and Herd Health has an average of 15 horses, several cows and 2 bulls for teaching purposes.

Another part of the animal husbandry teaching takes place at the pilot farm “Biocenter Agrivet”. Here 60 dairy cows and young stock, 130 sows and occasionally other animals are available for training (see chapter 5.1). Since the academic year 2011- 2012, a 50 % veterinarian in collaboration with the personnel of the farm assures the practical training of all aspects of production animals (handling, feeding etc.) for small groups of the students of the 3rd standard learning track year of the bachelor.

There are facilities to maintain 43 experimental dogs inside the Department of Medicine and Clinical Biology of Small Animals (separate dog kennels). When beagles are used, 2 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. There is also a kennel for 6 experimental cats. At this moment, no cats are available for student handling exercises (older cats relocated by official adoption procedure). In the near future (end of 2015) a completely separated animal facility (conform to European and Belgian legislation) will be available with a total capacity of 80 experimental dogs (group housing with outdoor runs) and 30 cats (group housing per 6 cats also with an outdoor run).

The clinic for birds and non-conventional small animals organises each year practical exercises on the handling of these animal species (mouse, rabbit, snake, chicken, pigeon, rat, guinea pig, lizard) for last year students (track ‘small animals’). Clinical or private owned animals are used for these exercises. All animals are housed in their specific facilities inside the clinical building.

All students of the 3rd bachelor year have to do animal handling stages (80 hours extra mural, 20 hours guided stage at the University farm) whereby the required knowledge on handling small and large animals is obtained (in farms, kennels, shelters, riding schools etc.). The students are evaluated on their report of the extra muros stage and on their performance during the stay at the University farm.

6.1.4 Premises used for theoretical, practical and supervised teaching

The students of the first year have all lectures in the centre of Ghent (Ledeganck street) where several large lecture theatres of UGent can be used (capacity up to 600 places).

Practical and/or supervised work of first Bachelor students is mostly in the FVMG in Merelbeke.

Table 6.2: Premises for clinical work and student training

companion animals	no. consulting rooms	DI05	DI09	DI08	DI11	Total
		3	13 (+ 9)	1	8	25 (+ 9)
	no. surgical suites	1	3 (+ 4)	0	0	4 (+ 4)
others			Disp. ¹			
equine and farm animals	no. examination areas	DI08	DI10	DI11	DI12	Total
		2 (+ 1)	5	2	4	13 (+ 1)
	no. surgical suites	1	3	0	0	1
others		Semen ²				

- (+) Extra consultation rooms and surgical suites planned in extension Small Animal Clinic; extra examination area experimental horses in Heidestraat (under construction)

-¹ Because of the significant decrease of first line cases in small animals, a collaboration with the Prince Laurent Foundation and the city of Ghent has been set up to run a dispensarium for small animals in the city of Ghent. This facility is the 4th dispensarium in Belgium and provides essential first line services to citizens with a low financial income. The ongoing spaying project of wild cats of the city of Ghent will also be relocated from the FVMG to this facility. On October 1st 2012, the dispensary was started up in a small commercial house (about 50 m², rented by the Foundation, renovated by the UGent, organization of clinical activities by one intern and several last year students of the ‘Companion Animals Medicine’ track on a rotation base). The city of Ghent will provide a larger facility end 2013 (ground floor of existing building).

-² Professional semen laboratories including area for semen collection (one educational lab for students, one for public service according to EU regulations accessible for students).

Table 6.3: Premises for lecturing

Hall	no. 1	no. 2	no. 3	no. 4	no. 5	no. 6	no. 7	no. 8	no. 9	no. 10	Total
Name	<i>Maximum</i>	<i>Hoogbouw 1</i>	<i>Hoogbouw 2</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>Obstetrics</i>	<i>Morphology</i>	<i>Zootechnical</i>	
Places	250	150	25	165	165	50	65	30	40	60	1000

Table 6.4: Premises for group work (number of rooms that can be used for supervised group work)

Room	no. 1	no. 2	no. 3	no. 4	no. 5	no. 6	no. 7	Total
Location	DI01	DI02	DI03	DI04 Para	DI04 Viro	DI05	DI06	
Places	0	0	30	12	15	20	15	92

Room	no. 8	no. 9	no. 10	no. 12	no. 12	no. 13	no. 14	Total
Location	DI07	DI09	DI10	DI11	DI12	PC1	PC2	
Places	50	0	30	14	15	27	40	176

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Table 6.5: Premises for practical work (number of laboratories for practical work by students)

Laboratory	no. 1	no. 2	no. 3	no. 4	no. 5	no. 6	no. 7	Total
Location	Museum	Amphitheater	Microscopy	Anatomy	Hoogbouw 1	Hoogbouw 2	Pathology	
Places	80	80	80	80	30	70	40	460

Laboratory	no. 8	no. 9	no. 10	no. 11	no.12	Total
Location	Obstetrics	Surgery LA	Parasitology	Internal LA	Small Animals	
Places	64	25	10	12	15	126

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All the health and safety measures have been written down in different manuals, which are handed out to each employee and student and which are available at the website of the faculty "[Safety scenario FVMG](#)".

6.1.5 Diagnostic laboratories and clinical support services

6.1.5.1 Diagnostic laboratories:

The FVMG has one central necropsy facility for horses, farm animals, companion animals, birds, poultry, exotic animals, etc. This facility is equipped with cooling rooms where carcasses can be stored for a short period, large necropsy rooms and facilities for clinical pathology and administration.

For the necropsy of large animals, electric pulleys allow easy transport of the cadavers from the cooling room to the large animal necropsy tables. Specially designed necropsy tables are available for the other animals. Necropsy of small animals presumably infected with a zoonotic agent, are performed in a fume hood with HEPA-filtration on the outlet. The equipment of the rooms also includes systems for accurate weighing in the range of 1 g up to

1000 kg. All cadavers and samples taken from these cadavers are labelled with a unique number. 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 and staff enter these premises through a female-male separated dressing room, in which boots and disposable gloves and coveralls are put on. Necropsies are performed daily (except on Saturdays and Sundays). Every day, approximately 30 students (of the 3rd master years) carry out necropsies under the continuous supervision of 2 or 3 veterinarians and 2 technicians. Students are also directly involved in cytology of tissue samples.

Each day, labelled necropsy findings are exhibited at the windows of the demonstration corridor along the major necropsy room, where they are accessible to the students between 10 AM and 2 PM (cf. 4.22).

2. Several diagnostic laboratories support the clinical services inside the faculty. There are laboratories for biochemistry of small animals, endocrinology, bacteriological examination of uterine and milk samples, histopathology, bacteriology, virology, parasitology, toxicology and immunology. Students are also 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.

3. Smaller diagnostic setups are available in the different clinics for rapid analysis of the clinical patients (including blood gasses, ions, WBC, etc.). They are routinely used by staff members and students during the daily clinical work and night and weekend shifts to obtain quick essential clinical diagnoses.

6.1.5.2 Central clinical support services:

Anaesthesia:

There is no 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. Support is provided to the Small Animal Clinic (different subdivisions), the Large Animal Surgical Clinic but also to other Clinics including Medical Imaging, Obstetrics of Large Animals and Internal Medicine of Large Animals. There is a close collaboration between the different anaesthesiologists, including the exchange of residents between the departments, journal clubs and the organization of continuing education. Several veterinarians in the FVMG are involved full-time in anaesthesiology and related matters (including intensive care of small animals). The anaesthesiologists are involved in the emergency service system of the Large and Small Animal Clinics.

Diagnostic Imaging:

The Department of Veterinary Medical Imaging and Small Animal Orthopedics is a centralized department where all aspects of medical imaging are performed, including radiology, ultrasound, computed tomography (CT), magnetic resonance (MRI) and scintigraphy. These facilities are offered to the other clinical departments, including the Small Animal Clinic, the Large Animal Surgery and Anesthesiology Department, the Large Animal Internal Medicine Department and the Clinic for Exotics/non-Conventional Small Animals. The department is centrally localized, in between the Small and Large Animal Clinics, thus offering easy access to all patients. The majority of patients are referred to the department by these clinics. A small number of patients is referred by general practitioners, mainly for CT, MRI and scintigraphy. Consequently, students have the opportunity to get acquainted with all aspects of diagnostic imaging, both in practice and under academic circumstances. The department also offers its services during holidays and at night by means of emergency services.

6.1.6 Slaughterhouse facilities

The FVMG works in close cooperation with 5 different slaughterhouses (see Table). Guided visits in small groups of 3rd year master students (Large Animals tracks or electives veterinary health) are organized during the slaughtering process. All 5 slaughterhouses are EEC approved and give students the opportunity to practice meat inspection under the guidance of an experienced co-worker of the Department of Veterinary Public Health and Food Safety or an official food hygiene veterinarian (approved by the governmental body of food safety). The guided visits, which take 5 hours in cattle, pig and broiler slaughterhouses, allow students to gain knowledge of ante mortem and post mortem meat inspection. Moreover, students are required to evaluate and discuss the applied GMP and GHP within the frame of the HACCP system.

Type	Name	Location
Pig slaughterhouse	Van Landschoot	Adegem
Pig slaughterhouse	De Lokery N.V.	Lokeren
Cattle slaughterhouse	Flanders Meat	Zeel
Broiler slaughterhouse & meat cutting plant	Nollens	Kruishoutem
Broiler slaughterhouse & meat cutting plant	Lammens	Torhout

6.1.7 Foodstuff processing unit

Practical teaching is based on visiting different types of food processing plants (see Table):

- 2 broiler slaughterhouse and connected cutting plant (5 hours) (see also 6.1.6)
- meat cutting plant (pig carcasses) (4 hours)

- meat processing plant producing heat treated meat products (4 hours)
- meat processing plant producing raw meat products (salted and dried) (4 hours)
- fish market on the wharf (4 hours)

All food processing plants are EEC approved. The visits under the guidance of an experienced co-worker of the Department of Veterinary public health or an official food hygiene veterinarian (approved by the governmental body of food safety) are organized when the facilities are in full activity. Students have a look at the applied production processes and are required to discuss the applied technology and hygiene taking into account the HACCP principles.

Type of food processing plant	Name	Location
Broiler slaughterhouse & meat cutting plant	Nollens	Kruishoutem
Broiler slaughterhouse & meat cutting plant	Lammens	Torhout
Meat cutting plant (pig carcasses)	Jademo	Zottegem
Meat products (dried ham)	Gandaham	Destelbergen
Meat products (heated treated meat products)	Bauwens	Zele
Fish auction	Vlaamse Visveiling	Zeebrugge

6.1.8 Waste Management

UGent has a contract with the national rendering service (company named Rendac, located in Denderleeuw) for the disposal of carcasses. All biological materials of animal origin and carcasses after necropsy are considered as risk materials, and are disposed following a standard procedure. Specially designed containers have been purchased by the Department of Pathology, Bacteriology and Poultry Diseases from Rendac to dispose all cadavers and other biological materials of animal origin. The containers are placed in a separate cooling room until collected at least twice a week using specially designed lorries by Rendac. The materials follow the same procedures as for other risk materials, i.e. incineration in the rendering facilities at Denderleeuw.

UGent complies with the existing legislation concerning the excreta (manure) of animals (Vlarem II, Manure Action Plan or “Mestactieplan”).

- Relatively large quantities of manure are produced in the large animal clinics. A strict separation of the manure of the different animals (horses, ruminants and pigs) has to be respected. Consequently, manure from the large animal patients and the experimental units is selectively stored.
- Manure from horses and cattle (mixed with straw, several hundred tons a year) is collected using specially designed transportation chains from the stables towards 4 dung hills. The manure is removed from the FVMG by a specialized company, which is involved in the mushroom industry. Because of the changing economic situation of this industry (cheap import from abroad), the removal of the manure mixed with straw from the

FVMG may become a future problem. The different clinical departments are responsible for the financial impact of the removal of the different kinds of manure. Manure containing excreta mixed with sawdust is stored into 2 separated dung hills. A specialized waste disposal company collects this manure for the production of compost.

- Manure of pigs is removed from the FVMG 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 FVMG. This water purification unit respects the guidelines of Vlare II, and is submitted to regular control by the Flemish government.
- Infectious material from experimental infections in animals is autoclaved before removal. This manure is removed from the FVMG for destruction by a specialized waste disposal company.
- Domestic waste (conventional ‘house’ waste, paper, clean non-medical glass) and low risk waste (special plastic blue bag) are collected separately and removed by specialized companies. The FVMG receives a yearly budget from the central donation of the UGent in order to assure the removal of this kind of waste.
- All biological materials and their recipients, most chemicals and their recipients and plastics, which have been in contact with biological material and chemicals are collected and stored for incineration. Infectious materials such as bacterial cultures are first autoclaved. The biological and chemical waste is selectively collected in containers. There are separate containers for several types of waste.

- 1) pipettes, cell culture flasks, etc
- 2) potentially contaminated biological waste eg. blood tubes, bacterial culture plates, etc.
- 3) syringes
- 4) sharps medical objects
- 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).

The central collecting point for the removal of high-risk biological and chemical waste (2 special temperature controlled containers) is supervised by a staff member of the Dean’s office (collection day on Tuesday). This waste is also collected by specialized companies. UGent assures the financial impact of the removal.

All public waste containers in laboratories, clinics and offices are clearly labelled in order to obtain a good separation of the different waste streams.

6.1.9 Future changes

Substantial changes since last visit in 2004:

- 2005: renovation of the facilities for young cattle at the pilot farm

- 2005: new administrative unit for the Department of Veterinary Medical Imaging and Small Animal Orthopedics, including a lecture room (80 seats)

- 2007: new building for the clinic for birds, exotic and non-conventional small animals with relocation of the existing necropsy room into the larger necropsy room of the Pathology Department (biosecurity reasons). A state-of-the-art section of the unit Bacteriology is situated on the first floor

- 2012: renovation of housing for experimental dogs in the Heidestraat

- 2012: opening of a dispensary for small animals in collaboration with Prince Laurent Foundation and the city of Ghent (see above)

- 2012: adaptation of faculty owned horse facilities in Heidestraat

Planned future changes:

Major projects:

1. The Veterinary Research Building, including state-of-the-art biosafety level 3 stables (A3) and laboratories (L3) (three floor building) has been approved by the central administration of the UGent. The building process has started in January 2013. This facility will particularly stimulate in-depth and specialized research, whereby master students will be involved in the performance of in-depth, experimental work as part of their master's dissertation.

2. Since the facilities for pigs at the pilot farm in the Heidestraat are no longer up-to-date, a collaboration has been set up with the Flemish Institute for Agriculture and Fishery (ILVO, Melle), the Faculty of Bio-engineering and the University College of Ghent in order to start the building of a state-of-the-art pig facility (capacity of over 800 pigs). UGent has approved a partial financial input of € 300.000,00). This input will allow students to take part in practical sessions under the supervision of a veterinarian. The start of the building is planned in 2013. When the building will be ready and functional (2014), the porcine section at the present pilot farm will be closed.

3. A collaboration has been established with "ORSI", a spin-off of the "Onze Lieve Vrouw Hospital" in Aalst, which is specialized in robotic surgery. A state-of-the-art international training centre for human surgeons is financed by this spin-off for the adaptation of one building at the pilot farm in Melle (building M2). Students ('Research' track) will be actively involved in the daily activities of this centre. The centre was officially opened in January 2013.

4. Because of the lack of space in the small animal department and because of the increasing number of students ('Companion Animals' track), a substantial extension of this clinic has been approved. All plans are finished, and the budget has been approved, so that the building process will be started in 2014.

5. Because of the lack of space in the restaurant at the FVMG at peak hours, a new restaurant will be build inside the FVMG (capacity of 450 places). This project has been approved by the UGent. The opening is planned in 2015. The existing restaurant will serve as “cold food supplier” for students and staff.

6. Due to the construction of an exit from the highway, the students’ clubhouse, “het Boerderijtje”, was demolished. The facilities for the clubhouse were relocated to containers as a temporary solution. The student club will be accommodated in one of the houses of the housekeepers, connected to the Dean’s office building. Extra storage room for the stock and dispersion of the materials essential for the clinical work of students (organized by the student club) will be provided in the new restaurant (see above).

Minor / ongoing projects:

Regular adaptations and renovation of buildings and technical equipment are an ongoing process whereby the planning is spread over time.

Some examples:

- up till now, 2 of the 11 stable units in the large animals clinics have been renovated (repainted, new ventilation system, update of manure chain)

- reconstruction of the small animal intensive care unit (separate intensive care room + observation/administration room)

- the surgical theatre for horses in the Department of Obstetrics, Reproduction and Herd Health has been reformed into a consultation room for small animals obstetrics and a small lecture hall (25 places) (major surgical interventions in horses are performed in the central surgical theatres)

6.2 Comments

The FVMG is very satisfied with its present facilities and equipment. The FVMG is also very positive about the new administrative building for medical imaging and the new poultry and avian clinic. In order to fulfil the needs of staff and students, future expansion and construction of buildings at the FVMG have been planned. These plans are promising and the FVMG is looking forward to the realisation.

However, the FVMG feels that more investments will be needed in the near future.

- The renovation of the experimental slaughterhouse used for the training of under- and postgraduate students was not approved because of the high costs (estimation of 500.000 Euros). Access to slaughterhouses and food processing facilities is not easy because of high

financial compensation demands. Actually, plans are being made in collaboration with the central government in order to obtain easier access to these facilities

- The number of students has been increasing steadily over the last few years. Although the clinical lecture halls were expanded, they have no longer the capacity to host the total number of students. An urgent request has been formulated to the central university to find a proper solution for this problem.

The number of teaching staff, the patient load and the number of researchers have been increasing since the new campus was opened. Consequently, there is presently a shortage of staff rooms and laboratories.

6.3 Suggestions

- The high amount of students entering the studies of veterinary medicine puts pressure on facilities, staff and the practical organization of all types of practical exercises and clinics. In order to decrease that pressure, the FVMG would like to introduce an entrance exam for 1st-year students, similar to the exam organized on national level for students of human medicine. Although this item has been discussed with the central university on several occasions, the demand is not feasible yet, because of political reasons. If the number of students entering the FVMG remains high, a substantial increase of facilities and staff is imperative.

- A constant search for money to adapt and restore buildings and facilities is an ongoing process, but may be thwarted by the European economic crisis, which may induce a stop to all efforts done on different echelons.



7 CHAPTER 7 – ANIMALS AND TEACHING MATERIAL OF ANIMAL ORIGIN

7.1 Factual information

7.1.1 Anatomy

Table 7.1: Material used in practical anatomical training (year N=2010-2011; N-1=2009-2010)

	dog		ruminant		equine		other	
	Year N ³⁾	Year N-1	Year N ³⁾	Year N-1	Year N ³⁾	Year N-1	Year N ³⁾	Year N-1
live animals ¹⁾	2 *	2*	2* bovine	2* bovine	2*	2*	-	-
cadavers ¹⁾	6	6	30 goats	30 goats	3	3	100 cats 40 pigs 160 rabbits 60 chickens	60 cats 40 pigs 40 rabbits 60 chickens 120
specimen ¹⁾	60 heads 120 limbs	60 heads 160 limbs	240 bovine limbs	240 bovine limbs	60 heads 360 limbs	60 heads 320 limbs	120 pig lungs & hearts	120 pig lungs & hearts
other ²⁾	(**)	(**)	(**)	(**)	(**)	(**)	(**)	(**)
eg ultrasound	-				(***)	(**)		
computer assisted teaching	(****)	(****)	(*****)	(*****)	(*****)	(*****)		

1) give figures, 2) indicate, 3) year prior to visitation (i.e. 2011)

- * Each of the 2 living dogs, horses and cows are scheduled times for palpation by small groups of students
- ** Museum specimens (skeletons, plastinated organs, organ models, vascular corrosion casts) and numerous videos (both home-made and from other Faculties of Veterinary Medicine)
- *** Endoscopy of the nasal cavity, nasopharynx incl. guttural pouch and larynx, on cadaver head specimen
- **** Virtual Canine Anatomy - An interactive Guide to Dissection, Osteology & Radiology, produced by the College of Veterinary Medicine and Biomedical Sciences of Colorado State University, is permanently disposable to all students and staff of the Faculty on the University Intranet (Apollo)
- ***** Demonstration of the anatomical aspects of the Audio-Video-3D “Surgeries of the Abomasum in Cattle” , Faculty of Veterinary medicine, Université de Montréal
- ***** Demonstration of the CD “The Glass Horse”, University of Georgia

7.1.1.1 Origin of the materials

- live animals: animals from the clinics (specifically assigned to the palpation exercises with approval of the Faculty's Ethical Committee)
- cadavers:
 - o cats and dogs: from animal shelters and private practices
 - o horses, goats, rabbits, chickens and fish: from commercial animal traders
 - o pigs: from the faculty's experimental farm
 - o pigeons: from Ghent City eradication programme
- specimens:
 - o canine and feline heads and limbs: from animal shelters and private practices
 - o bovine limbs: from commercial slaughterhouses
 - o equine heads and limbs: from commercial slaughterhouses
 - o porcine hearts and lungs: from commercial slaughterhouse

7.1.1.2 Storage of the materials

- The vast majority of the cadaver specimens is dissected in a fresh condition, i.e. without previous fixation or embalming, either directly after arrival from the slaughterhouse (large animal specimens) or euthanasia (goats, pigs, rabbits, chickens, pigeons, fish).
- The dog and cat cadavers are stored in a freezer and thawed before the dissection exercises.
- The museum specimens are permanently exhibited in the Museum of Morphology.

7.1.2 Vehicles for animal transport

The dissection room technicians have been trained and attested for animal handling and transport, and has a large vehicle driver's license.

Animals are transported to the dissection room either by the large animal transport van of the faculty, or by a smaller trailer owned by the Department of Morphology.

The Department of Morphology has a trailer and a license 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 Medicine and Clinical Biology of Small Animals and the Department of Veterinary Medical Imaging and Small Animal Orthopedics. Transport is performed by the technical personal of the anatomy dissection room.

7.1.3 Pathology

Table 7.2 number of necropsies during the past 3 years.

		Necropsies			Average
		Year N = 2011	Year N-1=2010	Year N-2=2009	
Food producing	Bovine	312	318	357	466
	Ovine, Caprine	53	68	35	
	Porcine	111	76	67	
	Other farm animals				
Poultry		73	70	80	83
Rabbits		7	11	7	
Equine		391	401	373	
Companion animals / Exotics	Canine	531	556	687	1491
	Feline	357	302	341	
	Bird	390	388	480	
	Reptile	6	5	16	
	Small mammals	60	78	78	
	Fish	35	41	29	
	Amphibians	43	35	15	
Other animals	Alpaca/Lama	6	4	15	22
	Deer	13	12	10	
	Dolphin	1			
	Kangaroo			1	
	Zebra	2	1		
	Camelidae			1	

The source of animals on which autopsies are carried out are:

- hospitalized animals which have died in the clinics of the FVMG.
- animals brought in by third parties:
 - diagnostic necropsies referred by practitioners
 - necropsies for didactic purposes kindly referred by neighboring practices
 - necropsies for insurance companies or legal expertises

Relationship with outside organizations:

The Animal Health Care Flanders provides last year students (cluster pig, poultry and rabbit) with a practical training in necropsy of pigs and poultry.

Last year students follow additional practical industrial poultry training at two private practices.

Exotic animals: a molecular diagnostic lab dealing with infectious diseases of exotic animals is available for private practitioners. A record of all cases is kept on a central server within the department.

Administrative system: Diagnostic Veterinary Pathology:

Necropsy:

A record of all necropsies is kept on a central server within the department. Gross pathological and histological findings as well as results of bacteriological, parasitological, virological and toxicological examinations are recorded.

Histopathology, Immunohistochemistry:

Samples of necropsied animals and biopsy specimens are recorded with a unique number. These numbers are automatically linked with the necropsy or biopsy report. Paraffin-embedded samples and slides are stored for at least 10 years.

Necropsies of “other pets” are performed in the Clinic of Avian and Exotic Animal Medicine.

7.1.4 Animal Production

7.1.4.1 On the site of the institution

UGent has an animal farm at its disposal, the Biocentre Agrivet 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 FVMG. 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 (140 sows + piglets until 10 weeks of age).

In the surgery department, food producing animals are not continuously kept in the clinic. Practical teaching of students is mainly based on the food producing animals (cattle, sheep, goats, pet pigs etc.) referred for consultation/surgical interventions to the surgical clinic. For more details see section 7.1.5

Additionally, a pole of horses is available in the large animal surgical clinic (2 adult horses, 6 ponies), which are used on a daily base for the practical teaching of the undergraduate students.

The Department of Internal Medicine and Clinical Biology of Large Animals owns a herd of approximately 8 horses that are used for the practical teaching of the students. These horses are fed and kept by the department, but if necessary for teaching purposes, horses from other departments can be used. The financial burden is divided over the departments, but basically every department is allowed to use the educational horses from other departments if needed for teaching purposes.

At least four cattle are in permanent possession of the department of Large Animal Internal Medicine for educational use. Depending on ongoing scientific research this number is usually higher: in 2012, 20 cattle (cows, oxes and calves) were present for practical teaching.

7.1.4.2 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 a herds are available in the ambulatory practice. The total amount of cows and young stock is about 5000.

7.1.5 Food Hygiene / Public Health

Practical teaching is based on visiting different types of food processing plants: namely

- Cattle slaughterhouse (5 hours)
- Pig slaughterhouse (5 hours)
- Broiler slaughterhouse and connected cutting plant (5 hours)
- Meat cutting plant (pig carcasses) (4 hours)
- Meat processing plant producing heat treated meat products (4 hours)
- Meat processing plant producing raw meat products (salted and dried) (4 hours)
- Fish market on the auction (4 hours)

Visits to the 3 types of slaughterhouses are organized during the time they are slaughtering animals. This allows students to watch and practice ante mortem and post mortem meat inspection. Moreover they have to evaluate and to discuss the applied GMP and GHP within the frame of the HACCP system.

Visits to the other food factories are organized during the time they are in full activity. Students have a look at the applied production processes and have to discuss the applied technology and the hygiene, taking into account the HACCP principles.

All food processing plants are approved by the Belgian FASFC (Federal Agency for the Safety of the Food Chain) (<http://www.favv.be/about/>). The FASFC is a federal executive agency with authority over the whole Belgian territory. It lays down the operational standards applicable to businesses and integrates all official control and inspection services for the food chain. In accordance with the Federal law of 4 February 2000, the FASFC is responsible for laying down, implementing and enforcing measures related to the analysis and the management of risks that may affect the health of consumers.

Chapter 7 – Animals & teaching material of animal origin

Name and address of the food processing plants where practicals are organized:

Type of food processing plant	Name	Adress
Pig slaughterhouse	Van Landschoot	Prins Boudewijnlaan 22, 9991 Adegem
Pig slaughterhouse	De Lokery N.V.	Oude Bruglaan 53, 9160 Lokeren
Cattle slaughterhouse	Flanders Meat	Baaikensstraat 33, 9240 Zele
Broiler slaughterhouse & meat cutting plant	Nollens	Industriezone 5, 9770 Kruishoutem
Broiler slaughterhouse & meat cutting plant	Lammens	Wijnendalestationsstraat 8, 8820 Torhout
Meat cutting plant (pig carcasses)	Jademo	Ballingsweg 5, 9620 Zottegem
Meat products (dried ham)	Gandaham	Haenhoutstraat 210, 9070 Destelbergen
Meat products (heated treated meat products)	Bauwens	Heikensstraat 5 (Industriepark Blok D), 9240 Zele
Fish auction	Vlaamse Visveiling	Noordzeestraat 201B, 8380 Zeebrugge

The approval numbers of the above mentioned meat processing plants can be found in the list of approved establishments in the sectors of food of animal origin of the FASFC (http://www.favv.be/bo-documents/inter_inricht_levensmid_N.PDF).

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7.1.6 Consultations and Patient Flow Services

7.1.6.1 Consultation hours

Consultation hours and emergency services for the different clinics are listed in the table below:

Clinic	Consultations			Emergency service
	Discipline	Day	Time	
Clinics of Small Animals	Cardiology	Mon-Fri	08:00-17:00	24h/day/year
	Dermatology	Mon-Fri	08:00-17:00	
	Internal Medicine	Mon-Fri	08:00-13:00	
	Soft Tissue Surgery	Mon-Wed- Thu-Fri	08:00-17:00	
	Orthopedics	Mon-Fri	08:00-13:00	
Clinics for Equines	Dentistry	Mon-Fri	08:00-13:00	
	Internal medicine	Mon-Fri	08:00-17:00	
	Ophthalmology	Mon-Fri	08:00-13:00	
	Orthopedics	Mon-Fri	08:00-13:00*	
	Reproduction	Mon-Fri	08:00-17:00	
Clinics for Ruminants	Internal Medicine	Mon-Fri	08:00-17:00	
	Reproduction	Mon-Fri	08:00-17:00	
	Surgery	Mon-Fri	08:00-17:00	
Ambulatory Clinic		Mon-Fri	08:00-17:00	
Clinic of Avian and Exotic Medicine	Birds, Reptiles, Rabbits, Ornamental Fish, Rodents	Mon-Fri	08:00-12:00 by appointment only	
Veterinary Pathology		Mon-Fri	08:00-13:00	

* purchase exams also in the afternoon

7.1.6.2 Patient Flow

Table 7.3: Number of cases: a) received for consultation, b) hospitalized in the faculty clinics, in the past three years.

		Year N = 2011		Year N-1=2010		Year N-2=2009		Average
		consultation	hospitalisation	consultation	hospitalisation	consultation	hospitalisation	
Food producing	Bovine	384	786	389	787	412	782	1269
	Ovine, Caprine	39	56	29	54	36	52	
	Porcine	0	0	0	1	1	0	
	Other farm animals	0	0	0	0	0	0	
Poultry		0	0	0	0	0	0	0
Rabbits		0	0	0	0	0	0	
Equine		4473	2274	4163	2139	4128	2151	6443
Companion animals / Exotics	Canine	12178	2355	12175	2332	12160	1647	18997
	Feline	2507	448	2632	384	2323	234	
	Cats ster.prog.	0	172	0	106	0	165	
	Bird	415	120	405	105	370	70	
	Reptile	453	230	420	257	389	250	
	Small mammals	439	40	545	53	453	42	
	Fish	23	0	25	0	22	0	
	Amphibians	18	5	13	2	5	4	
Other animals*	Donkey	5	7	2	4	2	2	7
	Camelidae	12	7	2	4	2	2	10
	other	264	0	213	0	280	0	252

Other animals*: ferrets, birds, guinea-pigs, rabbits, rats, tortoises, lizards

7.1.7 Vehicles for animal transport

The FVMG has one lorry with a capacity of transporting two large animals (faculty property) and one small trailer for transport of small ruminants or calves (property of DI08)

For biosecurity reasons, for economic reasons and because of the relative small distance between the FVMG and the rest of Belgium (max travel time 2 hours) most animals are transported by the owners. One truck is available 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

7.1.8 Emergency service

An emergency service is present in all clinics during 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 people 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 anaesthesiologist and a surgeon are available at all times.

All necessary equipment and products are available for emergency procedures.

- In the companion animal department, a full-time emergency service for dogs and cats is available (full-time, 24 h service, ON-CALL or 8-22 h duty).
- In the Department of Large Animal Internal Medicine a full time (24/7) emergency service is available for all large animal species (horses, cattle, small ruminants, South American camelidae, (companion) pigs). Always one member of the academic staff or residents is on duty, but is not resident at the faculty. Four to six final year students and at least one intern are continuously present at the department and will take care of the admission, examination and emergency treatment of the new patient. The on-duty member of the academic staff or resident can be present at the faculty within 30 minutes for the further examination and treatment of the patient. The department policy is that every new critical patient should be seen at admission at any time of the day or night by a clinician that has at least one year of experience in emergency medicine.
- The Large Animal Surgical Clinic has a full-time emergency service (24 h, 365 days).
 - During normal working hours (Monday to Friday, 8 am till 5 pm) emergency cases are treated by the regular staff
 - In the evenings and at night (from 5 pm till 8 am) as well as in the weekends and on holidays the emergency service is performed by:
 - one intern (graduate veterinarian) and 4 last year students who are always present at the clinic (rotation schema)
 - one anaesthesiologist and one surgeon who are on call and should be at the clinic within 20 minutes to perform emergency procedures whenever needed.

- The Ambulatory Clinic guarantees an emergency service for farm animals which is available 24h/day for 365 days.
- In the department of Animal Nutrition, Genetics and Ethology, three experienced ESVCN residents (one small Animals, one equine, one both) are 'on call' through a rotating schedule to cover any urgent nutritional advices (tube feeding, parenteral feeding etc). Veterinarians of the different clinics (small animal or equine) can call the ESVCN resident on call through a fixed cell phone number 24h a day. The ESVCN residents can contact their supervisor at any time.

7.1.9 On farm teaching and outside patient care

7.1.9.1 Ambulatory (Mobile) clinic

Every day at least 2 teams are operating in the Ambulatory Clinic, both mainly for curative treatment of farm animals. During the calving season (spring) often 3 teams are active. The Ambulatory Clinic for farm animals is active 7 days/week.

The mobile clinic for bovine herd health control (on average 2 teams) works 5 days /week for 3-8 h/day. An estimate of 420 herd health visits are performed per year. The porcine herd health team works 4 days/week for 6 h/day.

Students also have to participate in visits to specific problem herds (e.g. problems with udder health, fertility, nutrition, housing and ventilation problems, ...), all over Belgium. Every week, 2 or 3 of these herds are visited by a specialist from the department. About 125 visits are done each year.

During the horse breeding season (spring and summer) 2 stud farms are visited every day by a veterinarian from the horse reproduction unit from the department.

The Ambulatory Clinic guarantees an emergency service for farm animals which is available 24h/day for 365 days.

The Ambulatory Clinic uses 5 cars (breaks). Each car has a seating capacity of 1 veterinarian and 3 students. For herd health visits also cars belonging to the personnel are used and for each visit always 3 students join the practitioner.

The average number of visits in a year made by the Ambulatory Clinic to farms and stud farms is as follows:

- cattle: 4200
- swine: 230
- horses: 250

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It is difficult to give the exact numbers of individual sick animals seen and treated by the Ambulatory Clinic due to difficulties of retrieving these data from the clinic software programme (Cinnaber[®]). An estimation of these numbers is provided in table 7.4.a

Table 7.4 a: Number of consultations for individual sick animals by the Ambulatory Clinic

		Ambulatory clinic			Average
		Year N = 2011	Year N-1=2010	Year N-2=2009	
Food producing	Bovine	appr. 3780	appr. 3780	appr. 3780	4049
	Ovine, Caprine	252	243	224	
	Porcine	appr. 15-20	appr. 15-20	appr. 15-20	
	Other farm animals				
Poultry		30	17	5	17
Rabbits					
Equine		appr. 33	appr. 33	appr. 33	33
Companion Animals	Canine	14	10	6	13
	Feline	3	2	5	

7.1.9.2 Other on farm services and outside teaching

Besides the curative work, the ambulatory clinic provides herd health services on a regular basis during the whole year (averages of 420 visits per year) and visits to ‘problem herds’ for both dairy and beef cattle herds (average of 125 visits per year). These regular herd health services take place on in total 35 dairy herds and 5 beef herds (40 to 200 cows per herd), which are visited each on a 4 to 6 weeks basis. On each visit 3 students participate. The latter implies that every week there are on average 8 regular herd health visits on cattle herds scheduled. The problem herd visits take place on an average rate of 1 per week.

An average of 75 poultry flocks, spread over 40 poultry plants, are visited during the year by students of the pig, poultry & rabbit plant. Each student participates in 35 visits during his/her last clinical year.

Belgium counts only 27 industrial rabbit plants. Every student of the pig poultry and rabbit track visits at least 1 rabbit plant.

Table 7.4 b: Number of herd health farm visits and problem farm visits by the Ambulatory Clinic

		Ambulatory clinic			Average
		Year N = 2011	Year N-1=2010	Year N-2=2009	
Food producing	Bovine*	appr. 545	appr. 545	appr. 545	775
	Ovine, Caprine				
	Porcine	appr. 230	appr. 230	appr. 230	
	Other farm animals				
Poultry		75	75	75	82
Rabbits		9	4	8	
Equine		appr. 250	appr. 250	appr. 250	250

*: 420 routine herd health visits and 125 visits of problem herds

7.1.10 Other information

7.1.10.1 Clinic for Poultry and exotic animals

Additional outside sources: last year students of the ‘Pig, Poultry & Rabbit’ track follow additional practical industrial poultry training at two private practices. The Animal Health Care Flanders provide these students with a practical training in necropsy of pigs and poultry.

Clinical level: the level of clinical service that is offered is higher than outside practices in terms of facilities (larger), equipment (Magnetic Resonance Imaging , Computed Tomography, endoscopic surgery, ...), expertise (European specialists), responsiveness, etc.

Clinical specialties: The broad field of exotic animal medicine is covered within the department by three recognized European specialists ECZM

First opinion/referrals: Of the exotic animal cases, 70% of the cases are primary and 30% of the cases are referrals. Of the industrial poultry, all cases are referrals.

Relation outside practitioners/outside organisation: a molecular diagnostic lab for infectious diseases of exotic animals is available for private practitioners. Advice and information is provided to the practitioners (mostly by telephone). Private practitioners and other organisations are also involved in teaching (see above).

Administrative system: records of all clinical cases, necropsies and gross and histological findings as well as results of bacteriological, parasitological, virological and toxicological examinations are kept on a central server within the department. Additionally, a university centralized SAP database is used for the financial administration of the patients.

7.1.10.2 Department of Obstetrics, reproduction and herd health

Clinic of Large Animal Reproduction

Additional outside sources: Students of the elective track 'Ruminants' fulfill a one-week practice on the dairy herd of the faculty (on site) and a sheep flock (outside the faculty during the lambing period). Students of the elective track 'Pig, poultry & rabbits' follow practice on a modern swine herd for at least 2 weeks. Slaughterhouse material is also used for the practical training of the students (stillborn calves used for fetotomy, uteruses for the practical training of rectal palpation, pregnancy diagnosis and training to suture).

Clinical level: the level of the clinical service is "state of the art" and unique in its kind since none of the private clinics in Belgium, besides 2 other reproduction centers, are keen on dealing with referral reproductive cases. The clinic has all modern facilities and up to date equipment, is staffed by 2 ECAR diplomats, one assistant and an Intern and has a 24/24hr and 7/7 days emergency service for large animals. A National as well as an International recognized semen laboratory is installed and functional.

A close collaboration with the ambulatory practice of the department is present. Furthermore a good communication with the other clinical and non-clinical departments at the faculty is evident and ensure a smooth collaboration.

Further on the clinical staff is completed, stimulated and supported by 6 permanent university staff members, all European Board certificate qualified in Animal Reproduction. Their research topics (>20) are all related to animal reproduction and as such clinical teaching benefits from their knowledge, experience and research projects.

First opinion/referrals: The department is one of the few clinics where a full breeding soundness examination can be performed of all species (equine, bovine, caprine, ovine, canine, feline). Besides its activity in 2 stud farms outside the clinic (in total 80-100 mares & their offspring), the clinical teaching hospital of the department has about 650 repro-cases to deal with on a yearly basis. This involves about 40% referred cases (infertility in mare and stallion, dystocias & breeding soundness examinations, twin management, chronic endometritis, ...) and 60% 'routine' cases in reproduction of regular clients (inseminations, pregnancy diagnosis, embryo flush, endometritis, biopsy, hysteroscopy, semen prelevation, -preservation and -congelation...). Besides a vast majority of equine cases, approximately 40 sheep and 200 cows are brought in (on a yearly basis) for a caesarean section.

Besides work place-clinical case based education, the clinic has a small herd of horses (14 mares, 2 stallions), one bull and one heifer for teaching. These animals are used to produce research material (e.g. embryos) and this is performed with and by the final year students during their clinical apprenticeships.

Clinical specialties: The whole spectrum of reproductive services applicable in equine and most of services applicable in bovine reproduction, are dealt with. The presence of 2 Diplomates

ensures a high degree of specialization in the subject matter. The presence of the (Inter- & National semen center and its guidance by an ECAR Diplomate (PhD) ensures a qualitative education on the subject and attracts sufficient case load to organize this education.

Relation outside practitioners/outside organisation:

On the clinical side: a good collaboration and understanding is established and , in a certain degree, active collaboration in clinical research is performed with all 3 major equine reproduction centers. Even more some of the private reproductive centers are involved in training of university personnel (assistants, Interns and Residents). As much as possible, a solid reporting is ensured to all referring veterinarians, so succession of the patient is feasible and as such future collaboration is stimulated.

The clinical experiences of the veterinarians working in the teaching hospital is of further use in 3 clinical VLIR-research projects (Flemish Interuniversity Council) in Ethiopia dealing with venereal disease transmission.

Finally the personnel of the teaching hospital is responsible and organizes the development of educational material (animations and diagrams) through an international collaboration between universities as well as private clinicians in more than 8 different countries. The first educational project produced through this collaboration, an educational DVD, is, today in use in over 130 universities. A second project is in its last stage of development.

Administrative system: Clinical reports are managed by a Cinnaber-software package with an interface to the central SAP database. Additionally, a university centralized SAP database is used for the financial administration of the patients.

Clinic of Small Animal Reproduction

Additional outside sources: None

Clinical level: the level of the clinical service is “state of the art” and is performing semen evaluation freezing and export of semen in dogs and insemination ,and semen research in cats. It is unique in Belgium since none of the private clinics has a license from the the Belgian dog studbook to freeze dog semen. The clinic has up to date semen analysis and cryopreservation equipment and possesses intrauterine endoscopic insemination devices, and is staffed by 2 ECAR diplomats and one resident. Final year students are trained in the clinic during one week where they learn to collect and evaluate canine semen and to interpret vaginal cytology in bitches.

First opinion/referrals: Infertility cases, inseminations and semen freezing in dogs and cats are referred to this clinic.

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Clinical specialties: Infertility, cyclic follow-up, insemination, semen evaluation and cryopreservation in dogs and cats

Relation outside practitioners/outside organisation: Advice and information is provided to the practitioners (mostly by telephone) on a daily basis

Administrative system: A university centralized SAP database is used for the financial administration of the patients.

Ambulatory clinic: see 7.1.8.1

7.1.10.3 Companion Animal Department

Additional outside sources: in the (optional) course ‘Introduction Training and Completions in the Medicine of Pets’, students can do an external rotation (2 times 1 week) in private practices whereby practitioners participate actively in teaching. There is collaboration with local communities (Gent, Wetteren, Deinze ...) and shelters whereby students of the ‘Companion animals’ track participate under supervision in a neutering program of feral cats (over the past three years 172, 106 and 165 cats neutered after FeLV and FIV testing). Dogs kept for experimental purposes in the clinic are also available for teaching purposes (palpation etc.). To strengthen the training in primary cases of the students, a small dispensary for primary cases was opened in the center of Ghent from October 1st 2012 (collaboration between the Small Animal Department and the Medical Imaging Department, Ghent University, the City of Ghent and the Foundation Prince Laurent).

Clinical level: The level of clinical service is higher than outside practices in terms of facilities (larger facilities), hours of service (24 h emergency service), equipment (electromyography, Magnetic Resonance Imaging, Computed Tomography, endoscopic surgery, ...), expertise (European specialists), responsiveness, etc.

First opinion/referrals: before 1996, the FVMG was situated in the city center of Ghent with a predominance of primary cases. When moving to the campus of Merelbeke, the number of cases has grown steadily but shifted more towards referred cases. At the present moment, about 10 % are primary cases and about 90 % referrals.

Clinical specialties: Most clinical specialties are covered by European Diplomates and other staff members:

- Anesthesiology: full time 1 senior Lecturer (PhD), 3 full time assistants, 2 part time assistants, 2 residents-in-training (the latter shared with the large animal clinics).
- Soft tissue surgery: full time 1 Lecturer (PhD+DipECVS), 1 Head of Clinic (DipECVS), 1 full time assistant, 3 residents-in-training.

- Internal medicine: full time 1 Senior Lecturer (PhD+DipECVIM), 1 Head of Clinic (DipECVIM), 1 full time assistant (DipECVIM), 2 part time assistants, 2 residents-in-training.
- Neurology: full time 1 Full-Professor (PhD+DipECVN), 1 Head of Clinic, 1 full time assistant, 1 part time assistant (DipECVN), 1 resident-in-training.
- Cardiology: full time 1 full time assistant, 1 part time assistant, 1 resident-in-training (alternative programme).
- Dermatology: full time 1 part time Visiting Professor, 1 full time Head of Clinic (DipECVD).
- Ophthalmology: 20 % (1 day a week) assistant.
- Stomatology: 20 % (1 day a week) assistant (DipEVDC).
- Ethology: 20 % (1 day a week) 1 DipECVE (member of the Department of Nutrition, Genetics and Ethology).
- 1st line consultations: covered full time by 9 rotating interns.
- Nutrition: a collaboration with the Department of Nutrition, Genetics and Ethology

Relation outside practitioners/outside organization: advice and information is provided to the practitioners (mostly by telephone). Private practitioners and other organizations are also involved in teaching (see above).

Administrative system: the administrative system of the clinic consists of 2 parts:

1/ a computer program specifically developed for the small animal clinic (DI09 and DI11); results from external laboratories can be imported directly into the program (pathology, bacteriology, ...). Staff members have full access to the program while students have a limited access (organized by pass words).

2/ a paper file for each patient (the latter is not used often any more).

Additionally, a university centralized SAP database SAP is used for the financial administration of the patients.

7.1.10.4 Clinic of Surgery and anaesthesiology of large animals

Additional outside sources: approximately 40 horses each year from different horse traders/owners are castrated by students (3 to 4 students per horse under supervision by the academic staff) without financial charges. Cows are purchased for the surgical exercises (standing laparotomy) for final year students, track ruminants (approximately 10 cows per year, 4 to 5 students per cow). The cows are euthanized at the end of the exercise. Several animals housed in the clinic for surgical research purposes (lama's, pigs, goats, sheep, cows) are also used for the clinical education of the Master year students (daily care, help with e.g. surgical interventions, aftercare etc.). In the (optional) course 'Introduction Training and Completions in

the Medicine of horses', students can do an external rotation (2 times 1 week) in private practices whereby practitioners participate actively in teaching.

Clinical level: the level of the clinical service is “state of the art” and higher compared to most Belgian equine clinics. It is also the only referral center for ruminant surgery in Belgium. The clinic has all modern facilities and up to date equipment, is staffed by 4 ECVS and 2 ECVA Diplomates and has a 24/24hr and 7/7 days emergency service. The caseload is higher than in all other Belgian large animal clinics. The clinic is also recognized by the major studbooks (Belgian Warm Blood, SBS, Belgian Draft Horse) as the single center for screening young stallions (approximately 250 stallions pro year).

First opinion/referrals: the clinic has a policy to attract as well first opinion cases (routine surgical intervention e.a. castration, umbilical hernias ; uncomplicated cases of lameness) and referrals (more complicated surgical intervention/examination). The distribution of the first/referral cases is approximately 30/70 %.

Clinical specialties: the clinical specialization is kept at a high level using the system of the European specialization including large animal surgeons (4 Diplomates) and anaesthetists (2 Diplomates). Other areas of high level specialization include equine dentistry (multiple cases pro week), ophthalmology (on average 1 to 2 patients pro week), skin oncology (equine sarcoids,....) (multiple case pro week).

Relation outside practitioners/outside organization: the large animal clinic has a positive relation with the outside practitioners (equine and ruminant), not only for the referred cases (whereby a feed back is routinely provided) but also for diagnostic services (bacteriology, PCR for equine sarcoïd and genital squamous cell carcinoma,...), advisory services (by e-mail or telephone) and continuing postgraduate education. There is also an active cooperation with private practices for clinical research subjects. The senior staff members of the clinic are actively involved in professional practitioner organization being board members of the Belgian Equine Practitioner Society, Wetenschappelijke Vereniging van de Gezondheid van het Paard etc. All students of the equine and ruminant tracks are encouraged to work with local practitioners during their free time. Additionally, externships with local practitioners, larger veterinary practices or clinics (minimal 2 weeks) are included in the curriculum organized for these final year students. The students have to keep a log book and work out one clinical case. The outside practitioners give a feedback of the students using a standardized form. A good relation between the staff members of the clinic and the local practitioners is maintained whereby all relevant information of the externships is exchanged.

Administrative system: the large animal surgical clinic has patient database software working on a local server centralizing all administration of the patients (data, reports, mails, financial impact etc.). All data are available for all staff members whereas a limited access is provided for the students (in order to make clinical cases as part of the Master dissertation). Links are present with other departments, such as Medical Imaging, e.g. for making appointments and easy retrieval of images of all modalities (radiography, ultrasonography, CT

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and MRI). Additionally, a university centralized SAP database is used for the financial administration of the patients.

7.1.10.5 Clinic of Large Animal Internal Medicine

Additional outside sources: In addition to the patients and the horses and cattle owned by the department, students are as much as possible involved with the animals used for research. This includes as well animals that are temporarily housed at the faculty as animals on farms (for example blood sampling on farms for serological surveys or pharyngeal swabs and broncho-alveolar lavages for research on respiratory illnesses in calves). Students are also involved when herd health visits are performed.

Clinical level: The clinic of Large Animal Internal Medicine has a broad array of facilities and services, and can therefore be regarded as a well-equipped clinic. A limited listing of some of the major characteristics can be found in the following table.

Facilities		
	Stables	Horses: 47 horse stalls divided over three barns
		Cattle 15 calf places, 11 cow stalls, 7 cow tie-stalls
	Isolation units	Horses: 4 separate horse stalls
		Cattle: 8 calf units, 6 cow tie-stalls
	Hoisting equipment	8
	Fully rubber padded stall	1
	Downer cow padded stall	3
Equipment	High speed treadmill	1
	Endoscopes (gastro/broncho/upper airways)	2 video-endoscopes, 3 fiberoptic scopes
	Ultrasonography	3 (including high end echocardiography unit)
	ECG / defibrillator / pacing equipment	3/1/1
	Plasmapheresis equipment	1
	EMG / MMEP	2
Laboratory	Clinical chemistry / haematology (automated counter) / blood gas analysis	1/1/1
	Routine bacteriology lab	Primary inoculations of clinical samples
Hours of service	24/7	
Expertise	Presence of Dipl. ECBHM (1) and ECEIM (2)	Special expertise in Equine Cardiology, ultrasonography and respiratory disease in calves. Longstanding expertise in equine digestive disorders
Responsiveness	Continuously available for patients and telephonic advice	At least one veterinarian is always present at the department

First opinion/referrals: The policy of the department is only to accept referral cases. Primary cases are handled by the ambulatory department.

Clinical specialties: The broad field of Large Animal Internal Medicine is covered within the department by the recognized European specialists, e. g. ECEIM and ECBHM. Furthermore,

one day per week, a Diplomate of the European College of Veterinary Dermatology (Dr. S. Vandenaabeele) is available and the department has an external consultant (Academic Consultant) for equine sports medicine (Dr. E. Van Erck, Dipl. ECEIM)

Relation outside practitioners/outside organisation: The department of Large Animal Internal Medicine is represented in the board of the Belgian Equine Practitioners Society and in the board of the Flemish Buiatric Society. These channels are used to keep in contact with the practitioners and obtain feedback. Additional contacts with the practitioners are present through telephonic advice on patient related facts, often resulting in referral of cases. Two private practitioners (Dr. J. Nuytten and Dr. E. Van Erck) are appointed as “Academic consultant” and are in this way available for feedback and suggestions to the department and they are available to the students for feedback on private practice related matters during their annual seminars on first line practice and sports medicine

Administrative system: Two administrative systems are used for the patient management. One system is used for invoices and is the official administrative software program (SAP) of the university. On the other hand, all the clinical records of the patients are gathered in a custom build computer program (based on FileMaker) which is developed and maintained at the department. In this database all relevant patient details are kept, including lab results and results from external departments or labs). Links are present with other departments, such as Medical Imaging, e.g. for making appointments and easy retrieval of images of all modalities (radiography, ultrasonography, CT and MRI). The only centralized database is the client database in SAP. All other programs (almost exclusively FileMaker based) are separate databases per department. One single program for all departments has not been achieved for several reasons, including prior investments in other databases and department specific demands.

7.1.10.6 Department of Animal Nutrition, Genetics and Ethology

Additional outside sources: several master students go abroad mainly to southern countries (e.g. Ethiopia, South-Africa) for their thesis on nutrition of food producing animals..

Clinical level: The clinical level of the nutritional service is ‘state of the art’. The services for dogs, cats and horses are unique in the Flemish speaking part of Belgium and are supervised by an ECVCN Diplomate together with 3 ECVCN residents. The number of clinical cases in companion animals (including horses) is one of the highest in Europe. Several ECVCN residents from other European countries will perform clinical rotations of several weeks to increase their experience in companion animal nutritional advices and to learn how to start up a similar service in their home country.

First opinion/referrals: For companion animal patients hospitalized in the clinic approximately 50% are primary cases, and 50% complex cases. During consultation, approximately 80% of the cases are complex cases. Most are canine cases. Approximately half of the equine cases are from outside and are often primary cases.

Clinical specialties The broad field of companion animal nutrition is covered as described by the European College of Veterinary and Comparative Nutrition (ECVCN). On a regular basis the following feed advices are provide for healthy (e.g. growing animals, prevention of orthopedic diseases, overweight, weight loss) and sick dogs and cats (intensive care feeding obesity, renal and urolithiasis, liver disease, portosystemic shunts, gastro intestinal, dermatologic and cardiac problems, endocrine patients etc). Additionally, advice is provide for healthy young (prevention orthopedic disorders, sport, older and obese horses, unbalanced diets etc.) and sick horses (dental problems, laminitis, metabolic syndrome, gastrointestinal problems, muscle diseases, neonatal problems, intensive care nutrition etc.)

Relation outside practitioners/outside organisation: outside practitioners can ask for general and specific feed advice in the field of companion animal nutrition. General advice (without charges) most often concerns the opinion of a nutritionist with regard to common feed practices e.g. natural feeding, BARF feeding, vegetarian or vegan feeding of pets. Individual feeding advices are also provided to vets and to animal owners but these are charged similar as in clinic patients. Most demands for individual feeding advices from outside practitioners are requests for balanced homemade diets. The vitamin mineral supplement for these diets is ordered from the University of Munich. Feeding advices for inside equine patients are often hospitalized at first but often also need a long term feeding advice. Approx. half of the cases are primary, half are complex cases. Owners often contact us through our website (www.dienstpaardenvoeding.be). Owners are first asked to fill in a nutritional anamneses form.

Administrative system: In house small animal cases are included into the program of the small animal clinic but also recorded in an excel file by the individual residents (necessary for their training program). Outside practitioner cases are recorded in an excel file by the individual residents. Nutritional records of equine hospitalised cases are added to the central system of large animal internal medicine department. All cases are also included in a nutritional software system. An overview of all cases is kept in an excel sheet. Additionally, a university centralized SAP database is used for the financial administration of the patients.

7.1.10.7 Department of Veterinary Medical Imaging and Small Animal Orthopedics

Additional outside sources: The Department of Veterinary Medical Imaging and Small Animal Orthopedics is strongly involved in most activities performed by the students in the adjacent departments such as for example the dispensary Prince Laurent.

Clinical level: The department offers exam possibilities for all imaging modalities (radiography, ultrasonography, computed tomography, magnetic resonance Imaging (MRI) and nuclear medicine (including planar scintigraphy and SPECT)) in small animals. For the large animals, radiography, ultrasonography and computed tomography are available. The small animal orthopedics group performs all orthopedics surgical procedures and has an international reputation in the field of arthroscopic surgery.

First opinion/referrals: Actually, the discipline of orthopedics works mainly with referrals. Only 5-10% of the patients are first opinion cases.

For the diagnostic imaging, radiography and ultrasonography, we are working only on cases referred by the other departments. For CT, MRI and scintigraphy, patients from outside are directly accepted and they represent 15%, 15% and 50% of the patients.

Clinical specialties: Most clinicians from this department are Diplomates.

- Orthopedics: 1 senior lecturer (PhD), 1 assistant prof (PhD), 1 visiting professor (PhD + DipECVS)
- Medical imaging: 1 full professor (PhD + DipECVDI and DipECVS), 1 senior lecturer (PhD + DipECVDI), 2 Heads of Clinic (1 PhD and DipECVDI, 1 PhD), 3 assistants (2 PhD + 1 DipECVDI)

Relation outside practitioners/outside organisation: Advice and information is provided to the practitioners (mostly by telephone).

Administrative system: The administrative system includes multiple systems:

1. The Small Animal Orthopedics uses the computer program specifically developed for the small animal clinic (DI09 and DI11);
2. The medical imaging uses a specifically-designed computer programme using File Maker Pro. This programme is linked to the clinical programmes from all the other departments allowing the clinicians to view the pictures performed during the imaging studies.
3. All the imaging studies are archived on a PACS system.

Chapter 7 – Animals & teaching material of animal origin

7.1.11 Ratios

	All graduating students	Graduating students of the relevant track(s)	Denominators ECOVE
R11 =	$\frac{\text{no of students graduating annually}}{\text{no of food producing animals seen at the faculty}} = \frac{194}{1269} = \frac{1}{6.54}$	$\frac{47}{1269} = \frac{1}{27}$	0.956
R12 =	$\frac{\text{no of students graduating annually}}{\text{no of individual food-producing animal consultations outside the faculty}} = \frac{194}{4049} = \frac{1}{20.87}$	$\frac{47}{4049} = \frac{1}{86.15}$	7.345
R13 =	$\frac{\text{no of students graduating annually}}{\text{no of herd health visits}} = \frac{194}{775} = \frac{1}{3.99}$	$\frac{47}{775} = \frac{1}{16.49}$	0.307
R14 =	$\frac{\text{no of students graduating annually}}{\text{no of equine cases}} = \frac{194}{6443} = \frac{1}{33.21}$	$\frac{41}{6443} = \frac{1}{157.15}$	2.59
R15* =	$\frac{\text{no of students graduating annually}}{\text{no of poultry/rabbit cases}} = \frac{194}{17} = \frac{1}{0,005}$	$\frac{7}{17} = \frac{1}{2.43}$	0.505
R16 =	$\frac{\text{no of students graduating annually}}{\text{no of companion animals seen at the faculty}} = \frac{194}{18997} = \frac{1}{97.92}$	$\frac{97}{18997} = \frac{1}{195.85}$	43.462
R17 =	$\frac{\text{no of students graduating annually}}{\text{Poultry (flocks)/Rabbits (production units) seen}} = \frac{194}{82} = \frac{1}{0.42}$	$\frac{7}{82} = \frac{1}{11.7}$	0.04

*For ratio R15 it is important to know that no industrial poultry or rabbit cases come to the faculty alive. These cases are dealt with during the farm visits and extramural training.

7.1.12 Other species

A new Chair for Aquatic Veterinary Medicine has been filled in during 2011. Thanks to this chair, research driven teaching on fish diseases (ornamental and food producing farmed fish) will become more available to the students.

Research on shrimp diseases is also being done since 2002 at the laboratory of virology. The anatomy of fish is covered in the anatomy course.

The veterinary public health aspects of fish and shellfish (both harvest and post harvest aspects) are covered in the Veterinary Public Health courses.

Additionally the department of Veterinary Public Health organizes practicals at the Fish Auction plant at Zeebrugge .

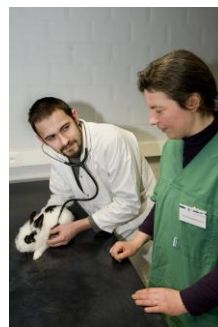
7.2 Comments

Due to the tracking system at the FVMG interpretation of the ratios might seem somewhat complicated. However the ratios for the FVMG seem to be satisfying both for the entire student population as for the students of the relevant tracks.

The relative small number of pigs and poultry coming into the clinic for consultation or hospitalisation is being compensated by the extra muros trainings for students during the 3rd bachelor year and the 2nd and 3rd master year.

7.3 Suggestions

The main weakness remains the contact with poultry and rabbit farms. Additional efforts might be necessary (such as financial incentives) to convince poultry and rabbit farms to accept veterinary students.



8 CHAPTER 8 – LIBRARY AND LEARNING RESOURCES

8.1 Factual information

8.1.1 Library

8.1.1.1 General description

The library of the FVMG is part of the UGent library network, which comprises the university library as a central unit, 9 faculty libraries and 200 departmental and seminar libraries, spread all over Ghent. In 2004, reorganization was adopted focusing on the merging of small libraries into bigger entities. The FVMG library serves now as the basic library of the faculty. The library is complemented by various departmental libraries that are used as reference libraries for the departments. The collection of both the FVMG and the departmental libraries includes 10,000 books, 260 e-books and currently receives about 89 journals and serials a year (hard copy), and has access to 27,829 journals online.

The 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 and e-books platform (70 computers available), and (3) retrieval of journal articles and other documents, including interlibrary loans services.

The library of the FVMG is an integrated library with a historical hard copy collection of books and journals and an elaborate digital collection. Students and researchers use the library for different reasons: looking for articles for a master thesis, finding handbooks and syllabi complementary to the courses, working on the workstations, checking the e-learning platform (Minerva), printing hand-outs and syllabi, scanning images, etc. 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, Pubmed and Google Scholar. All students and researchers have access to these databases, full text journals and a tailored e-book collection from home, provided they have an account with the Information and Communication Technology Department.

8.1.1.2 Management

The UGent library network is managed by the Interfaculty Library Board (ILB) where all faculties are represented. The ILB decides on the general policy of the network, including the digital library and databases. The network librarians have a monthly network meeting.

The library of the FVMG is managed by the Faculty Library Committee. Both students and members of the academic and administrative staff are members of the Faculty Library

Committee. The Faculty Library Committee gives advice to the Faculty Council on the policy of the faculty library, including collection development.

8.1.1.3 Main library

The UGent library network offers comparable services to all students and researchers of the UGent. Technical demands, such as opening hours, accessibility, ill-services, workplaces for students, library staff etc., must be met by all faculties and are the same all over the university.

The maintenance of the digital library, including the catalogue, databases, SFX-linking to full-text journals and books and the distribution of the funding for on-line resources are assigned to the central library.

The Directory of Information Technology manages the personal accounts of students and researchers, including 24/7 access to all library resources, disk space, web space, software, etc.

The actual content of the library of the FVMG is tailored to the specific needs of students and researchers of the faculty by the Faculty Library Committee.

8.1.1.4 Employees

The FVMG library has ¼ full-time equivalents of part-time employees (students) and 1 full-time equivalent full-time employee (librarian).

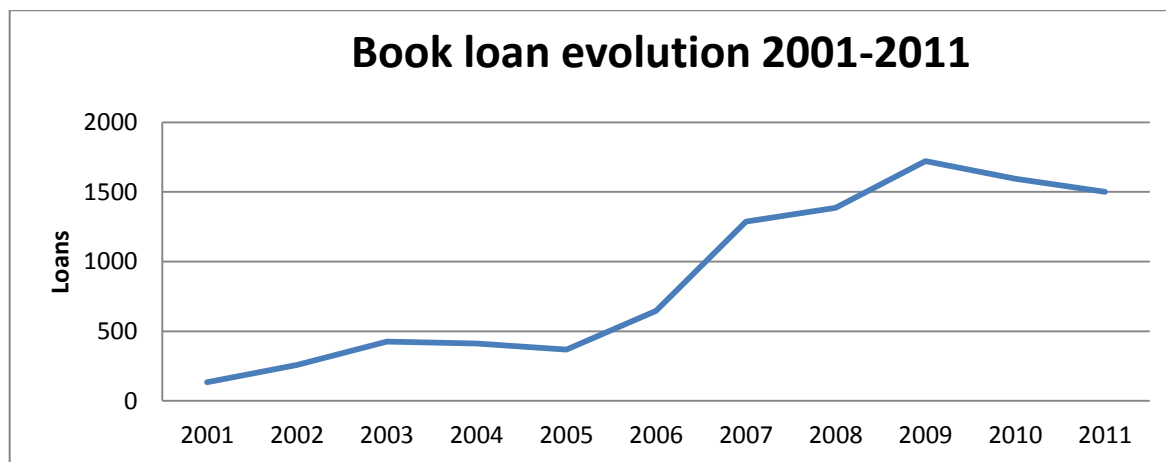
8.1.1.5 Journals

The library of the FVMG currently receives 89 hard copy journals. The UGent has chosen to focus on E-only content for journals of the major publishers (Elsevier, Wiley, etc.) and currently has full access to 27,829 journals. In 2012, the university library bought access to the full back catalogue of Elsevier. In order to make a link between various databases and the electronic and/or hard copy journals and book collection, the university library developed the SFX-tool. The FVMG has chosen to focus on Web of Science, Pubmed and Google Scholar as main databases for research in veterinary medicine. Students and researchers can search these databases 24/7 and reach on-line content provided they are on the UGent network.

8.1.1.6 Handbooks

The library of FVMG provides handbooks and syllabi mainly for students. All books can be loaned. Loan statistics provided by the Aleph library system show a significant increase in lending rates in the last decade. In 2010, the library chose to focus on a tailored E-book platform with My-i-library and science direct order to make handbooks available for any student or researcher from anywhere.

Figure 8.1: Book loan evolution FVMG



8.1.1.7 Workplaces

Together with the computer classes, the library provides 70 computers for personal use. Additionally, the library provides 60 student workplaces. Eighty workplaces are available in the faculty restaurant after lunch hours.

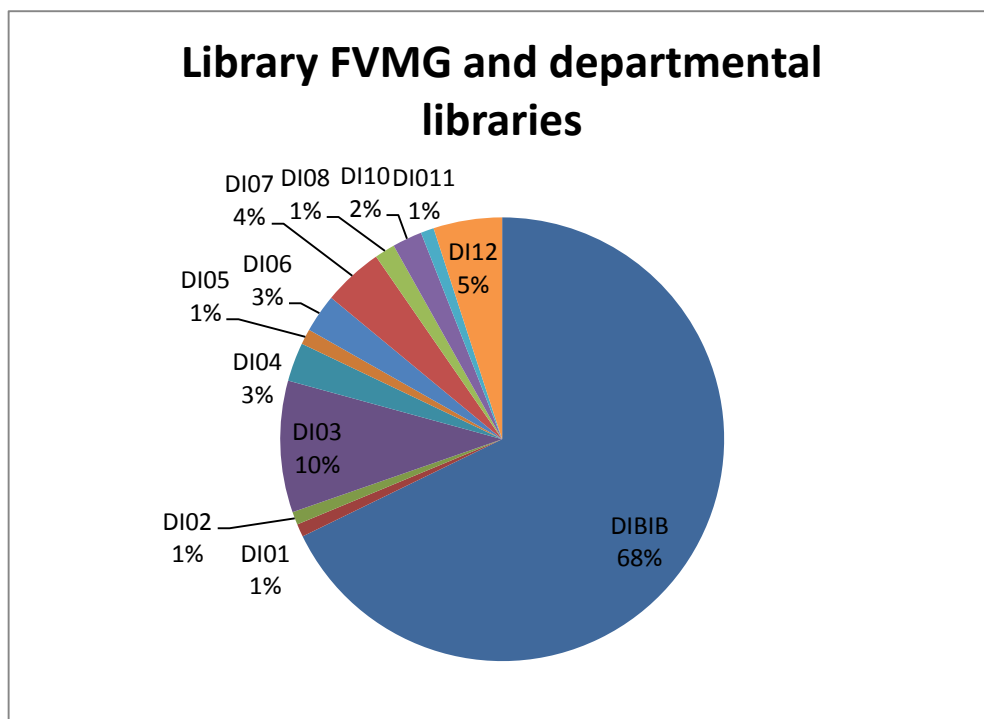
8.1.1.8 Opening hours

The library of the FVMG is open from 9h to 19h during semester and from 9h to 16h30 during exam and vacation periods. The computer class is accessible from 9h to 16h30. The workplaces in the restaurant are accessible from 14h to 20h. The library experimented with opening on Saturday mornings but waived this initiative due to little interest of the users.

8.1.1.9 Subsidiary libraries of the establishment

Next to the FVMG library, there are 17 departmental libraries. After the reorganization proposal of 2004 a large part of the books of various departmental libraries were transferred to the faculty library. In 2012, the FVMG library held nearly 70 % of all the books on the FVMG. Most of the departmental libraries now mainly serve as small reference libraries for the researchers of the departments.

Figure 8.2: Library FVMG and departmental libraries



The FVMG library manages the catalogue for all the departmental libraries. The loan policy is done by the department libraries. The 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 2010, the library of FVMG and the department libraries spent 63269 euros on books and journals.

8.1.2 Other information technology services

In addition to the vast amount of digital scientific information offered by the central library (e-books, e-journals, image database, ...) (<http://lib.ugent.be/en>), students have also access to other IT facilities, provided and supported by the Information and Communication Technology Department. With a personal account, users can access the UGent network and enjoy following services:

8.1.2.1 Provision of IT facilities

- Computer rooms

The Information and Communication Technology Department provides 70 computers in the faculty library and two computer classes. The operating system is Windows 7 and is updated when needed. Additionally, all general and some field-specific software is installed in the lecture

rooms, computer classes and library by the Information and Communication Technology Department. Twenty computers in the computer class 'Hoogbouw' are reserved for formal tuition, the other ones are available for free practice. Opening hours are from 9 am - 7 pm (during the teaching semesters) or 9u-16u30 (outside teaching semester). The Information and Communication Technology Department - PC Management is responsible for the system management.

- Disk space

Each user (staff and students) has an amount of disk space at his/her disposal on the central servers of the Information and Communication Technology Department, i.e. up to 5 GB for email, 5 GB personal disk space and 1 GB for webhosting. Every department can get extra-shared disk space for research purposes.

- Hardware

Through a yearly notebook campaign, students and staff can purchase a notebook at strongly reduced prices.

- Software

Through the Athena platform, UGent students and staff members can access a wide range of standard and specific programmes for educational and other purposes from any computer linked to the university. This software includes for example the standard office software (MS Office, End Note, Reference Manager...) as well as a broad range of statistical software, such as SPSS and SAS.

- Webmail

UGent staff members and students who have an UGent account can access their mailbox from every computer connected to the internet via nearly all web browsers, after logging in with their username and the UGentNet central password. Communication with the students is done by their official UGent mailing address in order to avoid unwanted or unnecessary mailing.

- Minerva

UGent staff members and students who have an UGent account can access the digital learning environment Minerva.

8.1.2.2 Provision of library facilities

- Faculty library

The library of the FVMG is a functional library in the UGent Library Network. It is complemented by 17 small departmental libraries that mainly serve as reference libraries for the department staff. The collection of both the FVMG and the Departmental libraries includes

12,000 books (of which 70 % are in the faculty library), 260 e-books and currently still receives about 89 journals and serials a year in hard copy, although the UGent library Network focuses on E-only journals whereby access to 27,000 journals online is provided.

The library decided to focus on Web of Science (WoS), Pubmed and Google scholar as the major databases to be used in veterinary medicine research. The library network developed the SFX tool to establish the link between these databases and the purchased licenses to journals and (E-)books.

The library opening hours are 9h-19h during the teaching semesters and 9h-16u30 outside the teaching semesters. There is remote access to all library services on a 24/7 basis via VPN and AthenaX. The library is covered with a wireless network for students and staff (UGent & UGent WPA). Alternatively access to the wireless Eduroam network is provided. There is studying area for 130 students in both library and pc-classes (70 PC's).

All bachelor students follow a course of information requirement. For master students the library provides a yearly session on information requirement specifically focused on their Master dissertation.

The library offers mainly textbooks for students. All books can be lent whereby 1200 loans were registered in 2011.

- e-library (e-books, WoS)

The UGent Library Network chose to focus on an E-library: important publishers such as Elsevier and Wiley no longer provide hard copies. Only smaller practice-oriented journals still come in hard copy. For a full integration of the library catalogue, databases, books, E-books and journal subscription the SFX tool was developed by UGent Library network.

The library of FVMG started an e-book platform in 2010 in order to meet the demand for a better availability of books

- e-mail address
- disk storage (up to 5 GB or more if required)
- webhosting
- access to the Athena platform, providing software such as Microsoft Office, Medcalc and SPSS via citrix technology
- access to the Minerva digital learning environment of the UGent

The Information and Communication Technology Department also provides 70 computers for personal use and class purposes in both library and pc-rooms. They also provide computers and beamers in the auditoriums and classrooms. Students may use the PC's for didactic and research purposes, and are encouraged to do so. Instructions and help are provided if necessary. Users can access the network using their own computers or mobile devices via the wireless UGent network using VPN.

The FVMG is actively involved in the development of e-learning, and for that purpose a faculty wide project for on-line presentation of interesting digital material has been started. This project aims at gathering the information that is available at the different departments in order to offer the students a single portal of entry. This project has started in 2011 and is called the “Veterinary Digital Platform” (<http://www.didp.ugent.be/search.php?type=single>). In addition to the digital learning material from the departments, this platform also features the recorded lectures of the Institute of Permanent Training and will host links to external sources of digitally available learning material. A substantial amount of this learning material has been produced with funding of the university through grants for education innovation.

8.2 Comments

The FVMG library is a full library in the new centralized structure of the UGent Library Network. In this structure, the library can focus on the content to be provided to both researchers and students taking into account the role of three players who provide the organizational, technical and financial support.

Firstly, there is the Library Network Management Unit of the central library that provides an excellent service and library know-how. This unit provides the maintenance of the Aleph catalogue and loan administration, SFX-linking, the Library Network Management website (<http://lib.ugent.be/>) and the follow-up of the Swets subscriptions administration. The Library Network Management Unit also manages the budget for all the journals and has developed mechanisms of quality control of the library services at the UGent. The university library has created a communication platform between all faculty libraries, including monthly meetings and an intranet forum.

Secondly, the library is controlled by the Faculty Library Committee where both students and researchers are represented. The faculty provides the organizational framework for the faculty library and provides the operating budget and funds for hard copy and virtual books.

Thirdly, the library is highly dependent on the services of the Information and Communication Technology Department. Since the library has evolved from a repository of hard copies of books and journals to a virtual library with an elaborate collection, it inevitably has to engage in new technologies. The personal account provided to students and researchers assures 24/7 access to the library and all of the IT facilities of the UGent network.

8.3 Suggestions

The Library Management Unit currently provides 27829 e-journals, of which 8360 are relevant to veterinary sciences (health and life sciences). The FVMG insists on a further extension of this amount.

Chapter 8– Library and learning resources

Due to the success of the current collection of e-books, the library of FVMG would like to extend this catalogue. Currently, there is a gap in the collection because not all publishers are prepared to offer certain titles on library platforms because individual e-copies are much more profitable.



9 CHAPTER 9 – STUDENT ADMISSION & ENROLMENT

9.1 Undergraduate courses

9.1.1 Undergraduate student numbers

As already been discussed in detail in chapter 4, the veterinary study programme at UGent consists of a Bachelor's and a Master's programme, both of which consist of minimum three years of study in ideal circumstances. The study programme can be completed successfully in 6 years.

Table 9.1 Undergraduate student composition in academic year 2010-2011

	bachelor	master	Total
Total number of undergraduate students	756	621	1377
Total number of male students	183	160	343
Total number of female students	573	461	1034
Foreign students	212	189	401
from EU countries	211	189	400
from non-EU countries	1	0	1

In the numbers of table 9,1, PhD-students, residents & interns are not included.

9.1.2 Student admission

Student admission is regulated by the Flemish law. The main principle is that unrestricted access to higher education must be guaranteed for everyone, holder of a diploma of secondary education recognized by the Flemish Government. The list of the diploma's granting access to higher education, is published on the UGent website:

<http://www.ugent.be/nl/onderwijs/administratie/toelating/bachelor/bachelortoelatingsvoorwaarden.htm> .

Firstly, this list includes a large number of Belgian diploma's or certificates that grant access to almost all bachelor studies. This list includes diplomas obtained in various fields, such as music, art or interior design.

Secondly, the list contains a number of foreign diplomas or certificates that allow direct access to our university.

Thirdly, other foreign diplomas or certificates can also give access to our university studies after a positive evaluation.

The detailed procedure can be found at <http://www.ugent.be/en/teaching/admission/degreestudent/requirement/diploma/bachelor.htm> for bachelor studies and for the master studies at <http://www.ugent.be/en/teaching/admission/degreestudent/requirement/diploma/manaba.htm>.

No further intake regulating measures including a specific entrance exam or a limitation of the number of students to control the amount of students are allowed.

A veterinary Bachelor's programme is also organized by the University of Antwerp. After completing their bachelor degree these students have to come to UGent to start the Master's programme. Because of the flexible way in which students are allowed to compose their yearly study programme, it is not possible to give an exact figure of the amount of students entering the master's programme from Antwerp. Most of the students finishing their bachelors in Antwerp have already taken a few courses from the master's programme at UGent in the previous year.

Table 9.2: Intake of veterinary students in the past 6 years

	Number of students admitted in the Bachelor's programme	Estimate number of students entering the Master's programme from Antwerp
2010-2011	309	39
2009-2010	271	36
2008-2009	258	59
2007-2008	234	46
2006-2007	230	54
2005-2006	241	43
Average	257	46

9.1.3 Student flow

Due to the flexibility of the Bachelor's and Master's programmes in which students can structure to a large extent their own personal curriculum, it is no longer possible or meaningful to describe in which year a student is studying. As a consequence table 9.3 cannot be delivered.

Table 9.4.a Number of bachelor students graduating annually over the past five years

Academic year	Students graduated in Bachelor degree
2010-2011	129
2009-2010	136
2008-2009	104
2007-2008	135
2006-2007	160

Table 9.4.b Number of master students graduating annually over the past 5 years

Year		Exam 1 (June)	Exam 2 (September)	Totaal
2010-2011	Ruminant track	31	4	35
	Pig, Poultry & Rabbit track	8	1	9
	Companion Animal track	101	9	110
	Equine track	36	3	39
	Research track	10	0	10
	Total	186	17	203

2009-2010	Ruminant track	36	7	43
	Pig, Poultry & Rabbit track	4	0	4
	Companion Animal track	90	6	96
	Equine track	31	2	33
	Research track	10	0	10
	Total	171	15	186

2008-2009	Ruminant track	38	4	42
	Pig, Poultry & Rabbit track	7	1	8
	Companion Animal track	83	3	86
	Equine track	48	3	51
	Research track	7	0	7
	Total	183	11	194

2007-2008	Ruminant track	40	3	43
	Pig, Poultry & Rabbit track	11	0	11
	Companion Animal track	88	6	94
	Equine track	33	4	37
	Research track	14	0	14
	Total	186	13	199

2006-2007	Ruminant track	38	1	39
	Pig, Poultry & Rabbit track	5	0	5
	Companion Animal track	67	3	70
	Equine track	35	0	35
	Research track	6	1	7
	Total	151	5	156

2005-2006	Ruminant track	33	11	44
	Pig, Poultry & Rabbit track	5	0	5
	Companion Animal track	81	5	86
	Equine track	24	2	26
	Research track	4	0	4
	Total	147	18	165

Table 9.5 Average duration of studies of graduates of 2010-2011

	number	% of a total of 203 students
6 year	123	60.59
7 year	50	24.63
8 year	16	7.88
9 year	7	3.45
10 year	3	1.48
11 year	4	1.97

As explained in chapter 4, every programme at UGent consists of a full credit system. Every course accounts for a certain amount of (ECTS-)credits (see study guide). A standard learning track year consists of 60 credits. A student passes the course when he/she acquires a score of at least 10/20. In an ideal situation a student takes and gains every year 60 credits. Consequently, he/she can take the next 60 credits of the subsequent standard learning track year.

A student who does not succeed in passing all courses (60 credits) of a standard learning track year will have to retake the failed courses in the subsequent academic year. He/she can complement this year with courses of the following standard learning track year to a total of 60 credits (or more in exceptional circumstances). The student, in his choice of courses, must meet the rules of sequentially which are decided on by the Faculty Council on the advice of the Education Care Unit and can be found on the FVMG website.

On university level, a binding condition shall be imposed on students who have failed to obtain credits for at least half of the personal enrolment curriculum. With a subsequent enrolment through a contract to obtain a diploma for the same study programme, said students shall be required to obtain credits for at least half of the personal enrolment curriculum. If said students fail to comply with this binding condition, their enrolment through a contract to obtain a diploma for the same study programme shall be refused.

Regardless of any previously imposed binding conditions and whether or not these conditions were met, enrolment shall be refused for students who, after three years of enrolment through a contract to obtain a diploma, have acquired less than one third of the ECTS credits that they took up during those enrolments.

For contracts to obtain credits, enrolment shall be refused for students who have enrolled twice for this course unit without obtaining a credit. This provision is valid irrespective of whether or not the previous enrolment was under a contract to obtain credits or a contract to obtain a diploma.

On governmental level, at the start of higher education, each student obtains 140 'learning credits': this is called the personal "learning account". The amount of credits a student enrolls for in a specific academic year are deducted from his/hers learning credit, but added back to his/hers learning credit when the student succeeds for a specific course. The credits of the courses the student fails are lost. When a student runs out of learning credits caused by insufficient study progress, he/she can be denied further access to higher education. More information can be found on: [Learning account](#).

9.2 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 1st year.

The FVMG 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 enrol for 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 buildings made it possible to train the present high number of students. However, teaching and support staff has to make much effort 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 survey that is organized by the Education Quality Control Unit on a yearly basis. Substantial remarks are forwarded to the teaching staff involved. (cfr. Chapter 5).

9.3 Suggestions

The FVMG has no involvement in the number of students it has to admit. Consequently, it cannot be held responsible for the relatively high drop-out percentage of its 1st year students.

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

Chapter 9– Student admission & enrolment



10 CHAPTER 10 – ACADEMIC & SUPPORT STAFF

10.1 Factual information

The information represented below concerns the time frame October 1st 2011.

Table 10.1: Personnel in the establishment provided for veterinary training

	Budgeted posts (FTE)		Non-budgeted posts (FTE)		Total (FTE)	
	VS	NVS	VS	NVS	VS	NVS
1. Academic staff						
Teaching staff (total FTE)	68.65	13.30	62.60	24.85	131.25	38.15
Research staff (total FTE)	2.00	5.65	9.50	14.35	11.50	20.00
Others (please specify) (FTE)						
Total FTE	70.65	18.95	72.10	39.20	142.75	58.15
Total FTE (VS + NVS)	89.60		111.30		200.90	
FTE providing last year teaching	39.20		53.10		92.30	
2. Support staff						
a) responsible for the care and treatment of animals	16.50		6.50		23.00	
b) responsible for the preparation of practical and clinical teaching	18.00		3.00		21.00	
c) responsible for administration, general services, maintenance,	46.50		9.30		55.80	
d) etc. engaged in research work	29.00		34.00		63.00	
e) others *(please specify)			13.00		13.00	
Total support staff	110.00		65.80		175.80	
3. Total staff	199.60		177.10		376.70	

* Others = cleaning personnel outsourced.

Table 10.2: Allocation of academic (veterinary surgeon and non-veterinary surgeon) teaching staff – expressed as FTE – and support staff to the various departments

Department name	Academic teaching staff										Support staff (see Table 10.1)		
	Full prof.		Associat. prof.		Assistant prof.		Assistant		Other ¹⁾		Technical/ (b + d + e)	animal carers (a)	Admin. (c)
	VS ²⁾	NVS ³⁾	VS	NVS	VS	NVS	VS	NVS	VS	NVS			
DI01	1	1						2			1		1
DI02	1			2			3.5	1			7		1
DI03	1		2				3.4	2			4		2.5
DI04	4.2		1.2				3	0.5			21	0.5	5.8
DI05	2		4				7.5	1			13	0.5	5
DI06			2	1		2	2.5				6		3
DI07	1	1	1	2		1	3.8				5	1	2
DI08	2		4		3		12	1			5	2.5	5
DI09	1		3.2		4		16.4				5	3	7
DI10	1		3		2		12.9				7	6.5	4
DI11	1		2		2		20.5				7		4
DI12	1	1	1		1		10.5				3	4	2
WE06		0.5		0.5				1					
BW01		0.5											
DI51								0.8					12
DI62												5	1.5
Outsourced (cleaning)										13			

1)please specify 2)veterinary surgeon 3)non veterinary surgeon

Full professor Gewoon Hoogleraar (GHL) or Hoogleraar (HL)
 Associate professor/(Senior) Lecturer Hoofddocent (HD) or Docent (D)
 Assistant professor/Head of Clinic Doctor Assistent (DA) or Kliniekhoofd (KH)
 Assistant Assisterend Academisch Personeel (AAP), Wetenschappelijk Personeel for teaching (WP), Interns and Residents (teaching the undergraduates).

DI0X: Department number FVMG

DI51: Dean’s office FVMG

DI62: Experimental farm FVMG

WE06: Department of Inorganic and Physical Chemistry (Faculty of Science)

BW01: Department of Agricultural Economics (Faculty of Bioscience Engineering)

Table 10.3: Ratios students/staff

R 1:	no. total academic FTE in veterinary training	=	200.9	=	1	Denominator 6.85
	-----		-----		-----	
	no. undergraduate veterinary students		1377		6.85	
R 2:	no. of total FTE at Faculty	=	376.7	=	1	Denominator 3.66
	-----		-----		-----	
	no. undergraduate students at faculty		1377		3.66	
R 3:	no. total VS FTE in veterinary training	=	142.75	=	1	Denominator 9.65
	-----		-----		-----	
	no. undergraduate veterinary students		1377		9.65	
R 4:	no. total VS FTE in veterinary training	=	142.75	=	1	Denominator 1.36
	-----		-----		-----	
	no. students graduating annually		194		1.36	
R5 :	no. total FTE academic staff in veterinary training	=	200.9	=	1	Denominator 0.88
	-----		-----		-----	
	no. total FTE support staff in veterinary training		175.8		0.88	

As the Flemish institutions of higher education have a large degree of autonomy, they are obliged to develop objective criteria for the allocation of personnel and material resources. UGent has such allocation models for the financing of its various faculties. This offers the faculties bigger opportunities to develop their individual personnel policies, and it allows them to address the needs of the departments more flexibly.

UGent receives the major part of its funding for educational purposes from the government. A large part of this funding is intended for recruiting staff. UGent 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 study programmes offered

- the educational load that corresponds to the courses taught by the faculty staff
- the educational load for services in training offered by academic staff to other faculties
- a research component

To each faculty, UGent assigns a number of points. These points allow the faculty to recruit staff on budgeted posts (a full professor corresponds with 1.85 points, an assistant equals 1 point and technical staff ranges from 1.1 to 0.65 points).

Apart from the abovementioned 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 (non-budgeted posts) is recruited.

For the allocation of the first category of staff (budgeted), the FVMG 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 papers published in international peer-reviewed journals, chapters in books and doctoral (PhD) dissertations). This model shows whether a department is virtually under- or overstaffed, and is only used as a guideline. For each new recruitment, the specific needs of the concerned department are taken into account. Each year, a human resources plan is made.

The non-budgeted posts are generated and paid by the income (mostly clinical work, scientific services to the public and scientific grants) of the individual departments.

10.2 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 UGent to use the Dutch language for educational purposes, the recruitment in certain specialized disciplines becomes more and more difficult, especially when non-Dutch speaking specialists from abroad are needed. Moreover, in recent years, several members of the academic staff have left the FVMG because of different reasons, such as the lack of promotion or nomination and the (low) scant financial aspects of a full academic position.

The FVMG is delighted that nearly 80 % of the budgeted teaching staff (basic sciences included) are veterinarians.

10.3 Suggestions

To overcome the problem of recruiting and retaining academic staff, the FVMG made substantial efforts to create a specific staff status which allows further specialization in different disciplines assuring good education in a well-structured environment. The ultimate goal of the FVMG is the recruitment of several Diplomates of European Colleges who are responsible for the training of students, the practical organization of the different departments or units and for the supervision of the interns and residents. These Diplomates have no obligation for PhD

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degrees, and are employed as Heads of Clinic ('kliniekhoofden'). After one assignment of 5 years and a good evaluation, they get a permanent position. The system works very good.

Furthermore, the system of internships and residencies according to the European guidelines has been introduced in the FVMG. Interns and residents get a good training, and participate on a daily basis in the veterinary training of undergraduates where they give practical clinical education.

Several departments employ 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. Hence, the focus for the future is fixed on the establishment of the system of clinical veterinarians and residents.



11 CHAPTER 11 – CONTINUING EDUCATION

11.1 Factual information

11.1.1 Continuing education courses at the faculty

Because continuing education is considered an important issue at the FVMG, a special body was established for this purpose in 1992. The Institute for Permanent Training (in Dutch: Instituut voor Permanente Vorming - IPV) organizes several courses for continuing education. The IPV is run by a part-time director (currently Prof. D. Maes) and two full-time secretaries. The courses are organized with the help of coordinators, in most cases professors at the FVMG. There is a coordinator for ruminants, horses, swine, small animals, veterinary public health and practice management. The budget of the IPV consists of registration fees and sponsoring. It is used to pay the expenses (personnel, speakers, catering, mailing and printing costs, etc.).

The IPV 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 continuing education are organized. Each module deals with a specific subject, and takes a few days to one day, half a day or one evening. The subjects differ from year to year. The complete programme of all the modules of one year can be consulted at the website <http://www.ipv-dgk.ugent.be/v3/pages/home/>.

Each module is awarded a certificate of attendance handed out by the IPV (see example; annex 11.1). The attendance to continuing education courses had been compulsory for over a decade for veterinarians who want to obtain and maintain the "Good Veterinary Practice" certificate. Since first of January 2013, continuous education has become compulsory for all practitioners (at least 60 points (1 point is approximately 1 hour) over 3 years). (annex 11.2: Addendum 1 to the Code of Conduct for veterinarians, version 2013)

The purpose of the long-term postgraduate courses, “Vakdierenarts”, is to update and to extend the knowledge of specific species. The courses take two (ruminant, pigs and 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 1. to keep a logbook of the patients they follow up during the courses at the faculty, 2. to take an exam at the end of each year and 3. to make a thesis. After three successful exams, a positive evaluation of the logbook and the thesis, a certificate is handed out by the UGent. 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 UGent.

Table 11.1.a Courses of specialized practitioners organized from 2004-2011

2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011
specialized practitioner for pigs 1 st year	specialized practitioner for pigs 2 nd year		specialized practitioner for ruminants 1 st year	specialized practitioner for ruminants 2 nd year		specialized practitioner for horse 1 st year
specialized practitioner for small animals 1 st year	specialized practitioner for small animals 2 nd year	specialized practitioner for small animals 3 rd year	specialized practitioner for small animals 1 st year	specialized practitioner for small animals 2 nd year	specialized practitioner for small animals 3 rd year	specialized practitioner for small animals 1 st year

The lecturers for the continuing education courses mostly belong to the academic staff. On special occasions or for specific subjects, national and/or international guest speakers are invited.

An overview of courses of the IPV in 2010-2011 can be found in the programme brochure: [Brochure 2010-2011](#).

In table 11.1.b, all the modules in 2009 and 2010 are listed. Table 11.1.c. contains courses organized by outside bodies.

Table 11.1.b: Courses organized by the IPV in 2009 and 2010

Activity	Participants	Hours of Theory	Hours of practice
Specialized veterinary surgeon: small animals (third year, lecture series 1) group A: third enrollment year group B: second enrollment year group C: first enrollment year Duration of the course: approximately 19 lecture days per academic year, for a period of three years The total number of hours of theoretical and practical courses slightly varies from year to year	10 (A) 2 (B) 10 (C)	108	9

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Separate courses small animals			
K-01 Sudden blindness in dogs and cats	17	3.5	0
K-02 Perianal gland fistulae	17	3.5	0
K-03 Dyspnoea in the dog	25	3.5	0
K-04 Seizures in the dog	12	3.5	0
K-05 The limping dog	22	3.5	0
K-07 Expovet: surgery	31	3.5	0
K-08 Perianal gland fistulae - veterinarians from Limburg	35	3.5	0
K-09 The use of feeding catheters in practice	8	1.5	2
K-10 Hyperthyroidism in the cat from A to Z	17	3.5	0
K-14 Stomatology: general course	11	14	0
K-15 Two new drugs in practice: Alizin and Suprelorin	19	3.5	0
K-16 The use of drains in practice	9	1.5	2
K-17 Surgery in exotic animal species	26	7.5	0
K-18 Vaginal cytology and sperm analysis in the dog and the cat	/	/	/
K-19 Haematology - Cytology	7	1	2.5
Separate courses large animals			
GV-01 Results of practice-oriented field studies of "Veepeiler-varken"	41	3	0
GV-02 Update of PRRSV infection	45	3	0
GV-03 Pig farms with high (re)productive performance: farm management practices and economic aspects	56	3	0
GV-04 National and international perspectives of pig production	88	3	0
GV-05: The use of antibiotics in pig production: update and perspectives	88	3	0
GV-06: Strategies to improve health and productivity in recently weaned pigs	39	3	0
GP-01 Regional anaesthesia and joint punctures of the distal limb	9	0	3
GP-02 Practical approach to diastemata and periodontitis in horse's teeth	6	0	3
GP-03 What if a horse does not walk as it should: is it the neck or the back?	47	3	0
GP-04 Reproduction and obstetrics in the horse: cases	33	5	0
GP-05 Pre-purchase examination in the horse	65	7	0
GP-06 Regional anaesthesia and joint punctures of the proximal limb	7	0	3
GP-07 Skin diseases of the distal limbs in the horse	50	3	0
GR-01 Practical tricks and tips for the management of transition cows			
GR-02 Interesting medical facts about small camelidae	63	3	0
GR-03 The use of echography in the medical examination of the			

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thorax and abdomen of cattle			
GR-04 Is there already more know about ...?	21	3.5	0
GR-05 Exploration and monitoring of the udder health status on modern dairy farms	/	/	/
GR-06 A glimpse at some evolutionary developments in the genetic selection of cattle	75 56	3 3	0 0
GR-07 Cattle: case reports			
GR-08 Emergency slaughter: what and how?	39	3	0
GR-09 EXPOVET: control of IBR and BVD today			
GR-10 Practical approach to dairy farms with udder health problems	12	3	0
GR-11 Screening of top dairy farms	46	3	0
GR-12 Screening of top beef cattle farms	56	3	0
GR-13 SQT, SMA, ... in Belgian White Blue Cattle	6	0	3
GR-14 Fertility on cattle farms: interpretation and improvement	4	1.5	1.5
GR-15 The use of echography in cattle reproduction	7	1.5	1.5
GR-16 Herd health management	54 69 5	3 3 1	0 0 2.5
F-01 Topics on parasitic zoonosis	/	/	/
F-02 The use of water in the food chain			
F-03 Guidelines in primary animal production: implementation of good manufacturing practices and the role of the veterinarian	57	3	0
F-04 Topics in bacterial zoonoses	55	3	0
F-05 Influenza as zoonosis	72	3	0
F-06 Process control			
F-07 Decision making in poultry inspection, an interactive discussion based on statistics	82 92	3 3	0 0
F-08 Legislation on food safety: why and how?	105 42 70	3 3 3	0 0 0
Continuing education internship	Variable	Variable	14
Permanent education residency	Variable	Variable	24
Permanent education in scientific research	/	/	14

Table 11.1.c: Courses organized at the establishment by outside bodies

Activity	Participants	Frequency	Hours of THEORY and PRACTICE
IPVS (International Pig Veterinary Society)	50	3 times/year	Half a day lectures + discussion of cases
Vlaamse Rundvee Practici (Flemish Bovine Practitioners)	80	once/year	Half a day lectures
BEPS (Belgian Equine Practitioners)	240	once /year	Half a day lectures
WVPA (World Veterinary Poultry Association)	70	4 times / year	Half a day lectures + discussion of cases
Physiotherapy in domestic animals (IRSK-wings)	20 / year	2 years of 20 sessions of half a day each	20h theory, 40h practice
Basic module	15 / year	7 x	
Module horse	10 / year	10 x	
Module dog	10 / year	13 x	

11.1.2 Distance learning (including via internet)

11.1.2.1 Publication of scientific articles

A kind of distance learning is provided by the “Vlaams Diergeneeskundig Tijdschrift”, published by the FVMG. 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 (who are encouraged to subscribe to the journal at a low price). Each issue contains different scientific papers in English and in Dutch with an English abstract. The journal is covered by Current Contents, Web of Science, and other indexing services. An overview of the contents of 2011 is provided in annex 11.2.

Students are encouraged to write a paper based on their dissertations, and to publish their results in the Flemish Veterinary Journal. Articles accepted for publication are rewarded.

Table 11.2: Articles based on Master’s dissertations submitted and published in the Flemish Veterinary Journal from 2007 to 2011

Year	Submitted	Published
2007	10	7 (70%)
2008	9	9 (100%)
2009	11	10 (91%)
2010	12	11 (92%)
2011	12	10 (83%)

11.1.2.2 IPV e-learning

In the year 2010-2011, a number of IPV courses were organized using live streaming, so that participants could follow the courses via their PC at home. Because of the very positive feedback of many participants on this type of distance learning, many more courses were offered in this way in 2011-2012. The IPV aims to offer all courses in this way from 2012-2013 onwards.

11.2 Comments

Every year, each module and all of the long-term postgraduate courses are evaluated 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 5 (excellent) is 3.7.

The IPV is one of the bodies of the FVM and reports yearly to the Faculty Council. The institute is considered very important by both veterinary practitioners and the FVMG. It functions well and is well-established.

11.3 Suggestions

- Because the Flemish Veterinary Associations and some private organizations also offer several types of continuing education, a close collaboration with these other organizations should be encouraged.

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- As the number of courses offered through internet will increase in the future, it is advisable that more investments should be made to further optimize this type of distance learning.

- Continuing professional development is a prerequisite for every practitioner. Therefore, it could be an option to make it mandatory for all practitioners.



12 CHAPTER 12 – POSTGRADUATE EDUCATION

12.1 Factual information

The FVMG has developed several postgraduate training programmes.

12.1.1 Clinical specialty training (interns and residents)

The FVMG has at present 56 Diplomates of 19 different European Colleges being recognized as European specialists by the European Board of Veterinary Specialisation (EBVS). Two are also recognized by an American College while 3 Diplomates have been accepted by both colleges. Most Diplomates work full time at the FVMG with only 5 part time (see Table 12.1.1).

Rotating interns are assigned to one or more departments inside the FVMG where Diplomates of different colleges are active; the interns get 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 or several colleges.

The internship and residency programmes are organized in a number of formats. Interns follow a one-year programme. Residents follow a 3 to 5 years programme (depending on the college). The programmes of rotating interns and residents are integrated mainly into the clinical organization of the FVMG. 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 programme.

All interns/residents are financially supported by the UGent since they are accepted by the central administration as students. They have a study grant and have access to all facilities for students. The FVMG gives financial support per College to the different Departments involved, while the remaining interns/residents are paid by incomes of the clinics or other financial resources. The FVMG, by means of the Institute for Permanent Training and one responsible staff member, has a supervising role towards the internship/residency system.

Table 12.1: Clinical specialty training (number of Diplomates and residents)

Clinical discipline	N° of Diplomates	N° residents
Anaesthesia	2	3
Surgery	7 (one part time)	5
Diagnostic Imaging	4 ^{*a}	3
Companion Animal Internal Medicine	4 ^{**}	2
Neurology	2	1
Animal Reproduction	6	3
Pathology	2 ^{*b}	4
Comparative Nutrition	2	2
Equine Internal Medicine	1	1
Porcine Health Management	7 (one part time)	5 (+1 alternative)
Bovine Health Management	4 ^{*c} (one part time)	0
Veterinary Public Health	5	3
Dentistry	1 (part time)	0
Laboratory Medicine	1	0
Pharmacology and toxicology	1	0
Parasitology	5 (one part time)	0
Dermatology	1 ^{***}	0
Zoological Medicine	2 (herpetology & small mammal)	0
Poultry Veterinary Science	1 (part time)	0
Behavioural Medicine (companion animals)	0 (one part time since 2012)	0

*one also accepted as Diplomate in another specialty (^{*a} ECVS; ^{*b} ECPHM; ^{*c} ECAR)

** one also Diplomate ACVIM

*** also Diplomate ACVD

Table 12.2: Clinical specialty training (Interns)

Clinical discipline	No
1.Small Animal Rotating Internship	6
2.Small Animal Orthopedics	1
3.Medical Imaging	3
4.Epidemiology	1
5.Equine Internship (surgery & medical	3
6.Equine Internship (medicine)	2
7.Equine Internship (reproduction &	1
8.Parasitology	1
9. Bovine Health Management	1

12.1.2 Research Education Programmes

12.1.2.1 Doctoral dissertations (PhD Degree)

The highest academic degree at UGent is the doctoral dissertation (= PhD thesis). In order to achieve this degree an extended research programme is required.

In order to obtain admission to the doctorate, doctoral researchers are to present themselves in writing to the central administration of the UGent, with the approval of at least one PhD supervisor. At least one of the PhD supervisors has to be an active tenured academic staff member or a visiting professor with a research assignment.

Overall, the total duration of the doctoral study varies between 4 and 7 years and depends among other things on whether or not the doctoral student can spend most of his/her time on research or not. This is also dependent on how the doctoral research is funded. Doctoral (PhD) researchers receive a grant or a salary, depending on the funding organization.

Funding can be obtained via different ways:

- personal grant obtained by the Special Research Fund of Ghent University, Flemish Research Foundation (FWO), Agency for Innovation by Science and Technology (IWT), China Scholarship Council (CSC), ...
- hired on a research project (Agency for Innovation by Science and Technology, Special Research Fund Ghent University, Research Foundation Flanders, Federal Public Service Health – Food Chain Safety and Environment, EU, company, ...)
- own resources of the department
- all assistants of the FVMG have to do a doctoral dissertation whereby at least 50 % of the time must be spent on research

On the basis of a proposal from the supervisor(s), the Faculty Council can assign a doctoral advisory committee consisting of at least three members, including the PhD supervisor(s). The doctoral advisory committee helps to support the doctoral student during the research period.

The minimum requirement to obtain the degree of “Doctor in Veterinary Science” at the FVMG, is that this research resulted in at least 2 (if both journals belong to the top 50% of the ISI ranking of the subject category, or if the impact factor of the journals ≥ 2) or 3 original articles that have been published or accepted for publication in international peer reviewed scientific journals with the candidate as first author. Journals with an impact factor of < 0.3 are excluded. Exceptions on this general rule are possible. In this case, the supervisor of the Doctoral (PhD) researcher has to motivate clearly why the minimum requirement is not (yet) fulfilled. This motivation is evaluated by the Faculty Research Committee of the FVMG. Overall, if there are clear indications that the doctoral (PhD) research of the candidate will eventually result in at least 2 or 3 articles published in international peer reviewed scientific journals, the Faculty Research Committee will make an exception.

The results of the research have to be written down in a doctoral (PhD) dissertation which has to be publically defended. After a positive advice of the PhD supervisor(s) and the doctoral advisory committee, doctoral students are allowed to submit their doctoral (PhD) dissertation to the Faculty Council which then assigns a Reading and Examination Board for the doctoral exam, consisting of at least 5 members. At least 3 members of the Examination Board are to be active tenured academic staff members of UGent or a different university, at least 2 of its members have not previously been members of the doctoral advisory committee and at least one member shall be unaffiliated with UGent. The majority of the members of the Examination Board must be affiliated with UGent. The chair of the Examination Board is held by the Dean or his/her representative, who needs to be a tenured academic staff member. Amongst its members, the Examination Board composes a reading committee consisting of at least 3 and no more than 5 members. At least one member of the reading committee is to be affiliated with UGent and at least one member is to be unaffiliated with UGent. Each member of the reading committee is to compile a written review and a motivated evaluation of the doctoral dissertation.

The doctoral examination itself consists of 2 parts.

- In the first part of the examination, the Examination Board appraises the doctoral dissertation of the candidate in question and the merit of his/her research, at least 30, but no more than 90 calendar days after the appointment of the Examination Board. The deliberation of the Examination Board will result in one of the following decisions: i. admission to the second part of the examination (public defense of the doctoral dissertation); ii. admission to the second part, provided that corrections are made by the doctoral student to his/her doctoral dissertation within the time span imposed by the Examination Board. In joint consultation, the chairman and the PhD supervisor have to ensure that the requested corrections are implemented; iii. no admission to the second part

of the examination. The final outcome of this deliberation round is to be motivated and included in a report, together with the attendance register of the members of the Examination Board.

- In the second part of the doctoral examination, the doctoral (PhD) researcher has to put forward an oral and public defense of his/her doctoral dissertation before the Examination Board. This public defense has to take place within maximum 30 days after the doctoral student's admission to the second part of the examination, unless the doctoral student requests a deferment. Immediately after the public defense session, the Examination Board decides on whether or not the academic degree of doctor is to be awarded. The decision of the Examination Board has to be motivated and included in a report, together with the attendance register of the members of the Examination Board.

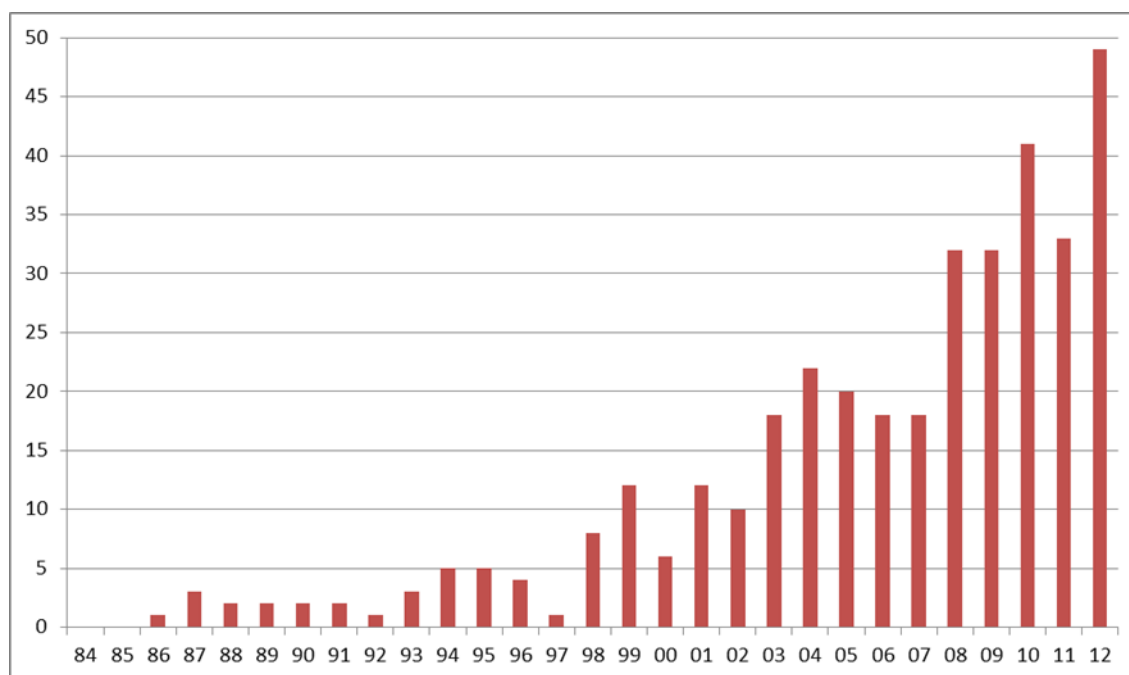
The number of completed doctoral dissertations and the number of veterinarians who obtained a doctoral dissertation from 2007-2011 is represented in the table 12. 3.

Table 12.3: Number of doctoral dissertations (PhD's) from 2007 till 2011

Year	Completed PhD's	Of which veterinarians
2007	18	13
2008	31	18
2009	32	21
2010	42	27
2011	33	17

The evolution of the number of doctoral dissertations (Doctor in Veterinary Sciences) awarded each year from 1982 onwards, is presented in the figure 12.1 below.

Figure 12.1: Number of doctoral dissertations from 1984 till 2012.



12.1.2.2 Doctoral dissertation Study Programme

The doctoral (PhD) training programme was introduced in the academic year 2007 – 2008 and has been revised in the academic year 2010-2011.

All doctoral (PhD) researchers at UGent must enrol as student at the start of their PhD and re-enrol every following academic year (until graduation). Doctoral (PhD) researchers are automatically enrolled for the Doctoral Training Programme which is organised through the Doctoral Schools. All doctoral students become member of a Doctoral School at their first enrolment as a doctoral (PhD) researcher.

All students of FVMG are member of the Doctoral School of Life Sciences and Medicine (Director since 2007 is Prof. Jozef Vercruyse of FVMG), however, if necessary, a Doctoral (PhD) researcher can request to be member of another Doctoral School.

The structure of the Doctoral schools is summarized in 5 articles (see attachment 12.1). The Explanatory Memorandum on the UGent Doctoral Training Programme is also provided as attachment 12.2.

12.2 Comments

12.2.1 Comments on clinical specialty training (Interns & Residents)

The FVMG encourages and supports the system of internships and residencies. The Diplomates are essential to support the quality of clinical research, education and services at the FVMG. The integration of some Diplomates as ‘Head of clinic’ into the regular academic staff system was implemented several years ago. This system assures the high standard of clinical work, mainly for educational purposes.

There has been a major growth in the number of Diplomates at the FVMG since 2004. As a consequence, many residency programmes are now very well established and successfully lead to the training and recognition of new Diplomates.

12.2.2 Comments on research education programmes

12.2.2.1 Comments on PhD degree

- The number of doctoral (PhD) researchers

The vast majority of doctoral (PhD) researchers at the FVMG are paid on soft money. These are grants that are obtained in a competitive way by the permanent staff of the FVMG from various governmental organizations (regional, national and international), the Special Research Fund of Ghent University, as well as from private companies. The ratio of number of doctoral dissertations defended annually versus number of permanent staff is 0.75, which is very high, compared to many other faculties at UGent.

Since 2008, the number of diplomas of “Doctor in Veterinary Sciences” has significantly increased (see Figure above) whereby several efforts have been done to stimulate doctoral (PhD) researchers. Every year, master students are invited to an information session in which the content, possibilities, advantages and future career prospects of a doctoral (PhD) degree are presented. During these sessions, students are encouraged to ask questions they may have concerning the pursuit of a doctoral (PhD) degree. In addition, Bachelor students with an excellent study record and/or students with a strong motivation are given the opportunity, on a voluntary basis, to participate in training weeks that are organized by the different departments of the FVMG during the summer period. These summer training weeks allow the students to experience hands-on clinical and fundamental research at an early stage in their curriculum. The summer training weeks are very successful, reaching ± 50 students every year (± 20 highly motivated students with excellent track record and ± 30 additional highly motivated students).

This initiative was started in 2010, has been recognized by the UGent and has led to the initiation of an official “Honours Programme” in the veterinary, human medical and pharmacy faculties. This Honours Programme has initiated with a pilot project in the academic year 2012-2013 and will consist mainly of 6- to 8-week research training programs (clinical and/or fundamental) for selected excellent and highly motivated Bachelor students. The Honours Programme at the FVMG will be aimed at 3rd year bachelor students, who will be selected based on study results and on an interview to assess their motivation. Students will perform the

research training during the summer period after finishing their 3rd bachelor year (July-September).

- The percentage of veterinarians

From 2007 until 2011 the percentage of veterinarians finishing a doctoral dissertations compared to all doctoral (PhD) researchers who finished their doctoral programmes at the FVMG varied between 51-77% (Table 12.1.3). Having both veterinarians and doctoral (PhD) researchers with another Master diploma in the same research group strongly stimulates multidisciplinary research and is considered to be an added value in the training of the doctoral (PhD) researchers. Also, there is a good collaboration between “clinical” and “non-clinical” departments whereby several PhD projects are joint projects, further enhancing multidisciplinary.

- Training of doctoral (PhD) researchers

The primary aim of training at doctoral (PhD) level is to prepare the candidate to be an independent researcher able to publish scientific papers. This is a time-consuming task including teaching students how to formulate the aim of a research project, build hypotheses, organize materials and methods, how to draw conclusions from experiments and how to discuss results in relation to data available in literature. Although a Doctoral Advisory Committee helps to support the doctoral student during the research period and the student can follow the doctoral programme, the PhD supervisor(s) plays (play) a major role in training at doctoral level. The supervisor also needs to teach good laboratory practice, to assist with analysis of results, and to offer guidance during writing of publications. He/she also needs to create opportunities for the students to present results at scientific meetings or attend workshops. With regard to the latter, the Faculty Research Committee stimulates international mobility of doctoral (PhD) researchers by giving them financial support to attend congresses and workshops. In conclusion, the autonomous academic staff members of the FVMG play the major role in training at doctoral level. Since they have many other tasks, most probably, the annual number of completed doctoral theses has reached its upper limit although the current outlook is that the number of doctoral dissertations defended in 2012 will reach 50.

In contrast to other faculties of UGent, the FVMG has very few permanent staff members specifically dedicated to research. This hampers the future development of the doctoral training as an advanced education program in veterinary medicine. We believe that UGent should do a similar effort for its veterinary faculty as it does for the other faculties in this respect.

In several departments, post-doctoral researchers are present who can boost research and can play an important role in the training of doctoral (PhD) researchers. The funding for these post-docs is usually obtained by applying for research grants or postdoctoral fellowships. Unfortunately, these researchers do not have a permanent position and postdoctoral fellowships are difficult to obtain.

- Duration of doctoral studies

If a doctoral (PhD) researcher can spend most of his/her time on research activities, completing a doctoral dissertation takes approximately 4 years. Discussions are taking place to reduce this to 3 years. We strongly believe that this would be a mistake. Indeed, this 4th year period is very important, since we clearly observe that the fourth year is the most fruitful both with respect to maturation of the candidates as with respect to publication of the results of his/her scientific research. If the doctoral (PhD) researcher is involved in the education of undergraduate students part-time (e.g. academic assistant staff members) his/her doctoral dissertation is often only defended after 6 years. The academic assistant staff members are recruited for 6 years (3 x 2-year period). Sometimes an additional year is justified to finish the doctoral dissertation but this requires a strong argumentation by his/her supervisor(s).

12.2.2.2 Comments on PhD study programme

The doctoral (PhD) training programme at UGent has been introduced from the academic year 2007-2008 on and has been revised (simplified) in the academic year 2010-2011. Several faculties at UGent make it an obligation for the doctoral (PhD) researcher to follow the total programme, however, for the FVMG, there is no obligation to follow the doctoral programme.

Students can make a choice to:

- obtain the certificate of the Doctoral Training Programme Ghent University (signed by the rector). This is awarded if one completes the entire [Doctoral Training Programme](#). In order to obtain this certificate, the student needs to submit a final progress report.
- follow certain courses of the Doctoral Training Programme without obtaining the certificate
- follow none of the courses of the Doctoral Training Programme.

Since the start of the Doctoral school in 2007 only 11 students obtained the Certificate of Doctoral Training Programme: 3 in 2009 (first in Sept), 3 in 2010, 3 in 2011 and 2 in 2012 (Feb).

Comments:

- Since the Doctoral schools started only in 2007 it was predictable that only from 2011 (considering a duration of 4 years for a PhD) students would obtain a Certificate
- Most students (245 of 263 doctoral (PhD) researchers) follow many courses of the Doctoral Programme, however, obtaining the Certificate is for many students not considered to be of additional value (= to subsequent job finding)

12.3 Suggestions

12.3.1 Suggestions on clinical specialty training

- Some important clinical specialties need to be staffed with Diplomates (eg. companion animal cardiology, emergency and critical care).

- The development of residency programmes should be encouraged for some disciplines (e.g. ophthalmology). Several residency programmes are presently under construction (Zoo medicine).
- The internships should aim at a broad education and be rather ‘rotating’ than clearly focused on a ‘specialty’.

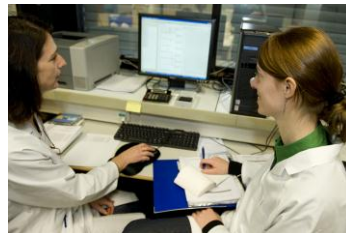
12.3.2 Suggestions on research education programmes

12.3.2.1 PhD degree

- The UGent management should do equal efforts for its veterinary faculty as it is doing for the other faculties with respect of taking on research professors, in order to ensure the future development of the doctoral programmes.
- In the current situation, training at doctorate level is mainly performed by the autonomous academic staff members of the faculty, who have many other tasks. There is clearly a need for a more extensive and more stable post-doc staff.
- The different departments at the FVMG organize summer training weeks to allow Bachelor students with an excellent track record and/or highly motivated Bachelor students to obtain some hands-on practical experience with clinical and fundamental research. These summer training weeks are very successful, but are organized on a purely voluntary basis (both from students and from faculty staff). A more extensive and stable post-doc staff, as also indicated above, and a designated budget would allow to develop these summer training weeks more thoroughly.
- Over the past years, international experts in different aspects of veterinary research have been requested to give a lecture at the FVMG, lectures that were designated for veterinary students with an interest in research. In addition, students have been given the opportunity to discuss with these international experts face-to-face. These sporadic lecture series have been very well attended and have received a very positive response, and have aided at sparking the interest of students in veterinary research. Organisation of these lectures has depended on one-off grant awards and voluntarism. A designated budget to organize these lectures on a regular basis would be a substantial added value to promote the interest of students in veterinary research, and to pursue a doctoral degree.

12.3.2.2 PhD study programme.

In the future, it may be considered that the students of the FVMG become obliged to obtain the Certificate of Doctoral Training Programme.



13 CHAPTER 13 – RESEARCH

13.1 Factual information

All departments of the FVMG are involved in internationally recognized research. This generates important new insights in a plethora of different aspects of veterinary and translational science. Most of the research projects conducted by the academic staff of the FVMG are directly related to their teaching responsibilities, and are used as illustration material for their courses, allowing undergraduate students to become familiar with veterinary research. The FVMG strongly believes that this represents an important factor in discriminating university education from other forms of higher education. The vast majority of the research projects are funded by the UGent, regional governments, the federal government, the European Commission and private companies.

The number of doctoral dissertations yearly obtained at the faculty, can vouch for the active involvement of the faculty's staff in research.

Table 13.1: Number of doctoral dissertations at the FVMG from 2007 to 2012

Year	Completed doctoral dissertations	of which veterinarians
2007	18	13 (72%)
2008	31	18 (58%)
2009	32	21 (65%)
2010	42	27 (64%)
2011	33	17 (51%)
2012	49	32 (65%)

Undergraduate students have the opportunity to actively participate in research via several ways.

13.1.1 Master dissertation parts I and II

The total study time spent on master dissertation work amounts to 900 hours.

13.1.1.1 Master dissertation part I

During the 2nd year of the Master's programme, students perform their Master dissertation part I. This part consists of a combination of 2 weeks of study visits to private veterinary practices (to a companion animal and to a large animal practice) and a scientifically formatted literature

review of 10 to 30 pages on any subject of veterinary relevance. The time spent on the visits to private practices amounts to 80h (2 weeks of 40h each) and to the literature review amounts to 340h (10h information and instruction lectures, 80h monitoring, evaluation and feedback, and 250h project work). Students have to write evaluation reports on their visits to the veterinary practices, which gives evidence of their critical analysing capability (e.g. concerning the practical organization and management of the two practices) and of their synthesizing reflecting competence (e.g. the evaluation of personal practical skills). The literature review is supervised by 2 mentors of the academic teaching staff of the FVMG (usually staff members of the preclinical departments, although, in a few cases, mentors of clinical departments of the FVMG or of extramural faculties, universities, research centres or veterinary clinics may also be involved). At least one of the mentors is always a member of the autonomous academic staff (“ZAP”) or a postdoctoral/senior doctoral researcher at the FVMG. Optionally, in some cases, the literature review is supplemented with a short scientific overview of research performed by the student during a brief training period at the department of the mentor of his/her Master dissertation part I.

13.1.1.2 Master dissertation part II

During the 3rd (final) year of the Master’s programme, students perform their Master dissertation part II. The work related to master dissertation part II amounts to 480 hours (80h monitoring, evaluation and feedback and 400h project work).

The Master dissertation part II may consist of a scientific research project at any of the departments of the FVMG (or exceptionally at an extramural faculty or university). This project may be an elaboration of the literature review made during Master dissertation part I. The thesis includes thorough research training and a substantial amount of hands-on experimental work. This type of Master dissertation part II is mandatory for students who choose the ‘Research’ track in the 3rd year of the Master’s programme, but is also available and recommended to all other students. The thesis has to be written in a scientific format that does not exceed 100 pages.

Alternatively, the Master dissertation part II may consist of two clinical cases. Each of these case reports should describe a particular clinical case in detail and discuss the case in view of the literature data, giving evidence of critical scientific and professional reflection. Each case report should comprise 20 to 30 pages. Irrespective of the format, Master dissertation part II is supervised by at least one mentor who is a member of the academic staff of the FVMG and in some cases by an additional mentor belonging to the categories described in the section of Master dissertation part I.

13.1.2 Extra-curricular opportunities

The FVMG offers extra-curricular opportunities to undergraduate students to participate in research.

Over the past couple of years, the FVMG has taken initiatives to provide additional, extra-curricular, research-oriented opportunities to undergraduate students with a strong track record and/or strong motivation. The purpose of these initiatives is to provide undergraduate students with the opportunity to further deepen their knowledge and come into contact with clinical and fundamental research at an early stage during their studies (bachelor stage). These activities involve both fundamental and clinical research activities. All these extra-curricular activities take place during the summer recess and are optional. This project, which was conceived and initiated by the FVMG, has been well received by UGent and has recently been adopted by several other faculties.

13.1.2.1 One-week summer training sessions.

Since the academic year 2009-2010, the departments of the FVMG have provided opportunities for undergraduate students to take part in one-week summer training sessions, covering a very wide array of (fundamental and clinical) veterinary topics. Training sessions are supervised by a mentor who is a member of the academic staff of the FVMG. Available places for training weeks are offered to 2nd and 3rd year bachelor students with a strong track record (average score $\geq 750/1000$) and to all motivated 3rd year bachelor students. Training weeks are very popular among both students and mentors, as assessed by the high number of available sessions and participating students and very positive feedbacks. Each year, ± 50 students participate at these training sessions.

13.1.2.2 Honours Programme

Since the current academic year 2012-2013, the biomedically oriented faculties of UGent (FVMG, Faculty of Medicine, and Faculty of Pharmaceutical Sciences) have started a pilot project to initiate an extra-curricular Honours Programme. The Honours Programme represents a 16 SP (16 credit points) extra-curricular programme that mainly consists of a 6- to 8-week research training at one of the departments of the participating faculties, in addition to the students' participation in a number of introductory courses on scientific research and scientific lectures. Participation in the programme culminates in the writing of a report in the format of a scientific manuscript. Mentorship is central in the Honours Programme. Each training session is supervised by a mentor who is a member of the autonomous academic staff ("ZAP") of the participating faculties. Each "ZAP" member may not mentor more than 2 participating students at the same time to ensure high-quality and intense mentorship. At the FVMG, 3rd year bachelor students with a good track record are provided with the opportunity to apply for participation in the programme. A good track record consists of a score of $\geq 675/1000$ ('distinction') in the 2nd year bachelor first exam session or ≥ 650 in both 1st and 2nd year bachelor first exam sessions. Between 5 and 10 of the students who apply, are selected for participation in the programme. The final selection is based on interviews of the applying students, mainly to assess their motivation.

13.1.2.3 Participation in international research-oriented veterinary summer schools

Since the academic year 2010-2011, very promising and highly motivated students of 3rd year bachelor and 1st year master have been stimulated to apply for participation in international research-oriented veterinary summer schools, such as the Cornell Veterinary Leadership Program (Cornell University, USA) and the Fundamentals of Veterinary Science summer school (Cambridge University, UK). In case of successful application, the exam schedule of the student is rearranged in consultation with both student and teaching staff, since both summer schools start during the regular exam period at FVMG. This initiative has led to the successful application of the first FVMG students at both of these summer schools, with very positive feedback by the participating students.

13.2 Comments

It is obvious that people who combine a veterinary degree with experience in scientific research (e.g. a good knowledge of setting up, performing, analysing and reporting on research experiments) are in demand, e.g. in the pharmaceutical industry. The FVMG responds to this demand by providing undergraduate students with ample possibilities to come into contact with and even obtain practical experience with hands-on research, through the integration of recent research in lectures, master thesis work, and the extra-curricular opportunities to participate in clinical and fundamental scientific research. In addition, students who choose the ‘Research’ track in their final year get acquainted with all major aspects of scientific research, including experimental setup, methodology, statistics, laboratory animal science, cell and molecular techniques, applied biomedical techniques, scientific English writing, and scientific communication and reporting.

13.3 Suggestions

As outlined in 13.1.2, several recent optional extra-curricular initiatives have been taken to increase the opportunities for undergraduate students to come into contact with and practically experience scientific research, in addition to Master dissertation I and II. These extra-curricular initiatives consist of a combination of (i) brief one-week training sessions that are accessible to a large number of bachelor students (\pm 50 participating students annually) and that allow a broad range of motivated students to get a sense of research, and (ii) intensive research training programmes for selected and highly motivated students (\pm 10 participating students annually). The feedback from both students and mentors on these recent initiatives is very positive and will help to further fine-tune and develop this aspect of veterinary undergraduate training. These initiatives all heavily depend on voluntary work by mentors, organizers as well as students without (substantial) financial support. Positive feedback leads to increasing numbers of participating students, which in turn increases the administrative organizational workload and the time and resources spent by the participating departments at the FVMG. Further

development of these initiatives would therefore benefit from administrative and financial support.



