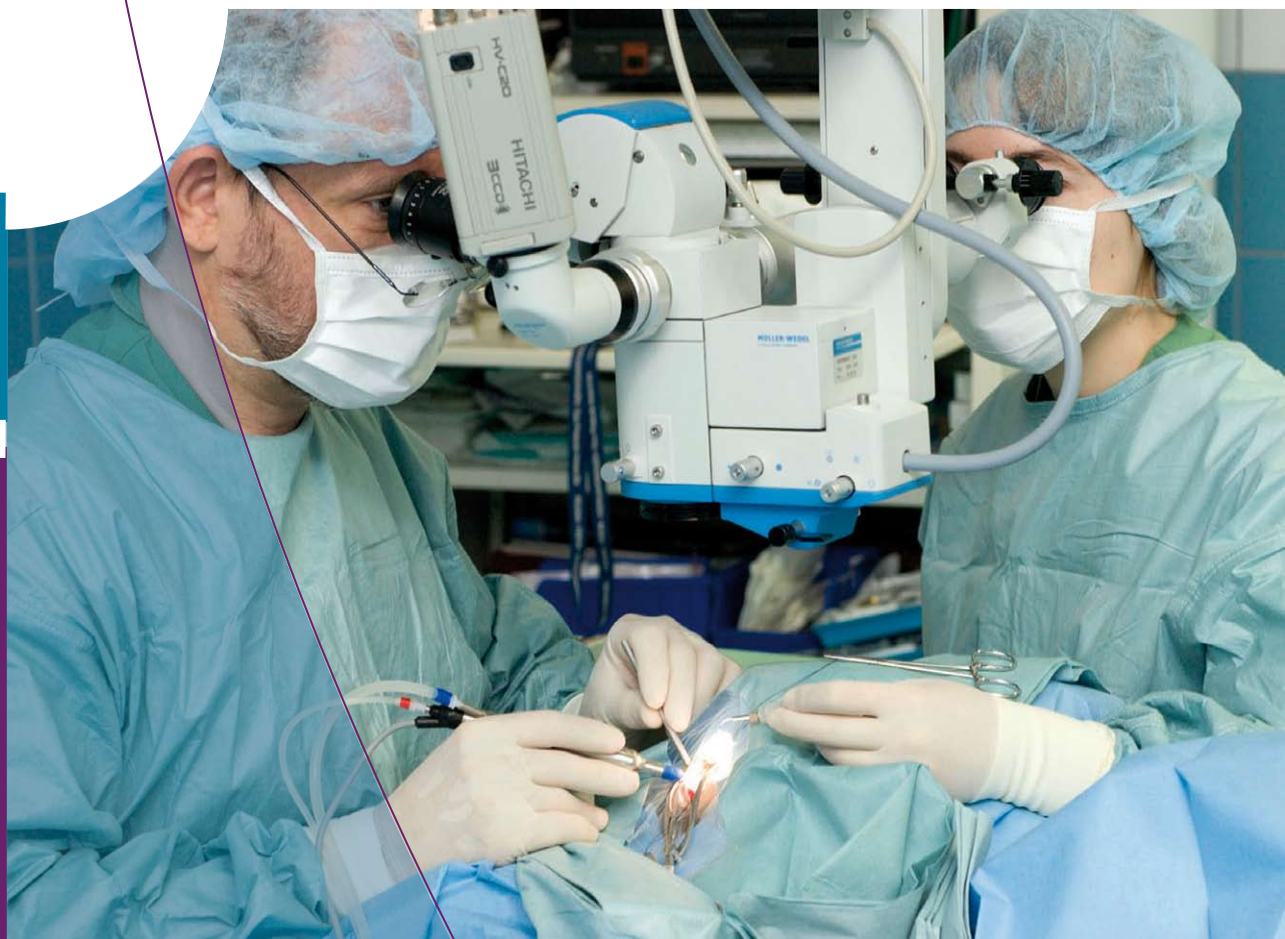
Self Study Report

Universiteit Utrecht

FACULTY OF VETERINARY MEDICINE / SEPTEMBER 2007



CONTENTS

CONTENTS

ABBREVIATIONS

AAVMC	Association of American Veterinary Medical Colleges
ACVT	Advisory Committee of Veterinary Training of the European Commission
AVMA	American Veterinary Medical Association
BKO	In Dutch: BasisKwalificatie Onderwijs = Basic Qualification for Teaching
BSA	In Dutch: Bindend StudieAdvies = Binding Study Recommendation
CA	Companion Animals
CCT	Clinical Competency Test
CEUT	Centre of Excellence in University Teaching
CIDD	In Dutch: Commissie Individueel Doctoraalexamen Diergeneeskunde = Committee Individual Doctoral Exam Veterinary Medicine
CHOICE	In Dutch: Centrum voor Hoger Onderwijs Informatie voor Consument en Expert = Centre for Higher Education Information
CROHO	In Dutch: Centraal Register Opleidingen Hoger Onderwijs = Central Register of Higher Education Studies
CVMA	Canadian Veterinary Medical Association
DBU	In Dutch: Docent Belastings Uur = Teaching Burden per hour
DSK	In Dutch: Diergeneeskundige Studenten Kring = Veterinary Students Society
DVM	Doctor of Veterinary Medicine
EAEVE	European Association of Establishments for Veterinary Education
E	Equine
EBVM	Evidence Based Veterinary Medicine
ECTS	European Credit Transfer System
FA	Farm Animals
FTE	Full Time Equivalent
FVE	Federation of Veterinarians in Europe
FVM	Faculty of Veterinary Medicine
IBG	In Dutch: Informatie Beheer Groep = Information Management Group
ICT	Information and Communication Technology
IRAS	Institute for Risk Assessment Sciences
IVLOS	In Dutch: Instituut voor Lerarenopleiding, Onderwijsontwikkeling en Studievaardigheden = UU Institute for Education
LLM	Master of Law
LNV	In Dutch : Ministerie van Landbouw, Natuurbeheer en Voedselkwaliteit = Ministry of Agriculture, Nature and Food Quality
MID	More Informed Decision Making (in Dutch: BOB – Beter Onderbouwd Beslissen)
NAVLE	North American Veterinary Licensing Examination
NBE	National Board Examination
NVAO	In Dutch: Nederlands-Vlaamse Accreditatie Organisatie = Dutch Flemish Accreditation Organization
NWO	In Dutch: Nederlandse Organisatie voor Wetenschappelijk Onderzoek = Netherlands Organization for Scientific Research
OCW	In Dutch : Ministerie van Onderwijs, Cultuur en Wetenschappen = Ministry of Education, Culture and Science
OER	In Dutch : Onderwijs- en Examen Regeling = Education and Examination Regulations
OSZ-BIC	In Dutch : Onderwijs- en Studentenzaken-Bureau Internationale Contacten = Educational and Student Affairs – Office for International Cooperation
OWG	In Dutch: OnderwijsWerkGroep = Educational Working Group
PC	Professional Conduct
PhD	Doctor of Philosophy
POK-D	In Dutch: Periodiek Overleg Klinische Departementen = Periodical Meeting of the Clinical Department Chairs and Managers
RNVA	Royal Netherlands Veterinary Association (in Dutch: KNMvD – Koninklijke Nederlandse Maatschappij voor Diergeneeskunde)
SD	Standard Deviation
SDA	In Dutch: Spoedkliniek voor Dieren Amsterdam = Emergency Clinic for Animals in Amsterdam
SKO	In Dutch: Senior Kwalificatie Onderwijs = Senior Qualification for Teaching
SWOT	Strengths, Weaknesses, Opportunities, Threats
UU	Utrecht University
ViEW	Veterinary Education Worldwide
VPH	Veterinary Public Health
VSNU	In Dutch: Vereniging van Universiteiten = Association of Dutch Universities
VWS	In Dutch: Ministerie van Volksgezondheid, Welzijn en Sport = Ministry of Health, Welfare and Sport
VNO-NCW	The Confederation of Netherlands Industry and Employers
WHW	In Dutch: Wet op het Hoger Onderwijs en Wetenschappelijk Onderzoek = Law on Higher Education

General Introduction

| Administrative Data

Name of the curriculum: Veterinary Medicine

CROHO number: 56570

Due date of NVAO accreditation: Before September 2008

Location: Utrecht University (UU), Faculty of Veterinary Medicine (FVM),
Yalelaan 1, 3584 CL Utrecht, the Netherlands

Level and Orientation: Veterinary Medicine is a Higher Education Curriculum and trains to the grade of Doctor in Veterinary Medicine (DVM).
The veterinary curriculum can only be followed on a full-time basis. It is still an undivided program; the Bachelor-Master curriculum is in preparation.

Contacts:
Prof. Peter van Beukelen DVM PhD,
Educational Board and Chair of Quality Improvement in Veterinary Medicine
p.vanbeukelen@uu.nl | tel. +31 (0)30-2533703 / 2535592

Jean de Gooijer,
Liaisons Officer, the Office for International Cooperation
j.degooijer@uu.nl | tel. +31 (0)30 2537696 / 2535592

| Preparation of the Self-Study Report

This self-study report is prepared to facilitate the sixth site visit by a combined team of the Council on Education of the American Veterinary Medical Association (AVMA), the National Examining Board of the Canadian Veterinary Medical Association (CVMA) and the European Association of Establishments of Veterinary Education (EAEVE). This site visit will take place from 4-8 November 2007.

The Self-Study report was compiled and edited by Peter van Beukelen DVM PhD, Professor Quality Improvement in Veterinary Education and member of the Education Board of the FVM, and Jean de Gooijer, Liaisons Officer from the Office for International Cooperation. The writing process was supervised by a steering committee composed of the following staff members: Jan Haarhuis, Robert Paling DVM PhD, Martin Otten, Hellen van der Maazen DVM, from the section of Educational and Student Affairs-Office for International Cooperation.

At an early stage the draft report was discussed with the FVM Education Board and on 27 June 2007 with the Education Committee, who endorsed the outlines of the draft report. The text of the Self-Study Report was finalized in the Education Board meeting of 20 July 2007.

This Self-Study Report was approved by Professor Albert Cornelissen PhD, dean of the FVM on 8 August 2007. Textual contributions came from the dean, the managing director, the Education Board, the Periodical Consultation of the Clinical Department Heads (POK-D), the section of Educational and Student Affairs, the Chair Quality Improvement in Veterinary Education, the Office for International Cooperation, the Department of Personnel and Organization, the Department of Finance and Control and relevant individual faculty members.

0 Objectives

0.1. Major goals and objectives of the college and how they are being met:

The major goals and objectives of the college are described in the strategic plan of the college, *"Transparency & Choices, a vision on the future of the Faculty of Veterinary Medicine"*, covering the period 2004-2009. This plan has been used to formulate specific goals with regard to education, patient care, research and organization.

The most important educational goals within a timeframe of 2-5 years are:

1 to formulate, in conjunction with the profession, relevant governmental bodies and industry, the day-1 skills of our graduates/program outcomes of the veterinary curriculum;
2 to develop a Bachelor and Master's curriculum in line with the Bologna declaration and Dutch legislation;
3 to use the new Bachelor/Master curriculum to further improve the quality of our curriculum by the integration of 'healthy and diseased' and a further integration of animal health, animal welfare and veterinary public health;
4 to develop, in line with the recommendation of AMVA/CMVA/EAEVE, extramural – guided - clinical training;
5 to strengthen 'evidence-based' veterinary medicine by interconnecting research outcomes in the curriculum;
6 to implement a system for guiding underperforming students to a different study program after the first year (the so-called "binding study advice");
7 to develop objective criteria to judge the performance of teaching staff.

On top of these specific goals, recent developments in veterinary medicine are translated into a modern veterinary curriculum, focused on the following objectives: problem-solving skills, social and communicative skills, academic training, a species-oriented differentiation and the awareness of life-long learning. The implementation of this track curriculum started in 2001.The self-evaluation report will show that many of these specific goals have been developed and are already implemented or are at an advanced stage of development.

The strategic plan has also formulated specific goals for our research programs. Here the most important goals are;

1 to maintain a program that contributes to veterinary medicine, including clinical research (Advances in Veterinary Medicine);
2 to reassess our research programs in order to obtain 'more focus and critical mass'
3 to boost our quality by a further integration of disciplines in order to enhance scientific innovation;
4 the restructuring of our research programs should facilitate the attraction and retention of high potential scientists as well as increase our fund-raising capacity.

Again, the self-evaluation report will show that these goals have been translated into concrete steps that have been implemented in 2005-2006. Our first self-evaluation (2007) indicates that these changes do indeed contribute to the set goals.

High-quality patient care is essential for our educational and research programs. Our University Board has granted us a substantial budget allowing us to renovate the clinical departments. This renovation will be completed in 2009. The parts that are finished [equine clinic, part of the companion animal clinic, the research and laboratory building of the three clinical departments and the experimental unit of the Department of Farm Animal Health] show that we will have excellent facilities in 2009. More importantly, in addition to the infrastructure, the clinical departments have, also developed a plan to train highly qualified staff, securing future replacements.

The FVM, as a public institution, has to serve the common good. Moreover, we have to respond rapidly to new challenges and circumstances. That we are able to do so, is not only exemplified by the significant changes that were made in our curriculum in 1995, 2001, and 2007, but also in the reassess-

ments of our research programs on the basis of the external evaluations in 1999 and 2005. Research output has grown markedly and is transferred to the profession, relevant governmental bodies and society at large. This is backed by the many advisory functions that staff members fulfill. We also collaborate extensively with other 'knowledge institutions' and key persons of these institutions hold part-time professorships at our school. These collaborations do not only contribute to regional development, but also strengthen our position in education and research. Finally, as is shown in our research grant portfolio, we have intensified our task of knowledge transfer to national and European industry.

0.2. Methods and tools to measure outcomes of the overall instruction, research and service program

In a two-year project the FVM developed and defined the 'Programme Outcomes of the Veterinary Curriculum'. Starting from an abstract level – "Profile of the Veterinarian" – and advancing to an ever more detailed level, these Program Outcomes describe what competencies an FVM student should have acquired at graduation. The more detailed levels are divided into veterinary, scientific, personal and societal aspects. The veterinary aspects are described in the steps of problem-solving. A list of problems and questions that a veterinarian can be faced with is part of the Program Outcomes as well. In Appendices lists of skills and diseases/syndromes have been described in competence and knowledge levels. These Program Outcomes form the frame of reference for education and assessment within the curriculum, especially within the clinical rotation program. The "Programme Outcomes of the Veterinary Curriculum" can be found at *http://www.vet.uu.nl/viavet/viavet_english/onderwijs/curriculumontwikkeling/eindtermen_curriculum_diergeneeskunde* and are available as appendices in hardcopy.

The entire faculty, including clinical staff, is evaluated yearly on an individual basis. This includes all aspects of the staff function. The Hay function profile, in which formulated tasks and goals are linked to performance criteria, is used to ensure that outcomes are consistent. This assessment is also used to discuss the career path of the staff member.

All aspects of education, research and patient care of departments are evaluated and discussed during the yearly Planning and Control meetings with the Faculty Board. The Education Board and the Institute of Veterinary Research collect data of the departments with regard to education and research in order to measure and qualify the output of departments. This is used by the Faculty Board as the basis for management decisions and resource allocations. The Planning and Control cycle addresses five main aspects: finances, education, research, staff development and, where relevant, services. This process helps to integrate and link college plans with departmental plans and to structure annual operational plans. The Planning and Control cycle provides the college with a useful method to align the annual university budgeting process with its vision, mission and strategic objectives.

Benchmarking is an integral part of our evaluation system and quality control. To maintain excellence in education, research and management, the school uses yearly internal evaluations and regular external peer-reviews to assure quality and carry out checks on the goals derived from the school's mission.

0.3. Major strengths and weaknesses of the college

Strengths:
Organization: Dutch university legislation has strengthened the position of the dean. The dean receives a full mandate from the University Board to lead the FVM The dean gives a mandate to the directors of the Education Board and the Institute for Veterinary Research for the education and research programs and to the heads of the departments for budget and personnel. The first two bodies assess the quality of the contributions of Departments to the education and research programs and have a strong impact on the quality of these programs. The implementation of the curriculum is taken up by Educational Working Groups, which ensure integration of contributions of departments within courses. Responsibilities are well defined and restricted to a limited group of managers. This allows the FVM to respond quickly and effectively to new developments. Recent examples are the implementation of the Bachelor-Master Curriculum and the reorientation of FVM's research program (Focus and Mass).
The individual responsibility and accountability of staff members is a characteristic feature of the organization.

Physical facilities: Total reconstruction of the clinical departments and of all educational rooms and the learning environment, after which all education, research and clinical facilities will meet state-of-the-art requirements.

Clinical Resources: the FVM has a well-equipped hospital with a significant case load and a well-developed ambulatory clinic, covering all relevant species.

Library and Information Resources: The Veterinary Library has an in-depth collection of veterinary and related literature. It offers complete access to the UU collection and other scientific resources via a web-based catalogue and other specialized search engines for students and faculty. The library and excellently equipped learning environment, which are integrated at a central location in the Androclus Building, enhance the self-tuition of students. Digital communication with students is one of the FVM's strengths.

Admission: The FVM has a very effective admission system through which highly motivated students are selected for the Farm Animals/Veterinary Public Health tracks.

Faculty: Both faculty and support staff are strongly involved with the FVM. The numbers of staff employed and the diversity of qualifications provide a solid body of competent and dedicated teachers.

Research: The FVM's research program, structured into five coherent programs, has an outstanding international reputation. It was rated among the top five of the world in a recent survey by an international review committee of renowned scientists. FVM's research is intertwined with education and contributes to the concept of evidence-based veterinary medicine. All veterinary students actively participate in research and an Honors program is available for a selected number of students. The FVM implemented a chair Quality Improvement in Veterinary Education, under whose authority five PhD projects are currently executed.

Outcomes:
Student: A high percentage of FVM students graduate [> 85%]. FVM's excellent relation with professional organizations such as the Royal Veterinary Association of the Netherlands helps to adapt the curriculum to the professional field. A FVM PhD student is currently investigating the extent to which graduates are satisfied with their education and feel adequately prepared for employment.

Institutional: The FVM offers incentives for good teaching by way of educational awards and specific UU training programs in academic teaching.

Clinical: One PhD student performs research into the development of clinical reasoning in fourth, fifth and sixth-year students. Results of this research are used to adapt parts of the curriculum, e.g. in training in Clinical Lessons and in the feedback and assessment in the clinical rotations.

Weaknesses:
Organization: the FVM is organized in a matrix structure. Separation of mandates for programs (directors of education and research) and budget and personnel (department heads) creates a tension field between schools and institutes on the one hand and departments on the other. Good relations and frequent consultations are required to bridge this tension field.
Modern education and research are multidisciplinary. Super departmental structures are required to coordinate the contributions of various department to separate courses. These Educational Working Groups have a relatively weak position in the management structure and sometimes lack the authority that is needed to fulfill their task.
Recent reorganizations within the FVM, due to budget cuts, caused a loss of positions in 2005-2006. Levels of trust in management dropped as a result.

Physical facilities: The long duration of the rebuilding process, especially in the clinical departments, has had consequences for the students, the organization of the educational program and for staff, and has reduced the capacity of the hospital and made it difficult to maintain service at an acceptable level.

Library: The library budget suffers from high and fast-growing subscription rates of scientific journals.

Admission: The FVM is facing falling numbers of applicants for its study program, while only a limited number of these applicants is interested in FA/VPH.

Faculty: The FVM is the only school of its kind in the Netherlands, which limits the possibilities of staff who want to pursue a career path at the University and leads to an 'inbreeding effect' and limited professional mobility. The low turn-over in senior staff positions sometimes blocks career perspectives of young and highly talented colleagues, frequently resulting in dissatisfaction with career perspectives. In addition, we have noticed that our terms of employment, regulated by university ruling/regulated at University level, are not market conform. This has a negative effect on attracting and retaining talented clinical staff in particular.

Research: The budget for research is stable and presently not corrected for costs of inflation. In the coming years this could have a negative effect on the research output.

Outcomes: The structural collection of data on the employment rates of graduates on different moments after graduation is still lacking.

0.4. Recommendations

Organization: The position of multidisciplinary bodies needs to be strengthened.

Finances: Ongoing efforts are required to obtain separate government funding for training interns and residents, and to increase hospital income and reduce hospital costs.

Physical: The renovation of the clinical complex has to be completed within two years. Further development of a clinical skills laboratory, as a better equipped skills laboratory will reduce the number of teaching animals used and will increase the welfare of teaching animals as well as patients.

Library: The user-friendliness of the electronic learning environment needs further improvement.

Admission: The FVM must continue its research on the effects of the FVM selection system and a possible adaptation of the system based on the results of this research and on the literature. The FVM will intensify efforts to attract motivated and well-prepared applicants for the FA/VPH track.

Faculty: In order to recruit young, enthusiastic and qualified employees the FVM has to provide attractive jobs and career perspectives. Unfortunately, the gender balance of the staff still needs special attention. Special attention is also needed for aged staff by providing new challenges in order to prevent job dissatisfaction. In addition, professional mobility must be facilitated by developing good relations with referral practices [2nd line clinics] and foreign institutes. Clear and efficient tracks ought to be developed for staff to obtain qualifications.

Research: A further structuring and strengthening of the program Advances in Veterinary Medicine, and its embedding into the residents' training programs.

Outcomes: Further implementation of the Program Outcomes into the curriculum with specific attention for assessments in line with the Program Outcomes. The FVM strives for a system for collecting data on educational satisfaction and employment from graduates at different moments after graduation.


GRAAF
JAN VAN NASSAU

1 Organization

1.1 / 1.2 Mission statement of the Faculty of Veterinary Medicine

The Faculty of Veterinary Medicine (FVM) is an international leader in the field of veterinary scientific education, research and patient care. Furthermore, the FVM contributes to the solving of problems in society related to veterinary medicine. The FVM aims at:

- Generating more knowledge in the field of veterinary science through publishing research;
- Educating academics for the international labor market who combine knowledge of veterinary medicine with skills to solve professional and social problems;
- Enhancing the quality of veterinary medicine through the education/training of specialists and providing high-quality post academic education;
- Playing an influential role –based on specific expertise– in the social debate on
    - Animal health
    - Animal welfare
    - Public health problems related to the keeping of animals or the consumption of animal products

This mission statement is described in the Report "Transparency and Choices: a vision on the Future of the Faculty of Veterinary Medicine", written by the Commission of the Faculty, accepted by the Faculty Board on 11 May 2004, and discussed in the Faculty Council on 27 May 2004 (in Dutch).

1.3. Identification of the bodies that accredit the university and the current status of accreditation

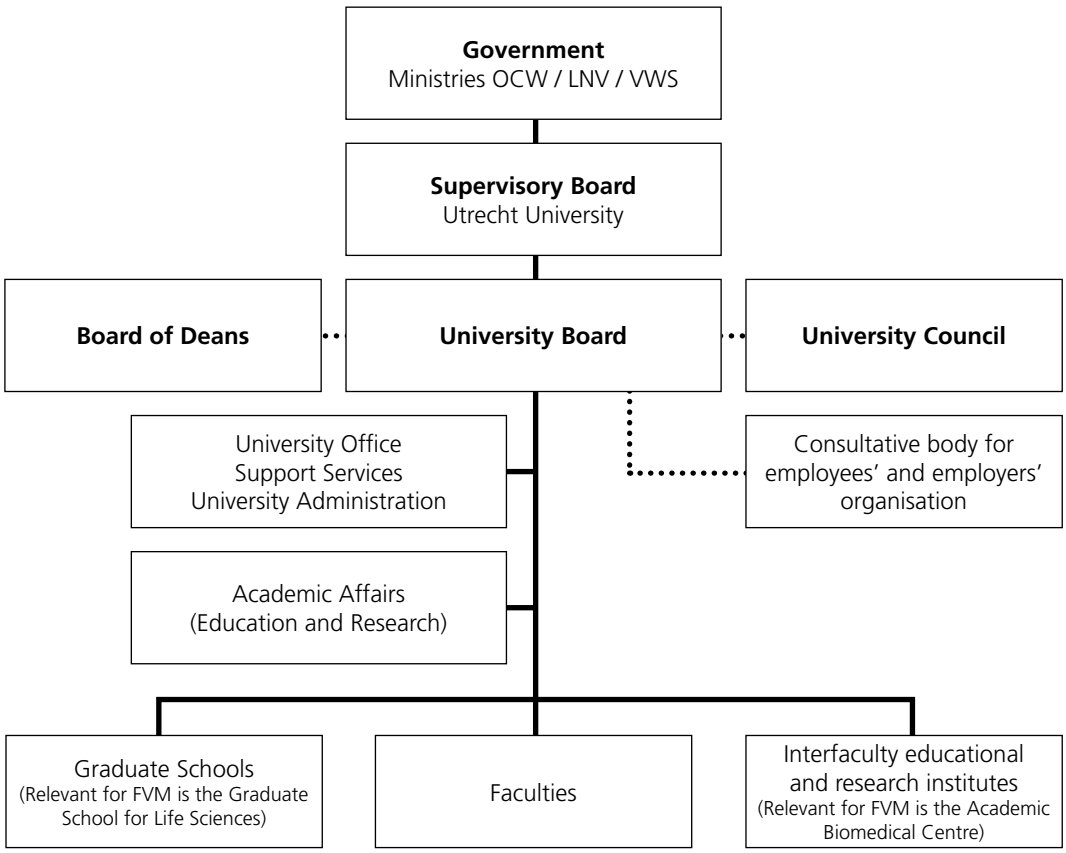
NVAO accreditation
All university training programs in the Netherlands and Flanders are currently accredited by the Accreditation Organization of the Netherlands and Flanders (in Dutch: "Nederlands-Vlaamse Accreditatie Organisatie"= **NVAO**). This organization was established by international treaty in 2003. NVAO independently guarantees the quality of higher education in the Netherlands and Flanders via assessment and accreditation programs, and helps increase this quality. In addition, NVAO contributes to raising quality awareness within higher education and advancing the position of higher education in the Netherlands and Flanders within a national and international context. For further details about the NVAO, see *http://www.nvao.net/* and Appendix Chapter 1, A.

EAEVE accreditation
The Faculty of Veterinary Medicine, Utrecht University, is also accredited by the **EAEVE** (the European Association of Establishments of Veterinary Medicine in Europe). In 1993 and 2000 two members of EAEVE were added to the AVMA/CVMA Site-visit Team. Since 1993 the AVMA/CVMA Accreditation was recognized by EAEVE as well. Current status is full accreditation. For further details about the EAEVE, see *http://www.eaeve.org/* and Appendix Chapter 1, A.
The Advisory Committee on Veterinary Training (ACVT) of the European Commission attended the AVMA/CVMA evaluation in 1985 with two European veterinary medicine experts observing.

VSNU research accreditation
In 1997 VSNU concluded that external quality assessment of education and research should occur separately, even though the interrelationship between education and research in the universities would actually make a combined evaluation desirable. However, the organization of these activities and the process of their assessment generally differ too greatly to make this possible. It was also concluded that research assessments (and educational reviews) should be more obviously tailored to the subject areas. As a result, in 1999 and again in 2006, the International Review Committee for Veterinary Sciences evaluated the research of the Faculty of Veterinary Medicine (FVM) of Utrecht University. Its 2006 report "Veterinary Sciences: assessment of research quality" has been included on a CD-Rom (see also chapter 10). Current research status is full accreditation.

AVMA/CVMA accreditation
A combined team of the Council on Education of the American Veterinary Medical Association (AVMA), the National Examining Board of the Canadian Veterinary Medical Association (CVMA) and the EAEVE will visit the FVM during 4-8 November 2007. Previous accreditation visits were made in 1973, 1978, 1985, 1992, and 2000. Current status is full accreditation.

1.4 Flow chart of organizationindicating the position of the college of veterinary medicine within the university structure



Ministries
OCW = Education, Culture and Science
LNV = Agriculture, Nature and Food Quality
VWS = Health, Welfare and Sport

Major Committees – University level
Supervisory Board Utrecht University
The Supervisory Board monitors major developments within and outside of the University. The long-term strategy, the university regulations, the estimates of expenditure and the annual report require approval by the Supervisory Board.
The members of the Supervisory Board are appointed by the Minister of Education, Culture and Science. The present board members are:

- M.H. Meijerink, former president of the VSNU and former president of the University Board of Erasmus Medical Center in Rotterdam (Chairman);
- E.H.T.M. Nijpels, Queen's Commissioner for the Province of Friesland (Vice-Chairman);
- Professor C.A. van Egten RA, member of the audit committee of the Ministry of Social Affairs and Employment;
- N.J. van Kesteren, president of employers organization VNO-NCW;
- F. Sijbesma, member of the Managing Board of Directors of DSM.

Executive Board Utrecht University
The University Board is the university's highest executive body and is responsible for its administration and management. The Board appoints the deans after a confidential hearing of the Faculty Councils and delegates tasks and responsibilities to the deans of the faculties and directors of the services. The Board has frequent deliberations with the representative University Council and is responsible to the Supervisory Board. The University Board has three members:
- Yvonne C.M.T. van Rooy, President;
- Prof. Hans Stoof, Principal (Rector Magnificus);
- Prof. Hans M. Amman, Member.

Board of Deans
The principal and the deans of the faculties together make up the Board of Deans. Its main task is to advise on the establishment of endowed chairs, the nomination of professors on endowed chairs, and to award doctorates and honorary doctorates.

University Council
The University Council (Dutch: "Universiteitsraad = U-raad") is an advisory body that represents all of the university's staff and students. It has 24 members: 12 staff (eight academic and four administrative and support staff) and 12 students. Students are elected for a one-year term and staff members for a term of two years. The University Council appoints an independent chairperson.

The Council has regular meetings with the Board to discuss topical issues or matters that relate directly to the university's main policy lines. The Council has the right to put forward views and proposals and is authorized to advise the Board on budgetary issues and the broad lines of planning and control. To adopt a number of important documents (i.e. the development plan, the medium-term strategy paper, the administrative and management system, the students' charter, as well as the guidelines on organization and co-ordination of education and research), the Board requires the Council's approval.

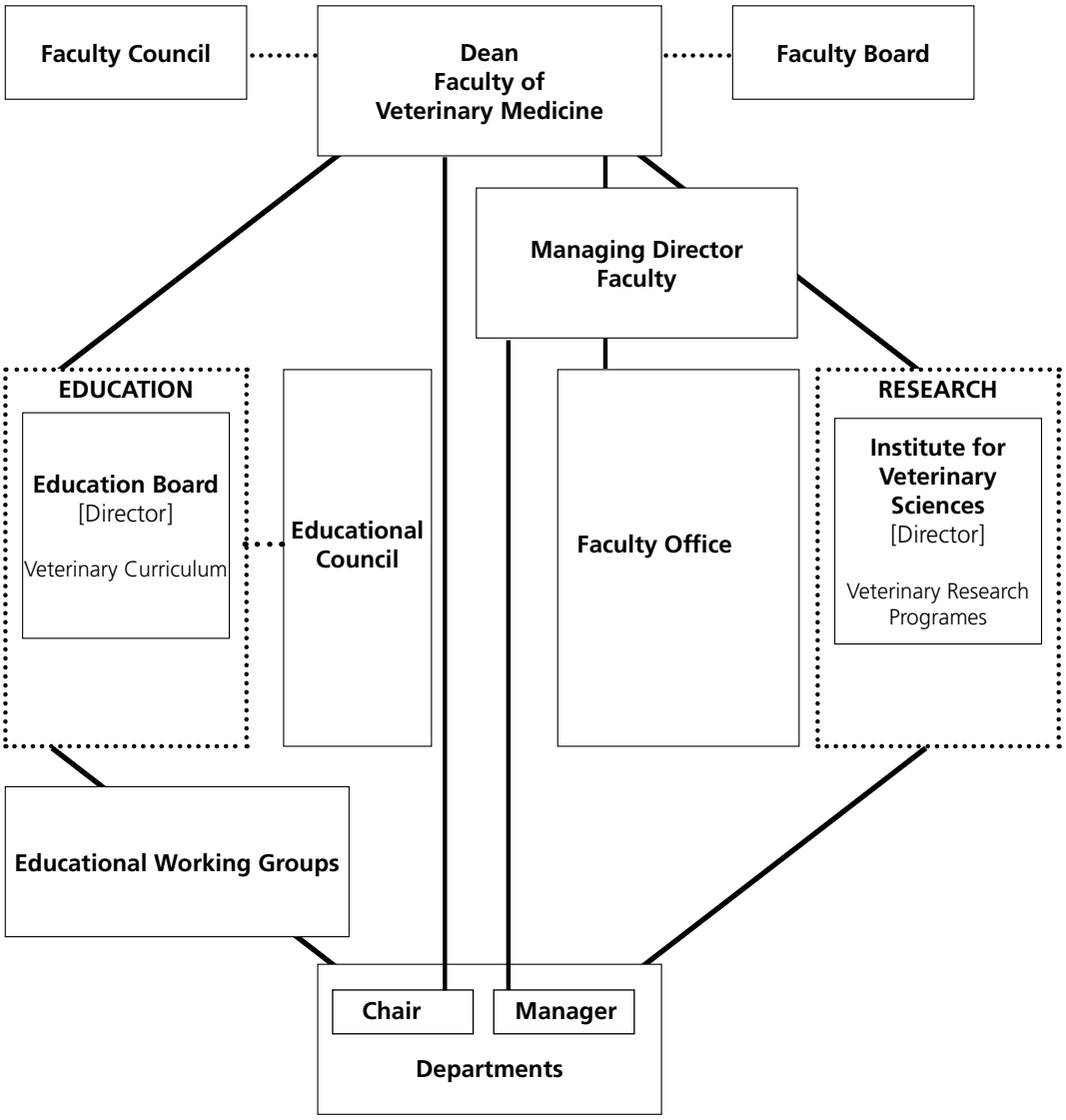
Consultative body
In monthly meetings, the University Board consults with Utrecht University's four trade unions on matters concerning the university employment policy. Each union is represented by two members. One of the faculty staff members is a formal representative.

Faculties of UU
- Faculty of Humanities
- Faculty of Social and Behavioral Sciences
- Faculty of Law, Economics & Governance
- Faculty of Geosciences
- Faculty of Medicine
- Faculty of Veterinary Medicine
- Faculty of Science

Utrecht Graduate Division
- Utrecht Graduate School of Arts and Humanities
- Utrecht Graduate School of Geosciences
- Utrecht Graduate School of Law, Economics and Governance
- Utrecht Graduate School of Life Sciences
- Utrecht Graduate School of Natural Sciences
- Utrecht Graduate School of Social and Behavioral Sciences

Interfaculty research and educational institutes:
- IVLOS Institute of Education
- University College
- The Ethics Institute

1.5 Organizational design of the Faculty of Veterinary Medicine



The dean and the Faculty Board

The dean has overall responsibility for the faculty and reports directly to the University Board. The dean delegates operational responsibility for the faculty to the managing director of the faculty. The dean is responsible for the primary duties of education, research and patient care and is directly in charge of all professors. The dean of the FVM is Albert W.C.A. Cornelissen PhD, Professor of Parasitology. The FVM director is Monique E. de Vries PhD.

The Faculty Board assists the dean by giving advice on matters concerning the faculty policy. The Faculty Board meets biweekly and has seven members:

- Prof. A.W.C.A. Cornelissen PhD (dean)
- Prof. H. Vaarkamp DVM PhD (vice dean)
- M.E. de Vries PhD (managing director FVM)
- W.E. Grimmelikhuijsen LLM (deputy managing director)
- Prof. F.J. van Sluijs DVM PhD (vice dean, Chairman Education Board)
- Prof. J.H.M. Verheijden DVM PhD (vice dean, director of research)
- M.A. van Waart (student)

Education Board
The Education Board has the final responsibility for both the development of the veterinary curriculum and the quality control and improvement of the current curriculum. The professor of Quality Improvement Veterinary Education is a member of the Educational Board and works with the dean. The Education Board meets biweekly and has six members:

- Prof. F.J. van Sluijs DVM PhD (Chair)
- Prof. J.A. Stegeman DVM PhD
- Prof. J.B. Helms PhD
- Prof. J.P.M. van Putten MD PhD
- Prof. P. van Beukelen DVM PhD
- K. Hendriks (Student)

Educational Working Groups:
An Educational Working Group (in Dutch: OnderwijsWerkGroep=OWG) has responsibility for each course in the curriculum. Responsibility has to be taken for the development of the course, the teaching materials, the teaching itself during contact hours, assessment and evaluation. The OWG consists of three to eight teachers from the departments that are mainly involved in that specific course. The members and the chair of OWGs are appointed by the Education Board, after consultation with the Management Team of the relevant departments.

Structural Committees and Project Committees, under responsibility of the Education Board:

- Professional Conduct (Chair: L.J.A. Lipman DVM PhD, IRAS)
- Learning Environment (in Dutch: Studielandschap) (Chair: R.J. Veeneklaas PhD, Pathobiology)
- Quality of Assessment (Chair: S.W.S. Gussekloo PhD, Pathobiology)
- Development of Program Outcomes (completed) (Chair: Prof. P. van Beukelen DVM PhD, Education Board)
- Externships (Chair: Prof. A. Barneveld DVM PhD, Equine Sciences)
- Blueprint Committee Veterinary Bachelor Curriculum (completed) (Chair: Prof. A.G.M. Tielens PhD, Biochemistry and Cell Biology)
- Blueprint Committee Master Veterinary Medicine (Chair: W.D.J. Kremer DVM PhD, Farm Animal Health)

Exam committees
Propedeutical exam (Chair: R.J. Veeneklaas PhD, Pathobiology; Advisor: C. Teusink, Educational and Student Affairs (OSZ-BIC))
Doctoral Exam (Chair: V.P.M.G. Rutten PhD, Infectious Diseases and Immunology; Advisor: J.H. Bakker, OSZ-BIC)
Professional Exam (Chair: A.B.M. Rijkenhuizen DVM PhD; Advisor: G.J.A. Miltenburg DVM PhD, OSZ-BIC)
Committee Individual Doctoral Exam Veterinary Medicine (CIDD) (Chair: Prof. M.A.M. Taverne PhD, Farm Animal Health; Advisor: G.J.A. Miltenburg DVM PhD, OSZ-BIC)

Faculty Office
The Faculty Office supports the FVM's primary operations: education, research and patient care. The managing director heads the Faculty Office, which comprises the following sections: General Affairs/ Deans' Office, Personnel and Organization, Finance and Control, Educational and Student Affairs-Office for International Cooperation, ICT, Multimedia, Labor Conditions, Facilities and Housing, Communication, Research.

Educational and Student Affairs (in Dutch: Onderwijs- en Studentenzaken = OSZ-BIC)
OSZ is a section of the Faculty Office and supports among others the Education Board, the Education Committee, the Educational Working Groups, the Exam Committees, the Committee Individual Doctoral Exam Veterinary Medicine, secretariats of the Faculty's Departments, students and teachers. OSZ is organized into four clusters: Logistics, Study Advice, Quality Control and International Cooperation.

Departments
The FVM has eight departments of which one is an interfaculty institute*. The departments carry out the faculty's primary duties: education, research and patient care. An overview of the departments and their divisions:

Department	Chair	Operational Manager
Biochemistry and Cell Biology	Prof. J.B. Helms PhD	M. Willems
Infectious Diseases and Immunology	Prof. J.P.M. van Putten MD PhD	A. Dijk
Animals, Science and Society	Prof. F. Ohl PhD	M. Willems
Pathobiology	Prof. A. Gröne DVM PhD	A. Dijk
Clinical Sciences of Companion Animals	Prof. J. Rothuizen DVM PhD	M.W.M. Janssen
Farm Animal Health	Prof. J.A. Stegeman DVM PhD	R. Grift PhD
Equine Sciences	Prof. A. Barneveld DVM PhD	A. Nieuwenhuis
*Institute for Risk Assessment Sciences (IRAS)	Prof. B. Brunekreef PhD	M.A.J. van der Lelij

Department management
Each department has a management team consisting of a chairperson, who is a professor, and an operational manager. Each department also has an executive committee, which includes the coordinators for research, education and the applicable patient care.

Meeting with department chairs
Every month the dean consults with the chairpersons of the departments on matters concerning faculty policy with the aim of informing each other and obtaining a sufficient basis for decision-making.

Meeting with department managers
Every month the managing director consults with the operational managers of the departments. This is a type of meeting similar to the dean's consultation with the department chairs.

Faculty Council
The Faculty Council is the first representative advisory body of the FVM, which gives advice on and has a say in matters of faculty policy and management, particularly in personnel and financial policy. The Faculty Council consists of eight students and eight staff members. Students are elected for a one-year term and are also member of the Education Council. Staff members are elected for a term of two years. In 2006 the Faculty Council appointed an independent chairperson.

Educational Council
The Educational Council is the second representative advisory body of the faculty, which gives advice on and has a say in matters of education. The Educational Council consists of eight students and eight staff members. The students, who are elected for a one-year term, are also members of the Faculty Council. The Educational Council appointed an independent chairperson in 2007.

1.6. The role of faculty, staff and students in the governance of the college

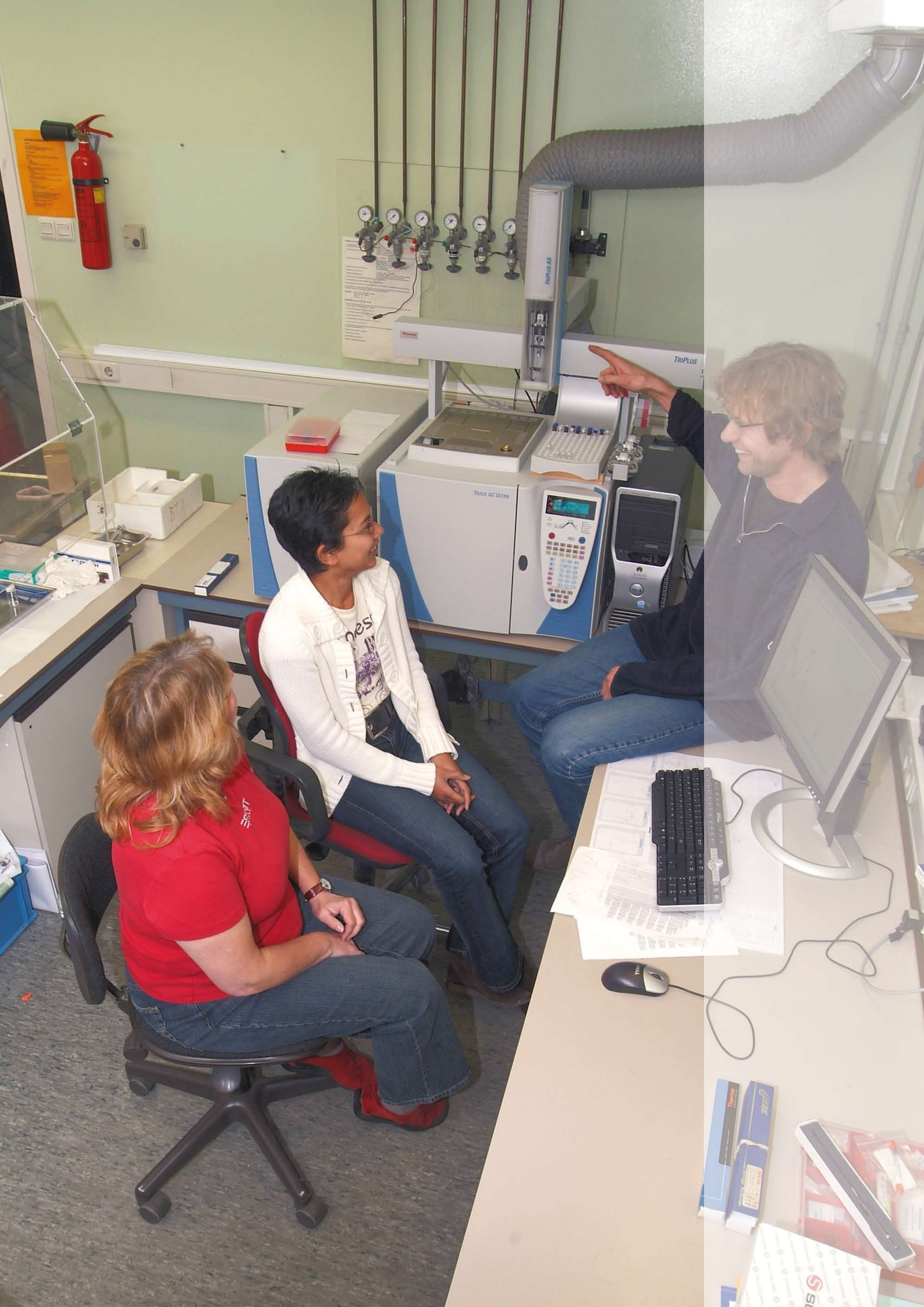
Staff members and students participate in the management organization of both the university and the FVM. Under Dutch legislation they have limited rights of approval. Their participation, mainly in an advisory capacity, is embodied in the University Council, the Faculty Council and the Educational Council in which both employees and students are equally represented. Students also participate in the Faculty Board and the Education Board, and have organized themselves in the Student Council. The Student Council is the coordinating committee of all student representatives in the FVM, and looks after the interests of the veterinary students and strongly participates in the evaluation of education.

1.7. Plans of the college to change its current organization

There are no plans for the coming five years to change the organization of the college as concerns the Faculty Office and eight Departments. Due to the introduction of the Bachelor-Masters curriculum, the Education Board will be transformed to a Board of Studies Bachelor School and a Board of Studies Academic School from September 2007 onward.

Board of Studies Bachelor School
The dean appoints the director of the Bachelor School. The dean also appoints the members of the Board of Studies, which assists the director in matters concerning the organization and coordination of the education program. Furthermore, the Board of Studies has a task in monitoring the quality of the education program. A student is appointed alongside faculty. The members of the Board of Studies Bachelor School will be the same as the members of the Education Board.

Board of Studies Academic School
The dean appoints the director of the Academic School. The Master program of Veterinary Medicine will start in the academic year 2010. Until that time the Board of Studies will assist the director in matters concerning the organization and coordination of the postgraduate Master of Veterinary Sciences program. The Board of Studies also has a task in monitoring the quality of this Masters program. The dean appoints the members of the Board of Studies. A student is appointed alongside faculty.


TRACE GC ULTRA
TRIPLUS AS
TRIPLUS

2 Finances

2.1. Tables A and B and analysis of the trends for each category

Table A: Total Expenditures for immediate past 5 Fiscal Years; Direct and Indirect Expenses

Table A			2002	2003	2004	2005	2006	% change (2002-2006)
Instruction			6.473.046	6.367.123	6.535.750	6.498.738	6.648.257	3%
Academic support			1.933.507	1.901.868	1.974.000	1.388.900	1.421.298	-27%
Student Services			2.111.797	2.152.462	2.076.862	2.386.151	2.191.834	4%
Services of Educational Activity	Teaching Hospital		13.036.889	12.464.319	12.261.537	12.054.708	12.666.738	-3%
	Diagnostic Lab		1.826.711	1.695.581	1.470.221	1.277.792	980.562	-46%
	Other	Amount	1.161.000	1.019.000	1.012.000	1.074.000	1.098.000	-5%
		Type	Test Farm					
Unsponsored Student Aid			-	-	-	-	-	
Sponsored Student Aid			-	-	-	-	-	
Research			14.851.850	14.235.000	14.833.893	14.786.721	14.145.527	-5%
Sponsored Research			7.518.035	7.573.819	7.184.865	7.019.221	9.114.017	21%
Other Sponsored Activity			-	-	-	-	-	
Ext & Public Service			-	-	-	-	-	
Total direct expenses			**48.912.835**	**47.409.172**	**47.349.128**	**46.486.231**	**48.266.233**	**-1%**
Housing			6.798.889	8.876.819	10.568.165	11.814.336	12.703.237	87%
Reorganisation			-	-	-	5.870.000	-	
Other indirect expenses			17.268.064	15.553.891	16.946.821	14.885.733	11.461.121	-34%
Total expenses			**72.979.788**	**71.839.882**	**74.864.114**	**79.056.300**	**72.430.591**	**-1%**

Expenses:
During the evaluation period (2002-2006) the FVM was confronted with increasing housing costs due to a new, stricter university policy on housing investments. Whereas the State appropriations and Tuition & Fees (Revenues) increased by only 2.8 million euro in the course of these 5 years, housing costs grew by 5.9 million euro. In order to cope with this phenomenon, the FVM completely modified its internal budgeting system to a task-driven one. This system was implemented in 2004 for the Education and Teaching Hospital and in 2006 for Research (see 2.6). Thanks to this, and a re-organization in 2005, the FVM has succeeded in stabilizing the expenses on primary tasks, while at the same time maintaining its high-quality output, both in education, patient care and research. Moreover, we expect stable figures for the future.

Also part of this faculty policy is the aim to improve the earning capacity with respect to scientific research, the effect of which could already be seen in 2006, both in revenues and expenses.

With a drastic re-organization and efficiency improvements we realized a cutback in expenditure. This is clearly visible in certain cost categories like "support staff". For the "other indirect costs" it should be noted that in the last years fewer costs are accounted in this category (because more costs could be accounted directly towards specified posts). The direct (non-recurring) costs of the re-organization are visualized in a separate row in the overview.

The costs in relation to the hospital function are fairly stable. In this respect the year 2005 was a special year because of the many renovations.

Table B: College Revenues (Sources or Funds) from all Sources for immediate past 5 fiscal years.

Table B		2002	2003	2004	2005	2006	% change over 5 years
State Appropriations		50.389.866	49.079.382	50.991.183	51.998.878	52.943.354	5%
Tuition & Fees		1.877.677	1.982.669	2.090.698	2.203.431	2.090.585	11%
Is tuition estimated amount?		Tuition divided by UU based on estimates, afterwards correction by calculation on actual figures					
Endowment Income (current yr)		-	676.153	-	-	-	
Gifts for Current Use		-	-	-	-	-	
Sponsored Program Income/ Cost Recovery		-	-	-	-	-	
Other, including sponsored research		12.988.703	12.336.805	11.489.609	10.459.829	11.332.387	-13%
Sales and Services	Teaching Hospital	6.721.100	6.546.700	6.460.000	6.108.100	6.458.900	-4%
	Diagnostic Lab	1.293.500	1.072.800	994.800	905.800	715.500	-45%
	Other Sources	383.000	291.000	377.000	479.000	392.000	2%
Reserves and Transfers		-	-	-	-	-	
Total Revenue		**73.653.846**	**71.985.509**	**72.403.290**	**72.155.038**	**73.932.726**	**0%**

		2002	2003	2004	2005	2006	
Hospital Income (ext.)		8.397.600	7.910.500	7.831.800	7.492.900	7.566.400	
Total Hospital Operational Costs		30.464.772	29.837.326	31.252.750	30.426.541	29.243.915	
Percentage		28%	27%	25%	25%	26%	

Revenues:
The direct governmental budget, received by the FVM via the University, is more or less stable for it is directly based on student numbers and diplomas achieved yearly. In addition, the FVM receives a stable budget (approx. 20 million euro per year) from the University (i.e. the government) in order to finance its teaching hospital. However, the rise in State Appropriations over the last five years was less than the increased housing costs (see: Expenses).

Because in 2000 the so-called *numerus fixus* was raised from 175 to 225 incoming students each year, tuition fees have grown by 11%.

In 2005 external revenues in relation to the hospital function showed a slight dip, due to the renovation of the clinic.
The steady decline of the revenues from the diagnostic laboratory is remarkable. This is the result of the FVM losing market share to the GD-Animal Health Service in the Netherlands, which has proven to be a tough competitor.

In 2004 and 2005 the revenues from contract research were slightly lower than the revenues in 2002 and 2003. However in 2006 a strong increase of revenues was realized.

2.2. Comments on the strengths and weaknesses in revenues in the past five years

One **strength** in the FVM's revenues is the stable government funding. The Dutch government funds all of the FVM's primary tasks, with the exception of the training program for residents. Until 2003 the FVM had built up a strong financial reserve, with could offset the financially weak years 2004 and 2005 (re-organization). The FVM's reserve is still about 15% of the total yearly turnover. Another **strength** is the good reputation of the FVM's research, through which considerable funds are obtained. The final **strength** to be mentioned here is the fact that the FVM works with a transparent system for the distribution of the education budget, based on the teachers' educational activities, as well as the departments' research budget.

A **weakness** is that the hospital cannot increase its income by advanced patient care on a commercial basis. The government does not allow this because the hospital receives government funding for educational purposes. Another **weakness** is that the FVM receives no government funding for the training of interns and residents.

2.3. A comprehensive trend analysis of revenue sources that have supported the professional teaching program over the past five years

Government revenues are stable. The yearly increase is primarily based on an increasing budget for housing costs/expenses. The housing costs are in line with these yearly increases.
The higher *numerus fixus* resulted in an increase of veterinary students from 2000 onwards. Revenues from tuition fees therefore show an increase of about 10%. A trend analysis of revenue sources that have supported the professional teaching program over the past five years is not necessary because of the stable government funding.

2.4. Description of how revenues over the past five years have impacted the college's ability to provide a contemporary professional teaching program and ancillary support services

As explained under *2.1 (Expenses)* the FVM changed its budgeting system for the Teaching Hospital in 2004. From that moment on, the primary budget for education has been indexed from year to year, whereas the research budget has been kept stable. In doing so, the FVM has been able to stabilize the teaching staff in order to maintain its high quality in educating students and performing patient care.

2.5. Comparison of the percentage of hospital income to total hospital operational costs

When hospital costs (including part of the housing costs and part of other indirect expenses, but excluding instruction, academic support and student services) are compared to hospital income, it is clear that external revenues play a minor role (*See Table B*).

2.6. Description of anticipated trends in future revenues and expenditures

For the past two years the FVM has been using an internal distribution model completely based on task-related budgeting. From the 55 million euro government funding an amount of 1.4 million euro can be used by the Research Management, the Education Board or the FVM management as a so-called policy instrument.

Budgets for infrastructural facilities, such as housing, cleaning, waste disposal and computer networks, are managed at central faculty level. An amount of 5 million euro is available for the support of the primary process by the FVM's management and the Faculty Office (including the operational managers of the departments).

The primary budget is task-related (31 million euro) and is distributed to the FVM's eight departments on the basis of a fixed model. Only major infrastructural facilities are funded specifically through an earmarked budget. This primary budget consists of two compartments: Education and Patient Care on the one hand and Research on the other. In principal, the Education and Patient Care compartment is fixed; in times of cut-backs, most of the reductions will take place in the Research compartment of the budget.

The education budget is distributed on the basis of the department's teaching tasks, differentiated to "dry" (DBU standard), "wet" and "clinical" teaching. For "wet" teaching a higher reimbursement is calculated because of the extra input of support staff and materials, while for clinical teaching there is an extra reimbursement that enables the financing of the teaching hospital setting.

The research compartment reflects the choices the FVM made in the frame of More Focus and Critical Mass. For a period of 2 x 3 years each of the 20 research groups receives (in principal) a fixed basic budget under defined conditions of output quality and earning capacity. On top of this basic budget the research groups receive an additional allowance every year based on the number of PhD defenses and NWO fellows. Furthermore the research management can decide to reinforce certain research areas or initiatives with an additional "research policy" budget.

This system results in a more or less stable and transparent department budget for several years, which optimizes the possibilities for realistic personnel planning, career development and perspective and the preservation and placement of talent.

3 Physical Facilities and Equipment

3.1. Brief description of the major functions of, or activities that take place in, the facilities used by the college in fulfilling its mission

Androclus Building – Yalelaan 1
In the Androclus Building the main educational facilities are clustered for the educational program of the Preparatory Phase (first four years of study): lecture halls, small group learning rooms, students' learning environment and the library. Furthermore, the Androclus Building houses the Faculty Office, for administrative activities, and the Departments of Pathobiology, and Infectious Diseases and Immunology (research, education, necropsy and dissections, administrative activities). The Faculty and Student Restaurant and the Netherlands Veterinary Students Society are housed at Yalelaan 1 as well.

Nieuw Gildestein – Yalelaan 2
The Nieuw Gildestein building houses the Departments of Biochemistry and Cell Biology, Animals, Science and Society, and the Institute for Risk Assessment Sciences (IRAS). This building is mainly used for research and administrative functions for the departments. There are only a few educational rooms in this building, which are mainly practical rooms. Furthermore, the Central Laboratory Animal Institute of Utrecht University is housed at Yalelaan 2.

Department of Clinical Sciences of Companion Animals – Yalelaan 108
Specialized veterinary care is the main function in the Department of Clinical Sciences of Companion Animals, while this building is also used for research and education as well as departmental administrative functions. The department is being renovated in phases. The teaching rooms, IC and animal research have already been completed. The teaching rooms such as practical rooms, working group rooms, learning environment and lecture hall are grouped together.

The surgery block has completely remodeled. The capacity has been expanded from four to six surgery rooms. This also means that surgery rooms with different classifications are better separated in, for example, clean and dirty. Much attention has been given to the optimization of hygiene in the surgery block.

The intensive care unit is completely new and is adjacent to the surgery block. A quarantine area for dogs and cats has been made available on the edge of this block. There is a quarantine area for birds on the west side of the building.

Animal research has been grouped on the west side of the building, including an RA facility, which is also used for diagnostic procedures.

Diagnostic Imaging is a specialized division in which all image processing diagnostics are incorporated. The division works with conventional X-ray diagnostics, but also with state-of-the-art imaging techniques like CT, ultrasonography, MRI and scintigraphy/SPECT. The Division of Diagnostic Imaging facilitates services for all species, but the majority of the patients are companion animals and equine.

Emergency Clinic for Animals
In 2002 the FVM acquired the Emergency Clinic for Animals in Amsterdam (SDA). The University bought the SDA on behalf of the FVM in order to expose students in the companion animals' track to first line cases. The SDA has a director and a Board of Governors. The head of the Department of Clinical Sciences of Companion Animals is Chairman of this Board of Governors, the manager is a member. The SDA is housed in an old building by the Amstel. The facilities were recently upgraded to comply with government regulations, but they will not be adequate in the future. The SDA and the specialty practices, which use the facilities during the day, aim to acquire new buildings shortly.

Department of Equine Sciences – Yalelaan 112

The Equine University Clinic provides specialized veterinary care at a very high level, while research and education are other functions that take place in this building, besides departmental administrative functions.

The renovation of the Department of Equine Sciences took place in phases and was completed in 2007. The building was recently put into operation. The renovation started in 2004 with the stables complex. Reproduction moved in first, followed by Internal Medicine and latest Surgery. Stables for animals used for teaching were built, as well as new quarantine stables. The existing stables were changed from large open halls with many pens to small halls. It is now possible to compartmentalize groups of animals and isolate parts of the stable in case an infectious disease breaks out.

The quality of clinic and surgery rooms with associated support rooms has been improved. Much attention has been given to hygiene and efficiency. A skills lab is a new feature. The force plate and treadmill have been moved from an outbuilding to the patient treatment cluster in the main building.

Beside the policlinics there are two surgery rooms, nursery boxes and special intensive-care boxes. Furthermore, the Utrecht region is served with a first line Ambulatory Clinic. The department runs a substantive clinical scientific research program and houses a lecture hall, seating 218 students and three practical rooms (one for 30 and two for 15 students) for educational purposes.

Jeannette Donker-Voet (JDV) Building – Yalelaan 114

Built in 2005, the Jeannette Donker-Voet building is completely new. The building houses all clinical research laboratories, including RA and genically modified organisms (GMO) labs, and diagnostic labs. The veterinary pharmacy and a restaurant for staff, students and patient owners are also located in the Donker-Voet building.

Department of Farm Animal Health – Marburglaan 2 (temporary housing)

The Department of Farm Animal Health is temporarily housed in part of the old Equine Clinic at Marburglaan 2. The renovation of the original Farm Animal Clinic at the opposite side of the Yalelaan is under construction and will be completed in 2009.

The Department of Farm Animal Health provides veterinary care specifically focused on ruminants, and to a lesser extent on pigs and poultry. Patient care facilitates education and research. For the past 150 years the department has had a large Ambulatory Clinic, serving about 250 farms in the region. Departmental veterinarians, together with students from the uniform and differentiated clinical rotations, visit the farms for all veterinary consultations, problems and questions.

In order to meet the need for a teaching and research facility for pigs and poultry, modifications and improvements have been realized. Multi-functional research stables have been built, as well as an operating theatre and an isolation room. The teaching section is equipped with a dissection room and stables for pigs and chickens. The facility itself and the research stables have hygienic barriers to prevent infections being trodden in or out.

Tolakker Experimental Farm - Limalaan

"De Tolakker" is the FVM's production animal farm. Students are introduced to farm animals and farm management. Furthermore the farm offers opportunities for research in the zoo-technical field.

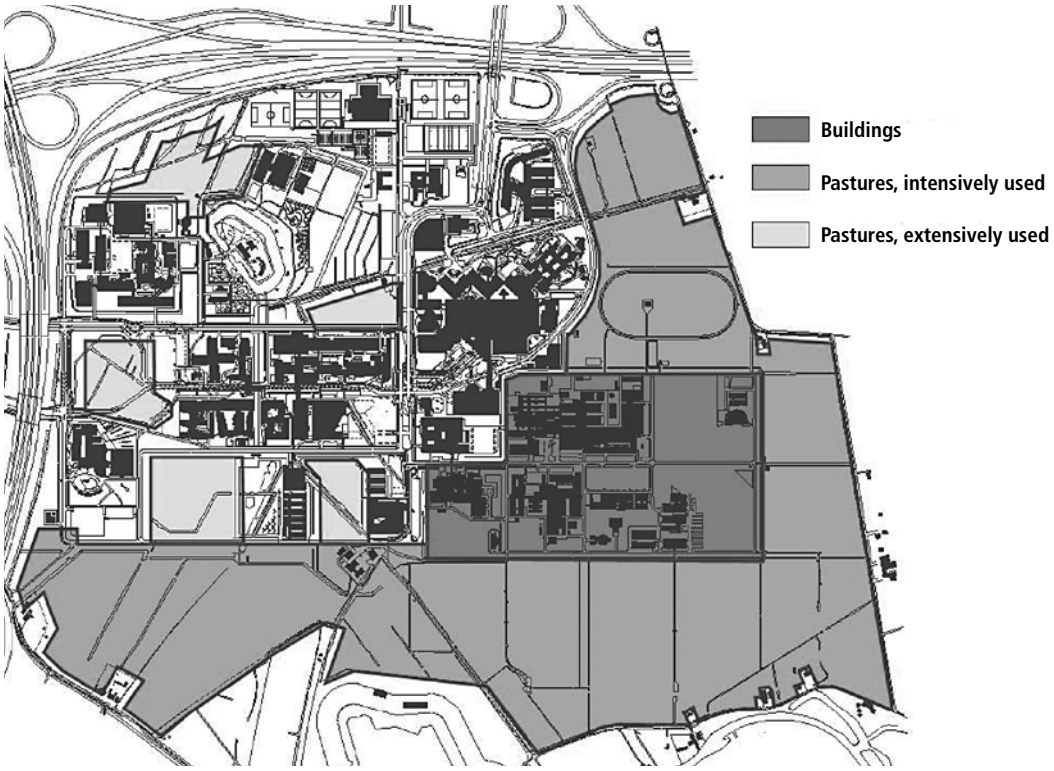
- FVM's General Veterinary Service manages the pastures and farmland (140 ha). The farmland is used for fodder production and grazing cattle for the clinics and De Tolakker.
- The dairy cattle farm has 50 dairy cows with an average yearly production of 9,000 kg.
- De Tolakker has a flock of 190 sheep for education and research.
- The pig farm is a production farm with 190 sows, which are kept in a group.

De Tolakker has facilities to teach small groups of students. Recently, the cattle barn was completely renovated and expanded. The number of places for animals has been increased to provide students with a more realistic example of a farm. The facilities for sheep have also been improved.

Infrastructure

Where the renovations have been completed, the faculty buildings are of high quality. High-quality finishing has been used for floors, walls and ceilings. The technical installations are suited to the functions of the buildings and are of a high quality. The data network has been renewed and upgraded from a speed of 10 Mb to 100 Mb per connection.

3.2. An area map that indicates the principal facilities of the campus and describe distance and travel time to off-campus facilities



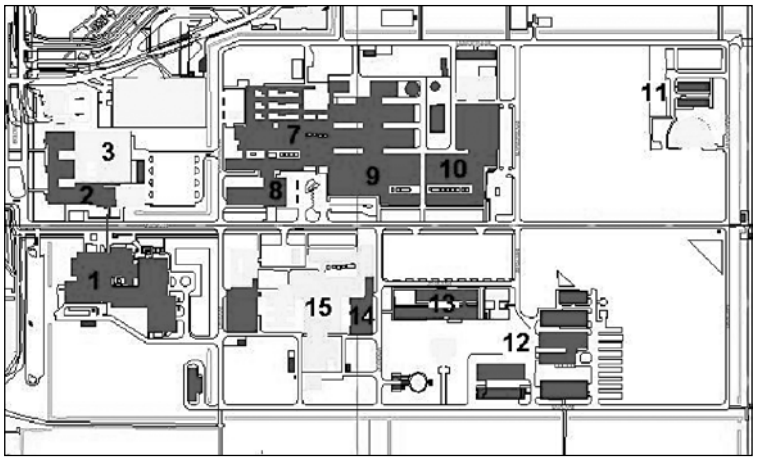


Figure 2

1. Androclus Building, Yalelaan 1
2. Nieuw Gildestein, Yalelaan 2
3. Central Laboratory Animal Institute of Utrecht University, Bolognalaan 50
7. Department of Clinical Sciences of Companion Animals, Yalelaan 108
8. Jeannette Donker Voet Building, Yalelaan 104
9. Department of Equine Sciences, Yalelaan 112
10. Department of Farm Animal Health (temporary), Yalelaan 116 / Marburglaan 2
11. Pavilions (2), Münsterlaan
12. Teaching Farm "De Tolakker", Limalaan
13. Offices and laboratories (temporary), Jenalaan 18a
14. Department of Farm Animal Health, pigs and poultry, Yalelaan 7
15. Department of Farm Animal Health (under construction), Yalelaan 7

Not on the map: Emergency Clinic for Animals, Amsterdam. Distance: 50 km, travel time: 35 min.
The total net amount of functional square meters in the facilities of FVM is 57,357 m2.

Appendix Chapter 3, A contains details of the facilities in the FVM's different buildings

3.3. Description of the adequacy (pertaining to all facilities used by the college whether on-campus or off-campus) of:

a. safety measures in all areas of the college including posted protocols in high-risk areas

Emergency response teams (ERT)
There is an emergency response team in each of the faculty's buildings. The members are all trained and certified. The disaster plan for each building describes the hazards and how they must be countered. For high-risk rooms, the plan describes the procedure in case the room must be entered in an emergency. What may and may not be done and how the room can be exited again. External staff members (technical services, security) are also aware of these procedures.

Every room has a "What to do in case of ..." card listing the actions that should be taken in the event of an emergency. This information is also available on the FVM's Intranet. A drill is held at least once a year in each building to test how the ERT organization deals with emergencies and the evacuation of the building.

Safety during work and study

- *Registration of purchase and consumption of chemical substances*
  The FVM program Equest is used to register the purchase and use of chemicals. Chemicals are purchased by a single person in a laboratory. The FVM meets the working conditions regulations with regard to the registration of chemicals and information about substances through Chemwatch (for the whole university).
- *Dangerous substances*
  The storage of dangerous substances meets the PGS-15 regulations. A booklet called "Working in a laboratory" is available, which can also be accessed via the Intranet. The booklet describes the various risks associated with working in a laboratory. It also covers the general rules for working in a laboratory, together with the specific requirements for each lab.
- *Biological agents*
  For working with biological agents, please refer to the "Handbook Biological Agents". In 2007, a Risk Inventory & Evaluation (RIE) was carried out by the Department of Companion Animals regarding biological agents. This evaluation led to advice and measures to reduce the risks of working with biological agents.
- *Radioactive substances*
  A radiation officer has been appointed within the FVM. All matters regarding radiation are handled by this officer. The FVM meets the requirements of the Radiation Protection Decree and the Transportation of Fissionable Materials, Ores and Radioactive Materials Decree.
- *Working alone*
  People who work alone may only do so if strict safety measures are taken. The measures are described in the working alone protocol and include requirements regarding who is permitted to work alone, who is entitled to give permission, which measures must be taken and how incidents must be reported.
- *Waste disposal policy*
  A waste disposal policy applies within the FVM that sets rules with regard to the handling of hazardous wastes. The rules that apply are known within each laboratory. In addition, the system of having working conditions and environmental contact persons (AMCPs) means that there are designated persons in each laboratory to answer waste-related questions. Dangerous wastes are disposed of by specialized companies under the auspices of University Facility Service – Division of Waste Disposal (in Dutch: *FBU Afvalbeheer*). Dangerous substances are classified according to the nature and form of the waste substances. Samples of waste water are regularly taken by the University to get an overview of the discharge of substances and the measures that must be taken. The way in which an organization should deal with its waste water is regulated in the Pollution of Surface Waters Decree (WVO). The FVM complies with the requirements.

Working with animals
Special measures have been taken and facilities provided to protect the health of staff and students who come into contact with animals at workplaces where animals are worked with (stalls, clinics, practical rooms and lecture theatres). These measures may include construction measures (e.g. an emer-

gency route at the back of the horse stalls, facilities to give animals food and water from outside the enclosure, a gallery to allow for safe observation of a horse that has just undergone an operation.

Vaccination and periodic employee health check (In Dutch: PAGO)
There is a vaccination scheme to administer a preventive flu vaccination to staff members who may come into contact with the bird flu virus. This is carried out in cooperation with the University's doctor's service.

All first year students are vaccinated against tetanus.

A periodic employee health check is offered to all staff members who work with pigs (veterinarians, caretakers) and to the farriers. A health check regarding the exposure of the lungs to dust is offered to those who care for the animals. Staff members who work with laboratory animals are offered a health check regarding the possible development of an allergy to laboratory animals.

Pregnancy
Policy prescribes that work must be adapted to suit pregnant staff members and students. If it is evident that a person is carrying out work that could affect the unborn child, it may be decided that her task must be adapted. This also applies to breast-feeding women. For staff members (both men and women) who work with reprotoxic substances, and who intend to have children, the same protocols apply.

Personal protection equipment
In addition to normal work clothing and gloves, the FVM makes personal protection equipment available where necessary. This covers hearing protection equipment for the farriers and pig attendants, as well as dust masks for people working with laboratory animals and/or taking care of patients.

RSI/CANS information
The FVM's policy with regard to working at computers contains guidelines for computer workplaces in offices and for students. The new study rooms and library study places in the Androclus building meet the requirements.
The introductory information for students includes the risk of CANS. The FVM web site also contains information about working at computers. Workplace break and exercise software is available.

Staff members can ask for their workplace to be evaluated if they have problems with the workplace.

Physical stress
A study was made of the physical stress experienced by the staff members. Based on the outcome, more detailed studies were carried out at various places in the FVM. These studies were used to develop a plan with measures to reduce physical stress. When new buildings are fitted and furnished, the physical stress is taken into account by ensuring that working areas meet ergonomic requirements.

In the curriculum a short course on physical stress and its prevention has been included for fifth-year students. They are trained to deal with job-related physical stress in a responsible manner. *See 9.2*

b. classroom, laboratories and other instructional environments and related equipment;
c. teaching hospital(s), pharmacy, diagnostic imaging, diagnostic support services, isolation facilities, intensive/critical care necropsy, and related equipment;
d. facilities for maintenance of teaching and research animals;
e. research facilities and equipment;
f. administrative and faculty offices;
g. service areas for students (e.g. lounges, cafeteria, etc.);
h. building infrastructure.

Because the renovation and building program involves most of the FVM's buildings, departments, laboratories, offices, facilities and infrastructure it is fair to say that all these facilities and entities are state-of-the-art and are adequate to support the fulfillment of the FVM's mission.

3.4. For safety and educational purposes, protocols must be posted in the isolation facilities and the facilities must be used for instruction in isolation procedures (biocontainment)

The protocols are posted in the isolation facilities and the facilities are used for instruction in isolation procedures.

3.5. Description of current plans for improvement

The renovation plan for the clinical sector will continue until mid-2009. This includes the following matters.

Companion animals: The following are currently being renovated: medium care, nursing sections, housing of laboratory animals, bird and exotic animals division and part of the diagnostic imaging division. In 2008, the policlinic and offices will be renovated. According to current forecasts, the renovations will be completed in the first half of 2009.

Farm animals: the teaching and research facilities for pigs and poultry have already been completed. The facilities for cattle, small ruminants, extramural care and the offices are currently being renovated. In this part of the building, a general teaching block is being built with tutorial rooms and a learning environment annex skills lab. According to current forecasts the building works will be completed in the first half of 2009.

According to the University's Housing Plan, new structures for the facilities in the **Androclus building** will be available within ten years from now to replace the existing ones.

4 Clinical Resources

4.1 Tables A, B, and C and analysis of trends

Table A. Teaching Hospital

Animal species	Number of Patient Visits					Number of Hospital Days*				
	2002	**2003**	**2004**	**2005**	**2006**	**2002**	**2003**	**2004**	**2005**	**2006**
Bovine	±200**	±200	200	200	200	***	***	***	***	***
Canine	7908	7276	6616	6630	6518	4466	4366	4737	4252	4364
Feline	1617	1529	1374	1412	1572	966	1051	904	974	1004
Caprine	**	**	**	**	**	***	***	***	***	***
Equine	9490	9765	9042	8150	7389	24020	23802	30809	14216	29242
Ovine	**	**	**	**	**	***	***	***	***	***
Porcine	-	-	160**	160	160	***	***	***	***	***
Caged Pet Birds	439	394	321	325	382	355	402	395	352	344
Caged Pet Mammals	467	420	342	346	382	379	455	418	353	344
Avian Wildlife										
Other										

* Requested number of hospitalized patients can not be provided from our electronic medical record system
** Target numbers of diseased/pregnant animals bought just for teaching purposes; approximately 85% are Bovine, 15% are Ovine/Caprine
*** Pregnant or diseased animals bought from (commercial) farms for educational purposes (see 4.2): number of hospitalized days not interesting

Trends (table a): see 4.8.

Table B. Ambulatory/Field Service Program

Animal species	# of Farm (site) Calls					Animals Examined/Treated
	2002	2003	2004	2005	2006	
Bovine	-	3067	5319	5222	5083	
Caprine						
Ovine						
Equine	3401	4735	4817	4378	3820	
Porcine	-	617	1120	1013	883	
Other						

Trends (table b): see 4.8.

Table C: Herd/Flock Health Programs (Corresponds with AAVMC Survey 24)

	Herd/flock health programs provided through institution/state-owned animals		Herd/flock health programs provided through privately-owned animals	
	Please answer yes or no	**# of sites**	**Please answer yes or no**	**# of sites**
Dairy	Yes	1	Yes	±100
Beef Feedlots	No	-	No	-
Cow-Calf	Yes	1	Yes	±100
Small Ruminants	Yes	1	Yes	90
Swine	Yes	1	Yes	81
Poultry	No	-	Yes	±3
Fish	No	-	No	-
Equine	No	-	Yes	>200
Other	No	-	No	-

Trends (table c): see 4.8

4.2. Description and analysis of the adequacy of normal and clinically diseased animals (hospitalized, out-patient, field service/ambulatory and herd health) used for the DVM teaching program

The FVM has three large clinical departments, Clinical Sciences of Companion Animals (CA), Equine Sciences (E) and Farm Animal Health (FA), which each have a large clinically diseased case load for the DVM teaching program, either in one of the hospitals, or in the Emergency Clinic, or in the ambulatory clinics. The two ambulatory clinics run by the departments of Farm Animal Health and Equine Sciences respectively give students access to 41 commercial swine farms, 154 dairy farms, and several hundreds of locations with one or more horses. In addition students have access to 40 swine farms, 20 dairy farms, 90 sheep farms and poultry farms, outside the FVM's ambulatory clinic, throughout the country.

The FVM also has its own commercial farm, "De Tolakker", with pigs, dairy cattle, sheep and horses. Apart from that, each clinical department has a number of healthy animals of the relevant species. These healthy animals are used for the first-year introductory course in animal handling, the third-year course on diagnostics (individual / herd), the fourth-year clinical lessons and courses on reproduction and the fifth and sixth-year clinical rotations.

The Department of Pathobiology performs approximately 2,100 necropsies per year. Part of these result from the patients from one of the clinical departments, part is brought in from private practices, surrounding farms, zoos etc. Large numbers of these necropsies are used for teaching purposes in the second-year course General Pathology, the third-year courses in medicine, the fourth year practical in clinical lessons, and the fifth and sixth-year clinical rotations.

At this moment in time, the FVM has more than enough patients/cases for the DVM teaching program, for both the core curriculum and the track curricula.

4.3. Description of unique clinical educational resources and programs that enhance the educational mission

The FVM is able to use a number of valuable and unique resources to provide clinical material, such as the well-visited, high-standard first line and referral clinics, with many patients (CA and E) coming from as far afield as Germany, the field practice for ambulatory work (E and FA) which operates in Utrecht and the surroundings (for herd health programs (FA) throughout the Netherlands), and a large number of healthy animals kept by the clinical departments and at the University farm De Tolakker.

In addition students in the fourth year can "adopt a cow" at De Tolakker. This means that the students follow the reproductive stages of one specific cow for the period from parturition, through insemination and gestation until the next parturition, in small groups. The FA department has cows available

with a rumen fistula for demonstration and practicals in the structure and function course of digestion, and in the 5th and 6th year clinical rotations. The same department buys pregnant cows so that students in the final year of the FA track get the opportunity to do a cesarean section on an induced cow.

4.4. Off-campus clinical instruction

The FVM does not use non-institutional sites for clinical education of students (See also 9.5).

4.5. Description of the involvement and responsibilities of professional students in the healthcare management of patients (and clients) in clinical programs of the college

In the fifth-year clinical rotation, all students have a basic seven-week period in the Department of Clinical Sciences of Companion Animals. During this period, students learn to handle, manage and perform basic clinical procedures in policlinics, internal wards and intensive care. They also have a similar five-week basic clinical period in the Equine Department, where they learn to handle, manage and perform basic clinical procedures on horses, in the hospital as well as in the ambulatory clinic. In the ten-week period at the FA Department, during which five weeks are devoted to ruminants, three to pigs and two to poultry, students (in groups of three), are responsible for at least five cattle patients in the intramural teaching hospital. They are fully responsible for the clinical work with patients and routine veterinary and para-veterinary work in the FVM's farm De Tolakker. Students also participate in the daily work, weekend and night duties of the ambulatory clinic, for a period of one to three weeks, and in herd health programs concerning bovine, pigs and poultry.

In these 22 weeks of uniform rotations, in the clinical departments, all FVM students train in communication with owners, and in animal handling, examination and treatment on real patients, under supervision of a veterinarian.

Companion animals - sixth-year track clinical rotation
During a 42-week period of clinical rotations in the sixth year, students who have chosen the Companion Animal track are involved in all aspects of companion animal medicine. During eight weeks in policlinics, rotating through different disciplines, students, independently, receive the owner and patient and are responsible for taking the history, performing the clinical examination, making a differential diagnosis and drawing up a plan for additional diagnostic examinations. Then the students present and discuss their findings and the plan with a supervising clinician. The students independently fill out the requests for additional examinations, which are checked by the supervising clinician. The students are either involved in the interpretation of additional examinations or have to interpret these findings themselves and discuss them with the supervising clinician. Finally, the students draw up a plan for treatment that is discussed with the supervising clinician before it is presented to the owner.

During three weeks in the internal ward and three weeks in the intensive care unit the students are responsible for examination and treatment of the in-house-patients that are assigned to them, and receive feedback from the supervising clinician.

During a six-week external education period the students work in a primary care practice or clinic that was selected by the Faculty 'Committee of External Education'.

Equine - sixth-year track clinical rotation
The final year 42-week equine program for students who have elected the Equine track is divided into five parts of different lengths and with different content; the aim of the first two blocks is to ensure that students have sufficient clinical experience to embark on a six-week rotation in a private practice (Part 3). In total, the 42 weeks include: three weeks para-clinical aspects of equine medicine (e.g. pathology, microbiology, pharmacology), two weeks Diagnostic Imaging, two weeks primary care services (Equine Ambulatory Clinic), one week anesthesiology, four weeks reproduction, ten weeks internal medicine, ten weeks surgery, a six-week externship in private practice and four weeks for which the student can select the subject/location.

Farm animals - sixth-year track clinical rotation
Final-year students who have chosen the track Farm Animal Health/Veterinary Public Health will have a clinical program in ruminant, porcine and poultry health. The ruminant clinical rotation period includes: A two-week period in which the students, in groups of two, are responsible for the care of all ruminants in our intramural teaching clinic with a large emphasis on responsibility and autonomy. Additionally students participate in groups of two, in at least six routine herd health visits on the farms in our ambulatory clinic. During these visits, too, responsibility and autonomy are very important. During a further six-week period students also work on a Strenghts, Weaknesses, Opportunities, Thrents (SWOT) analysis of a commercial farm within the range of the ambulatory clinic or of a farm that was referred by regional veterinarians. The students are coached by one of our veterinarians. As part of the porcine and poultry clinical rotation period, the students, in groups of two, participate in at least five routine herd health visits on the farms in our ambulatory clinic on pig farms. Again during these visits responsibility and autonomy are very important. The students also devote a period of four weeks for poultry and seven weeks for pigs to work on a SWOT analysis of a commercial farm in our ambulatory clinic or on farms brought in by regional vets from the whole country. The students are coached by one of our veterinarians (see Chapter 9).

4.6. Description of how specialists and clinical resources are integrated into clinical instruction

In all clinical departments board-certified specialists in relevant subjects are available at all times. They divide their time between direct teaching of students and organization of patient care within the clinic. Throughout the rotations, the clinical staff request advice from specialists in the fields of e.g. diagnostic imaging, nutrition, behavior, pharmacology, toxicology, microbiology and pathology, to provide optimal diagnostics and treatment for patients and, at the same time, to enable case-based teaching of paraclinical topics to students.

4.7. Description of the adequacy of the medical records system used for the hospital(s), including field service and/or ambulatory and population medicine

The main medical record system is Vetware. This system is used by the Departments of Companion Animal Sciences and Equine Sciences. The Department of Farm Animal Health does not rely completely on Vetware and has recently started using the longer-standing, proven system, Omega Track, especially for field service/ambulatory and population purposes. The implementation of Vetware was accompanied by initial difficulties but is now, at the end of its five-year trial period, under evaluation by an external audit bureau. Some places in the FVM continue to encounter problems with the speed of the Vetware system, but this seems to be an infrastructural problem.

Records are comprehensively and safely stored. Retrieval can be effectively arranged but again can take some time and effort. Retrieval takes place mainly for educational and patient care purposes. At this moment the faculty is investing in a system (PACS) for managing distribution and storage of digital images. An even larger project is the implementation of a new laboratory system (GLIMS) for the diagnostic labs, the microbiological labs and the pathological lab. Speech recognition for diagnosis is already implemented in part of the FVM.

The Department of Farm Animal Health has implemented the 'Viva' program for the Ambulatory Clinic. Vetware is a perfect program for keeping the medical records of a patient, but is not developed for tracking and tracing of drugs, which is of great importance for farm animals. Moreover, under European legislation Tracking and Tracing must be implemented before 1 October 2007. The 'Viva' program is suitable for tracking and tracing as well as keeping and analyzing medical records. For analysis of technical data of herds, the Department of Farm Animal Health also uses Agrovision, Farm, Agis and Pir-DAP (cf. PigChamp).

4.8. Description of the way the college has responded to increasing/ decreasing clinical resources

New trade regulations, implemented after the 2001 epidemic of foot-and-mouth disease, made it impossible for farmers to send patients to the Farm Animal Health clinic. Consequently, we changed the aim of our clinic to focus completely to education. We now buy the most appropriate patients for our courses and clinical rotations for cattle, sheep, goats, swine and poultry. With these animals we train students in animal handling, diagnostic and surgical techniques, obstetrics and clinical reasoning and problem solving.

In the FA ambulatory practice we expect a further decrease in relevant cases for our students due to urbanization and a general decline of agricultural activities in the Utrecht region. In 2006, we predicted future decreases of over 40 % in the number of dairy and pig farms up to 2010.
The following actions have already been successfully undertaken to assure that students are in contact with sufficient real cases:

For the bovine clinical rotations the number of patients in the intramural clinic was increased. Cooperation started with other veterinary practices in the Netherlands to establish external rotations for our students in their final year. At present our last year students spend at least six weeks working at these practices. (see paragraph 9.5)

Additionally, students visit commercial farms outside the ambulatory clinic for a SWOT analysis, problem solving and advice for the herdsmen. This is done during a six-week period, under supervision of one of our teachers, in close cooperation with the local veterinarian.
During the clinical rotations for swine and poultry we have set up a new intramural clinic to house pigs we buy from a commercial farm.

In addition we enlarged and completely renewed our own commercial farm (De Tolakker) for dairy and swine resulting in an increased use of these facilities for the preclinical courses as well as for the clinical rotations. In the near future we will also set up a new teaching farm for poultry within De Tolakker facility and we are currently also exploring opportunities for a goat farm at De Tolakker.

To mitigate the downward trend in the number of farms, we try to attract to and retain farms in our practice by a competitive and transparent pricing policy (farmers receive a 30 % reduction on current market prices) and by binding the farmers more to our practice (by providing and maintaining a high standard of services, newsletters, seminars, etc.).

Equine case material consists of first line cases presented by the owner (predominantly in Reproduction and Surgery, rarely in Medicine), cases referred by practitioners in the area around Utrecht, and sometimes further afield, cases referred by the Equine Field Service (Equine Ambulatory Clinic) and about 30 teaching horses owned by the Department.

The decrease in Equine case numbers ("patient visits", table A) can be explained partially by the temporary disturbances caused by the rebuilding of the university equine clinic. Reconstruction work started early in 2004 and was not finished until May 2007. Indeed, the dip in "number of hospital days" in 2005 is directly attributable to the rebuilding process: the major part of the new stables did not become available until the end of 2005. This explains why numbers in 2006 recovered to the level of preceding years (2003-2004). The preliminary figures for 2007 suggest that the number of hospital days will be similar or higher than in 2006. The drop in the number of field visits (table B) was the result of a conscious policy decision. Since its inception in 2000, the Equine Ambulatory Clinic had proven so successful that the caseload threatened to surpass its capacity. As a result, the decision was taken to reduce the size of the catchment area; the number of patients treated is still more than sufficient to meet teaching demands. Another factor in the relative decrease in certain types of patient visits is increased 'competition' from a small number of private equine referral hospitals that have been built or expanded during the last five to ten years. The Department of Equine Sciences has responded to this challenge by terminating its long-standing referrals-only policy for internal medicine patients (the other disciplines never employed this policy), and by strengthening links with a selection of the private referral clinics so as to expand the caseload for the 'external' training of Equine Track students. With respect to our own caseload, it is anticipated that the re-opening of the new clinical facilities in October 2007 and development/expansion of a number of specialized referral techniques (e.g. embryo transfer, EMG, sport physiology monitoring) will lead to an increase in equine case numbers, albeit in targeted areas.

If the increase in the number of companion animal patients were to lead to too many patients, suitable patients will be selected for teaching of the students while the remaining patients will be taken care of without student involvement, e.g. by the rotating interns or residents. If there were a decrease in the number of patients, additional patient exposure will be created through external teaching and by generating extra referrals through our network of practitioners. The number of weeks for external education has been increased to six weeks (obligatory) and two weeks (facultative) in the curriculum 2001.

4.9. Description of the means used to maximize the teaching value of each case across the curriculum

Patient data in the broadest sense are not only used for clinical teaching, but also for preclinical teaching of students. All patient data are available from the computerized patient registration system 'Vetware'. This allows self-study and interactive education using relevant 'real life' patient material, e.g. critical evaluation of referral letters, writing a referral letter, interpretation and discussion of clinical data, etc. Later this year the diagnostic imaging division will be completely digitalized and all data of imaging procedures will be available through the patient data in Vetware.

The patients that pass through the companion animal clinic (policlinic, diagnostic imaging, anesthesiology, surgery, internal ward, ICU) meet different students at each 'education station'. This way, patients serve more than the initial one or two students who see the patient when it first enters the clinic. However, when the patient is hospitalized, one or two students are responsible for the patient during its stay.

Patients/cases shown in Tables A-C are those being used for and examined and/or treated by students in the fifth and sixth year in their 72-week 'internships'. Routine practice in the clinics, as well as in the field service, is that patients are first examined by the students, then discussed with and if necessary re-examined by the veterinarian, subsequently, a plan of action is drawn up and executed, again, largely by the students, under supervision of the veterinarian. Hospitalized animals are also treated and/or re-examined by the students.

Where applicable, appropriate patients are used for clinical lessons, clinical demonstrations and hands-on wet labs for third and fourth–year students. In addition, visual material from interesting patients, and where possible the patients themselves, are used during first and second-year lectures to illustrate specific subjects.

In our intramural teaching clinic for farm animals we have to buy all animals/patients. These animals are used for the fifth-year rotations, but also in the sixth-year track rotations as described above. Additionally the same animals are used for the practical training in the fourth-year course 'Clinical Lessons'.

The intramural teaching clinic also has a number of healthy animals, which are used for training of practical skills during the third and fourth year, and for training practical skills in both the fifth and sixth-year clinical rotations.

Our own commercial herds of pigs, dairy, poultry, equine and sheep (De Tolakker) are used throughout the whole curriculum.

5 Library and Information Resources

5.1. Description of and comments on the adequacy of information retrieval and learning resources

Information resources are offered to students, teachers and researchers in an integrated **Learning Environment** (in Dutch: *Studielandschap*). The Learning Environment is home to all study-related materials such as books, journals, and 3D material, but it is also a place to study, a place to teach and a place to work on assignments with fellow students. Facilities like computers and beamers in classrooms, as well as microscopes, printers and photocopiers are also part of the Learning Environment. All facilities are maintained and serviced by troubleshooters.

The major part of the Learning Environment is located in the Androclus building, comprising the 300 m^2 *Schubärt* gallery (containing approximately 250 pathology and anatomy specimen) and a 2,000 m^2 two-storey space, equipped with 160 PC workstations and other learning equipment and facilities, including the 'traditional' veterinary library. Additionally, four smaller Learning Environments are found in the clinics for companion animals and for horses, consisting of a specialized library plus 10-20 PC workstations for information retrieval and self-study purposes. All Learning Environments offer printing facilities and internet as well as intranet connections.

On its first floor, the Learning Environment in the Androclus building offers learning resources to students such as text and reference books, digital photographs (including X-rays), pictures, schemes and videos, plastinated specimens, dissections, conserved organs and parts of animals (either for handling or observation only). These materials are arranged according to the main subjects in the Bachelor curriculum (see 9.8), thus creating 'subject clusters' where students can easily find all relevant learning resources (either books, audio-visual material, electronic or 3D objects) for the subject concerned.

The study guides for each Bachelor subject refer the students to compulsory materials in the Learning Environment. The subject clusters are clearly indicated, but users can also ask assistance from the library and/or troubleshooter staff. This staff also advises teaching staff who are developing self-study tasks for students or subject materials for the Learning Environment.

The Learning Environment in the Androclus building is also equipped for digital exams, making use of authentification and authorization tools within the Electronic Learning Environment WebCT VISTA (see below) to give students access. In those cases supervision by additional personnel is provided.

The second floor of the Learning Environment in the Androclus building accommodates the more specialized library, the most up-to-date part of the collection of specialized veterinary books and journals. It comprises approximately 10,000 books (monographs, dissertations, book series, proceedings), the current year editions of over 200 journals that are not available in electronic format, as well as approximately 13,000 volumes of bound printed journals from 1993 onwards.
In addition all users have access to the complete electronic collection of Utrecht University's Library. This collection includes over 9,000 peer-reviewed journals (approximately 300 titles in the field of veterinary medicine or animal production, as well as over 3,000 related/biomedical titles), hundreds of electronic books, proceedings, newsletters, etc., and approximately 80 specialized databases, including *CAB-Abstracts, Agricola,* etc.

The electronic resources of specific interest for veterinarians are presented via a specific veterinary page of the Utrecht University Library, *http://vetportal.library.uu.nl/portal.html,* together with other relevant information for students as well as researchers.

The Learning Environment draws on nine members of staff from the section of Educational and Student Affairs, as well as ten troubleshooters for the use of computer programs, eight library employees, including a subject librarian (PhD) and an information specialist, who provide training in literature searches and management and can assist in the retrieval of specialized information. More detailed information on the library and information resources facilities available for students in Appendix Chapter 5, A.

Digital Information and Education resources

MyUU
All students log on to the portal MyUU *(www.myuu.nl)*. With their unique Solis-ID, which is also their student number and password, they have full and worldwide access to all the information they need. Throughout their study program students are presented with various digital resources: a system for signing up to courses and checking grades, e-mail, search engines, digital learning environment, the library catalogue and the schedules. Through this portal the students can access all these systems with one single log-on.

On MyUU, the FVM, Utrecht University and the media inform the students via a news item channel. This channel enables the FVM to communicate with its students swiftly and directly. Within Utrecht University, the FVM is leading in its use of MyUU (see Appendix Chapter 5, B). At the start of each academic year students attend a tutorial on how to use these digital resources.
A guest account for MyUU is available.

A list of information resources on MyUU
- News on MyUU
  - Changes in class or exam times are communicated on MyUU as soon as they are definite. Students are also informed about symposiums, student presentations, and social events.
- Osiris
  - Course registration, checking of grades, and study progress.
- Schedules
- Electronic Learning Environment (ELE) WebCT VISTA
  - WebCT VISTA is the Electronic Learning Environment used by the FVM. It contains learning modules for each course. Students can also interact with one another and communicate with the teachers on bulletin boards. As far as assessment is concerned WebCT VISTA is mostly used for formative assessment and, on a small scale, for summative assessment. Software to detect plagiarism (Ephorus) is incorporated within the ELE.
  - A guest account for WebCT VISTA is available: http://webct.uu.nl
- COO Modules
  - The computers in the Learning Environment are equipped with course modules. COO modules, using CD-ROMs, are available on topics like anatomy, pathology and the central nervous system. Courses which have been developed by the CLIVE consortium are available as well.
- E-mail
- Qdesk (question desk)
  - The University's digital question desk for questions about registration and financial support.
- The Solis guide ("Solis U-gids")
  - Finding postal and e-mail addresses and phone numbers of university staff and students.
- The Library
  - Finding books and periodicals in the university catalogue;
  - Making book reservations and selecting a pick-up location;
  - Finding electronic journals and other electronic publications;
  - Finding electronic databases;
  - Finding Vet portal (portal for veterinary information).
- Search engine Google
- Faculty links
- Students can also make links to their favorite websites

Image and video database
The FVM has an image and video database, which is used by teachers as a source for educational material. Furthermore the FVM has developed, in cooperation with the UU Library, a database for the storage of digital video.

5.2. Description of the academic credential(s) of the librarian in charge of the library

The University librarian and director is J.S.M. Savenije, (philosophy, major in logic). Veterinary library staff: R.L.J. Goverde PhD, subject librarian, and M.J.W. Witkamp, head of public services.

5.3. Brief description of the availability of learning resources support for faculty, staff and students

- A single information and support desk in the Learning Environment integrates several services: educational and student affairs, international cooperation, library, troubleshooters and study materials. The information desk is open every work day.
- Development of WebCT VISTA modules for courses by teachers is supported by a training staff of 2.2 FTE.
- Information retrieval is facilitated by ICT by means of the veterinary systems or on demand. At the end of 2006 an information manager was appointed in order to make an inventory of information that needs to be available.
- Besides the study materials that are available in the Learning Environment, students are required to buy certain books and syllabuses. The FVM has arranged a discount agreement with book store Sylexyz Broese (on campus). Students can purchase their study books with a discount of 18% (only on non-Dutch titles). The FVM itself sells syllabuses and tools.
- Students can contact the section of Educational and Student Affairs by phone Monday to Thursday from 09:00 – 10:00 AM. There is also a general e-mail address; messages are read every day.
- Students can find general and practical information in the study guide, study reference per course and in the veterinary pocket calendar.

5.4. Description of current plans for improvement

With the introduction of the Bachelor curriculum from September 2007 and the Masters curriculum from 2010, each semester more of the subject clusters in the Learning Environment will be equipped and/or complemented. Attention is given to the quantitative capacity of these clusters, to enable a one-year cohort of students to study certain items within a few days.


Canon

6 Students

6.1. Tables A, B and C, and trends analysis

Table A. Enrolment of students in the Veterinary Medical Program

Year	2002	2003	2004	2005	2006
First	236	244	236	232	225
Second	258[1,2]	229[1,2,3]	236	210	253
Third	202	176[3,4]	216	210	241
Fourth	193	216	170[3,4]	155[3,4]	216
Fifth & sixth	400	400	400	400	449[4]

Trends analysis of student enrolment

Notes on the variation in numbers:
In each year we counted all students who subscribed to at least one course. The variation in student numbers can be explained by:

1. The increased intake of students (from 175 until 1999 to 225 from 2000 onward);
2. The renewal of the veterinary curriculum in 2001 (as a result of which a group of 60 students had to switch from curriculum 1995 to curriculum 2001);
3. The different entrance requirements per study year: students are allowed to enter the third year when they have passed the propaedeutic exam; students may start the fourth year when they have passed all second-year assessments.
4. Students who follow courses in a specific year but have not yet passed the respective assessments and who do not subscribe to courses in the next year become "invisible" in the table.

Table B. Interns and Residents (data from July 2007) – see also Chapter 8

Department	Interns	Residents	Residents MS	Residents PhD
Pathobiology	-	4	-	1
IRAS/VPH	-	1	-	-
Equine Sciences	2	4	-	2
Clinical Sciences of Companion Animals	5	11	-	3
Farm Animal Health	-	-	-	1

Table C. Graduate Students

Academic year	MSc	Calendar year	PhD
2002 – 2003	20	2002	210
2003 – 2004	27	2003	196
2004 – 2005	28	2004	189
2005 – 2006	27	2005	202
2006 – 2007	26	2006	202

In the Netherlands there is no legal or other requirement for the selection and/or registration of minorities. These data are therefore not available.

Table D. is not applicable to the FVM.

FVM teachers participate in the UU Bachelor program Biomedical Sciences, the UU Masters program Bioveterinary Sciences and other – biomedical – UU Masters programs, but those curricula are not the responsibility of the FVM and are accredited by NVAO. A number of FVM teachers participate in educational programs at Utrecht University College and at Wageningen Animal Science University, as well as in various "Continuing Education" courses, as provided by the Foundation for Continuous Veterinary Education *(http://www.paod.nl/)*.

6.2. List of student services: registration, testing, mentoring (advising), counseling, tutoring, peer assistance, and clubs and organizations

Registration

University registration

Students at Utrecht University are required to register or re-register before the beginning of each academic year. Only after registration they are entitled to attend lectures, take tests, apply for final examinations, and/or use student facilities. Students receive timely reminders for their re-registration.

Course registration

Students need to register for all courses they want to attend as well as for summative tests they want to take, through Osiris.

WebCT VISTA (Electronic Learning Environment) *(See also 5.1)*

An electronic learning environment gives teachers the opportunity to offer their teaching material to the students. But it is also a platform where teachers and students interact. Students can hand in assignments digitally, make use of an elaborate collection of formative tests, study veterinary images, and communicate with each other and with the teachers. On 1 January 2007, 70 active VISTA modules were in use and 53 modules were used to develop digital teaching material.

Mentoring (advising)

Student advisors

The three FVM student advisors provide information on admission to the veterinary curriculum, possible alternatives when not admitted, rules and regulations on tests and exams, exceptions, exemptions, etc. They are trusted intermediaries and in that role guide the students in the case of learning problems, retaking tests and exams, study delay due to illness or other personal circumstances. Advice on more general subjects like housing and financial problems, disabled students and sports is given by UU student counselors.

Counseling (specific learning problems)

In case of severe and specific learning problems or personal issues, students can be referred to the UU student psychologist.

Peer assistance

At the start of every academic year the section of Education and Student Affairs assigns the first year students to a mentor group based on the course groups (a group of students who attend classes together). A mentor group consists of ten new students and two senior students who act as their mentors. This system aims to bring the students into contact with the social structure of the Faculty and the University, while also providing them with an opportunity to get to know one another of course. Knowing a fellow student from a higher year can be very useful. The senior students are a good source of information on various practical problems, information retrieval, and social activities, while they can also share study experiences. Mentors are assigned for one year and receive specific prior training.

Tutoring

Every mentor group is assigned to a tutor. A tutor is a teacher who guides the student for four years, with an emphasis on the student's professional conduct (see 9.2). The great advantage is that any learning problem or other problem will be picked up on time so that the student can be referred to the faculty's student advisor or the university's student psychologist.

IVLOS Institute of Education

IVLOS Institute of Education is an institute of Utrecht University. IVLOS provides study skills training for students. In three to eight sessions of two hours each, students can learn how to make efficient use of their time, improve their reading and writing skills, design research projects, learn how to prepare for tests and exams, or increase their motivation. The University Board finances this service for students. The number of participants is given in the table below.

FVM students attending IVLOS Courses

Year	Total number	Self Management	Academic Learning	Essay writing	Presentations
2002	14	5	9	-	-
2003	23	5	17	1	-
2004	52	13	36	1	2
2005	46	13	30	1	2
2006	38	17	21	-	-

UU Student Services

Student Services provides general information and advice on topics like registration, tuition fees, financial matters, student financial assistance and university financial schemes. But they also inform students on complaint procedures, accommodation and activities of student organizations.

Clubs and Organizations

FVM veterinary students have access to a very active and vast organizational structure with a lot of clubs and societies. Two major organizations are mentioned in this Report.

1. Student council (in Dutch: "Studentenraad")
   The student council looks after the interests of the students when it comes to educational matters. The student council consists of student representatives from all years. The student council works closely with Educational and Student Affairs. In close cooperation they organize information meetings and course evaluations. Every month the student board consults with Student and Educational Affairs.
2. D.S.K. – The Veterinary Students Society
   Almost every veterinary student is a member of the Veterinary Students Society *(*in Dutch: *Diergeneeskundige Studenten Kring = D.S.K.).* The Society has six board members who organize several major events throughout the year. See *www.dsk-online.nl.*
   There is a range of other veterinary students clubs and organizations. Some of them are affiliated to D.S.K., others are independent of DSK. Appendix Chapter 6, A. features an overview of all of the organizations.

6.3. College activities in support of placement of graduates

The Education Board organizes a yearly meeting for students at the start of the Function-directed Phase, during which information is provided about the program for those final two years and about current and future labor market perspectives.

The Royal Veterinary Association of the Netherlands (In Dutch: *Koninklijke Nederlandse Maatschappij voor Diergeneeskunde = KNMvD*) offers a student membership at a reduced fee. As student members, students have access to all of the KNMvD's relevant services, such as its job agency. This agency controls an excellent database with available positions in the veterinary sector, including veterinary practice, industry and elsewhere. Recent graduates looking for a position can submit their details.

Every year the D.S.K. organizes a Practice and Career Fair. The fair is open to all students. During this event all different sectors of the veterinary profession are represented by individuals and/or organizations, providing information about future career possibilities. Occasionally the DSK organizes other meetings, mostly supported by veterinary organizations, in order to inform students of future career options.

6.4. The testing/grading system (scoring range, pass levels, pass/fail)

I. Preparatory phase: propaedeutic and doctoral part (first four years)

All courses during the preparatory phase are scheduled in trimesters of 14 weeks. The last week of each trimester is reserved for the testing period, in which most courses will be concluded. Occasionally courses are completed before the end of the trimester (Management and Professional Orientation and Medicine) or are scheduled in two or more trimesters. Students who failed the first test are given a second chance in August, in a period when no teaching is scheduled.

Nearly all tests are written tests. As part of the permanent evaluation system results of practical exerci-

ses, clinical skills, and professional conduct are calculated throughout the year and included in the final result. However, the final written test contributes the highest percentage to this final result. Clinical lessons are concluded with a practical and an oral test. Only those students who pass the entire first year are allowed to start the third-year program and students who have completed the courses of the entire second year are allowed to start the fourth-year program.

For all mandatory courses scores range between grade 0 and grade 10. The pass level is grade 5.5. Students who registered for an assessment, but do not participate without an official withdrawal, are awarded a score of 0. For elective courses and externships the following scores are used: fail, sufficient, good, and excellent.

The success rates of courses differ greatly. Evaluations show that the main factor is the time spent by students in relation to the time necessary to master the subjects taught. In addition, the success rates of courses that do not compete with other courses (meaning there are no parallel courses) are much higher. Experimental examinations in which students are individually tested frequently during a course ('Clinical Lessons') also show very high success rates.

From the academic year 2006-2007 onward the FVM will be implementing a binding study recommendation (in Dutch: *Bindend StudieAdvies = BSA*) in the first year of study. All students who do not pass assessments totaling 30 ECTS (European Credit Transfer System) (out of an overall 60 ECTS) have to put their studies on hold for four years.

II. Function-directed Phase; post-doctoral phase (two years)
In the Function-directed Phase students are mostly tested on practical skills. Prior to some of the clinical rotations, students are tested on their knowledge on specific subjects. These tests aim to help students pass the clinical rotations rather than prevent them from starting the clinical rotations. During the clinical rotations students are assessed by means of short cases and a feedback system. At the end of each specific part of the clinical rotations students are tested and get a final score for the total period of that part.

Improvements have been made to the uniform clinical rotations to give more standardized feedback to students and to evaluate students more frequently. The faculty intends to use the experience with this system in the track clinical rotations in the 6th year.

The scoring range of the final assessment is: insufficient, sufficient, good, and excellent. Students with an insufficient final score have to repeat part of the clinical rotations and/or the test.

Rules for students and teachers on grading and testing are recorded in the "Education and Examination Regulations" (in Dutch: *Onderwijs- en ExamenReglement = OER*) of the FVM's educational program. According to Article 7.13 of the Dutch law on "Higher Education and Research" (in Dutch: *Wet op het Hoger Onderwijs = WHW*), every Faculty has to formalize such rules for its education program.

6.5. Academic catalogue(s) and freshman/upper-class orientation material

The academic catalogue can be found at: *http://www.vet.uu.nl/viavet/informatie/student/vakinformatie.*
The study guide for the whole curriculum can be found at: *http://www.vet.uu.nl/viavet/userfiles/other/Studiegids_2007.pdf*
Information on enrolment can be found in English on the University's website: *http://www.uu.nl/uupublish/homeuu/homeenglish/studying/programmesindutc/4454main.htm*l and in Dutch at *http://www.vet.uu.nl/viavet/informatie/studiekiezer/toelating.*

After receiving confirmation of their acceptance as a student at the FVM, students receive a package from Utrecht University with information on central UU registration and information about the Utrecht University Student Introduction Period – a week-long program of activities related to the city and the Utrecht University. The students also receive an information letter from the FVM, which welcomes them to the FVM and advises them to register at UU in time. Also included is information about the sports day and other faculty introduction activities and about the Veterinary Students Society.

Students in the Function-directed Phase receive information about the clinical phase in the fourth year. The students receive a study guide for all clinical rotations, as well as their personal lecture schedule through MyUU.

6.6. System used on an ongoing basis to collect student suggestions, comments, and complaints related to the standards for accreditation

This paragraph contains a brief description of the quality control system. More information on this subject can be found in paragraph 9.3.

Every mandatory course during the preparatory phase is evaluated in the same way. Immediately after finishing their tests, students fill out a questionnaire. The questionnaire that is used by the Faculty covers the following topics:

Overall assessment
Students are asked to give an overall opinion of the course. Are there not too many overlaps with other courses? Are the internet/audio-visual aids of good quality?

Teaching process (student – teacher contact)
Students are asked to give an overall opinion of the different teaching formats (lectures, working groups, group assignments, and labs).

Books/study materials
This is meant to question the quality of the study materials that are being used.

Assessment
Here students can give an overall opinion of course assessment methods.

Suggestions for course improvements (open question)

Apart from the final one, all questions are graded on a Likert scale between 1 and 5. All subjects that score below 3 are given attention during a meeting of the course's main teachers and a student delegation, chaired by the Coordinator on the Quality of Education. Only courses that have had no severe complaints for several years are excluded from this meeting with students.

Students who follow elective courses fill out a shorter version of the evaluation form. The teachers receive the results of these questionnaires. There are no student – teacher meetings for these courses.

A new quality control system was implemented in the uniform clinical rotations recently. Students now fill out a questionnaire on every separate part of the clinical rotation using their electronic platform on the internet. This system makes it possible to see if feedback methods and assessment are used as they are meant to be. The evaluation of the track clinical rotations in the sixth year will be developed in the same way as that of the uniform clinical rotations.

For complaints that are not addressed in the structural evaluation Wilma Grimmelikhuijsen, Head of the section of Personnel and Organization, has been appointed by the FVM as the complaints coordinator. Students can address their complaints anonymously if they wish to do so.

6.7. Description of current plans for improvement

The FVM plans to adapt the Orientation Activities and Information Material, with the following objectives:
- To achieve a more realistic view on the study and professional career opportunities of applicants;
- To place more emphasis on and recruit for Farm Animal Health;
- To place more emphasis on lesser known veterinary fields (Research, Veterinary Public Health, Management and Administration);
- To convey the most important basic Bachelor principles.

7 Admission

7.1. Minimum admission requirements

Pre-selection criteria for all applicants include the completion of at least one of the following pre-university forms of education:

- Pre-university education with the 'Profile' Nature and Health or;
- The 'Profile' Nature and Technique or;
- Pre-university education ('old style') or;
- A propaedeutic diploma in a bachelor course.

In all these cases the subjects Physics, Chemistry, Biology, Mathematics, and English should be included.

7.2. Student selection process, including measures to enhance diversity

The FVM is allowed to admit 225 students each year. The admission system, based on national legislation and introduced in 2001, generates three groups of candidates:

a) Admitted by weighted lottery (at least 50%);
b) Admitted automatically due to high grades on high school exams (mean ≥ 8.0);
c) Admitted by selection by the FVM (50% minus the number of those candidates automatically admitted under b).

The FVM has no influence at all on the selection procedure of groups a) and b). The weighted lottery is performed by the Information Management Group, the organization that regulates education on national level (in Dutch: *Informatie Beheer Groep = IBG*).

A shortage of veterinarians on the Farm Animals (FA) and Veterinary Public Health (VPH) labor market is expected. The FVM therefore uses its own student selection c) to recruit students for the track FA/VPH. The FVM developed a system to select undergraduates with aptitude for and interest in this specific field in veterinary medicine. This group c) – selection by the Faculty – will fill approximately 30% of the available places. A candidate is allowed to participate in the Faculty's selection only once.

The candidates selected by the faculty are predestined for the labor market Farm Animals (FA) and Veterinary Public Health (VPH). All students selected by the FVM have to sign a contract in which they commit for the track FA/VPH. They are not allowed to change their track program. All other students in the FVM's curriculum 2001 have to choose for a specific track FA/VPH or Companion Animals/Equine (CA/E) within three months of entering the first year. Once a choice has been made track changes are not allowed (see also Chapter 9).

Applicants for the FVM's selection enroll at IBG before 15 January. The details of selection procedure c) are described under 7.3.

7.3. Factors other than academic achievements used as admission criteria

The FVM's selection system, based on qualitative and quantitative research, consists of a written component and an interview. Research has revealed differences in personal characteristics/competencies between veterinarians and interns favoring FA/VPH and those favoring CA/E. The system focuses only on non-technical competencies and academic achievements are not taken into account.

The FVM's selection system is set up as follows:

- The written component: a questionnaire based on four validated psychological tests frequently used for making career decisions: ABIV (a vocational interest questionnaire); LTP-WSV (working style inventory); WIMAS (influencing behavior); NEO-PI-R (big five personality questionnaire). The result of the questionnaire is the General Advisory Score (GAS), the calculated sum of 12 different aspects in which FA/VPH differs from CA/E.
- The oral component is a pre-structured panel interview. The interview panel consists of a DVM teacher, DVM practitioner and a veterinary student. All members receive intensive training before participating in the interview. The interview focuses on elements like motivation for and knowledge of the working field of veterinarians in the FA/VPH sector; a broad vision on the sector; vision on organizations and organizational consciousness which cannot be measured with the questionnaire in the written component. In the interview general skills that are important to all veterinarians, such as integrity, resoluteness, and sociability, are also taken into account. The interviews are assessed by an 'evaluation criteria set', using a score sheet. First, the assessment of a candidate will be compared by the members of the panel. Secondly, the assessment of the candidates will be compared by the different panels.

The scores of the questionnaires and the interviews are added up and result in a ranking. The numbers one up to a maximum of seventy, scoring sufficiently on the evaluation criteria, are admitted to the Faculty, after signing a declaration in which they pledge to follow the Farm Animal/Veterinary Public Health track. The management of the selection procedure is largely subject to national legislation.

In the past seven years only a very limited number of non-selected students submitted objections against the procedure used by the FVM. Nearly all objections were rejected by the official Objections Committee of Utrecht University.

	2001	2002	2003	2004	2005	2006	2007
Objections	16	4	0	1	2	2	0
Rejected	16	2	-	1	2	2	-
Assigned	-	2	-	-	-	-	-

The objections that were assigned in 2002 were made by students who failed their exams in pre-university education and did not agree with the change in the selection procedure in the year thereafter. The selection procedure was adapted after the objections were assigned.

In the past six years the FVM has been confronted with only a very limited number of students (fewer than ten) who discussed doubts about their track choice with the student advisor. Only two students lodged an official complaint after the FVM refused them a change of track choice. One of them won his case in court on basis of procedures.

7.4. Applications for Veterinary Medicine, Table A.

Year	2001	2002	2003	2004	2005
A/P	595/225	564/225	592/225	622/225	560/225

A/P = Applicants per Position available

Number of applicants for the FVM's selection procedure (group c) and admitted students

Table A: Applications for Veterinary Medicine from 2001 onwards

	2002	2003	2004	2005	2006
Applicants	207	180	171	159	119
Selected	68	68	57	53	47
Admitted	58	61	55	47	46

7.5. Current plans for assessing the success of the selection process to meet the college's mission

Research on Selection System
The validity and reliability of our selection system is currently being investigated in a PhD project, under the supervision of the Chair Quality Improvement in Veterinary Education. With respect to non-technical competencies significant differences have been found between students in the track Farm Animals and Veterinary Public Health and students in the track Companion Animals and Equine.

Our students' dedication to their original track choice was investigated recently. Asked four or five years after making their initial choice, 98% of the students said they would make the same track choice again. The students will be followed up after graduation when their expected aptitude and motivation for the different veterinary working areas will be checked. Research on study performance of the three admitted groups is still ongoing.

Efforts to increase the number of applicants for Veterinary Medicine
We have reason to be concerned about the decreasing number of students with an interest in Veterinary Medicine and, more specifically, about the decreasing number of applicants who want to apply for the FVM's selection procedure. Efforts to provide information about the study program and the veterinary profession will have to be stepped up. The reasons for the decrease will be analyzed, after which instruments to raise interest in the veterinary profession will be developed.

8 Faculty

8.1. Tables A and B, and assessment of the strengths of the faculty and support staff

Over the years the faculty staff has been able to offer the necessary disciplinary expertise. For the curriculum this means that all disciplines are represented and that the courses can be properly integrated. An overview is given in the tables below.

Table 0: Total number of staff at FVM in June 2007

Professor A (tenure)	11	Researcher	4
Professor B (tenure)	21	Junior lecturer	101
Associate professor	41	Resident	34
Assistant professor	101	PhD student	102
Lecturer	3	Support staff	484
TOTAL 902			

Table A

DEPARTMENT	Lost (Tenure & clinical track)	Recruited (Tenure & clinical track)	Year
Animals, Science and Society	1	5	2002
Institute for Risk Assessment Sciences	2	11	
Infectious Diseases & Immunology	7	4	
Farm Animal Health	8	7	
Equine Sciences	10	6	
Clinical Sciences of Companion Animals	3	11	
Pathobiology	7	1	
Biochemistry &Cell Biology	1	7	
Animals, Science and Society	6	3	2003
Institute for Risk Assessment Sciences	6	6	
Infectious Diseases & Immunology	12	11	
Farm Animal Health	7	6	
Equine Sciences	10	3	
Clinical Sciences of Companion Animals	14	11	
Pathobiology	9	3	
Biochemistry & Cell Biology	11	3	
Animals, Science and Society	6	6	2004
Institute for Risk Assessment Sciences	6	14	
Infectious Diseases & Immunology	16	9	
Farm Animal Health	10	5	
Equine Sciences	14	6	
Clinical Sciences of Companion Animals	21	16	
Pathobiology	10	9	
Biochemistry & Cell Biology	7	4	

DEPARTMENT	Lost (Tenure & clinical track)	Recruited (Tenure & clinical track)	Year
Animals, Science and Society	6	3	2005
Institute for Risk Assessment Sciences	17	16	
Infectious Diseases & Immunology	22	8	
Farm Animal Health	19	5	
Equine Sciences	13	5	
Clinical Sciences of Companion Animals	23	14	
Pathobiology	24	7	
Biochemistry & Cell Biology	11	6	
Animals, Science and Society	7	1	2006
Institute for Risk Assessment Sciences	32	22	
Infectious Diseases & Immunology	11	6	
Farm Animal Health	22	15	
Equine Sciences	9	7	
Clinical Sciences of Companion Animals	35	18	
Pathobiology	10	8	
Biochemistry & Cell Biology	7	4	

Table B: Support staff

AREA	FTE Clerical	FTE Technical	Other
Clinical teaching	----------	28,2	131.4
Non-clinical teaching	----------	6,2	---
Research	----------	83.4	6
Overhead clinical	35.9		
Overhead non-clinical	108.3		
Total = 399.4	**144.2**	**117.8**	**137.4**

Notes on table B

- All secretarial support (FTE=Full Time Equivalent Clerical) can be found under "overhead clinical" and "overhead non-clinical": At the FVM there is no distinction between secretarial and administrative (clerical) staff.
- All staff members of the Faculty Office can be found in "overhead non-clinical".
- "Overhead clinical" includes the "patients administration".
- "Technical" includes all educational support staff (like laboratory assistants).
- "Research" includes all laboratory technicians.
- "Animal caretakers (incl. staff of the experimental farm De Tolakker), laboratory technicians' and Surgery Room support staff are placed under "Other", "clinical teaching".
- 6 FTE animal caretakers are placed under "Other", "Research".

8.2. Current number of academic faculty (head count) who possess credentials as listed in Tables C and D.

Table C. Non-Veterinarians

Title	MS	PhD	Board Certified	Board Certified & MS	Board certified & PhD
Administrator	7	3	1	--	1
Professor	--	17	1	--	--
Associate Professor	--	12	--	--	--
Assistant Professor	--	52	--	--	--

Table D. Veterinarians

Title	DVM (Only)	MS	PhD	Board Certified	Board Certified & MS	Board certified & PhD
Administrator	3	--	4	2	--	2
Professor	--	--	2	--	--	13
Associate Professor	--	--	18	--	--	15
Assistant Professor	--	1	40	--	--	23

8.3. Assessment of the challenges for your college in maintaining faculty numbers and quality

Since the early 1990s the FVM trained interns and residents for two reasons: to train specialists for our own replacement of staff and in order to fulfill the needs of the profession, the specialized veterinary private clinics. The training of veterinary specialists, contrary to the situation in human medicine, is not financed by the government. The FVM presently finances this training in part from our educational budget and in part by patient care revenues. It is, due to the increased demand for specialists, a challenge to find a solid financial basis for the residencies. Residents receive a full salary and do not pay tuition fees. They play an important role in teaching and patient care, but approximately 50% of their activities is supervised. This supervision is not financed and covered by the hospital income. The FVM will strive to receive separate government income for the supervised training of residents.

In view of its long-term human resources plan, the FVM investigated how many of their staff the departments need to replace and in which areas of veterinary medicine. We have also consulted the profession on this matter. The preliminary conclusion is that there is a need for residents in all present specialisms. The FVM data also showed that in the past only one out of three residents obtained a function as faculty in the academic setting of the FVM. This resulted in information on the number of required residents per specialism per year for the FVM. These figures, with those of the profession, will be used to request additional funding [see above].

We have also noticed lately that it has become more difficult to maintain or attract residents/specialists for an academic career. This is mainly due to two factors: [1] long career paths in the university setting and [2] the competitive salaries and facilities offered by private clinics and industry. This is already reality for the Departments of Clinical Sciences of Companion Animals, Equine Science and Pathobiology. New career tracks are now being developed in which talented students in honors programs expand their research project to a PhD thesis, followed by a residency. Several highly talented young professionals are already in such tracks. The FVM expects that this will yield enough talented PhD Diplomates to fill future staff positions.

8.4. Information on the loss (per discipline/specialty) and recruitment of faculty

Over the last five years the total number of FVM employees has decreased by about 40 FTE as a result of our long-term financial position, the reorientation in the budgeting of education and patient care and the reorganization of our scientific research programs. Due to the financial position in 2005-2006 the FVM reorganized its Department of Equine Sciences. At the same time all senior staff members [≥ 58 years] were offered the early retirement scheme of Utrecht University. A total of 61 FTE left the FVM due to this reorganization per 1 December 2005.

The FVM changed its budgeting system from lump sum departmental budgets to fully task-related budgets in 2004. The major advantage of this financial system is that it stabilizes the income of departments and allows the Faculty Board and departmental management to develop long-term staffing plans (2006-2011), including individual career tracks for junior staff.

8.5. Concise summary of promotion and tenure policies, and the policy to assure stability for non-tenured, long-term faculty.

Potential employees in the junior functions (PhD students, interns, residents, junior teachers/researchers) will have the opportunity to qualify for tenure positions. Tracks will be set out to have these juniors gain the qualifications needed for such a position. The qualifications comprise a combination of didactic/educational, research and patient care experiences. For a tenured position a PhD degree and the Basic Qualification for Teaching (in Dutch: *Basis Kwalificatie Onderwijs=BKO*) are required. For clinical staff the Qualification of Board Certified Veterinary Specialist is also mandatory.

For clinical staff it takes approximately 11 years to obtain all three qualifications. Therefore, the requirements for these positions have recently been modified in order to optimize and clarify the career policy and possibilities for young potentials. The new career policy focuses on shortening tracks. A track

should start with working on the PhD degree. Upon achieving this qualification a tenure position can be achieved as soon as a second qualification is obtained. This is either the teaching qualification or the qualification of board certified specialist. However, it remains mandatory for clinicians to obtain the third qualification within their tenured position. We expect this more transparent career policy to make a strong contribution to the retention of young professionals at the FVM [see above]. As a part of its policy, the FVM also stimulates gaining clinical and academic experience in veterinary medical institutes abroad.

8.6. Estimate of the weight assigned to promotion/tenure and/or compensation for teaching, research, services, or other scholarly activities.

Although the career paths in research and education are similar, we have encountered difficulties in defining objective criteria for monitoring quality in education. In research this is easier thanks to the way output is measured. Therefore, the development of transparent criteria for the quality of teaching in higher education has been stated as a priority in the long term strategic plan of the FVM (Fastco Report).

In order to reach this goal a PhD program started in 2007, supervised by the chair Quality Improvement Veterinary Medical Education. The goal of this research is to develop valid, reliable and acceptable criteria for good university teaching. These criteria will be used in future promotion and career policies. The results of this research project will contribute to a better balance between the attention for teaching on the one hand and research on the other hand in HR Performance Management.

The first stage of the research project will investigate the perceptions of all teaching staff about the competencies that are necessary for good university teaching in a student-centered curriculum. A framework, developed and validated in the University of Maastricht, will be used. The data obtained in this first, explorative stage of the research will determine the focus of the succeeding stages. Research is foreseen among students, peers/colleagues, superiors and educational experts. It is expected that this research will yield a tool like a 360° feedback or a multilevel feedback.

To obtain a tenure position as faculty member one should be qualified for research and education, while staff employed in the clinic must have additional qualifications for patient care (see also 8.5). An "academic function" always comprises at least two of the three tasks, either education and research or education and patient care. The faculty member is being assessed on the execution of all required tasks, which must both be of good quality.

8.7. Brief description of the faculty professional developmental opportunities available in the college/university

A decade ago, UU was the first Dutch university to introduce a formal teaching certification. This is a condition for all tenured positions that include a more than marginal teaching task. The UU personnel policy on education is described in the HRM function scheme (WP-FLOW) and is available via the UU website, at *http://www.uu.nl/content/UniversitaireregelingWP-FLOWIIEN06.pdf*
The teaching qualifications are at two levels: the Basic Qualification for Teaching, for assistant professors (in Dutch: *Basis Kwalificatie Onderwijs=BKO*) and the Senior Qualification for Teaching (In Dutch: *Senior Kwalificatie Onderwijs = SKO*) for associate/full professors.

The BKO includes all aspects of the teacher's own teaching performance:
- Expertise on Subject (usually assessed in research: PhD, publications);
- Pedagogical skills (course development, in class performance in various teaching-learning manners, assessment, individual guidance);
- Organizing skills (course organization/logistics, evaluation and improvement of own performance);
- General Skills (communication, accessibility, functioning in team).

The SKO includes excellence in all aspects of the BKO plus leadership and influencing the teaching performance of others, and includes:
- Curriculum Development;
- Quality Management;
- Leading teacher teams; e.g. chairing OWG's or committees
- Supervision of junior teachers;
- Production of textbooks/course materials.

Qualifications are awarded on the basis of teaching portfolios by committees at faculty level and endorsed by the dean of the FVM and the UU Rector.

The basis of this staff development program on 'educating the educator' is 'learning by doing'. Work-based learning is coached by a personal tutor and supported by training programs/courses. Training programs that support faculty in qualifying for BKO and SKO are available at UU and details are given in Appendix Chapter 8, A.

Apart from training programs for junior teachers working towards their BKO, UU has established the Center of Excellence in University Teaching (CEUT), a facility to support faculty members in developing educational leadership. CEUT offers a one-year program composed of ten two-day sessions on various educational topics, two study trips abroad and supervision and peer guidance on educational development projects submitted by the participants. Admission to the program is based on selection and prospective participants are selected by the Education Board and proposed to the dean. Appendix Chapter 8, B contains an overview of FVM teachers involved in CEUT.

A variety of other courses and training sessions are available for the development of research and patient care skills. All PhD courses can be found on the UU website: *http://www.uu.nl/uupublish/homeuu/faculteiten/utrechtgraduated/utrechtgraduates/phdprogrammes/phdtrack/45307main.html*
The educational programs for residents are determined by the different colleges and the European Board of Veterinary Specialisation: see the website: *http://www.ebvs.be*.
The FVM also developed a well-defined plan to scout, recruit, support and coach young potentials. The academic leaders are made (and being held) responsible for recruiting future staff members. In order to do so, they are supported by the FVM's Research Management and HRM staff members.

The FVM is more and more involved in cooperation with partners in research and teaching, both nationally and internationally. A positive additional benefit of this is that it enables the exchange of young staff with potential so they can gain national and international professional experience.

The above policies form part of long-term staff management and are implemented specifically in the individual career agreements to come out of the yearly individual Result and Development Plan. This Result and Development Plan is an important instrument within the FVM with regard to expectations of and goals for the performance and development of individual employees during a fixed period. Such an annual consultation focuses on, among other things, the prospective career development, personal development and any additional education needed, as well as the time scale in which the objectives must be achieved. Multi-year career development objectives and agreements are laid down in a personal development plan.

Another major change is that the Dutch Government is encouraging employees to work until the age of 65 or maybe even longer. Therefore, an age-conscious policy is needed. Part of this policy may be that the elderly get a role in supporting the younger staff members. The long-term staff plans, in use since 2006, are the basis for HR decisions concerning the in-, through- and outflow and career development of staff members, and enables us to follow this Governmental policy.

8.8. Current plans or major changes in program direction that would be affected by faculty retirements, recruitment or retention.

The FVM's key policy objective is that the veterinary curriculum is leading. To reach this goal the right employees have to be recruited. This present policy is better equipped for retaining staff and shaping the career paths of individual staff members within the departments. The FVM works with long-range staff plans to anticipate staff flow. To guarantee continuity and quality so-called 'roof tile constructions' are being implemented.

9 Curriculum

9.0. Introduction

The Utrecht Veterinary Curriculum in the Netherlands consists of a six-year program, divided into a Preparatory Phase of four years, concluded with a Doctoral Exam, and a Function-directed Phase of two years, concluded with an Exam in Veterinary Medicine, leading to the degree of Doctor in Veterinary Medicine (DVM). Each year consists of 60 ECTS, which is equivalent to 42 weeks of 40 hours of study for the students.

The Preparatory Phase is aimed at providing theoretical knowledge of and insight into healthy and diseased animals that are relevant for the veterinary profession. In the Function-directed Phase this knowledge is applied during clinical and extramural training. The curriculum as a whole covers 360 ECTS.

The implementation of the first year of the 2001 Curriculum got underway in 2001. That means that the final, sixth, year of the 2001 Curriculum is implemented in the academic year 2006-2007. The first students from the 2001 Curriculum will graduate in the summer/autumn of 2007.

9.1. The overall objectives of the curriculum and how these objectives are integrated into individual courses

The overall objective of the 2001 Curriculum[1] is to deliver doctors of veterinary medicine in accordance with EU Directive 78/1026/EEC and 78/1027/EEC, who have acquired:

- Problem-solving skills;
- Social and communicative skills;
- An academic/scientific level of thinking and working;
- A starting competence that is both more species-specific and more closely attuned to the labor market;
- Awareness of lifelong learning.

These objectives are in line with the overall objectives of the 1995 Curriculum. The curriculum objectives arise from developments in society, in scientific research and in educational theories on higher education (PEW report 1989, EAEVE objectives 1992, labor market report 1988 (in Dutch: *Arbeidsmarktrapport*).

On top of these objectives the 2001 Curriculum aims to achieve:

- Further academic development of the veterinary medicine curriculum;
- Further (sector/animal species) differentiation via the introduction of separate study tracks/courses.

The overall objectives of the Utrecht Veterinary Curriculum were recently described in detail in the Report "Programme Outcomes of the Veterinary Curriculum", Utrecht, January 2006. The content of these Programme Outcomes are described in Chapter 0: Objectives. The Program Outcomes are available on the website (*http://www.vet.uu.nl/viavet/viavet_english/onderwijs/curriculumontwikkeling/eindtermen_curriculum_diergeneeskunde*), and a hard copy will be sent to the Site Visit Team.

The curriculum is designed to achieve the above-mentioned objectives

The overall didactic model underlying the curriculum is that of activated learning. In a balanced combination of knowledge transfer (by means of lectures, guided self-tuition, and motivating self-tuition materials), the application of knowledge and the achievement of understanding (by means of small group learning and group assignments), and the development of skills (by means of practicals and clinical rotations), the students are trained to acquire and apply knowledge and understanding, make judgments, and develop communication and learning skills. An overview of all courses in the curriculum and the attention given within the courses to reach the so-called Dublin Descriptors, used for the Bachelor and Master Curriculum in Europe; is shown in the next Table.

In each course of the Preparatory Phase the percentage of contact hours aimed for is between 30-35%. The higher percentage is allocated for those courses in which specific (practical) skills are trained.

[1] **Curriculum 2001** Proposals for Further Academic Development of the Veterinary Medicine Curriculum and an Evolution towards Separate Study Paths, May 2000

Table 9.1 A Dublin descriptors **Courses**		**TR**	**Study Points**				**Knowledge & understanding**	**Applying knowledge & understanding**	**Making judgements**	**Communication**	**Learning Skills**
			Core	FA/VPH	CA	H					
Year 1	Introduction into Veterinary Medicine	1	6				XXX	XXX	XXX	XXX	
	Cell Biology/Histology	1	5				XXX	XX	X		
	Embryology	1	3				XXX	XX			
	Biochemistry	2	6				XXX	XX	X		
	Structure & Function 1: locomotion system	2	3	1	1		XXX	XX			
	Academic Training	2	4				XX	XX	XXX	XXX	XXX
	Structure & Function 2: digestive system	3	4	2	2		XXX	XX	X	X	
	Structure & Function 3: central nervous system/ endocrinology	3	3				XXX	XX			
	Genetics	3	3		1		XXX	XX			
	Academic Training	3		1			X	XX	XX		
	Externship Introduction into Veterinary Medicine	3		1	1				XXX	XXX	
Year 2	Structure & Function 4: respiration, circulation, skin	1	3.5	1	1		XXX	XX	X		
	Structure & Function 5: reproduction, endocrinology and metabolism	1	4	1.5	1.5		XXX	XX	X		
	Topografic Anatomy	1	1	2	2		XXX	XX		X	
	Structure & Function 7: birds	1	1				XXX	XX			
	Structure & Function 6: water & salt, kidney's, thermoregulation	2	3				XXX	XX	X		
	Topografic Anatomy	2			0.5		XXX	XX			
	General Microbiology/General Immunology 1	2	3				XXX	XX			
	General Pathology	2	2.5				XXX	XX			
	General Pharmacology	2	2				XXX	XX	X		
	Adaptation 1	2	1	0.5			X	X	XXX		
	Pathophysiology	3	6				XX	XXX	XX	X	
	General Microbiology/General Immunology 2	3	4				XX	XXX			
	Breeding	3		2	2.5		XXX	X			
	Management & Profession Orientation	3	1	1	0.5		X	X	XXX	XXX	X
Year 3	Diagnostics - Clinical	1	4	2	2	2	XX	XXX	XX	X	
	Diagnostics - Additional	1	2	2	2	2	XXX	XXX	X	X	
	Veterinary Environmentology	1	2				XX	XXX	XX	XX	X
	Medicine 1	2	3	1	1.5	1.5	XXX	X			
	Medicine 2	2	2	1	1.5	1.5	XXX	X			
	Animal Nutrition	2	2	1.5	1	1	XXX	XX	X		
	Adaptation 2	2	1	1.5	1	1	X	X	XXX		
	Medicine 3	3	3	1.5	1.5	1.5	XXX	X			
	Medicine 4	3	3	1.5	1.5	1.5	XXX	X			
	Pharmacotherapy	3	2	1	1	1	XXX	XX	X		
	Externship	all	1					XX	XXX	XXX	X
Year 4	Introduction into Veterinary Public Health	1	4				XX	XX	XX	XX	
	General Obstetrics	1	2.5	1.5	1.5	1.5	XXX	XXX	X		
	Introduction Management of Husbandry/Economics	1	2	1.5	1	1	XX	XX			
	Clinical Lessons	all	8.5	3	5	5.5		X	XXX	XX	XX
	General Surgery	2	3	1	2	2	XXX	XX			
	Anesthesiology	2	1		1,5	1	XX	XXX			
	Veterinary Medicine & Society	3	3	1	1	1	X	X	XXX	XXX	XX
	Food Quality Management	3		4			XX	XX	XX	XX	
	Externship	all	2					XX	XXX	XXX	X

	Courses	TR	Study Points				Knowledge & understanding	Applying knowledge & understanding	Making judgements	Communication	Learning Skills
			Core	FA/VPH	CA	H					
Year 5	Student Research Project		12					XX	XXX	XX	XXX
	Uniform Clinical Rotations		30				X	XX	XXX	XXX	XX
	subject Veterinary public health		2				X	XX	XXX	XXX	XX
	subject Pharmacy and Practice management		3				XX	XX	XXX	XXX	XX
	subject Ruminants		5				X	XX	XXX	XXX	X
	subject Pigs		3				X	XX	XXX	XXX	X
	subject Poultry		2				X	XX	XXX	XXX	X
	subject Pathologic and Microbiologic diagnostics		3				X	XX	XXX	XXX	XX
	subject Companion animals		7				X	XX	XXX	XXX	X
	subject Equine		5				X	XX	XXX	XXX	X
Year 6	TRACK Program Companion Animals			42			X	XX	XXX	XXX	XX
	TRACK Program Equine					42	X	XX	XXX	XXX	XX
	TRACK Program Farm Animals				42		X	XX	XXX	XXX	XX
	TRACK Program Veterinary Public Health				42		X	XX	XXX	XXX	XX
	TRACK Program Management and Policy			42	42	42	XX	XX	XXX	XXX	XX
	TRACK Program Veterinary Scientific research			42	42	42	X	XX	XXX	XXX	XXX

x = some attention **xx** = intermediate atttention **xxx** = focused on

Educational methods in the Preparatory Phase:

- Lectures are scheduled to give an overview of a subject or a whole course and to explain difficult topics within the course. Lectures are given for a cohort of students. A lecture is scheduled to last one hour (45 minutes lecture and 15 minutes break).
- Self-tuition is organized and stimulated by subject materials on an academic level and by self-tuition questions, developed by the teachers. It is directed to obtain insight and trigger curiosity. Self-tuition is stimulated by good self-tuition facilities in a Learning Environment (see 3.1 and 5.1) and by the presence of teachers during part of the time allocated for self-tuition.
- Small group learning forms the backbone of the curriculum in the Preparatory Phase. Wherever possible it is used to practice problem-solving in the context of the future veterinary profession. A variety of didactic approaches is used in the working groups, but their main goal is that students use the knowledge that they absorbed in lectures and self-tuition to achieve problem-solving and academic skills.
  To underline the importance of problem-solving skills teaching is centered on *problems that have a veterinary context. Integrated tasks/problems* are preferred over specific, discipline-oriented problems. As a result most of the courses have an *interdisciplinary* focus. The variety of didactic approaches helps the students obtain social and communicative skills, or put more broadly, to develop proper professional conduct during small group learning. Small group learning is scheduled for a maximum of 25 students, in periods of two hours.
- In group assignments problem-solving is trained by means of more complex tasks. A group assignment session starts with the introduction of the group task by the teacher in a plenary session. After the introduction the group (with a maximum size of ten students and often split up in smaller groups) draws up a plan to work out the task. This requires searching new scientific literature in the library and on the internet. The assignments normally involve the scheduling of one or two feedback moments in which the teacher answers questions from the students and checks if they are heading towards an adequate solution to the task. The group assignments are concluded and assessed by way of an oral presentation and/or a paper. For each group assignment a period of ten hours of study is scheduled, with a mean of four hours of contact time.
- Practicals/labs are mainly scheduled for students to develop veterinary-practical skills that are relevant for the future profession or to allow students to gain a better understanding of a specific topic by means of practical work in comparison with 'dry'/paper tasks in small group learning. Practicals are usually scheduled for groups of 15 students, for four hours.

Educational methods in the Function-directed Phase:

- Clinical clerkships are scheduled to help students apply knowledge and understanding in a clinical environment and to develop practical skills that are necessary for the veterinary profession. Self-tuition is incorporated into the period of clinical clerkships to reactivate existing knowledge and add new knowledge in order to stimulate evidence-based veterinary medicine.
- Individual research training is scheduled for students to learn to apply the basic principles of scientific research to a well-described, 12-week research project (17 ECTS).

In summary: the overall objectives of the 2001 Curriculum are integrated into the different courses as follows:

- Problem-solving skills: all courses of the curriculum, with a specific emphasis on Clinical Lessons in the fourth year and the clerkships.
- Academic training: all courses of the curriculum aim to integrate scientific aspects of the subjects involved. Certainties as well as uncertainties are discussed and relevant research questions of the subject involved are addressed.
  The first-year subject 'Academic Training' covers those academic skills that are applied in subsequent courses, especially in group assignments. In the fifth year all students enroll for a period of research experience.
  The elective subjects of the curriculum also aim for in-depth academic training. In the Preparatory Phase a total number of ten weeks (15 ECTS) is spent on elective courses, while in the Function-directed Phase another ten weeks (15 ECTS) are available for electives as part of the tracks clerkships (see below).
  During the implementation of Curriculum 2001 the incorporation of evidence-based veterinary medicine into all courses receives specific attention. A Project Team has worked out a framework for the translation of paragraph 7 of the Program Outcomes: Scientific Aspects in a uniform manner. *More details about this project can be found under 9.2*.
- Social and Communicative skills: in all courses of the curriculum, especially in small group learning/tutorials and group assignments where student have to work together to fulfill tasks and solve problems. Specific training in communication and cooperation are scheduled to be covered by the first-year subject 'Introduction into Veterinary Medicine' (training in conversation techniques and giving and receiving adequate feedback), the second-year subject 'Management and Professional Orientation' (training in cooperating with a group of students in order to make a long-term policy plan for a veterinary practice), the third-year subject 'Diagnostic Procedures' (communication in connection to an adequate anamnesis), the fourth-year subject 'Clinical Lessons' (case-based learning including communication with the client/animal-owner) and in all clinical rotations.
  In 2003 'social and communicative skills' were widened to 'professional conduct': see 9.2.
- Acquiring a starting competence that is more species-specific and more closely linked to the labor market:
  Separate tracks are implemented from the first year on. In the Preparatory Phase the number of credits dedicated to the track that was chosen by the student is gradually increased from year 1 to year 4. All courses have a core component. Courses that include components on a specific species and/or sector include a track part as well.
  In the Function-directed Phase the fifth year is Core Curriculum only, with a Uniform Clinical Rotation Program of 30 weeks (43 ECTS) and a period of Research Experience of 12 weeks (17 ECTS), while the sixth year is totally devoted to a track-specific clinical rotation program (Table 9.1 A).

Table 9.1 B: Overall division of ECTS/Study Load over Core and Track curriculum

	Core	Track	Total
First year	53 ects	7 ects	60 ects = 42 weeks
Second year	49 ects	11 ects	60 ects = 42 weeks
Third year	40 ects	20 ects	60 ects = 42 weeks
Fourth year	40 ects	20 ects	60 ects = 42 weeks
Preparatory phase	182 ects	58 ects	240 ects = 168 weeks

Fifth year	60 ects	0 ects	60 ects = 42 weeks
Sixth year	0 ects	60 ects	60 ects = 42 weeks
Function-directed Phase	60 ects	60 ects	120 ects = 84 weeks
Total C-2001	242 ects	118 ects	360 ects = 252 weeks

Table 9.1 C: Breakdown of the curriculum into tracks

First & second years	**' Individually kept Animals'** 7 & 11 = 18 ects track			**Farm animals / Veterinary Public Health** 7 & 11 = 18 ects	
Third & Fourth years	**Equine** 20 & 20= 40 ects	**Companion Animals** 20 & 20= 40 ects	**Veterinary Research** 20 & 20= 40 ects	**Farm animals / Veterinary Public Health** 20 & 20 = 40 ects	
Fifth year	**Uniform Clinical Rotation Program and Research Externship** = 60 ects				
Sixth year	**Equine**	**Companion Animals**	**Veterinary Research**	**Food Animals**	**Vet.Publ. Health**
All:60 ects	Out of all Tracks: **Management & Policy**				

- Lifelong learning: to allow students and graduates to develop an academic level of thinking and working all courses aim to address uncertainties in available knowledge related to the course subject. Where possible, efforts will be made to extend knowledge and reduce uncertainties by scientific research.

The necessity of lifelong learning is mentioned in all course-transgressing meetings with students in which their future veterinary professional life is discussed, for instance during informative meetings on the future labor market or the quality assurance systems in the veterinary profession, and during the graduation ceremonies of the Doctoral Exam and the Veterinary Exam. It is emphasized that continuing education should be followed in the area of the chosen track and that extensive retraining is required if a graduate is planning to shift his or her professional focus to another species or sector.

9.2. Description of major curriculum changes that have occurred since the last accreditation

a. Education in "Professional Conduct" (PC)

In 2002 a Report on "Professional Conduct: Teaching, assessing and coaching students; Final report and appendices" was published. The FVM participated in this project of all medical faculties in the Netherlands.

Immediately following the publication of this National Report the FVM launched a Committee "Professional Conduct", with the task of translating the recommendations in the national report into the Utrecht Veterinary Curriculum. The Committee determined the different aspects of PC, within three dimensions: dealing with work and tasks, dealing with others (for veterinary medicine humans as well as animals) and dealing with oneself. In each of the three dimensions different aspects were identified:
Dealing with work and tasks: autonomous, systematic, responsible, involved, independent, constructive;
Dealing with others: respectful, reliable, open, communicative, cooperative;
Dealing with oneself: self-confident, critical reflective, oriented towards development.

The Committee translated the different aspects of PC into structural education in "professional conduct", which started in September 2003 in the first year of the curriculum. In the academic year 2006-2007 education in "professional conduct" is implemented in the fourth year of the curriculum. Relevant parts of the report on PC: see Appendix Chapter 9, A. This education takes the form of tasks within courses, on which students receive feedback from teachers and peers, while they themselves reflect on what they learned and experienced in a written self-assessment reflection. All information is incorporated into a portfolio. The content of the portfolio is discussed by the individual student with a tutor. In the first year there are three student-tutor meetings, in the following years there are two or three meetings. The tutor acts as a coach for the individual student and helps him/her define individual learning objectives for the following period.

b. Evidence-based Veterinary Medicine (EBVM)

In September 2005 a project was launched by the Education Board to achieve a structural and uniform approach of 'evidence-based veterinary medicine' in the Utrecht Veterinary Curriculum. A Project Team "Beter Onderbouwd Beslissen" (BOB) – which can be translated along the lines of "More Informed Decision-making" (MID) – was commissioned to develop a framework for the implementation of 'evidence-based veterinary medicine' in all courses.

The essential steps in decision-making are defined as: Define the problem | Formulate specific queries | Search for evidence | Evaluate the evidence (information technical; methodological; statistical) | Draw conclusions and decide | Communicate. These steps can be applied to diagnostic, therapeutic,

preventive or prognostic questions/problems.

The methodological aspects can be rated as follows: (1 best "evidence", 10 less strong "evidence"):

1. Systematic review
2. Meta-analyses
3. Blinded randomized clinical trial
4. Cohort studies
5. Case control studies
6. Case series
7. Single case reports
8. Ideas, editorials, opinions, consensus reports
9. Comparative animal research
10. *In vitro* test tube research

In veterinary literature the top level methodology is rare. In a BOB brochure (see Appendix Chapter 9, B) a matrix is developed involving all steps and all different items of EBVM. Suggestions are given concerning the most suitable forms of education and ways to assess EBVM. One case is worked out in detail in order to show all possibilities. This matrix serves as a reference for Educational Working Groups when developing their courses.

c. Integration of Medicine and Special Pathology

During the development of Curriculum 2001 the Education Board became more and more aware that integration of clinical courses in medicine and pathology in the third year of the study program would further improve the 2001 Curriculum. A new Educational Working Group was appointed to work out the integration. The new course in Medicine is an integration of the clinical courses, and courses on pathology and infectious diseases. All subject material was rewritten for this new course while the teaching hours were integrated.

d. Clinical Lessons

The fourth-year course Clinical Lessons has been developed to a case-based longitudinal course in which permanent training is given in problem-solving and clinical reasoning. During this course students train their clinical reasoning at three levels. The first level consists of 72 case-based demonstrations of clinical problems in all relevant species; each demonstration lasts 45 minutes. In the second level students participate in 44 case-based small group learning assignments, in which they train clinical reasoning and problem-solving. In the third level students practice their clinical reasoning and clinical problem-solving in the role of veterinarian, using real patients during about 21 practical trainings. A strict system of longitudinal feedback and assessment stimulates intensive student participation.

e. Uniform clinical rotation program

A uniform approach to coaching and assessment in the clinical rotation and a harmonization of the uniform clinical rotation program was developed during the introduction of Curriculum 2001. In recent years we introduced a portfolio-based system for assessment and coaching of the students in the uniform (fifth year) clinical rotation. The feedback and assessment is harmonized over the different parts of this 30-week clinical rotation, resulting in more longitudinal coaching over these 30 weeks; see 11.3 as well.

Apart from the up-dating of the clinical rotations in the intramural teaching clinic and the Ambulatory practice of the department of Farm Animal Health, we intensified the participation of our students in clinical problem-solving on farms that were referred to the FVM by practicing veterinarians. Supervised by our clinicians students perform a SWOT analysis and advise the farmer and the referring veterinarian.

f. Practice Management and Pharmacy

In the uniform clinical rotations the courses on Practice Management and Pharmacy have been united in an integrated course. This gives students a much better understanding of the impact that Practice Management and pharmaco-therapeutic work have on their future occupation and income.

9.3. Description of the process used for curriculum assessment (including course/instructor evaluation) and the process used to assess curricular overlaps, redundancies and omissions

The FVM applies a systematic quality management to its educational process. As stated in paragraph 6.6 each course is evaluated with the use of questionnaires. This paragraph focuses on the use of evaluation results in a system of quality control.

a. Quality Control of preparation

a1. Policy-making

The Education Board accepted the framework for Curriculum 2001, in which every course is described separately and in relation to the other courses. In line with this framework all Educational Working Groups developed a framework (in Dutch: Raamplan) for their own course. Formal acceptance of these frameworks by the Education Board was required before implementation, as are major changes to the framework.

a2. Teaching qualifications

All aspects of the UU teaching qualifications system (BKO and SKO) and its assessment are described under 8.7.

b. Quality Control of the educational process

Each OWG carries out the education program in accordance with the outline of the curriculum and the framework of the course concerned. Some OWGs receive secretarial and administrative support from a central level. This is done because some subjects are taught by several departments and coordination, planning of meetings, and gathering student assessments between departments requires a lot of time from the teachers. This central support improves efficiency and provides a fair and uniform approach to students in the preparatory phase. Each examiner is a member of the Examination Committee, which checks the way students are assessed.

c. Quality Control: the check

c1. Course evaluations

At the end of each trimester all students are asked to fill out anonymous paper questionnaires for each of their courses (see 6.6.). The results are discussed with the OWG and other teachers, and a delegation of students. The OWG uses these evaluations to extract feedback on teaching and for future improvements to the course(s). All course evaluations are compiled in a report that is discussed and assessed by the Education Board every trimester, with the advice of the Education Council. The results of the evaluation are published on the internet.

c2. Overall Survey

An Overall Survey is held at the end of each academic year. It monitors the students' appreciation of the curriculum, the teaching philosophy, and the support that students receive from their teachers and tutors. The results are discussed by the Education Board and a delegation of students.

9.4. Description of the strengths and weaknesses of the curriculum as a whole

Strengths

The FVM provides for a modern curriculum that aims at developing problem-solving skills and professional conduct, an academic approach, and a species-oriented differentiation.
The description of the Program Outcomes of the curriculum and implementation into education and assessment.
A further improvement of different parts and aspects of the curriculum, like structural attention for evidence-based veterinary medicine, Clinical Lessons, extramural education and the plans for further curriculum development, focused on the integration of healthy and diseased.
Exposure to clinical cases: hospital, ambulatory clinic and externships.

The FVM has a well-developed quality assurance system: all courses are evaluated every year, measures for improvement are proposed if applicable, and students contribute actively.

The FVM has a balanced staff of enthusiastic and experienced teachers, all equipped with accurately defined teaching qualities (basic and senior qualification). Implementation of a chair Quality Improvement in Veterinary Education.

The FVM has standardized evaluation procedures in place for all courses in the curriculum and the quality assurance system has been extended to 'research in education' and 'outcome assessments'.

The facilities for students' self-tuition in the FVM learning environment.

Weaknesses

The academic aspect of the curriculum renewal will have to be further implemented in the system of testing and examination, with less emphasis on the memorizing and reproduction of factual knowledge. Educational conservatism in some teachers.

Teachers are not enough involved in the quality system.

Basic qualification for teaching is less well developed than that for research (PhD) and patient care (Diplomat/Residents).

Recommendations

- The continuation and further implementation of the FVM educational philosophy is a lengthy process. The effective translation of this philosophy into activated learning and the 'behavior' of students and teachers that is necessary to achieve an atmosphere of activated learning needs permanent attention.
- Increased emphasis on ICT in education and the further development of a clinical skills lab;
- Ongoing activities to increase involvement of faculty in the quality system;
- Implementation of a Bachelor-Master curriculum, in which integration of healthy and diseased is realized;
- Development of plan for a Curriculum Database and its implementation.

9.5. Description of preceptor and externship programs

a. Externships in the Propaedeutic part

The first-year subject "Introduction into veterinary medicine" comprises two externships outside the FVM. In the first trimester students spend one week in different fields of veterinary medicine – Veterinary Public Health, or a veterinary practice, focused on CA, E or FA – in order to acquire adequate information that allows them to make a well-grounded choice between the tracks FA/VPH and CA/E. Assessment: students are asked to write a paper on their experiences.
In the third trimester students will spend one week working at a farm (ruminants or pigs), an animal shelter, or a horse riding school, in order to participate in the everyday life of a person who takes care of animals and/or works in VPH. Assessment: a paper, written by the students, and an evaluation by the professional animal caretaker.
These externships are scheduled to take place for the last time during the academic year 2006-2007.

b. Externships in the Doctoral part

During externships in the Doctoral part students pay three one-week visits to an FA practice, a CA practice and the National Inspection Service for Livestock and Meat or another related veterinary institute respectively. The goals are:

- To acquire knowledge of and insight into the organizational and managerial aspects of the veterinary practice;
- To create awareness of professional conduct in a veterinary practice.

Assessment is done by way of a paper, in which students address questions on the veterinary workplaces. The supervising veterinarians evaluate the attitude of the trainees.

c. Externships in the function directed part

The Education Board developed standards for externships in cooperation with the clinical departments and the RNVA. Veterinary practices that want to participate in this externship have to meet minimal requirements. In addition to this the FVM set up a standard contract with a limited number of selected private clinics in the Netherlands to provide six-week externships in the sixth-year clinical rotation part. Students may extend this period by one to six weeks as an elective course in their clinical rotation. Through diagnosis and treatment of first line cases in a veterinary practice this externship is focused on the development of skills. The Program Outcomes are leading in determining the specific goals for this period. Minimum requirements of the veterinary practice:

- Adequate level of the practice, certification;
- Case load of a minimum of ten primary care cases per day;
- Didactic skills: at least one of the veterinarians in the veterinary practice has received specific training on tutoring students in their clinical training;
- Species in accordance with the track program;
- Explicit time for student training, feedback and assessment must be available.

At the end of 2006 we started with a limited number of pilots in which practitioners in different sectors

– Farm Animals, Equine and Companion Aminals – participated. Students of Curriculum 1995 in the last phase of their rotations were asked to follow a six-week externship. The pilot project will take half a year before it is evaluated. No further details can be given at this moment.
We investigated the need for participating practitioners to receive training in academic teaching. Full implementation of quality standards on teaching is expected to take approximately three years. Further details: see Appendix Chapter 9, C in which the relevant parts of the report of the committee "External Education" are given.

9.6. Curriculum Digest

All courses of the core and track curriculum of years 1 to 6 are given in Appendix Chapter 9, D and E. All elective courses in the Preparatory Phase are given in Appendix Chapter 9, F. Both tables include all course hours and didactic mode of instruction.

9.7. Audit of Selected Curricular Content

The three selected courses and the number of hours devoted to the topics asked are given in table 9.7. (*See page 73*).

9.8. Description of current plans for curricular revisions

Reasons for the development of the Bachelor-Master curriculum:
- The Bologna declaration;
- The directives of Utrecht University;
- Didactic concept: activated learning/self-tuition/academic training/more emphasis on the assessment system and longitudinal assessment;

The new Bachelor-Master curriculum will be introduced at the FVM in September 2007. The curriculum complies with the European Bologna declaration on higher education, which the European Ministers of Education agreed in 1999. In this declaration a basic structure of a two tier Bachelor-Master system was laid down.

The action program set out in the Declaration is based on a clearly defined common goal, a deadline and a set of specified objectives:
- The clearly defined common goal: to create a European space for higher education to enhance the employability and mobility of citizens and to increase the international competitiveness of European higher education;
- The deadline: the European space for higher education should be completed in 2009;
- The set of specified objectives:
  - The adoption of a common framework of readable and comparable degrees, "also through the implementation of the Diploma Supplement";
  - The introduction of undergraduate and postgraduate levels in all countries, with first degrees no shorter than three years and relevant to the labor market;
  - An ECTS-compatible credit system that also covers lifelong learning activities;
  - A European dimension in quality assurance, with comparable criteria and methods;
  - The elimination of remaining obstacles to the free mobility of students (as well as trainees and graduates) and teachers (as well as researchers and higher education administrators).

At almost all Faculties of Utrecht University the Bachelor programs started in 2002. At the Faculty of (Human) Medicine the Bachelor program started in 2006; and with the start of the Bachelor curriculum at the FVM in 2007, all UU Faculties will have adopted the new structure.
Expected advantages of this system are that university degrees will be comparable between European countries. This promotes employability of European citizens and international competitiveness of the European higher education system. The ECTS (European Credit Transfer System) has been adopted by all Universities and Colleges. This provides a uniform quantification of study efforts and promotes mobility of students within Europe. It also aids the valorization of periods spent in other European institutes of higher education by teachers, researchers and administrative staff.

During the Bachelor phase emphasis is placed on academic training with a broad orientation, combined with specialization in one major and preparation for further academic training.

A specific goal of the UU Bachelor program is improvement of the quality and effectiveness of higher education. "Registration for a course = participating in the course (commitment) = in principle passing the course". This improvement of effectiveness will be reached through: 1) small-scale teaching, rather than large group lectures, 2) strengthening of the personal bond between the student and the educational program by means of appointed tutors and 3) limitation of the number of exam re-sit options.

At the end of the three-year Bachelor program students can terminate their studies and receive a Bachelor diploma or continue their studies by following a Master's program of 1 – 4 years duration.

The veterinary curriculum will consist of a three-year Bachelor and a three-year Master program.

At the FVM specific goals for the new Bachelor program are: increasing the academic character of the curriculum, integrating 'health' and 'disease' in theme-oriented courses, stimulating lifelong learning, emphasizing multi and interdisciplinary specialization, integrating research and education and preparing the students for a Master's program.

During the Bachelor phase students receive a general, 'overall species' education. During the Master's phase a clinical orientation for all species at a basic level will be combined with an extended period of training in a specific area of veterinary medicine (companion animal medicine, farm animal health care, and equine health care).

In the first semester of the Bachelor program the students will be handed the so-called toolbox: from organism to cell, and from DNA to population. After this, the education will be in blocks and lines with a maximum of two courses at the time (see Appendix Chapter 9, G). Thematic and organ-oriented blocks have been developed. In all blocks aspects of health, diseases, animal welfare, EBVM, professional conduct, pathobiologic insight across species, problem-oriented clinical reasoning and subjects from all veterinary disciplines (from anatomy, embryology and cell biology to infectious diseases, medicine and pharmacology) will be addressed. Self-tuition by the student will be strongly emphasized in the new Bachelor program.

The core curriculum of the Preparatory Phase of Curriculum 2001 will be transformed into the course of the FVM's new Bachelor Curriculum.

The three-year Master program will consist of a period of research experience, clinical rotations in all relevant areas of veterinary medicine, and clinical rotations in combination with more theoretical education in three different Master profiles, focused on FA/VPH, Equine or Companion Animals. Within each of the three species profiles students may choose between clinical, research or management orientations. Specification of the curriculum outcomes that apply to all programs and subprograms can be found in the "Programme Outcomes of the Veterinary Curriculum". All programs and all orientations within the programs will lead to the DVM degree.
The format for the Master's program is under construction.

Appendix Chapter 9, G: Blueprint Veterinary Bachelor Curriculum

	Course	Hours	Course	Hours	Course	Hours
CLINICAL REASONING AND PROBLEM SOLVING	Clinical Lessons	460	Uniform clinical rotation	400*	Track clinical rotation	500*
CRITICAL PATIENT CARE						
Intensive Care and Emergency Medicine	Pathophysiology	40	Uniform clinical rotation	16	Track clinical rotation, specific CA and E	± 200
Pain Management	Pain - elective	40	Anaesthesiology	20	Uniform and track clinical rotations, specific CA and E	80
Principles and hospital practice for isolation of infectious disease	Medicine	20	Uniform clinical rotation	20	Track clinical rotation	40
INFORMATION MANAGEMENT AND THE MEDICAL RECORD						
Herd Health	Introduction into Herd Health Management	80	Uniform clinical rotation	120	Track clinical rotation, specific FA	500**
Individual Animals	Clinical Lessons	20	Uniform clinical rotation	100	Track clinical rotation, specific CA and E	± 150
HUMAN ANIMAL BOND						
Behavior	Introduction into Veterinary Medicine	80	Adaptation 1 and 2	40	Laboratory Animal Science - elective	10
Animal Welfare	Adaptation 1 and 2	60	Veterinary Medicine and Society	20	Uniform and Farm Animal track rotations	± 100
Euthanasia and grief counseling	Veterinary Medicine and Society	5	Uniform clinical rotation	20	Track clinical rotation, specific CA and E	40
EPIDEMIOLOGY AND ZOONOSES						
Regulatory Principles	Introduction into Veterinary Public Health	20	Veterinary Medicine and Society	40	Uniform and track clinical rotations, specific FA/VPH	40
Epidemiology	Academic training	40	Introduction into Herd Health Management	20	Uniform and track clinical rotations, specific FA/VPH	200
Animals & the Environment	Veterinary Environmental Science	60	Adaptation 1 and 2	20	Uniform and track clinical rotations, specific FA/VPH	100
Zoonoses	Introduction into Veterinary Public Health	20	Medicine	40	Zoonosis - elective	80
Food Safety	Introduction into Veterinary Public Health	60	Uniform rotation VPH	40	Track clinical rotations, specific FA/VPH	± 200
Foreign Animal Disease	Medicine	60	Tropical Animal Health	60	Track clinical rotations	40
MOLECULAR AND CELL BIOLOGY	Biochemistry - 1st year	80	Genetics	40	Cell Biology	60
PROFESSIONAL DEVELOPMENT						
Career knowledge/options	Introduction into Veterinary Medicine	80	Management and Professional orientation	20	Practice Management	10
Attributes & worth of a professional**	Introduction into Veterinary Medicine	10	Veterinary Medicine and Society	20	Uniform and track clinical rotations	± 60
Ethics	Laboratory Animal Science - elective	20	Veterinary Medicine and Society	50	Uniform and track clinical rotations	± 60
Communication**	Introduction into Veterinary Medicine	30	Diagnostics	20	Uniform and track clinical rotations	30**
Business and Practice Management	Introduction into Veterinary Medicine	10	Management and Professional orientation	40	Practice Management	30
CLINICAL TECHNIQUES AND SKILLS						
History and physical exam	Diagnostics	240	Clinical Lessons	80	Uniform and track clinical rotations	500***
Hands-on clinical procedures (catheter placement, nasogastric intubation)	General surgery	40	General Obstetrics	30	Uniform and track clinical rotations	500****

Table 9.7 * Clinical reasoning and Problem solving belong to the core competencies that are trained during all clinical rotations in 62 weeks

** Communication, as well as attributes & worth of a professional, are integrated throughout the curriculum in education in Professional Conduct; specific training is given in the mentioned courses

*** History and physical exam is one of the core competencies that are trained during all clinical rotations in 62 weeks

**** Hands on clinical procedures belong to the core competencies that are trained during all clinical rotations in 62 weeks

10 Research

10.1 Description of up to five programs of research emphasis and excellence

In the past, the research at the FVM has been evaluated regularly according to standard procedures for public institutions in The Netherlands. On the basis of the latest research assessment – November 2005 – the international review committee concluded with respect to academic reputation:

"At the latest external research evaluation (VSNU 1999) the FVM was rated as being among the top five veterinary institutions in the world. This assessment was made on the basis of objective data and subjective impressions and reflections. Bibliometric assessment which has, since then, become more powerful, now supports this judgment with hard data showing the FVM to be the fourth most cited academic veterinary institutions. This is not unexpected as one sees the impressive output documented in the present SER. Apart from such scientific data, it is safe to say that the FVM is widely perceived as one of the leading veterinary institutions in the world not only in research but also in teaching, post-graduate training, veterinary specialization and patient care. Among veterinary schools in Europe the FVM in Utrecht is accepted as number one while for institutions striving for excellence it provides an important frame of reference."

(Assessment of Research Quality – Research in Veterinary Sciences – Utrecht University, March 2006, p. 11).

In 2004-2005 it became clear that the Dutch government planned to reallocate part of the direct funding budget of universities based on their fund-raising capacity. Therefore, we started a reassessment of the FVM research program, which should eventually lead to more focus and critical mass and, so, to a better position for acquiring external funding. Realizing more focus and critical mass will undoubtedly boost the quality of research by enhanced chances for scientific innovation at the interface between disciplines and will lead to a more economic use of limited resources. This will enable us to attract and retain high potential scientists and will also increase fund-raising capacity. To further enhance our international visibility and to allow for cost-effective sharing of expensive research facilities, we also intensified the interaction with other research groups within and outside of the UU. As of 2006, the FVM research is structured in five coherent programs with 14 cross-departmental research lines thematically focused on important aspects of health, disease and well-being of animals and on related public and environmental health aspects. The following five thematic FVM research programs have been defined:

- Biology of Reproductive Cells (BRC, 20 FTE research)
- Emotion and Cognition (E&C, 15 FTE research)
- Risk Assessment of Toxic and Immunomodulatory Agents (RATIA, 60 FTE research)
- Strategic Infection Biology (SIB, 70 FTE research)
- Tissue Repair (TR, 40 FTE research)

The five thematic research programs are described in Appendix Chapter 10, A to this report.

All research groups involved in the thematic programs have been allocated a task-related research budget and, together, they represent a total research effort of nearly 205 FTE over the first year, 2006. The thematic research of the FVM has been integrated in the UU focus areas: 'Growth and Differentiation' (BRC, TR), 'Infection and Immunity' (RATIA, SIB) and 'Brain, Cognition and Behavior' (E&C).

10.2. Description of up to two additional programs of potential (evolving) research development

A consequence of focusing research in five thematic research programs is that it is no longer possible to cover the full width of clinical veterinary research concordant with the broad mission of the FVM. Various acute veterinary problems may require an immediate and flexible response by researchers of the FVM. In addition, research outside the focus of the thematic research programs may be required to maintain and develop a high level of veterinary specialization, e.g. by specialists in training. For this

specific purpose the FVM has allocated a substantial part of its research budget to enable research in:
Advances in Veterinary Medicine (AVM, 30 FTE research)
Research in AVM interacts with that in the five thematic research programs and, thereby, the two mutually contribute to deepening the insight in veterinary medicine and improving the scientific quality of veterinary research. It goes without saying that this so-called 'sixth research program' of the FVM differs from the five thematic research programs in that it consists of a variety of research projects rather than a coherent research program. Therefore, a separate description of this program is not appropriate.

In addition, the FVM has recently initiated:
Research in Education (3.2 FTE research)
Research in Education is performed by the FVM on a structural basis since the founding of a chair Quality Improvement in Veterinary Education in January 2005. Research is focused on the objectives of the Curricula 1995 and 2001 and the new Bachelor-Master curriculum. The different PhD projects are described in Chapters 9 and 11.

Matrix organization of research at the FVM-UU

Department / Program	BRC	E & C	RATIA	SIB	TR	AVM
Biochemistry & Cell Biology	X			X	X	
Pathobiology				X	X	X
IRAS			X	X		X
Animals, Science and Society		X				
Infectious Diseases & Immunology			X	X		X
Equine Sciences	X				X	X
Clinical Sciences of Companion Animals		X			X	X
Farm Animal Health	X	X		X		X

10.3. Evidence for the breadth and quality of the college research program, including:

The research input (FTE) and output of the departments over the period 2004-2006 is presented in the following two Tables.

Table 10.3.a.1 Departmental research input of the FVM-UU in the period 2004-06
N represents the number of staff and PhD students involved in research and FTE the full-time year equivalent of research.

		2004			2005			2006	
Department		**N**	**FTE**		**N**	**FTE**		**N**	**FTE**
Biochemistry and Cell Biology	staff	20	11.9		18	10.2		18	11.3
	PhD	15	11.4		14	10.2		12	7.9
	total	**35**	**23.3**		**32**	**20.4**		**30**	**19.2**
Pathobiology	staff	37	11.4		29	13.2		22	8.4
	PhD	18	15.9		20	12.1		9	6.2
	total	**55**	**27.3**		**49**	**25.4**		**31**	**14.6**
Institute for Risk Assessment Sciences	staff	45	21.4		49	30.7		37	22.1
	PhD	53	36.4		52	36.5		41	32.0
	total	**98**	**57.7**		**101**	**67.2**		**78**	**54.1**
Animals, Science & Society	staff	23	10.7		17	8.9		13	5.9
	PhD	13	8.7		16	10.4		7	7.0
	total	**36**	**19.4**		**33**	**19.3**		**20**	**12.9**
Infectious Diseases & Immunology	staff	49	27.8		41	25.6		36	26.1
	PhD	20	18.3		22	15.5		24	20.8
	total	**69**	**46.1**		**63**	**41.1**		**60**	**46.9**
Equine Sciences	staff	48	13.7		39	20.0		32	9.0
	PhD	21	21.2		25	11.5		18	9.7
	total	**69**	**34.9**		**64**	**31.5**		**50**	**18.7**
Clinical Sciences of Companion Animals	staff	66	16.4		58	19.8		49	11.8
	PhD	24	24.0		34	17.0		25	13.8
	total	**90**	**40.4**		**92**	**36.8**		**74**	**25.6**
Farm Animal Health	staff	38	12.9		34	18.5		34	14.6
	PhD	20	22.5		29	14.6		33	27.5
	total	**58**	**35.4**		**63**	**33.1**		**67**	**42.1**
FVM total	staff	321	126.2		295	146.9		241	109.2
	PhD	189	158.4		202	127.7		169	124.9
	total	**510**	**284.5**		**497**	**274.7**		**410**	**234.1**

Table 10.3.a.2 Departmental research output of the FVM-UU in the period 2004-06

Department		2004	2005	2006
Biochemistry & Cell Biology	Peer-reviewed publications	39	22	31
	Other publications	0	2	4
	PhD theses	2	3	5
Pathobiology	Peer-reviewed publications	67	63	37
	Other publications	33	16	10
	PhD theses	4	8	2
Institute for Risk Assessment Sciences	Peer-reviewed publications	105	102	104
	Other publications	9	8	6
	PhD theses	11	6	9
Animals, Science & Society	Peer-reviewed publications	41	39	33
	Other publications	15	16	14
	PhD theses	1	1	2
Infectious Diseases & Immunology	Peer-reviewed publications	82	73	74
	Other publications	13	2	9
	PhD theses	8	6	7
Equine Sciences	Peer-reviewed publications	91	82	79
	Other publications	49	58	33
	PhD theses	6	10	7
Clinical Sciences of Companion Animals	Peer-reviewed publications	57	57	73
	Other publications	24	113	72
	PhD theses	5	6	5
Farm Animal Health	Peer-reviewed publications	87	80	69
	Other publications	47	28	15
	PhD theses	9	8	9
FVM total	Peer-reviewed publications	464	453	447
	Other publications	162	231	149
	PhD theses	52	46	46

10.3.b Description of other measures of faculty research activity

The FVM actively disseminates research results through publication in peer-reviewed scientific journals (numbers in Table above). In 2006 FVM faculty held 31 editorships and yet more editorial board memberships of scientific journals. In addition, the FVM faculty generally participate in one or more international meetings each year and contribute to organizing scientific meetings as well. PhD students are also actively encouraged to present their results at national and international scientific meetings. The IVR organizes an annual Veterinary Science Day with the purpose of promoting communication between senior and junior, clinical and para-clinical researchers. An indication of personal research excellence are the Vici (1), Vidi (2) and Veni (3) and the Meervoud (for more excellent women in research; 2) laureates, awarded by the Netherlands Organizations for Scientific Research (NWO), who actively pursue research projects within the FVM. The FVM faculty participates in numerous committees and boards of national and international, governmental and non-governmental organizations (e.g. WHO; DIMACS; EU; ESF; ESCCAP). FVM research is also distinguished by several honorary doctorates/professorships, international research prizes and patented results.

10.4. Description of the impact of the overall research program on the professional program and on professional students

a. All veterinary students (100%) participate actively in research projects before graduation.

b1. As described in Chapter 9 a 12-week period of research experience is scheduled in the fifth year of the study.

Educational goals concerning the research internships:

1 Students are able to write a research proposal.
2 Students are able to use scientific literature relevant to the research subject.
3 Students are able to put into practice a simple research proposal.
4 Students develop skills in data acquisition and analyses.
5 Students are able to critically analyse own results and those of others.
6 Students develop independence and responsibility concerning their research project.
7 Students are able to work together in a group.
8 Students gain insight in the way problems are solved in a scientific research climate.

Different aspects regarding the quality and quantity of the research experience are investigated in the PhD project on the effectiveness of the curriculum ("are we reaching the goals pursued by the 2001 Curriculum?"). For more details: see 11.3.

b2 Excellent track/Honors Program:
The FVM has had an Honors Program (HP) for excellent students since 1993. It is named "Excellent Tracé" and has the following goals:

- To recognize the most talented veterinary students;
- To allow talented students to perform research in veterinary comparative medicine;
- To create a resource for future PhD students, tenure staff and veterinary researchers.

The Honors Program is organized by the Committee Individual Doctoral Exam Veterinary Medicine (CIDD), of which the members are appointed by the dean. Students are selected by the CIDD in the beginning of their third year. Students with high grades in the first two years of study (mean of > 8.00 on a scale of 1-10) are invited for an interview. Motivated students with somewhat lower mean grades can ask for an interview as well. After two interviews students have to select a topic for their research project and a supervisor. Students submit their research proposal to the CIDD, which screens the proposal thoroughly with respect to its scientific content, feasibility and planning.

The HP takes one extra year and is situated between the Preparatory Phase, first four years, and the Function-directed Phase, last two years, of the study program. Students have to produce a written report in English and to give an oral presentation at the end. They receive an HP certificate if their report and oral presentation are favorably reviewed by the CIDD and the supervisor(s).

The HP started in 1993 with students from cohort 1986; by 2000 28 students had completed their HP, while 49 students completed their HP in the last seven years. An overview of participants, organized by cohorts and research subjects/titles, is given in Appendix Chapter 10, C.

c. One of the objectives of the new Bachelor-Master Curriculum is a further integration of education and research. The Blueprint of the Bachelor-Master curriculum is described in 9.8.

11 Outcomes Assessment

11.1 Student Outcomes

11.1.a. NAVLE (NBE and CCT) school score reports data and pass rates over the past five years

The FVM cannot provide (NBE and CCT) school score reports data and pass rates over the past five years. The FVM can, however, provide the number of graduates per year and the average duration of study.

Table A: Graduating students and average duration of study

Year	DVM exam	Av. Study time in months
2002	173	95
2003	166	95
2004	192	92
2005	171	92
2006	163	89

All students taking the DVM exam passed the exam.

11.1.b. Student attrition rates with reasons

Student attrition rates per cohort for the past six years are given in Table B. The attrition rate varies, but it can be expected that the rates of the younger cohorts (2004-2006) will increase a little bit. The mean attrition rate is 12 %.
Nota bene: In the interim reports of activities over the past 5 years an attrition rate of 2-4% was reported. This rate was calculated by dividing the number of "students who dropped out" by the total number of students in an academic year.

Table B: Student attrition rates

Cohort	2001	2002	2003	2004	2005	2006
Number of Students Discontinuing Program	43	46	30	26	14	8

The FVM investigated the group of students discontinuing their program and identified their most common reasons for doing so: the program took too long, was too difficult, or its content did not live up to expectations; personal circumstances.

Differences between the three different enrolment groups are given in Table C. Significant differences are found between the High Grades and the Lottery group. In Lottery students the reason "program is too difficult" scores significantly higher than in High Grades students ($p \leq 0.045$). In High Grades students scores are significant higher for the reason "content was disappointing" ($p \leq 0.026$).

Table C:

	Total		High Grades			Lottery			FVM Selection		
	n	Mean*	n	Mean*	Sd	n	Mean*	Sd	n	Mean*	Sd
Too much time	68	2.59	11	2.82	1.40	44	2.45	1.45	13	2.77	1.87
Study too heavy	68	2.59	11	**1.73**	1.19	44	**2.84**	1.68	13	2.69	1.60
Content disappointing	68	2.31	11	**3.00**	1.41	44	**2.00**	1.34	13	2.69	1.80
Personal circumstances	67	2.80	11	3.00	1.84	43	3.00	1.73	13	2.23	1.69

*) Scores are given on a 5-point Likert scale: 1 = very little influence; 5 = very much influence
This research will be continued longitudinally in the coming years.

11.1.c. Employment rates of graduates (within one year of graduation)

Data about employment rates of graduates are stored in the RVAN database. Since not all graduates are members of the RVAN and since not all graduates submit their data to the RVAN database, figures are lower than real figures. In the last years there has been a decrease in employment rates for young graduates (within one year after graduation), as the labor market weakened as a result of the high number of enzootic animal diseases. Since 2006-2007 the employment rate of young graduates has improved considerably. Real figures will be obtained in the near future by continuing the alumni research project, described below.

11.1.d. Assessment of alumni two years post-graduation, assessing educational preparedness and employment satisfaction

The PhD project 'Curriculum Evaluation', performed by Debbie Jaarsma, DVM, looked at alumni of curriculum 1982 and 1995 to see if the main educational goals are being met. Alumni of the 1995 curriculum score significantly higher on problem-solving skills, academic training and social and communicative skills. The results of this research have been submitted for publication. As there are as yet no alumni of curriculum 2001, this research will be continued.

Small research projects are performed to investigate educational preparedness, employment satisfaction and motivation in alumni who made their career in the field of (agricultural) education and in the field of industry/business, instead of going into practice.

Graduates who participated in the Honors Program were the subject of a Student Research Project which focused on the effects of the Honors program on the choices the alumni made in their career and the benefits their Honors program brought them.

As part of the PhD project 'Work-related learning'. Esther de Groot looked at practitioners to identify the way they use 'evidence-based principles' in their daily work. Further research in this project will be focused on intervention with ICT tools to support veterinarians in practice in their evidence-based 'work-related' learning.

11.1.e. Assessment of employers of graduates to determine satisfaction with the graduates

Every year the FVM Education Board organizes a discussion session with the different Boards of Species-Groups of the RVAN. In this session they look at qualitative data to investigate how employers of graduates experience the readiness for employment of young graduates. The dean and the Faculty Board have meetings with the Board of the RVAN in which more general aspects of curriculum development, and for instance the implementation of externships in the sixth year of study, are discussed.

11.1.f. Assessments of faculty and other instructors, e.g. interns and residents

All aspects concerning education, research and patient care are evaluated and discussed during the yearly Planning and Control meetings between the Faculty Board, in cooperation with the Education Board, and the Departments (see 11.2.a). At a less official/formal level the Education Board organizes departmental meetings with all teachers of that department. The goal of these meetings is to investigate if teachers have complaints about or are satisfied with all aspects of the educational organization, the curriculum and the preparedness of students entering phases of education.
On a monthly basis the Education Board receives input from the Education Council about all aspects of education while the Faculty Board receives input from the Faculty Council about all other matters which are under discussion.

11.1.g. Additional assessment that might assist the college in benchmarking its educational program

Members of the Education Board, and especially the chair "Quality Improvement in Veterinary Education" and his co-workers, are regularly invited to give presentations about curriculum development and modern curriculum approaches. Recent presentations include:
March 2006: AAVMC meeting, Washington, USA
May 2006: FVE meeting, Brussels, Belgium
June 2006: EAEVE meeting, Ghent, Belgium
December 2006: Royal (Dick) School on Veterinary Science, Edinburgh, UK
January 2007: Swedish Agricultural University, Uppsala, Sweden

An important benchmarking instrument in the Netherlands is the research performed by the Centre for

Higher Education Information (CHOICE: *www.choi.nl*). CHOICE publishes student judgments on the FVM and the veterinary curriculum in its Guide on Higher Education. These judgments are as follows (on a scale from 1-10):

Quality of education:

Content 7.5, Coherence 6.1, Choice of subjects 7.4, Teaching methods 6.9, Preparation for Career 6.8.

Organization and facilities:

Teachers 7.3, Communication 6.4, Load of study program 5.5, Buildings 7.2, Facilities 7.6.

Overall score: 6.87.

The load of study program and the coherence of the curriculum are points of concern. Students experience the study load as heavy, have difficulties with the fact that the university and FVM decreased the number of re-examinations, and feel that the quality of course instructions can be increased. In response to these results the FVM chose for a sequential scheduling of courses in the Bachelor-Master curriculum instead of the parallel scheduling from Curriculum 2001.

11.2 Institutional Outcomes

11.2.a. Description of the way the college evaluates progress in meeting its mission

The FVM has, on the basis of its mission, formulated three strategic documents in order to improve the implementation of its mission. These documents covered the periods 2000-2004 (*Towards a Faculty of Veterinary Science*) and 2004-2009 (*Transparency & Choices, a vision on the future of the Faculty of Veterinary Medicine and Faculty of Veterinary Medicine and its environment*). These documents describe the goals for our educational program in relation to our mission. In the period 2004-2009, the reports were translated into concrete actions in order to monitor implementation and progress. This is reviewed on a yearly basis by the Faculty Board and the Faculty Council. In addition, we also perform a yearly cycle of '*Planning and Control*' at two levels: [1] the Faculty Board with the Management Teams of the departments and [2] the University Board with the dean and director of the FVM. These formal meetings draw on data from our internal audits to evaluate, discuss and follow up on all aspects of education, research and management.

Benchmarking forms an integral part of our evaluation system. To maintain excellence in education, research and management, the FVM has imposed high standards from the beginning. The FVM has been evaluated regularly in the past; previous peer reviews are:

· AVMA/CVMA/EAEVE visitations (1973, 1978, 1985, 1992, 1999);
· Association of Universities in the Netherlands, Quality Assessment of Research (1999);
· Royal Netherlands Academy of Arts and Sciences (graduate program: 1996, 2000);
· Internal self-evaluations of research performance (1974, 1977, 1979, 1982 and annually from 1982);
· Thomson Scientific: ranking Veterinary/Animal Research Institutions (2005);
· Assessment of Research Quality: Research in Veterinary Sciences (includes graduate program, 2005).

With regards to curriculum development we also participate actively in more informal settings with peers such as: the section Medical Sciences of the Association of Universities of the Netherlands (medicine – eight schools, dentistry – two schools, and veterinary medicine), the international association for veterinary education, Veterinary Education Worldwide (ViEW, members represent veterinary schools in 15 different countries, of which ten are EAEVE countries and two AAVMC countries (USA and Canada), and the Educational Symposia of the EAEVE. Finally, the Faculty Board has two formal meetings a year with the Board of the Royal Veterinary Association of the Netherlands to discuss all aspects of mutual policies.

11.2.b. Description of the adequacy of resources and organizational structure to meet the educational purposes

The previous chapters have described the resources and organizational structure in detail, with an emphasis on the FVM's educational program. The FVM's overall position is excellent. The University Board has granted a housing budget, which allowed us to completely renovate the FVM. Although the finalization of this project is in 2009, the finished parts already show that the FVM has and will have top-level facilities at its disposal. The basic governmental budget is presently stable, and does cover the real costs for the teaching of the departments. This budget is, in contrast to the budget for research, indexed to completely cover the costs of inflation. The policy to improve the earning capacity with respect to scientific research is implemented and already showed a positive effect in 2006. Faculty num-

bers and quality are in proportion to the mission and ambition of the FVM. We strive for excellence in education/patient care and research and have installed the appropriate staffing plans in order to reach this goal [recruitment, professional development, qualifications, and career paths]. The patient load of the three clinical departments and the teaching material for pathology is adequate in relation to the objectives of our curriculum and the number of students. Appropriate actions are taken to increase or secure the patient load for equine and farm animal medicine. The FVM has, in the period of review, undergone a number of changes with regard to its organization. These are described in Chapter 1. It is expected that the present situation is adequate until - at least - the next accreditation.

11.2.c. Description outcomes assessed for college activities that are meaningful for the overall educational process

Under the responsibility of the Education Board, each academic year an Educational Day is organized for all teaching staff The program focuses on goals and different aspects of the curriculum under construction and is composed of a variety of presentations, workshops and creative social activities.

During this Education Day the winners of the yearly Education Awards for senior teachers and for junior teachers are announced; three teachers are nominated in each category. The award winners of the past seven years are given in Appendix Chapter 11, A. The awards consist of a certificate, a sculpture – symbolizing the cooperation between teachers and students – and an amount of € 5,000 (senior) and € 2,500 (junior), which the winner is free to spend on anything that might enhance the quality of his/her teaching.

The EAEVE investigated the existence, history and content of teacher awards.
Utrecht University, together with Helsinki Vet School, topped the teacher award system, as far as history and the amount of money involved were concerned. An overview of all other awards for faculty within the FVM, UU or outside, national and international is given in Appendix Chapter 11, B.

In the field of the UU teaching qualifications, Serge Hubers PhD is carrying out research on the quality of teachers' BKO portfolios. This research is focused on the quantity and quality of teachers' reflection competencies. The results of this research will be submitted for publication.

Cooperation and benchmarking with medical schools in the Netherlands influenced the goals of the new Bachelor-Master curriculum, especially the goal of a further integration of 'healthy and diseased'.

11.3 Clinical competencies outcomes

Students have adequate access to primary cases during the ambulatory weeks in the clinical rotations (uniform rotation, FA/VPH track, E track) and during the extramural training in private practices and the emergency clinic in Amsterdam (see 9.2 and 9.5). Hands-on experience with live animals is obtained during the majority of the 72 weeks of clinical rotations, and during Preparatory Phase courses like Diagnostic Procedures and Clinical Lessons as well.
The Program Outcomes are leading in assessing if students have the necessary access that will allow them to develop skills

The curriculum addresses clinical competencies in the following areas:

11.3.1. Comprehensive patient diagnosis (problem-solving skills), appropriate use of clinical laboratory testing, and record management &

11.3.2. Comprehensive treatment planning including patient referral when indicated

These competencies are thoroughly assessed in the longitudinal feedback and assessment procedure during the Clinical Lessons in the fourth year, and the case-related final exam of this course. Additionally the longitudinal assessment and feedback is continued in the portfolio-based assessment and feedback during uniform clinical rotations (30 weeks) of the fifth year and the track rotations (42 weeks) in the sixth year. In the clinical rotations program of Curriculum 2001 the "Programme Outcomes of the Veterinary Curriculum" are used as a reference for the feedback to and assessment of students.

A PhD project, carried out by Stephan Ramaekers, IVLOS, investigates the development of the clinical reasoning skills of students in years 4 to 6 . This Design-based research is focused on educational principles of learning to solve problems, effective teaching in case-based learning and the authenticity and complexity of the task selection. A variety of qualitative and quantitative research methods are used in this project.

11.3.3. Anaesthesia and pain management, patient welfare

During the fourth-year subject Anaesthesiology and the clinical rotations (uniform and tracks CA and E) the students are trained and assessed in order to be able to:

- Detect and recognize pain in different animal species;
- Know the different therapeutic options for analgesia;
- Design suitable analgesia protocols in the [common] different animal species.

11.3.4. Basic surgery skills, experience and case management &
11.3.5. Basic medicine skills, experience and case management

During the surgery weeks of the clinical rotations (uniform and tracks CA, E and FA/VPH) all students are trained in basic surgery skills, taking the Program Outcomes as a frame of reference. It is expected that the access of students to surgical patients will increase with the implementation of the extramural weeks. In the FA track rotation students participate specifically in a teaching laparotomy and a ceasarian section. They are assessed and get direct and written feedback on their performance. In the CA track the students develop surgery skills in neutering programs for dogs and cats. Basic medicine skills: see 11.3.1. and 11.3.2.

11.3.6. Emergency and intensive care case management

These aspects are addressed and assessed during the three-week Intensive Care unit and the three-week Internal Nursing Care unit in the CA-track rotations, and during the surgery and ambulatory clinic weeks in the E-track rotations. In the FA/VPH rotations this aspect is mainly addressed in the pediatric/ obstetric weeks.

11.3.7. Health promotion, disease prevention/biosecurity, zoonosis and food safety

These aspects are assessed by written tests in the third-year course Veterinary Environmental Sciences, the fourth-year course Introduction into Veterinary Public Health, the fourth-year course Introduction into Herd Health management and the elective Zoonosis. Skills development and assessment by portfolios, group tasks and papers is done in the VPH uniform and track clinical rotations.

11.3.8. Client communications and ethical conduct

Basic knowledge and skills of these aspects are assessed in the Preparatory Phase in all courses that cover Professional Conduct (client communications) and in the fourth-year course Veterinary Medicine and Society (ethical conduct). The application and further development of skills take place during the 72 weeks of clinical rotations in different patient settings with animal owners and in clinical cases involving ethical aspects.

11.3.9. Strong appreciation for the role of research in furthering the practice of veterinary medicine

In order to monitor and guarantee the quality of the students' research projects, a longitudinal evaluation study is conducted. Questionnaires are distributed to the students after completion of their internship. Students are asked to reflect on certain factors, such as the role of the supervisor, skills development, climate, infrastructure, clarity and thesis examination. The outcomes are measured by scoring the students' research reports through the use of a validated checklist. This is done by three independent raters.

So far, results of this study show high scores on all factors: the mean of the factors ranges from 3.55 (SD 0.87) to 4.03 (SD 0.48) on a 5-point Likert scale. The items that score lowest are related to access to computer facilities and services, help with literature searches and the quality of the course guide (in Dutch "studiewijzer"). Highest scores were on items related to the expertise and enthusiasm of the supervisors and on analytical skills development. This research is part of the PhD project on "Curriculum goals".
Published articles and full reports can be handed out by the authors on request.

12 Internationalisation

12.1 International position of the Faculty of Veterinary Medicine

The international ambitions of the FVM are firmly anchored in the Mission Statement (see Chapter 1). The FVM has a leading international position in the field of veterinary scientific education, research and patient care and wants to maintain this position.
The FVM educates academics for the international labour market who combine knowledge of veterinary medicine with skills to solve professional and social problems.
The Faculty Strategig committee on external relations (Facer, 2004) emphasised the need for maintaining and further developing contacts with leading faculties in Europe and the USA, aiming at exchange of information on curriculum development and of staff and students. Contacts and collaboration with veterinary colleges in Scandinavia, the UK (RVC London; Royal Dick School of Veterinary Science Edinburgh), Belgium (Gent) and the USA (College of Veterinary Medicine of UC Davis) have been intensified in recent years. The exchanges and contacts are organised by the Office for International Cooperation (BIC).
The FVM has taken the initiative together with the colleagues from Edinburgh to establish ViEW, "Veterinary Education Worldwide". ViEW aims to provide an international network for both discourse amongst veterinary educators and cooperation in veterinary education research.

12.2 Internationalisation of veterinary education at the Faculty of Veterinary Medicine

Dutch and English in veterinary education
At present the veterinary curriculum is taught in Dutch. However, an adequate level of knowledge of the English language is a prerequisite for admission. Most of the study material is in English. International guest lecturers present their lectures in English. One elective course of the 4th year, introduction into tropical animal health, is taught in English.

It is expected that in principle clinical master programs will be taught in Dutch because communication with clients is essential in clinical veterinary medicine. However, English spoken clinical master programs may be introduced in areas that can only be maintained with a relatively large number of foreign students. Non-clinical masters will be taught in English.

Student exchange
The FVM has agreements on student exchange with veterinary faculties in the EU under the Erasmus/ Socrates programme and within bilateral agreements with Gent and Budapest. Outside the EU the FVM has long term formal or informal agreements on student exchange with veterinary colleges in the USA (Davis, Michigan and Cornell), Canada, New Zealand, South Africa, Thailand and Malaysia. Students can do their research training (3 months in the 5th year) or part of their clinical rotations of the 6th year at an approved sister faculty and obtain study points. UU and the FVM have special scholarship funds to support the students' international travel and stay. Each year 40-50 of the students do a traineeship abroad as part of the regular curriculum. As a result about 25% of the veterinary graduates have such an international experience.
The FVM receives about 25 exchange students from within the EU and from the partners in Asia for periods of 1-12 months. Besides the undergraduate exchange students there are about 20 international postgraduate master students and 30 international PhD students studying at any moment at the FVM.

12.3 International scientific collaboration

The collaboration with the Faculty of Veterinary Science in Onderstepoort (University of Pretoria) involves 4 dual appointments of senior staff. The collaboration has resulted in a number of joint research projects on tick born diseases and (para)tuberculosis with substantial external funding. Students from the FVM can join these and other research projects, many of which have a wildlife component.

the FVM initiates and executes projects under the Asia Link programme of the EU for institutional collaboration between universities in Europe and Asia. The BIC coordinates 4 projects involving institutes in Europe (Netherlands, Sweden, Belgium and UK) and in Asia (Thailand, Vietnam, Sri Lanka and Malaysia) that run from 2004 to 2010. The research training of foreign postgraduate students creates an excellent international scientific learning environment for students of the FVM.

12.4 International perspectives of graduates

The international perspectives for the graduates of the FVM are good. The high standard and international recognition of the quality of the veterinary education at the FVM gives the young graduate an advantage on the international labor market.
Approximately 550 or 10% of the professionally active Netherlands veterinarians are based outside the Netherlands. Most work in EU-countries (Belgium, Germany, UK and France), Surinam and the Netherlands Antilles, USA, New Zealand or are assigned to international posts by multinational companies, the European Commission or international (UN) organisations.

12.5 Strengths and weaknesses of the internationalisation

Strengths:
The FVM's long standing accreditation by AVMA/CVMA give graduates a strong position on the international labor market.

The Educational and Student Affairs section (OSZ) has been amalgamated with the Office for International Cooperation (BIC) in 2007. The joint office is closely linked to the chair Quality improvement in veterinary education, and comprises about 25 well qualified professionals, many with an academic degree. OSZ-BIC is well prepared for the international challenges resulting from the introduction of the BaMa curriculum at FVM.

In recent years a strategy of recruitment of internationally educated and scientifically highly qualified staff has been implemented and a number of international senior scientists has been appointed in leading position as full professor at the FVM.

Weaknesses
The introduction of the new integrated BaMa curriculum at FVM makes student exchange with faculties that have a different structured curriculum difficult. This may need a preparatory pre-master course before international students can be admitted to the full master programme.

Contacts with other EU veterinary faculties on bilateral basis and under the EAEVE responsibility have not resulted in a common approach of the Ba-Ma structure in veterinary education in the EU. FVM introduced the principle of describing the Program outcomes of undergraduate veterinary education as the basis for comparison of curricula, rather than comparing what, when and how students are taught during their study. Untill now, this approach is not widely accepted in Europe.

Not all educational staff is yet adequately trained to professionally teach in English.

The unique position of the FVM as the country's only veterinary faculty seriously hampers professional mobility. This poses a constant risk of 'inbreeding'. Nearly all Dutch teachers are graduates from the FVM who have not worked at other faculties. Internationalization is vital to counteract this 'inbreeding' and should therefore be promoted continuously. This implies sending out the FVM faculty to foreign institutes as well as recruitment of foreign staff.

Recommendation: It is crucial for the international profile of the FVM and its graduates, that more staff is internationally recruited, also for the positions of associate and assistant professors, post docs and veterinary specialists on short and long term appointments.

Appendices

Information on NVAO and EAEVE

NVAO achieves its mission, by:

1. The accreditation of programmes offered by higher education institutions;
2. The initial accreditation of programmes that are not yet offered and/or registered;
3. The contribution towards stressing the distinctive features of programmes or institutions by assessing the specific quality features at the request of institutions;
4. The advancement of both the European and the international dimension in Dutch and Flemish accreditation and maintaining international contacts in order to reach agreement and cohesion;
5. Undertaking other tasks commissioned by the Dutch-Flemish Committee of Ministers.

In the Netherlands, the tasks of NVAO are based on the Law regarding Higher Education and Research which, in short, comes down to: the accreditation of higher education programmes that are already offered in the Netherlands, initial accreditation of new programmes and giving advice on other matters concerning higher education policies.
The NVAO is an active member of the worldwide International Network for Quality Assurance Agencies in Higher Education (INQAAHE) en de European Association for Quality Assurance in Higher Education (ENQA). At the moment 42 Quality Assurances Organizations from 'Bologna countries' are member of ENQA. Also the NVAO has a chair in the Board of the European Consortium for Accreditation in higher education (ECA). At the end of 2006 15 Accreditation Organizations from 10 European countries were member of ECA. Before the end of 2007 the mutual recognition of each others accreditation decisions should be realized.

EAEVE

The legislation governing basic veterinary training in the European Union countries (Directives 78/1026 and 78/1027/EEC) lays down the minimum compulsory requirements for all EU Member States. It also includes Decision 78/1028 EEC, which established the Advisory Committee on Veterinary Training (ACVT). One of this Committee's tasks is to help the European Commission ensure a comparably high standard of veterinary training throughout the European Union. ACTV decided that the best way to achieve this objective was to establish a permanent, Europe-wide system of evaluation of veterinary schools. The system was developed in stages.

The responsibility for administrating the programme was assigned to the European Association of Establishments for Veterinary Education (EAEVE) in 1994.
In 1996, the ACVT commissioned an ACVT-EAEVE *joint ad hoc* group to review the method of evaluation.

This review capitalised on the experience gained from evaluations carried out in virtually all EU veterinary schools and in many schools in non-Member States during the first evaluation cycle (1992-1999), and on the experience acquired in the United Kingdom, Ireland and North America, where similar methods were used.
The principles of the present method of evaluation of veterinary training institutions, presented herein, were adopted by the Advisory Committee at its plenary session of 12 March 1999.
The method is based on a comparison between the requirements defined by the ACVT to ensure a high standard of veterinary training and the characteristics of the institution to be evaluated. It comprises several stages:

- Preparation of a self-evaluation report (SER) by the veterinary institution,
- Visit to the institution by a group of experts,
- Preparation of a report on the visit by the group of experts,
- Review of the experts' report,
- Review of the institution's follow-up to the experts' report.

This evaluation system focuses solely on undergraduate veterinary training, seeking to ensure that such training is of a comparably high standard throughout the European Union, thereby making the mutual recognition of qualifications possible.

The evaluation of veterinary schools in Europe as a whole is carried out by the EAEVE in co-operation with the Federation of Veterinarians of Europe (FVE). Evaluation of EU veterinary schools is carried out in conjunction with the European Commission.
Within the EAEVE, the evaluation system is managed by the Education Committee, assisted by a programme co-ordinator and a *rapporteur*.
Evaluations are carried out at 7-10 year intervals, which will entail 8 to 11 visits per year to veterinary institutions in Europe.

Detailed description of the FVM's Facilities

1. Androclus Building:

The Androclus building was renovated in 2006 and 2007 and the floor plan partially revised. The renovations were carried out to guarantee a safe and less problem-prone building for the next 10 years. The revised floor plan was drawn up with the twin objectives of checking the spread of lecture theatres that are currently scattered across a vast area and creating a good self tuition facility.
Almost all the lecture theatres are situated on the ground floor. The tutorial rooms, multimedia rooms, library and three-dimensional objects are located at the center of the building on the first floor, near the entrance. Practical rooms are more concentrated around the fields of anatomy and pathology, on the ground floor, to the east side of the building. The microbiology practical rooms remained on the sixth floor. Improvements to the research labs were mainly geared towards enhancing quality especially at ML level.

The Androclus building accommodates:

- **Faculty Office,**including the sections General Affairs, Personnel and Organization, Finance and Control, Communication, Deans' Office, Educational and Student Affairs-Office for International Cooperation, Scientific Affairs, Multimedia, Labor Conditions, Facilities and Housing.
- **Learning Environment,** including the veterinary library
- **2 Lecture Halls** seating 190 and 225 students respectively, teaching laboratories (52 students each), 10 working group and self tuition rooms (3 with capacity for 30 and 7 for 25 students), 3 working group rooms with microscopes (25 students each)
- **Veterinary Museum**
- **Department of Pathobiology,**divisions of Pathology and Veterinary Anatomy and Physiology, including, research laboratories, necropsy and dissection rooms, 4 pathology demonstration rooms for 25 students each, 1 physiology demonstration room for 10 students and the Veterinary Pathological Diagnostic Centre
- **Department of Infectious Diseases and Immunology,**
  Clinical Infectiology (clinical bacteriology, parasitology and virology)
  · Veterinary Microbiological Diagnostic Centre (VMDC)
  Molecular Infectiology
  · Immunology
  · Infection biology
  · Molecular Defence
  · Virology
  · Centre for tick-borne diseases

Central Research Facilities
· Flowcytometry (Dept. I&I)
· Hybridoma laboratory (Dept.I&I)
· Electron Microscope (Dept. B&C)
· Multiphoton Spectrophotometer (Dept. B&C)

- **The Netherlands Veterinary Students Association,** and some other veterinary student associations
- **Faculty and Students restaurant.**

2. Nieuw Gildestein:

The Nieuw Gildestein building houses the following departments:

- **Department Biochemistry and Cell Biology,**with the divisions
  · Biochemistry
  · Cell Biology
- **Department Animals, Science and Society,**with the divisions:
  · Ethology and Welfare
  · Laboratory Animal Science
  · Netherlands Centre Alternatives to Experimental Animal Use
- **Institute for Risk Assessment Sciences (IRAS)**
  IRAS is an interfacultary research institute within the faculties Veterinary Medicine, Medicine, Pharmaceutical Sciences and Biology of Utrecht University. Support is also provided by the National Institute of Public Health and the Environment (RIVM) in Bilthoven, and by TNO Life Sciences, Zeist. The mission of IRAS is to provide education and research on the human health risks of exposure to potentially harmful agents in the environment, at the workplace and through the food chain.

Effects on ecosystems are also considered.
The research is performed in three divisions:
· Veterinary Public Health
· Environmental and Occupational Health
· Toxicology

- **Central Laboratory Animal Institute of Utrecht University**
  The Central Laboratory Animal Institute of Utrecht University is a service institute of Utrecht University that professionally supports research and educational projects in which laboratory animals are used.

3. Department of Clinical Sciences for Companion Animals

The department has the following facilities:

- **Education:**
  1 lecture hall seating 200
  1 large classroom seating 25
  1 small classroom seating 15
  1 temporary classroom seating 25
  1 learning environment room with 16 computers
  1 library
  5 teaching laboratories seating 20 (3 adjacent rooms can be combined to one large room)
- **Clinical laboratories:**
  1 large clinical laboratory (in JDV-building)
  2 small clinical (bed-side) laboratories: Intensive Care Unit and birds and exotic species
  1 small clinical laboratory (dry chemistry, PCV) treatment room internal medicine
- **Electrocardiography**
  1 room with equipment for electrocardiography and phonocardiography
- **Receiving area**
  15 examination rooms
  2 rooms are equipped for ophthalmology
  - 2 rooms are equipped for warm water ear cleaning
  - 1 room is equipped for vaginoscopy
- **Wards**
  1 ward for client-owned animals holding 25 patients (10 large 12 medium 3 small)
  1 unit with metabolic cages (2 large, 1 small)
  2 treatment rooms (1 medicine and 1 surgery)
  1 treatment room for chemotherapy
  1 conference room – medicine
  1 ward for birds (holds 15)
  1 ward for small mammals (5), reptiles and amphibians (10)
  1 ward for water fowl (2)
  1 treatment room for birds and exotic animals
  2 examination rooms for birds and exotic animals
  3 critical care boxes for birds or exotic animals
- **Separate section for diagnostic/therapeutic use of radioisotopes**
  1 examination room
  1 treatment room
  1 kennel with cages for dogs (4) and cats (2).
- **Operation theatres and intensive care**
  6 operation theatres
  1 induction area with a capacity of 4 simultaneous inductions
  1 recovery area with 5 large and 8 small cages
  1 intensive care unit with 12 cages (including 2 mobile oxygen cages)
  NB: due to personnel restrictions the maximum capacity is currently limited to 8 cases
- **Isolation facilities**
  1 isolation unit
- **Teaching and research animal facilities - current situation** (to be replaced within 2 years)
  Dogs and cats are housed in 2 separate buildings outside the department until renovation has been completed.
  1 kennel with 41 cages for dogs (capacity 2 dogs/cage)
  1 kennel for 16 cages for dogs (capacity 2 dogs/cage)
  1 cattery

1 house with 26 ferret welfare cages. (Individual housing)
1 house with 10 pens for pigeons with a capacity of 10 birds each
1 house with 3 pens for parrots with a capacity of 4 birds each
2 pens for small exotic birds like parakeets and canaries

- **Teaching and research animal facilities -future situation** (to be realised within 2 years)
  1 kennel for dogs with 60 cages
  4 catteries
  Facilities for ferrets, pigeons, parrots and small exotic birds will be maintained

4. Department of Equine Sciences

The department has the following facilities:
94 Stables for patients: among which:
· 7 IC boxes
· 6 isolation boxes
· 1 neurology box
· 2 colic boxes
· 1 coconut box
27 Stables for "teaching horses": of which
· 24 regular teaching stables
· 3 stallion boxes

Facilities of the surgery section:
· Policlinic
· Clerkships' room
· Room for veterinarians
Surgery rooms:
· 2 recumbent surgery rooms
· Standing surgery room
· 2 Prep rooms
· 2 Recovery rooms
· Sterilisation

Facilities of the [medicine?] internal medicine? section:
· 2 policlinic rooms
· Endoscopy room
· Laser room
· Clerkships' room
· Room for veterinarians
· Emergency laboratory

Facilities of the reproduction section:
· 2 policlinic rooms
· Clerkships' room
· Room for veterinarians
· Embryo laboratory
· EU-laboratory
· Sperm laboratory
· 2 service rooms

Farriery:
· Horse shoeing place
· Office
· 3 Work spaces
· Welding place
Other:
Lecture room | Practical theatre | Wet lab | Euthanasia room | Diet kitchen
Lecture hall | Treadmill | Equine performance lab | Indoor riding school
Inspection/presentation hall with a hard circle | 2 treatment rooms
About 60 hectares pastures and fodder crop

To be used by all three clinical departments:

- **Diagnostic imaging (division of Dept. Clinical Sciences of Companion Animals)**
  - 2 fixed x-ray units with image intensification
  - 1 fixed x ray unit without image intensification
  - 1 mobile x-ray unit with image intensification
  - 1 mobile x-ray unit without image intensification
  - 1 spiral CT scanner with custom build table for the examination of horses
  - 1 0.2 T MRI-system with custom build table for the examination of horses
  - 3 ultrasonography units with superVHS recorders and interchangeable transducers
  - 1 ultrasonography unit for teaching purposes
- **Diagnostic support services**
  - necropsy service and histology (Dept. Pathobiology)
  - clinical microbiological diagnostic laboratory (Dept. Infectious Diseases and Immunology)
  - clinical chemical diagnostic lab including cytology service (Dept. Companion Animals, JDV building)
- **Teaching hospital pharmacy**
  - 1 large pharmacy (in JDV-building)
  - 4 small depositories (intensive care unit, operation theatres, wards, birds and exotic animals)

Overview of Total Floor space of FVM

21.3.3.b. Instructional environment			**7.469**
	Working groups	1.534	
	Practical teaching	2.943	
	Learning environment	2.169	
	Lecture halls	823	
21.3.3.c. Veterinary hospital			**20.675**
	Patient Care	7.648	
	Pens and stalls	13.027	
	Pharmacy	211	
	Pharmacy Storage	209	
	Pharmacy dependances	111	
	Diagnostic imaging	371	
	Isolation facilities	214	
	Intensive/critical care	262	
21.3.3.e. Research			**9.513**
	Laboratories	9.513	
21.3.3.f. Offices			**10.499**
	Office	9.489	
	Meeting and Seminar	1.010	
21.3.3.g. Service areas for students			**1.705**
	Studenten 174		
	Canteen 1.531		
Storage		**6.372**	**6.372**
Technical shop		**1.124**	**1.124**
	Total		**57.357**

Locations and number of facilities Learning Environment:

Androclus building
- Learning environment: 160 pc's, print and copy facilities; scanner
- Schubärt Gallery: 15 pc's + printer
- Room 321 (I&I): 4 pc's
- Anatomy: 3 pc's
- (3 Colloquia (Pathology and Anatomy) en 2 lecture halls)

Nieuw Gildestein
- Room 335c (V&V): 10 pc's
- Room 376 (PDK): 5 pc's + printer
- (2 Colloquia)

Marburglaan 4
- Computer rooms: 30 pc's (2x15) + printer (Lecture hall Equine)

Department of Clinical Sciences of Companion Animals
- 1st floor. 15 pc's + printer
- (7 colloquia & 1 lecture hall)

Jeanette Donker-Voet Building
- 2nd floor: 12 pc's + printer
- Pharmacy ground floor: 8 pc's

Department of Farm Animal Health
- AI room: 17 pc's + printer
- "cloak room": 6 pc's + printer
- Poultry 1st floor: 4 pc's
- "behind hygiene barrier": 5 pc's + printer

Students Use of the Portal

A	B	C	D	E	F
May/06	**month sessions**		**unique students**		**regular students**
Faculty/department	**perc**	**abs**	**perc reg.**	**abs**	
Utrecht School of Governance	1%	1134	25%	208	832
Biology	2%	2707	44%	413	937
Biomedical Sciences	5%	5740	61%	573	933
Veterinary Medicine	**13%**	**14402**	**75%**	**1163**	**1549**
Utrecht School of Economics	3%	2861	42%	487	1166
The Ethics Institute	0%	322	52%	30	58
Pharmaceutical Sciences	5%	5030	52%	657	1276
University Medical Centre	14%	15986	66%	1680	2553
Geosciences	8%	8381	50%	1382	2744
Humanities: Theology	1%	1320	18%	183	997
IVLOS Institute of Education	1%	800	33%	132	402
Junior College	0%	54	21%	16	78
Humanities: Languages, History & Media	14%	15256	35%	2585	7294
Physics and Astronomy	1%	635	20%	143	723
Utrecht School of Law	10%	11366	39%	1781	4525
Roosevelt Academy	1%	655	36%	110	304
Chemistry	1%	820	36%	173	478
Social and Behavioural Sciences	18%	20429	51%	3293	6442
University College	1%	960	27%	237	866
Humanities: Philosophy	1%	915	27%	249	909
Mathematics & Information and Computing Sciences	1%	1488	23%	321	1377
Total UU	**100%**	**111261**	**43%**	**15816**	**36443**

column B: percentage of sessions per faculty/department
column C: number of sessions per faculty/department calculated per month
column D: per faculty/department percentage of unique students / number of regular students
column E: absolute number of unique students
column F: regular students

Student Clubs and Organizations

Name	Description	Website
Archaeopteryx	Archaeopteryx is a student society that is concerned with exotic animals and birds.	http://go.to/archaeopteryx
Collegium Musicum Veterinarium "Syrinx"	Veterinary students orchestra.	
D.A.P. Dag van het Aangespannen Paard	This is the main event in the Netherlands when it comes to horses hitched to wagons. This day is funded and organized by UU veterinary students.	http://www.dap.studver.uu.nl/
D.I.O. Veterinary Medicine in Development Cooperation	DIO advices people in developing countries on animal health and cattle raising. DIO is a member of Vétérinaires Sans Frontières Europa.	www.dio.nl
D.S.K. the Veterinary Students Society (In Dutch: **Diergeneeskundige Studenten Kring (D.S.K.)**	The Veterinary Students Society has two aims: To create solidarity and to promote the veterinary students' interests. Subcommittees: · Almanac Committee · Cultural Committee · Auditing Committee · Party Committee · Museum Committee · International Veterinary Students Association (IVSA) · Sports Committee · Drama Committee · Symposium Committee · Lustrum Committee (once every 5 years) · Companion animals committee · DDX –Magazine for veterinary students · De Gouden Trachea – Veterinary students choir · S.I.S. – Students cycling society · V.S.K. 'Duim in 't Gat' – Veterinary students bowling society · V.S.R.C. – Veterinary students rugby club	www.dskonline.nl/ www.degoudentrachea.nl
V.S.R. "De Solleysel"	The Veterinary Student Horse Riding Society "De Solleysel" offers students and employees of the Faculty classes in horse back riding. They also take care of the faculty's horses used for education.	www.solleysel.nl
VHiVer	VHiVer is the veterinary equestrian society.	www.VHiVer.nl
V.V.F.C. (Veterinaire Vee Fokkers Club) "De Uithof"	The Veterinary Cattle Breeders Club organizes excursions, symposia and other events linked to the farm animal sector.	http://www.veefokkers.com/
Hygieia	Hygieia aims to inform veterinary and medical students about the developments and job opportunities within Veterinary Public Health.	http://hygieia.vet.uu.nl/about.htm
Olympos Sports Centre	The Olympos Sports Centre has top-class facilities for basketball, handball, futsal, and volleyball. The centre includes squash courts and a well-equipped fitness centre. Outdoor facilities include soccer fields, a rugby pitch, hockey fields, a golf practising facility, two beach volleyball courts and nine all-weather tennis courts.	http://www.olympos.nl/index.asp
Students Council (In Dutch: Studentenraad)	The Students Council represents the interests of veterinary students in the field of education, study facilities and other affairs that deal with the FVM. The Students Council is the umbrella organization for all student representatives in the FVM's political bodies.	
Veterinair Dispuut Unitas	Veterinary debating society within students society Unitas	www.hetvdu.nl/
Veterinair Dispuut Veritas	Veterinary debating society within students society Veritas	www.vdveritas.nl/
"Cerberus"	Veterinary debating society within students society Utrechtsch Studenten Corps	www.usc.nl
Mastitis	Female veterinary debating society within students society UVSV/NVVSU	www.uvsw.nl

Training programs for BKO/SKO

The Faculty of Veterinary Medicine, in close cooperation with IVLOS, the UU Institute of Education, has developed a training program specifically focused on teaching skills for veterinary medicine. The following courses are available:

Course	Duration
Focus on Education in Veterinary Medicine	16 hours
Focus on Didactic and Educational Skills	8 hours
Lecturing	24 hours
Small group teaching: development, teaching and supervision	24 hours
Coaching clerkship students	20 hours
Development and improvement of course material	8 hours
Formative and summative assessment	12 hours
Basic training WebCT Vista (Electronic Learning Environment)	8 hours
Training for designers in WebCT Vista	4 hours
Assessment in WebCT Vista	4 hours

FVM faculty who participated in CEUT

Out of the Faculty of Veterinary Medicine the following faculty members have participated in Center of Excellence in University Teaching (CEUT):

Name	Department	Year
dr. M.A. Wisselink	Department of Clinical Sciences of Companion Animals	2004-2005
dr. W.D.J. Kremer	Department of Farm Animals Health	2005-2006
dr. E.G. Dingboom	Department of Pathobiology	2006-2007
dr. H.F. Egberink	Department of Infectious Diseases and Immunology	
dr. P.L.A.M. Vos	Department of Farm Animal Health	2007-2008
dr. M.G. van Emst	Department of Pathobiology	

Relevant parts of:
Professional Conduct Student manual 2006 – 2007

I General information

1. Why devote attention to professional conduct?
Do you act as agreed? How do you deal with criticism? How is your cooperation with your colleagues? Do you dare to make difficult decisions and to account for them?

Viewed from the perspective of the "quality of the provision of care and services", requirements are stipulated in many areas of veterinary practice. These requirements go further than merely having sufficient professional knowledge and veterinary skills. They concern the performance of a professional in the full sense of the term and all of the types of conduct associated with this, such as dealing properly with animals, their owners, your colleagues and assistants, with your workload, knowing your own limitations, handling complaints, criticism or errors and so forth. In order to ensure that students are appropriately prepared for this attention will regularly be devoted to their performance and their development of professional conduct in the course of their program of study.

Social developments
Because of various social developments veterinary surgeons operate under a great deal of pressure when practicing within the various sectors of veterinary medicine. Their integrity is regularly tested by animal owners, the public authorities and others who are active in the field of animal health. Not only is the provision of care becoming more complex due to technological developments, advancements in understanding and specialization but also because of an increase in the amount of relevant legislation and regulations (governing safety, the environment, working conditions and so forth), clients are also becoming more assertive and in some cases there are conflicting interests which demand that veterinary surgeons are inevitably able to cope with stress.
The department believes that with regard to its field of operations and its students it is its responsibility to prepare future veterinary surgeons for their work in such a way that they are also equipped – in more general terms – to deal with this. Consequently, in the course of your studies attention will be devoted to knowledge (to know), skills (to be able) and attitudes (to be willing), as well as to your actual actions or observable behavior. In this respect we will confine ourselves to the latter, your observable conduct as a professional.

Independence in education
Apart from the above, there is also a second reason for deciding to devote attention to professional conduct at an early stage of your studies. The study of animal medicine assumes that students are capable of working on their own to a significant extent, that they actively participate, prepare themselves for types of work, take the initiative, are will to work together with their fellow students, to discuss substantive matters, to learn from their mistakes and to be receptive to feedback and guidance. A mature, responsible attitude is indispensable in this respect. This attitude will also constitute a sound basis for professional conduct.

2. What is professional conduct?
Professional conduct covers a large variety of situations and is closely related to the knowledge and skills that are required for professional action. This makes it difficult to define it as a term. The principle underlying what professional conduct is understood to mean within the Department of Veterinary Medicine is *observable conduct as part of which the norms and value of a professional practitioner are evident. Professional conduct is expressed in word, behavior and appearance and is very important to the basic confidence which a client needs to have in a veterinary surgeon.*

The above definition explicitly confines professional conduct to **observable** behavior and, as such, distinguishes it from a professional approach or attitude. Attitude refers to an "inner tendency towards" and is in itself not observable and is difficult to gauge. However, what can be observed is actual behavior and its effects. In other words, professionalism can be assessed on the basis of what you actually do (conduct) and not your intentions or views (attitude) in this respect.

Dimensions
A distinction can be drawn between three dimensions that are part of professional conduct, namely, how you perform your duties and work, deal with other people, and how you approach yourself. Here are several examples:

- *performing your duties and work* – Do you complete your duties and work on time? Does your work satisfy qualitative criteria? Do you take the initiative and attempt to resolve any difficulties? Are you punctual or sloppy in your work? Do you perform your work on your own or do you constantly require assistance from other people? and so forth;
- *dealing with other people* – Are you reliable as far as arrangements are concerned? Do you consult others about decisions which may have implications for them? Are you receptive to questions and are your replies expressed in clear, concrete terms? and so forth;
- *approach towards yourself* – Do you keep up-to-date with your profession? Do you know your own boundaries and limitations? How do you deal with critical remarks concerning your work or with disappointments? and so forth.

If you view the above examples, it should be clear that professional conduct is not specific to veterinary surgeons. More or less the same "norms" apply to professionals in other disciplines. For example, this can be seen in advertisements for staff. In addition to specific qualifications or training, a range of other qualities is usually requested, such as the ability to work together with others, communication skills, a capacity for performance-oriented work and so forth.
The department of veterinary medicine is therefore not alone in its efforts to devote attention to professional conduct as part of its program of study. In 2002 a national project team including representatives of all of the faculties of medicine, dental surgery and veterinary medicine issued a report entitled Professioneel gedrag; onderwijs, toetsing, begeleiding, regelgeving [Professional Conduct: Education, Assessment, Supervision and Regulations].

Typical aspects of conduct
In order to flesh out this concept of professional conduct the department has drawn a distinction between the following behavioral aspects, which apply to all veterinary surgeons irrespective of the precise nature of their field of operations.

I. Performing your duties and work

- *Self-reliant:* performs his own duties and work properly without (or with limited) guidance from other people and requests assistance from others, where necessary.
- *Systematic:* plans his duties and works in a structured manner, is aware of quality, is effective and efficient, and manages to complete his own work within the specified time.
- *Responsible:* can be called to account for his decisions, actual actions and their implications, and acts in accordance with substantive, ethical and legal standards.
- *Involved:* displays initiative and dedication, and performs his work carefully, attentively, meticulously and conscientiously.
- *Independent:* is aware of his own function, position and role, forms his own impartial opinion and considers the views and interests of all of the parties involved (animal, owner, community and science) when he makes decisions.
- *Constructive:* focuses his actions on solutions, does not avoid decisions (difficult or otherwise), acts in accordance with the prevailing circumstances where necessary, and improvises, when the situation demands this.

II. Dealing with others (people and animals)

- *Respectful:* displays an interest in and respect for people and animals, considers other people's emotions and accepts them as they are, and pursues appropriate forms of interaction.
- *Reliable:* acts as agreed, works accurately and punctually, treats information he receives with the appropriate degree of confidentiality and refrains from giving any undertaking which he cannot comply with.
- *Receptive:* is receptive to questions, feedback and other people's points of view, and postpones drawing conclusions and making value judgments.
- *Communicative:* explains his own actions, decisions and reasons, communicates in clear, concrete terms in written and spoken Dutch, adjusts his communication to accommodate other people and does not avoid difficult, confrontational discussions.
- *Cooperative:* works constructively with other people as part of a team, is helpful and amicable, and gives and receives feedback.

III. Dealing with one's own performance

- *"Self-aware":* is capable of articulating his own thoughts, feelings and conduct, and of bringing them into line with each other, is aware of his own potential and limitations, acts firmly and consistently.
- *Critically reflective:* is capable of critically viewing his own performance and conduct in a relatively detached manner, accounts for the limitations of his own expertise and his own existing prejudices, goes in search of feedback and accepts criticism.
- *Focused on self-development:* shows that he is prepared to maintain his own level of expertise or to expand it, actively goes in search of opportunities for self-improvement, sets goals for himself, and uses problems, dilemmas and disappointments to ensure his ongoing professional development.

3. Is it possible to learn professional conduct?

Are characteristics such as reliability, the ability to take the initiative or a constructive approach ones which people simply have or do not, and which can hardly be learned? Naturally, by their very nature or as a result of practice and experience people differ in relation to aspects of professional conduct and there are limits on the degree to which it is possible to train them. This does not change the fact that we are capable of learning and practicing them in the same way that we are capable of acquiring and developing veterinary experience. Reflecting on situations and acquiring an understanding of the effects of your own behavior can help you develop professional conduct.

Professional conduct usually develops more or less simultaneously with the acquisition of knowledge and skills. This is not to say that professional conduct also occurs automatically. It appears to be beneficial to devote explicit attention to it regularly. This program of study is based on the principle that students are entitled to receive regular feedback concerning their performance and the reference framework in this respect is ultimately their subsequent performance as a veterinary surgeon. Situations can be created in the form of assignments (collaborative or otherwise), practicals, simulations and so forth, which are similar to professional practice and in which demands are made on specific aspects of professional conduct. During the undergraduate stage of your program of study attention will be mainly focused on your performance for the purposes of your studies. The further progress you make in your studies the more the emphasis will shift towards your performance within the veterinary profession, especially during your internship.

Finally, it is important to realize that making mistakes is something different from inappropriate professional conduct. Behavior is only deemed to be unprofessional, if it involves mistakes for which you are clearly responsible, if they continue to reoccur, if there is no improvement after receiving assistance, and if you are unable to learn from your mistakes.

4. How is professional conduct dealt with during your studies?

Each of the above-mentioned typical aspects of professional conduct will be repeatedly dealt with in the course of your studies. As in the case of your professional knowledge and skills, this will not all happen at the same time. The emphasis may differ from one component or year of study to the next and the time or extent of the assistance required for the relevant aspect of professional conduct may differ. Similarly, the situations which you will have to contend with as a student and in which you will be expected to act as a professional, will also change. The further you progress in your studies, the more difficult these situations will become, the more complex the problems will be, and the stricter the requirements will be which your actions will need to comply with.

Embedding professional conduct in your program of study

How the various aspects of professional conduct are dealt with as part of your program of study, will vary in relation to the nature of the relevant aspect.

Integral part of all subjects

Some aspects are so basic (conditional), that they constitute part of your educational assistance and assessment from the beginning of your studies. The types of behavior mentioned in the faculty's so-called educational etiquette (see Viavet: www.vet.uu.nl/onderwijs /curriculumontwikkeling) are examples of this.

Assignments for subjects (elective or otherwise) and internships.

Aspects of professional conduct can be best assessed in small groups. This is especially true for work

done on assignments, as part of your electives or during your internship. You can obtain more information about people in a small group, with the result that it is possible to provide more focused, substantiated feedback.

Specific training
Throughout your studies sections have been selected in which it is possible to focus on the practice of specific aspects of professional conduct. Assistance and feedback are provided as part of this. This training provides students with the opportunity to become aware of their own level in relation to this aspect of professional conduct. As a result, students also become aware of how they can assess their fellow students.

Here are several examples of subjects covered in the various academic years, as part of which professional conduct training is given.

First academic year:	Introduction to Veterinary Medicine, Academic Training
Second academic year:	Structure and Function 6, Management and Profession Orientation
Third academic year:	Diagnostics, Veterinary Environmentology Studies, Adaptation 2
Third and fourth academic years:	Externships
Fourth academic year	Introduction into Veterinary Public Health, Veterinary Medicine and Society
Fifth and Sixth year	Research internship, Uniform and track clinical rotations

In the second part of this manual you will find a breakdown of the manner in which professional conduct is incorporated into the first three years of your studies.

5. Assistance and tutors

Because professional conduct involves long-term development and improvement of the quality of your performance, there are academic staff who provide assistance to students (in small groups) in their capacity as tutors over a period spanning several years. Lecturers, fellow students and student advisers also play a role in this respect.

Role of lecturers and fellow students
Direct feedback and assessment occur as part of the various subjects and your lecturers and fellow students play a role in this respect. You can expect them to assess you and provide you with feedback about your performance in respect of a particular subject (or part of it).

Role of the student adviser
A student adviser can help you, if you have problems with your studies, personal problems, problems with your tutor or any other types of problems. Consequently, this is clearly NOT the role of your tutor. You can approach a student adviser of your own volition, although your tutor may also recommend that you contact a student adviser.

Cristel Teusink is the student adviser for first-year students. She can be reached by e-mail at *c.teusink@vet.uu.nl*. Hanneke Bakker is the student adviser for other undergraduates. She can be reached by e-mail at *j.m.bakker@vet.uu.nl*.

The student adviser for first-year students can be approached during her consultation hours from noon to 1:30 pm on Mondays. You can make an appointment to see her as of 1:30 pm on Wednesdays. The student adviser for other undergraduates can be reached during her consultation hours from noon to 1:30 pm on Wednesdays. You can make an appointment to see her as of 2 pm on Thursdays.

Role of tutors
Your tutors are primarily concerned with your long-term development. Their assistance, feedback or advice transcends disciplines, although they will utilize the assessments and feedback, which you have received at various points in time as part of your subjects.

So what can your tutor do?
Your tutor may best be viewed as a "coach" who can help you develop professional conduct. Ultimately, this entails learning how to deal with your work and other people, and how to conduct yourself in a professional manner. In the early part of your studies it will mainly concern your performance as a student.

What will your tutor not do?
- Your tutor will not provide additional tuition. In his capacity as a tutor he is a professional conduct trainer. If a student has difficulties relating to a subject, he will need to contact the relevant lecturer.
- Your tutor will not provide any advice or judgment concerning the program of study that you have chosen. If a student requires advice in this respect, he will need to contact a student adviser.
- Your tutor will not provide advice about serious problems relating to your studies or personal difficulties. A student is expected to contact a student adviser himself.

The following guidelines will apply in order to enable students to develop professional conduct:
every term there will be at least two points in time, when professional conduct is discussed in a WCO group or as part of your placement;
consultations will regularly be held with a tutor;
tutors will assist students over several years;
long-term progress and your development of professional conduct will be recorded in your portfolio.

Added value for students
A tutor can regularly have personal contact with a student to provide him with an opportunity to reflect on his progress in relation to professional conduct, to draw up realistic goals, and to discuss any doubts, problems or dilemmas in respect of professional conduct.

Procedure for assigning study points
What form should I imagine such a consultation with a tutor will take?
Although consultations with tutors may differ depending on your personal circumstances, an approach will usually be adopted which incorporates the following:
- by way of preparation for your consultation, you will collect relevant assessments, feedback and the like concerning your performance. The requisite documents are mentioned in the checklist on p. 20 et seq. or may be found in the WebCT Vista module on professional conduct. Based on this and your own experience you will prepare a report on your reflections. You will add this information and the report on your reflections to your portfolio.
- in the report on your reflections you will mention:

1 your strengths in relation to professional conduct;
2 your weaknesses in relation to professional conduct;
3 your intentions and academic goals for the purposes of improvement;
4 your progress in respect of your previous intentions and goals with regard to professional conduct;
5 the points that you wish to discuss in a consultation with your tutor;

- at least one week before the consultation with your tutor you will hand in your portfolio to the latter, so that she has the opportunity to study it before the consultation;
- at the beginning of a consultation the student and tutor will consult each other to determine the matters that they will discuss;
- during the consultation itself you will focus in greater detail on your strengths and weaknesses, your intentions and goals for the purposes of improvement, and the progress that you have made in relation to previous intentions and goals. If necessary, concrete arrangements will be made about any action that is to be taken;
- you will produce a brief report of your consultation and will send it to your tutor within one week. Your tutor will sign this report to indicate her consent and you will add it to your portfolio. Your tutor will receive a copy of this report. (NB. These reports will be dealt with confidentially.)

The consultation with your tutor is mandatory for the completion of specific subjects and if you wish to obtain the study points for them.

6.	**Assessment of professional conduct** A combination of assessments made by the students themselves, and those of their fellow students and lecturers will be used for the purposes of assessment. The further you progress in your studies, the greater the role that professional practice (placements, internships and so forth) will play in your assessments. First and foremost, you will be assessed on the basis of your actual, observable behavior and not on an assumed, underlying attitude or whether an opinion which you express is correct. Furthermore, conduct can only be assessed, if students are given the opportunity to familiarize themselves with stipulated standards of behavior (see the technical aspects of behavior referred to in Part I, Section 2), if there is scope for exercise and feedback, and for becoming aware of your own conduct, choices and preferences.

Assessment list and subsequent discussion
Direct feedback and assessments take place as part of the various subjects and pertain to concrete assignments or situations which occur. Subject lecturers and fellow students will make their assessment using an assessment form with which they are familiar and for which they have received instructions at the outset. The various assessments (those of a particular student himself, his fellow students and the lecturers) together constitute the basis for the final assessment of the relevant study component. Clear, concrete feedback and follow-up discussions are important to produce a well-founded final assessment and any recommendations or suggestions for further study.

The assessment form will only cover those items which are assessed in relation to the subject concerned. If necessary, other items may be raised in the group discussion but the focus will be directed towards those items mentioned in the form for the relevant assignment. Certainly at the beginning of your studies the purpose of an assessment is to clarify which aspects of professional conduct still can and need to be worked on and which ones are already going well. In the course of time stricter requirements will apply and a growing number of the aspects of professional conduct will be covered by the assessments.

However carefully they are performed, the assessments that are part of the various subjects are snapshots and provide a far from comprehensive or representative overview of your qualities (and shortcomings). The disadvantages of such a snapshot can be reduced by comparing multiple assessments and by viewing them in relation to each other over a period of time. As stated above, your tutors will be focusing predominantly on the longer term, recurring points requiring attention, achievements and any improvement of them.

Failing a WCO or group assessment
In principle, you do not need to pass all of the assessments for individual aspects of the various subjects. However, if a student "fails" an aspect of professional conduct or his assessments vary greatly, this will be discussed during the consultation involving the relevant student and his tutor. As a student you will be able to present your view of the assessment in this process. It may be decided in consultation whether any further action is required to improve the relevant aspect of professional conduct and, if so, what. These points of action will be included in the report on the consultation with your tutor.

Failing in relation to a consultation with your tutor
If a student does not pass or fails to fulfill the conditions relating to a consultation with his tutor in some other respect, he will be given an additional assignment (see Additional Assignment on p. 60).

Procedure for assigning study points
You will be deemed to have obtained a pass for participation in professional conduct training if you satisfy the following conditions:

- you actively participate in the professional conduct tutorials and consultations:
  1 the relevant forms are filled in properly;
  2 you actively participate in discussions;

- your tutor feels that you have satisfied the conditions for your consultation with her and the relevant report:
  1 you send the report on your reflections and your portfolio to your tutor on time;
  2 you attend the consultation with your tutor;
  3 the report on the consultation with your tutor is sent to the latter along with your plan for improvements on time, and your tutor approves them.

As long as you fail to fulfill these conditions, you will **NOT** be assigned the study points for the subject which included the relevant professional conduct components.

Consultations with a tutor constitute part of the following subjects:
1st year – Introduction into Veterinary Medicine (1st, 2nd and 3rd terms);
2nd year – Management and Profession Orientation (2nd and 3rd terms);
3rd year – Medicine (2nd and 3rd terms);
4th year – Clinical lessons (2nd and 3rd terms).

Exemptions
In some cases where you receive an exemption for a subject, you will miss part of Professional Conduct. If a consultation with a tutor is part of a subject for which you receive an exemption, the consultation will still be mandatory!

Not taking a subject (you do not register for it)
In order to ensure that there is sufficient continuity in the assistance and coaching provided by a tutor, you are strongly urged to attend a consultation with your tutor, even if you do not take the subject to which it is linked.

If you are not taking a subject to which such a consultation is linked, you are required to report this to your tutor.

Relevant parts of the Brochure:
More Informed Decision-making (MID)

Ideas for developing instruction

The "More Informed Decision-making" brochure is a publication of the MID project group of the Faculty of Veterinary Medicine.

References

The following works were used in compiling this guide and creating the case study:

1 Cockcroft, P.D., and M.A. Holmes. 2003. Handbook of Evidence-based Veterinary Medicine. Blackwell Publishing.
2 Offringa, I.M., W.J.J. Assendelft, and R.J.P.M. Scholten. 2003. Inleiding in evidence-based medicine, Klinisch handelen gebaseerd op bewijsmateriaal (Introduction to Evidence-based Medicine: Clinical Procedures Supported by Evidence).
3 Dutch Cochrane Centre website. http://www.cochrane.nl/index.html.
4 Holmes, M.A., and P.D. Cockroft. 2004. Evidence-based Veterinary Medicine: Why Is It Important and What Skills Are Needed? In Practice, 26: 28-33.
5 Sackett, D.L., W.M.C. Rosenberg, J.A.M. Gray, R.B. Haynes, and W.S. Richardson. 1996. Evidence-based Medicine: What It Is and What It Isn't. It's about Integrating Individual Clinical Expertise and the Best External Evidence. British Medical Journal, 312 (7023): 71-72.

MID / Introduction

Why is there a need for more informed decision-making?

There is a growing need in veterinary practices for having evidence to support the answers provided to clinical questions. Veterinarians simply cannot accept as true everything they see in writing (e.g., in advertising pamphlets). Similarly, people are not necessarily prepared to accept everything the veterinarian has to say, either, at least at first glance. Animal owners are increasingly vocal and better informed through the internet.

That is why it is so essential that future veterinarians learn to integrate their clinical expertise with the available evidence, obtained from systematic research, so that they have the best possible resource for supporting their decisions. The international term for this concept is "Evidence-Based Veterinary Medicine" (EBVM), but in this brochure we are using the term "More Informed Decision-making" (MID) to emphasize the notion that it is not necessarily about the evidence itself, or collecting as much of it as possible, but about better supporting your decisions by using the best available evidence.

It is worth noting that in presenting this concept of "More Informed Decision-making," we not implying that today's decisions are inadequately substantiated. But the methods presented in this brochure provide a means of efficiently and systematically searching for substantiation in the scientific literature and of practicing how to communicate that substantiation to other people, such as clients.

How does it work in a clinical setting?

Veterinarians are not going to want or feel the need to better support their decisions for every single consultation. Even if they did, they wouldn't have time after every consultation to study the primary literature available on the internet. But if their education included a study of MID, they will possess an inherent critical perspective that might cause them to more readily, and effectively, call in specialists.

In the future, veterinarians will probably increasingly work on cases in group practices or peer-group bodies and summarize their findings in a structured, succinct manner – preferably in a form that can be consulted by other veterinarians. Possible options include Systematic Review1 (SR) or Critically Appraised Topic2 (CAT).

1 A summary of the medical/veterinary literature in a particular field using an explicit method for systematically searching, evaluating and processing, so as to minimize "bias" and "random error" (S.E. Strauss, EBM, 2005).
2 A standardized summary – of no more than one page – of the evidence (S.E. Strauss, EBM, 2005).

How Do I Apply the More Informed Decision-making Method?

The More Informed Decision-making method is based on a number of fixed steps that can be more or less traced to the structured approach taken in tackling clinical problems in veterinary practice. The veterinarian makes a diagnosis, prescribes a therapy for it, issues a prognosis and, in some cases, recommends actions for prevention. Each of these decisions can be substantiated.

Fixed Steps

Problem definition | Formulate specific queries | Search for evidence
Evaluate the evidence | Draw conclusions and decide | Communicate

The veterinarian starts by defining the problem, clearly formulating what exactly is wrong. Once the problem has been defined, it has to be addressed in such a way as to optimise the chances of finding a meaningful solution. The PICO method3 can be very useful for this. When queries are generated according to this system, it helps prevent researchers from searching too extensively or in the wrong direction. Then evidence can be gathered based on the components of the specific queries.

Evaluating the Evidence

The veterinarian evaluates the literature from an informational, a methodological and a statistical (if applicable) perspective. For the methodological component, the literature can be judged* according to the following classification (1 = best evidence; 10 = least convincing evidence):

1. Systematic review
2. Meta-analyses
3. Blinded randomised clinical trial
4. Cohort studies
5. Case control studies
6. Case series
7. Single case reports
8. Ideas, editorials, opinions, consensus reports
9. Comparative animal research
10. In vitro test tube research

In veterinary medicine, however, articles in the top category are rare. Even if the search reveals that there is no pre-existing evidence on a specific problem, however, this can be valuable information (e.g., in terms of sparking laboratory research). After evaluating the evidence, the veterinarian draws conclusions. In an actual case, he or she would also have to take a number of other factors into consideration, such as local and individual circumstances, cost and emotional value. This last item is beyond the purview of clinical evidence and will therefore be left out of this discussion. The veterinarian communicates his or her findings to the client. He or she then records them, so that the results can be easily found in future searches in a similar situation, either his or her own or a fellow veterinarian's.

3 PICO stands for "Patient (pertinent information on the patient, as well as population or operation), Intervention, Comparison (reference gauge) and Outcome (what you actually want to measure)."

* From the human medical science literature, see Page 2.

MID / in the Curriculum

How is MID Incorporated in the Curriculum?

Ever since the introduction of the 1995 Curriculum, the notion of "Academic Development" has been a specific objective. This objective was expanded on in the 2001 Curriculum and will continue to be advanced in the pending Bachelor-Master curriculum. We go into "Academic Development" in greater depth in Chapter 7 of the Veterinary Medicine Exit Qualifications Curriculum: Scientific Qualities. An important part of "Academic development" is making clinical decisions based on the best possible scientific foundation. Because of the developments in veterinary practice and in the curriculum we've outlined above, "an evidence-based approach to problems in veterinary medicine" has been included as one of the exit qualifications for Veterinary Medicine.

The Veterinary Medicine Bachelor Curriculum Blueprint (Page 10) strongly recommends that in the new curriculum these exit qualifications be translated into material for all of the subjects. To achieve the greatest instructional value, MID should not be taught as a separate course or project but integrated into the entire curriculum. There are obviously some modules that lend themselves to this better than others, but every module or line of teaching has topics that can serve as launching points for learning about More Informed Decision-making. The curriculum, as a whole, should reflect the precepts of MID.

Students will follow all of the steps (learning to generate queries, learning to search, learning to evaluate, learning to decide on a course of action) for the various activities (substantiating a diagnosis, therapy, prognosis or preventive measure). This will be done in broad outlines early on in the curriculum and then in greater detail. It is possible that such an entire course of study might be incorporated into the linear instruction and/or the thesis work. It is essential that in the modular instruction students routinely receive assignments on individual components. In the Bachelor's training the emphasis will be on the preliminary steps; learning to decide on a course of action will be primarily reserved for the Master's stage, during the clinical coursework. It is during this latter stage that aspects such as cost and emotional value will be integrated into the process.

Teaching the MID Method

The method presented for instruction is primarily intended to foster the students' inherent critical faculty and teach them to think for themselves about what their decisions are founded on. This can lead them to more readily consult specialists in their later careers.

The fixed steps of the MID method are reflected in the instructional method, sometimes over an entire course of work and sometimes in a small assignment that includes a mention of MID. In the process, students will also learn skills that they will need later in applying the MID method together with other practitioners; these range from collaboration skills to writing skills.

Library staff can also assist in setting up and executing certain instructional elements, such as when a module includes assignments that involve searching for something using the library systems (some of the functions in the PubMed program can provide very targeted assistance in answering specific questions) or in evaluating articles in terms of general characteristics, such as quality criteria for journals and authors.

What are the advantages of MID education?

MID assignments have a one-to-one correlation with the students' future careers, which is inspiring for them. What's more, the assignments require active participation: formulating queries, literature searches, analysing the literature and taking various criteria into consideration. This causes the subject material to stick with the students.

At the same time, students are repeatedly confronted with the reality that there is no such thing as 100% certainty in a clinical setting. By covering MID frequently, students become accustomed to the idea that they must substantiate their decisions. This will help instil a basic assumption about life-long learning that will stand them in good stead for years to come.

Learning with the best evidence at hand

There is an ever growing demand in veterinary medicine for substantiation of answers to clinical questions. So it is critical that future veterinarians learn to integrate their clinical expertise with the best evidence at hand, obtained through systematic research. Only then can they support their decisions to the best of their ability.

Learning to address the scientific foundation of knowledge is also an essential part of "academic development," a central objective of the faculty's graduated veterinary curricula. This brochure can help instructors translate the "evidence-based approach to problems in veterinary medicine" exit qualifications into material for all of the subjects in the Bachelor-Master curriculum.

MID INSTRUCTION / AND TEST FORMATS

Learning objective for students	Diagnosis	Therapy
Learn to construct good problem definitions	What is your problem definition for the diagnosis? Is ECG a useful diagnostic tool for this patient, suspected of having DCM?	What is your problem definition for the therapy? Does therapy X (e.g., pimobendane) improve the chances of survival for a dog with DCM?
Learn to formulate specific search queries for a given problem definition	Formulate three separate search queries for searching through bibliographies (e.g., PubMed, Scopus, Web of Science) to support the diagnosis of -/ the proposed therapy for -/ the prognosis for -/ the prevention advice for DCM.	
Learn to search for evidence based on specific search queries	You suspect a patient has DCM. What databases do you consult, using what keywords, to determine whether this diagnosis can be confirmed with an ECG?	You have a patient diagnosed with DCM. You are considering prescribing pimobendane to treat it. What databases do you consult, using what keywords, to determine whether this is better than using digitalis-glycoside?
Learn to work with databases, starting with given files and keywords	Search in PubMed with the phrase "ecg dilated cardiomyopathy dogs" for the diagnosis / ditto for therapy / prognosis / prevention. Describe your search strategy and the articles you found.	
Learn to evaluate information value of the evidence (articles provided)	You are given 10 articles from sources of varying quality on the diagnosis of / therapy for / prognosis for / prevention of DCM. Select the 3 most relevant articles and provide your reasoning for choosing them.	
Learn to evaluate evidence methodologically (articles provided)	Study the article "Asymptotic dilated cardiomyopathy in ….." What is your opinion of the methodology used in this article? What are your arguments?	
Learn to evaluate evidence in terms of statistics (articles provided)	Study the 2 articles (with seemingly similar results) and indicate whether – statistically speaking – the results in the articles differ (e.g., by calculating a 95% reliability interval)	

	Sample work formats	Sample test formats
Construct a good problem definition	· As an independent case study · As an essay assignment for independent learning (to be turned in online)	· Assessment during seminar in discussion between students and teachers · Testing through examination questions · Grading of essay assignment in an educational environment
Formulate specific search queries	· As an assignment for independent learning (to be turned in online) · As a group assignment in a seminar · As a group independent learning assignment	· Assessment by the instructor · Assessment by fellow students in an educational environment
Search for evidence	· Search library catalogue together with staff during a seminar · Individual and online searches; turn in report on the search process	· Assessment by library staff (information specialists) · Assessment by instructors
Evaluate evidence, information value	· Individually or in groups in computer lab during a seminar · As an independent learning assignment, with reasoning documented and turned in online · Discussion about assessing search results	· Assessment by library staff (information specialists) · Discussion between students and instructors in a seminar
Evaluate evidence, methodologically	· Individual independent learning assignment · Group assignment in independent learning time	· Discussed by instructor in a seminar · Instructor assesses assignment · Discussed by instructor during a lecture
Evaluate evidence, Statistically	· Individual independent learning assignment · Group assignment in a seminar	· Tested through examination questions · Discussed by instructor in a seminar on statistics
Draw conclusions and decide	· Essay as independent learning assignment · Write guidelines as an independent learning assignment · Role play between veterinarian and pet owner in a seminar · Consult fellow practitioners or specialists · Discuss what to do when answers from different specialists conflict	· Instructor grades essay · Instructor grades guidelines · Evaluation of role play with students · Fellow practitioners or specialists assess performance in consultation · Instructor assesses discussion
Communication decision	· Write guidelines as an independent learning assignment · Write CAT as an independent learning assignment · Role play between veterinarian and pet owner · Presentation in a seminar	· Fellow practitioners or specialists assess performance in consultation · Instructor assesses guidelines or CAT · Fellow students assess guidelines or CAT · Evaluation of role play with students · Students assess the presentation

	Prognosis	Prevention
	What is your problem definition for the prognosis? How long will the dog live if we treat the disease using X (Y, or Z)?	What is your problem definition for prevention? Can method/therapy Y (e.g., carnitine) help prevent DCM?
	[…]What databases do you consult, using what keywords, to determine the difference in survival rates between dogs treated with pimobendane versus digitalis glycosides or "no treatment"?	[…]What databases do you consult, using what keywords, to determine whether carnitine helps prevent DCM in dogs?

	Possible assessment criteria (differ according to work format and question)
	· Is the problem definition relevant? · Is it unambiguous? · Have the right priorities been set?
	· Meets quality criteria for specific queries · Pertinent to function (diagnosis, therapy, etc.) · Which search query most effectively yields a good, pertinent answer? · Correct prioritisation of queries (i.e., what to search for first)
	· Correct databases (not always selecting the same ones) · Correct keywords (and number of them) · Correct (i.e., effective) use of systems (commands)
	· Do the students know the journals' citation scores? · Do the students know how to perform network analysis for authors? · What reasoning do the students use in weighting their sources?
	· Assess differences between research methods selected · Assess one of the research methods and its usefulness with regard to the research query
	· What reasoning do students use to evaluate the use of statistics in the articles? · Ditto for the effect statistics has on the article's weight in judging the "evidence," compared to that in another article
	· Decision regarding quality · Substantiation of quality · Present supporting evidence for the query to the specialist · Communicate with the specialist (real or acting) · How well are the conflicting answers weighed against one another? · Frequency and quality of the participation in the discussion
	· Quality of verbal communication (e.g., gearing the message to your audience) · Quality of written communication (e.g., formulating findings so that others can follow the reasoning and apply them to their own decision-making process)

Relevant parts of the report "External Education"

1 Communication

1.1 Information about extramural education for students and training clinics

Good communication is important for the proper development and provision of extramural education. It also plays an important role in determining the impression which the faculty makes within the profession, and it needs to ensure that the Faculty of Veterinary Medicine is properly presented to the outside world.

Precise arrangements will be made with the training clinics in relation to the rationale for extramural education and the manner in which it is to be provided. This will be set out in the form of a manual or instructions. The specific information which is required for the relevant extramural education (learning outcomes, assessment forms and so forth) will be set out in this manual.

Upon the commencement of this new approach the Education Board will send a general accompanying letter to the clinics together with information about the current educational curriculum (see Appendix 2), amongst other things. As far as possible all subsequent information and communication will be routed electronically between the faculty and the relevant training center. The instructions and manual will be updated each year by those responsible for extramural education (or the OWG chairpersons of the subjects, Introduction to Veterinary Medicine, and Management and Professional Guidance, and the differentiated internships). The chairpersons will meet at least once a year for this purpose to discuss the extramural education.

Logistics and administration will be provided from a fixed central location. This so-called front office for extramural education will serve as a contact point for students and the training clinics. You will find further details about this in Section 7.

The substantive aspects of extramural education will be developed and modified using a single point of contact for extramural education within the relevant department.

1.2 Communication within and beyond the profession

Attention will regularly be devoted to extramural education in Tijdschrift voor Diergeneeskunde, for example, in the form of information, the views of the Faculty of Veterinary Medicine, the experience of students and trainers in the field, and a presentation of the evaluation of extramural education.

2 Goals of extramural education

The faculty's educational structure allows it to achieve virtually any educational goals through intramural education. However, there are a number of sections of the curriculum which can only partly be provided within or by our own faculty structure or not at all. Extramural education is employed to deal with these sections.

2.1 Educational objectives

Extramural education must be viewed as a supplement to the education provided by the faculty. The underlying principle in this respect is that the faculty will develop, monitor and approve the educational objectives, the requirements and criteria pertaining to quality, and the extent of extramural education, having regard to developments occurring in the veterinary profession. The various components of this extramural education relate to:

- an exploration of the profession, and the acquisition of knowledge about and an understanding of the various sectors within the profession (including a veterinary surgeon's future clientele);
- knowledge, understanding and skills relating to professional, personal and social aspects. The acquisition and application of skills (professional and otherwise) will always have to relate to the veterinary medicine outcomes specified in the Report Program Outcomes (January 2006).

2.2 Learning goals in the undergraduate stage

A global summary of the learning goals of extramural education in the undergraduate stage follows below. A more detailed description of these learning goals is set out in the documentation on extramural education and/or the study guides issued by the departments which are responsible for extramural education.

Learning goals in the first year: vocational guidance
The student will acquire an understanding of the various sectors of the veterinary profession: farm animals, veterinary public health, individually kept animals (companion animals and horses) and their embedding in society.

Learning goals in the first year: extramural education in the primary sector
(specific to the program of study)
The student will acquire an understanding of the world in which his future patients and their owners live (unique program of study). He will acquire experience in the primary sector and in how to deal with animals.

Learning goals in the third and fourth years: extramural education within the profession
The student will acquire an understanding of those specific aspects of the profession (running a business, in particular) which are important for the purposes of running a veterinary clinic and practicing a profession within an organization. The student will become familiar with the number of professional skills which are specific to various types of animals in a first-line practice. The student will show that he is aware of the professional conduct of other people and himself.

2.3 Learning goals for the sixth year: program of study specific to a practice or organization

General
The goals which students are required to achieve are based on the outcomes for the veterinary medicine curriculum set out in the Report Program Outcomes (January 2006). In view of the fact that the students are in the final stage of their studies, they will also have virtually achieved the outcomes after attending extramural education. Specific learning goals will be formulated for each placement period. They will depend on the outcomes which are to be achieved and the extent to which this can be done within the faculty and elsewhere. Amongst other things, these goals are as follows: the performance of professional procedures on one's own, conducting oneself in an appropriate professional manner, and acquiring the managerial skills which are required to perform in a first-line practice. The student will have an understanding of the structure of the relevant professional sector, structured health-care systems, quality assurance systems, and will know how to deal with them. The introduction of extramural education in the final stage of the study will improve the relationship between the Faculty of Veterinary Medicine and veterinary practice.

Clinical specialization
- The student is capable of assessing a cattle farm or animal facility (for example, riding stables or an animal sanctuary) in relation to the health of the animals concerned, welfare and public health with the aid of a strengths and weaknesses analysis. This will be based on an inspection of a practice, an analysis of data and an examination of the relevant animals.
- Based on this, the student will be able to define a problem clearly, specify priorities and then prepare a plan of action and present substantiated proposals for concrete intervention, including any of an economic nature, and then implement them.
- The student is capable of posing questions concerning care and exercising professional skills which are relevant to first-line veterinary medicine.
- The student shows that he is aware of the professional conduct of other people and his own.
- The student has a knowledge and understanding of first-line practice and has acquired experience in the role of a veterinary surgeon, of working together with support staff and of dealing with clientele (animals and their owners).

Public health specialization

- Based on the principle of risk analysis, which may or may not be supplemented with laboratory diagnostics, the student is capable of drawing a substantiated conclusion in respect of aspects of the health and welfare of people in relation to their interaction with animals, animal products or their production methods, and can use this to develop policy.
- Based on this, the student is capable of preparing advice and, if required, of playing an active role in communicating with his colleagues, the public authorities, the business sector, or ordinary citizens and consumers about risks.

3 Quality criteria

Clearly defined quality criteria need to be stipulated for training clinics in order to ensure that extramural education attains the level required by the Faculty of Veterinary Medicine. This means that there will be a limited number of training centers which will be suitable for internships, and that these clinics will assist students several times a year. For the purposes of these internships a close, long-term relationship will have to be developed with those training clinics that are selected. They will receive support in the form of educational courses provided by the Faculty of Veterinary Medicine. This should boost the quality of education. This quality will also be checked by means of evaluations.

3.1 General quality criteria

1 Level of training clinic or practice (GVP / GLP, accreditation and certification).
2 Adequate caseload.
3 Educational skills (supervision, role model, feedback, assessment and communication).
4 Appropriate types of animals (specific to the program of study).
5 Time explicitly allocated to assist students.

1 Any mention of certification in what follows, refers to KRD ISO certification. Accreditation refers to that which occurs in accordance with the rules of Stichting Veterinair Administratiekantoor (SVAK).

2 The clinics will need to have a minimum guaranteed caseload[1]. Because second-line patients are mainly seen at the faculty, priority must be given to first-line patients and case histories at any extramural training clinic.

3 An extramural education trainer must have attended a course devoted to assisting students in practice. This course is organised by the faculty with input from IVLOS. In addition, an extramural education trainer will attend an annual refresher day, which will be organised by the Faculty of Veterinary Medicine, and/or he will attend workshops which are organised as part of major functions or events (for example, Voorjaarsdagen [Spring Days]) for this purpose.

4 Where extramural education is attended within a mixed practice as part of a differentiated internship, the relevant training will need to focus on a program of study which is specific to the relevant type(s) of animals.

5 Apart from daily supervision, the following need to become a permanent part of the timetable: an introductory consultation and a tour, as well as a final consultation in each training period.

3.2 Quality criteria specific to each period of training

Extramural education is attended at various stages of one's studies. Specific criteria, which the relevant training establishment needs to comply with, are stipulated in addition to general ones for each of these periods of training. A breakdown of these quality criteria by training period is set out in Appendix 3.

[1] Although the criteria differ in the case of each goal and type of animal (individual as opposed to those held as pairs), the following could serve as an example: an average of 10 first-line patients per day in the case of GD and PD, and an average of two visits to practices per day in the case of business supervision.

3.3 Accreditation regulations

The project team has been extensively involved in drawing up accreditation regulations for those clinics and organizations responsible for the provision of extramural education. In the event that any clinic or organization objects to the fact that it has not been accredited as a training clinic or organization, it may pursue an appeals procedure. The accreditation regulations and appeals procedure have been sourced from Aequor (see the relevant bibliography), the knowledge and communication center for food and living conditions. Aequor determines whether an organization is suitable to serve as a training center for secondary "green" education. Accredited organizations are listed in a register. The criteria for training centers have been drawn up by representatives from the education and business sectors.

Accreditation regulations and an appeals procedure for extramural education clinics and organizations in the veterinary profession could be arranged in line with Aequor's practices. Drafts of accreditation regulations and an appeals procedure may be requested from the project team. Both drafts still need to be carefully checked by a legal adviser.

The selection of extramural education centers will differ from one type of animal to the next and could occur in accordance with the following graded system.

- If certification applies in the case of clinics, this criterion (certified or evidence of being in the process of certification) can be used to select external training centers.
- If certification does not apply, accreditation by a veterinary surgeon in the case of each type of animal may be used as a criterion (accredited or evidence of being in the process of accreditation) to select external training centers.
- If practice shows that it is not possible to select a clinic or veterinary surgeon as an external training center in the above-mentioned manner, the applicable quality criteria will be that the veterinary surgeon concerned must have attended permanent training in the previous two years (an average of 50 refresher training points per annum) and must have practiced with the relevant type of animal for no less than 20 hours per week on average.

4 Evaluation

A student's assessment form should provide feedback in respect of the objectives of the extramural education which he has received. This assessment form covers a number of points which refer to different types of animals and various aspects specific to the relevant program of study. A more specific assessment form will be prepared for each program of study. The evaluation system which is used during the uniform and differentiated internships within the faculty will serve as the basis for this.

An extramural education student will be assessed as follows:
1 he will be assessed by an extramural education trainer;
2 an extramural education report will be evaluated by a lecturer of the Faculty of Veterinary Medicine.

4.1 Assessment of students by an extramural education trainer

The assessment form used by an extramural education trainer will cover the following points:
1. professional conduct;
2. practical skills;
3. knowledge of the discipline;
4. dedication and motivation;
5. a feedback schedule;
6. a report.

5 Income and expenditure

A cost-benefit analysis of extramural education will be determined on the one hand by the type of education involved and, on the other hand, by its extent and position in the curriculum. Payments for extramural education must be in line with the income and expenditure of the relevant clinic or extramural education trainer.

5.1 Expenditure

With regard to expenditure an estimate will have to be made of the supervision time involved and the investments which need to occur on the part of the relevant training clinic and extramural education trainer.

5.2 Income

With regard to income one will have to determine to what extent a clinic and/or an extramural education trainer is able to derive any benefit from serving as a training clinic.

- The status of a "training clinic" could yield spin-offs which are of benefit to the practice concerned.
- It is possible for an extramural education trainer to be assigned points in connection with the accreditation scheme for any training attended for the purposes of serving as a trainer within the context of extramural education.
- Making a contribution to training students in veterinary medicine could make a positive contribution towards a veterinary surgeon's job satisfaction.
- A student or intern could actually make a contribution to the practice of the relevant clinic after an introductory period, if necessary.

Considerations and principles underlying extramural education in the sixth academic year, partly following consultation with the relevant professional bodies and the Sociaal Economische Commissie (SEC)

1 The extramural education period would be followed by a period of tuition in the clinical sector of the Faculty of Veterinary Medicine. An option that is also being considered is to have one week of extramural education consist of four days at the relevant external training center and one day in the faculty, which would also make it possible to continue to supervise and evaluate the extramural education during the normal period of tuition.
2 The extramural education would last for a minimum of six weeks (provided that this is feasible in logistical terms) in the case of each DAP. When it comes to specific types of animals (farm animals, amongst others) consideration is being given to the possibility of allowing two students to attend overlapping extramural education. In the case of six weeks of extramural education after three weeks a new student could be initiated by the other student (who would still need to attend Weeks 4, 5 and 6). The duration of the period of extramural education could vary depending on the time of year. In the summer a student could be required for three months. Following an introductory period of six weeks he could assume responsibility for basic activities under supervision during the second period of six weeks.
3 The number of weeks of extramural education is not identical for all programs of study by definition.
4 Acting under the supervision and guidance of a veterinary surgeon a student could carry out professional veterinary procedures on his own.
5 The Faculty of Veterinary Medicine is responsible for professional and educational training and refresher days for the extramural education trainers, which could yield additional refresher training points for the latter. Consideration may be given to the organization of refresher training in the region in which the external training center is situated.
6 The weekly hours of supervision will gradually decline during the period of extramural education.
7 The time spent on supervision will be based on a fixed hourly rate.
8 Extramural education spans a relatively long period of collaboration. In order to ensure that the relationship between an extramural education trainer and an intern is not troubled an evaluation will be scheduled for the first week of extramural education.

Example of calculation of extramural education fees

1st academic year: supervision fee for one hour of extramural education per week
3rd and 4th academic years: supervision fee for 2.5 hours of extramural education per week
6th academic year (differentiated internships) – example calculation for extramural education:

1st period (minimum of six weeks)
Week 1: supervision fee for two hours a day (EUR 200.00 per day)
As of Week 2: no fee

2nd period (minimum of six weeks)
Week 1: supervision fee for one hour a day (EUR 100.00 per day)
As of Week 2: no fee

Total fees: 1st period (minimum of six weeks) – EUR 1,000.00
2nd period (minimum of six weeks) – EUR 500.00.

The extent to which the example fee calculated on the basis of the cost-benefit analysis is realistic and feasible in practice, will need to be assessed in the case of each type of animal by means of a pilot project conducted at selected extramural education centers over a period of time, and will need to be carefully evaluated by the relevant professional bodies (SEC).

6 Insurance

Aansprakelijkheid en Verzekering bij schades in het kader van Extern Onderwijs
[Liability and Insurance in the Event of Claims Relating to Extramural Education] (Author of the source document: A. Bouman-de Wilde, 26 August 2004; supplement to the source document by W.E. Grimmelikhuijsen for the purposes of extramural education, 16 January 2006)

6.1 Introduction

In principle the faculty is liable for the activities (and their consequences) of its staff, when they perform their normal work. If any harm is caused to some other person, which can be attributed to an employee, the faculty will be required to pay compensation. It is only if a deliberate act or omission occurs, that the faculty will be able to recover any compensation that has been paid, from the employee concerned. Such other party may also include a member of the faculty or any other person. **In principle, students,** student assistants, interns, guest lecturers and any other people who perform work on the faculty's instructions, **constitute part of the group known as "staff".** In short, there needs to be a certain relationship of authority.

6.2 Liability

Liability will apply in the event that:
- a tort is committed;
- harm is caused;
- the tort can be attributed to the perpetrator.

(Section 162 of the Civil Code).

A tort may involve:
- the infringement of a right;
- an act or omission in contravention of a legal duty;
- an act or omission in contravention of what is generally accepted in accordance with an unwritten law.

The above must occur in the absence of any grounds justifying it (Section 162 of the Civil Code).

An employer is liable in respect of a tort committed by his employee. This is the employer's so-called risk of liability. In the event that an employee is guilty of a deliberate act or omission or conscious recklessness, his employer will be able to recover any compensation from him (Section 170(1) of the Civil Code).

Where a person performs a service for a natural person without being employed by the latter, this natural person will only be liable, if his subordinate commits his wrongdoing while performing the task assigned to him (Section 170(2) of the Civil Code).

What is stipulated in Section 170(2) of the Civil Code refers to liability in a situation other than that of an employer and his employee but one in which there is a proper relationship of authority or supervision. With this in mind, you could argue that, if a student performs a task assigned to him in an external veterinary clinic under the authority or supervision of a veterinary surgeon and commits a tort which causes harm and this can be attributed to the student, this could mean that the relevant veterinary surgeon is liable.

Such a situation could occur in the case of extramural education and it would therefore be relevant to draw the attention of the external veterinary surgeons to this and to ensure that they are insured against legal liability. Because tort and liability are concerned with the facts in each case, every situation will need to be assessed on its own merits. It can therefore never be stated in general terms who is actually liable and when.

In order to cover **all risks** as far as possible it is advisable that, in addition to the insurance which the University of Utrecht has arranged, a student is also properly insured against legal liability and that he also has proper health insurance as well as general accident insurance if required. An external veterinary clinic may be expected to have professional and legal liability insurance. In this way it will be possible to take care of the question of liability with the aid of insurance companies, and to cover major risks.

Insurance arranged by the Faculty of Veterinary Medicine
The faculty has business liability insurance. This policy is similar to legal liability insurance for private individuals.

6.3 Harm to third parties

This policy covers harm caused to other parties by the faculty's employees or students. However, the faculty must be culpable in this case. There can be no liability without culpability. The insured persons are also considered to be a third party in relation to each other. This insurance also covers any harm caused to another party by a student performing veterinary duties as part of his studies or in a clinic. Any damage caused to a vehicle or equipment is not covered by this insurance.

The insurance company will not pay for any harm that is deliberately caused. However, the injured party may hold the faculty liable. In turn, the faculty may recover any loss from the relevant employee or student.

6.4 Harm suffered by students due to an accident

Any harm suffered by a student as a result of an accident which occurs during a practical assignment, is only insured if the faculty is to blame, for example, because it failed to adopt appropriate safety precautions. If such an accident occurs at an extramural education center and the veterinary clinic responsible for supervision is to blame, it will be liable. A veterinary surgeon is required to take out liability insurance similar to that of the faculty.

6.5 Faculty's compensation scheme

If anything happens to a student or the latter is injured due to the actions of any patient and this results in costs having to be borne by someone in their personal capacity, in principle, the patient's owner is liable for the harm concerned. However, in this case the faculty does not wish to make a claim against the owner and it is for this reason that it has a compensation scheme. In this case no insured entitlement applies. Instead, the faculty has an ex gratia compensation scheme. The aim of the latter is to provide compensation for any harm which occurs as a direct result of the action of any patient in so far as this action is due to any deliberate act or omission, or gross negligence. No payment will be made for immaterial damages nor will compensation be provided for pain and suffering.

6.6 Damaged property

Compensation will be provided for any property that is damaged in so far as it relates to the relevant function. Alternatively, it must inevitably have been present at the site of the accident. By way of a guideline for determining the level of compensation, the following discount rates will apply depending on the date on which the relevant personal property was purchased:

- 10% of the purchase price, if the date of purchase was a year ago (compensation will never be provided for the full value);
- 25% in the case of two years;
- 50% in the case of three years;
- 75% in the case of four years;
- 100% if the period is in excess of four years.

6.7 Repairing or cleaning clothes

The costs involved in repairing or cleaning clothes will be paid for in full.

6.8 Lost clothing

However, compensation will only be provided for lost clothing, if the latter is not yet three years old and if any stipulated work clothes are worn. This compensation will be determined by dividing the purchase price by 36 months. The result will then be multiplied by the number of months between the date of purchase and the date on which the damage occurred. This amount will be deducted from the purchase price and the remainder will be paid out.

6.9 Medical expenses

Compensation for medical expenses will always be provided by way of a supplement to the existing insurance policy of the person concerned. This insurance policy must cover the following at the very least:

- the cost of hospitalization (care, nursing and specialist assistance in a hospital);
- 80% of the cost of outpatient treatment by a specialist.

In the absence of an insurance policy no more than the equivalent of any excess will be paid out.

6.10 Making and handling claims

A claim must be filed in writing with the manager of the business of the entity where the harm occurs or under whose supervision the extramural education is given. Such a claim must consist of a report of what happened including the first and last names of the people involved, and must state the nature and extent of any loss (with the aid of dockets). This report must be signed by the person who has suffered any harm. In the event that the faculty is held liable, its insurance company will rule on the compensation that is to be paid. In any other case the faculty's mandatory will decide whether compensation will be paid.

6.11 Other countries

The above applies in relation to receiving extramural education in the Netherlands. Other rules apply with regard to receiving extramural education in another country. In this case the relevant student will bear responsibility himself. The student will need to obtain information about the rules governing liability in the event of injury or harm being caused to another party in the country in which he is receiving extramural education. Every student who goes to another country will be required to make an appointment with the Bureau Internationale Contacten (BIC) to discuss aspects of insurance and liability. Whatever the case, students will need to ensure that they are properly informed about the cover of their existing insurance (health and legal liability) in the country of their choice.

No rights may be derived from this document.

8 Contracts and agreements

The clinics or businesses which provide extramural education require precise arrangements with regard to this education. Extramural education contracts constitute an important part of these arrangements. Agreements need to be concluded with those businesses which provide extramural education (each agreement must be tailored to the relevant component of this extramural education), clearly setting out the relevant responsibilities, rights and duties, and aspects of non-disclosure and insurance.

The bibliography also includes a reference to an existing extramural education agreement for a veterinary center in the Netherlands.

An agreement also needs to stipulate that, in the event of any problems and/or conflict during the period of extramural education, it may be cancelled at any time by either the relevant extramural education trainer or by the student acting in consultation with each other.

9 Quality assurance

In relation to extramural education quality assurance covers the following four aspects:
1 a written evaluation produced by a student of his extramural education center or trainer;
2 an evaluation of the year concerned (multi-disciplinary);
3 an evaluation of the extramural education produced by the extramural education trainer himself (internal quality assurance);
4 an evaluation of the extramural education produced by the Faculty of Veterinary Medicine.

The extramural education centers will receive a report on Points 1 and 2 each year, so as to be able to determine their own areas of improvement.

10 Training and educational support

10.1 Selecting an extramural education trainer

In order to provide good and effective education to the mutual satisfaction of both trainer and student it is important to select a good trainer. Educational approach, expertise and skills, and personal qualities play a role in this respect. A profile of an extramural education trainer may be found in Appendix 6.

10.2 Educational support

An extramural education trainer must have completed a course on "supervising students in the field" (a requisite quality criterion). This course is organised by the Faculty of Veterinary Medicine with contributions from the IVLOS. In addition to providing educational support at the outset an extramural education trainer will attend an annual refresher day (being an afternoon followed by an evening session), which will be organised by the Faculty of Veterinary Medicine. In this respect the underlying principles will be as follows:
- a separate day will be organised for each category of animals (companion animals, horses and farm animals) once every year;
- the program will be drawn up in consultation with the relevant extramural education trainer and will be funded by the Faculty of Veterinary Medicine;
- the extramural education trainers may attend all of these days;
- the extramural education front office will be responsible for organizing these refresher days.

10.3 Vocational training

The extramural education trainers will also be offered vocational courses. The faculty may develop courses which address the requirements of these trainers, in consultation with them. The faculty acts as a partner to the extramural education trainers not only with regard to the educational aspects but also in relation to brushing up their veterinary knowledge and skills.

	Courses	TR	ECTS				Lectures				
			Core	FA/VPH	CA	H	Core	FA/VPH	CA	H	
Year 1	Introduction Veterinary Medicine	1	8.57				17				
	Cell biology/Histology	1	7.14				12				
	Embryology	1	4.29				12				
	Biochemistry	2	8.57				25				
	Structure & Function 1: Locomotion system	2	4.29	1.43	1.43		10	2			
	Academic Training	2	5.71				6				
	Structure & Function 2: Digestive system	3	5.71	2.86	2.86		14	4	1		
	Structure & Function 3: Central nervous system/ endocrinology	3	4.29				14				
	Genetics	3	4.29		1.43		8				
	Academic Training	3		1.43				4			
	Externship Introduction Veterinary Medicine	3		1.43	1.43						
Year 2	Structure & Function 4: Respiration, circulation, skin	1	5	1.43	1.43		12		1		
	Structure & Function 5: Reproduction, endocrinology and metabolism	1	5.71	2.14	2.14		16	1	3		
	Topographical Anatomy	1	1.43	2.86	2.86		5				
	Structure & Function 7: Birds	1	1.43				3				
	Structure & Function 6: Water & salt, kidney's, thermoregulation	2	4.29				9				
	Topografic Anatomy	2			0.71						
	General Microbiology / General Immunology 1	2	4.29				10				
	General Pathology	2	3.57				10				
	General Pharmacology	2	2.86				8				
	Adaptation 1	2	1.43	0.71			4				
	Pathophysiology	3	8.57				19				
	General Microbiology / General Immunology 2	3	5.71				11				
	Breeding	3		2.86	3.57			9	11		
	Management & Profession Orientation	3	1.43	1.43	0.71			3			
Year 3	Diagnostics - Clinical	1	5.71	2.86	2.86	2.86	15		4	2	
	Diagnostics - Additional	1	2.86	2.86	2.86	2.86	5	1	1	1	
	Veterinary Environmental Science	1	2.86				6				
	Medicine 1	2	4.29	1.43	2.14	2.14	13	5	6	6	
	Medicine 2	2	2.86	1.43	2.14	2.14	9	5	7	8	
	Animal Nutrition	2	2.86	2.14	1.43	1.43	6	1	1	1	
	Adaptation 2	2	1.43	2.14	1.43	1.43	2		3	1	
	Medicine 3	3	4.29	2.14	2.14	2.14	10	4	4	6	
	Medicine 4	3	4.29	2.14	2.14	2.14	11	4	7	8	
	Pharmacotherapy	3	2.86	1.43	1.43	1.43	8	2	2	2	
	Introduction into Veterinary Public Health	1	5.71				8				
Year 4	General Obstetrics	1	3.57	2.14	2.14	2.14	8	2	2	2	
	Introduction Management of Husbandry/Economics	1	2.86	2.14	1.43	1.43	7	1	1	1	
	Clinical Lessons	all	12.14	4.29	7.14	7.86	70	6	13	10	
	General Surgery	2	4.29	1.43	2.86	2.86	8	2	6	6	
	Anesthesiology	2	1.43		2.14	1.43	4		1	1	
	Veterinary Medicine & Society	3	4.29	1.43	1.43	1.43	10				
	Food Quality Management	3		5.71				4			

	Small group learning				Group assignment				Practical				Selfstudy				Assess-ment
	Core	FA/VPH	CA	H	Core	FA/VPH	CA	H	Core	FA/VPH	CA	H	Core	FA/VPH	CA	H	
	13								11				150				3
	14				1				8				121				3
	8								2				81				3
	20				1				4				152				3
	5	4	5						6		1		73	30	26		3
	17				8								85				3
	7	4	7			1			9	2	1		93	64	61		3
	14												75				3
	17						2						75		31		3
										1				30			2
	12	6	6		1				2				89	28	27		3
	15	6	6		1	1	1		2				99	43	41		3
	6	17	17										21	46	46		2
	4								1				23				2
	12				1								80				3
			5												9		1
	10								5				67				3
	10												67				3
	10												50				2
	3									2			28	12			2
	18				4								166				3
	14				1				5				94				3
		9	12			1	1			1	1			43	55		2
					4	3	2						21	25	12		3
	4	6		1	1			2	13	7	6	5	80	40	52	48	1
	4	2	4	4					7	5	1	1	36	55	67	67	3
	8				4								40				2
	12	5	6	6									80	25	42	42	3
	8	5	5	5									55	25	43	42	3
	9	8	5	5	1	1	1	1					50	36	25	25	2
	3	2	3	2	1	1	1	1	1	2		1	22	46	27	27	2
	9	9	9	7									89	38	38	40	3
	9	6	6	6									88	44	41	40	3
	12	3	3	3		1	1	1					45	28	28	28	3
	12				2				5				97				3
	5	1	3	1		1	1	1	4	2	1	2	63	44	44	44	3
	11	3	2	2		3	2	2		1			48	37	31	31	3
	37	6	10	10		1	1	1	16	4	4	5	129	82	147	166	3
	4	2	5	5					5	2	3	3	81	26	52	52	3
	6		5	5			1						21		45	29	3
	12				1	2	2	2					79	32	32	32	3
		5				4								127			3

Course descriptions Year 1-4

First Year of the Study

Introduction Veterinary Medicine
Gain insight in the social and scientific context of veterinary medicine and ethology and its historic development. Orientation in various professional sectors of veterinary medicine. Attention is paid to communicative skills and to the attitude of (future) veterinarians. Course also includes library instructions to deal with the imbedded veterinary medicine in biomedical scientific research.
Subject included in this course: Professional ethics

Cell biology/Histology
Gaining basic knowledge in structural and functional aspects of the sub cellular compartment and gain understanding in (cell) biological processes and of the differences and similarities between various tissues. Coming up for discussion are cell division and cell differentiation, epithelial tissue, connective tissue, muscle and nervous tissue.
Subjects included in this course: Anatomy (histology)

Embryology
Gain understanding of the three-dimensional embryonic development of mammals and birds as a preparation for the gaining of insight in the (normal) structure and function of mammals and birds, especially the structure. Coming up for discussion are early development, cardiovascular system, digestive system, urogenital system, the development of the structure plan and global insight in the development of congenital defects.
Subjects included in this course: Anatomy, Physiology

Academic Training
Gain knowledge and insight in methods of scientific biomedical research, in processing and reliability of results, in possibilities and limitations of these results and in the basics of statistics. Attention is paid to developing critical attitude to the scientific knowledge on which veterinary medicine activities are based.
Subject included in this course: Professional ethics

Biochemistry
Gain general knowledge and insight in biological processes (cell/tissue/organisms) with relation to nucleic acids, proteins, carbohydrates and fats. Gain insight in modern biotechnological developments. Coming up for discussion are the general aspects of structure, properties and metabolism of nucleic acids, proteins, carbohydrates and fats, the general aspects of enzymology and biochemical backgrounds of molecular biology.
Subjects included in this course: Biochemistry

Structure & Function 1: Locomotion system
Gain insight in normal locomotion system and structure plan of relevant animal species in comparison. In the core curriculum the species transgressing approach is most important, the anatomy is discussed to a limited detailed degree and directed towards what is needed for the "first care of patients". More specific subjects are discussed in the study path specific paths. Coming up for discussion are general structure and function of the locomotion system, general principles of electronic pulses in nerves and muscles that result in contraction of the muscles, differences between three types of muscles and the structure and function of various types of joints.
Subjects included in this course: Anatomy, Physiology
Structure & Function 2: Digestive system
Gain species transgressing insight into a normally functioning digestive system. Coming up for discussion in the core are structure plan, motility, secretions, fermentation, digestion and neural and hormonal regulation. More specific subjects, like types of teeth and physiology of the digestive system of rabbits, rodents and horses, are discussed in the track specific part.
Subjects included in this course: Anatomy, Physiology, Biochemistry

Structure & Function 3: Central nervous system/Endocrinology
Gain knowledge and insight in the normal neural and hormonal regulation of the species that are relevant to veterinary medicine, in order to understand the pathophysiological processes. Coming up for

discussion are general principles of regulation, neural and endocrine basic structures, development of the nervous and endocrine systems, blood-brain-barrier and liquor, sensory perception, reflexes, sensory integration, locomotion system, movements and behavioural patterns, pain and anaesthesia, homeostasis and hypothalamus, pituitary and autonomous nervous system.
Subjects included in this course: Anatomy, Physiology, Biochemistry

Genetics
Gain insight in various aspects of genetics and population genetics, in the molecular and chromosomal basics and the origin of genotypes. Gain knowledge and insight in the development of hereditary and non-hereditary genetic deviations, the origin of genetic diversity and the spread of hereditary disorders within populations.
Subjects included in this course: Genetics

Second Year of the Study

Structure & Function 4: Respiration, circulation, skin
Gain insight in all aspects of normal transport of O2 and CO2. Gain knowledge and insight in normal structure and function of respiratory system, circulation system and skin in a species transgressing way. More specific subjects are discussed in the study path specific paths. Coming up for discussion are structure and function of airways and lungs, structure of heart and blood vessels, pressure and volume in respiration and circulation, ventilation, the cardiac pump and ECG, haemodynamics, oxygen and CO2 transport and control of respiration, embryonic circulation and respiration, filtration, microcirculation and lymphatics, distribution of blood and control of circulation.
Subjects included in this course: Anatomy, Physiology, Biochemistry

Structure & Function 5: Reproduction, endocrinology and metabolism
Gain knowledge and insight in the structure and function of the reproduction organs, especially with relation to the reproduction process, the endocrine organs and the metabolism and its endocrine regulation. Coming up for discussion are biochemical, physiological, morphological and gynaecological aspect of the reproduction system, endocrine regulation of the oestrus, heat, fertilization, pregnancy and parturition, morphology and function of male and female reproductive organs, morphology and function of the placenta and carbohydrate, protein and fat metabolism in relation to energy metabolism, including endocrine regulation.
Subjects included in this course: Anatomy, Physiology, Biochemistry, Reproduction and reproductive disorders

Structure & Function 6: Water and salts, kidneys, thermoregulation
Gain knowledge and insight in the normal structure and function of the urine producing organs and its transport system; normal water and salt regulation and the hormonal systems of regulation, the acid-base equilibrium and its regulation and the thermoregulation (including structure and function of the skin). Coming up for discussion are thermoregulation and skin, functional morphology, histology and anatomy of the kidney and quantification of the kidney function, water and electrolyte balance and osmotic regulation, glomerular hemodynamics and volume regulation, acid-base regulation and potassium balance.
Subjects included in this course: Anatomy, Physiology, Biochemistry

Structure & Function 7: Birds
Gain insight in the structure and function of those organ systems that differ from those of mammals: locomotion system, digestive system, respiratory system, endocrinology, metabolism, excretion and reproduction.
Subjects included in this course: Anatomy, Physiology, Biochemistry

Topographical Anatomy
Gain a species transgressing three-dimensional insight in topography of head, body and limbs of the species relevant for veterinary medicine. Also discussed are position and topographic relations of organ systems and individual organs; both in the living and in the dead animal. Integration of the organ-directed structure and function subjects. Species specific parts are discussed in the study path specific paths.
Subject included in this course: Anatomy

Adaptation 1
Gain knowledge and insight in the general principles of (physiologic and behavioural) control systems and adaptation processes that animals use to adapt to variations in their habitat. Coming up for discussion are general aspects of adaptation, domestication principles, welfare, health and production aspects and the consequences of chronic and acute stress.
Subjects included in this course: Physiology, Animal Ethology and Welfare

General Pharmacology
Gain insight in veterinary medicine and learning to apply the basic principles of pharmacokinetics and pharmacodynamics. Coming up for discussion are route of administration, absorption, distribution in the body, pharmacodynamics, cholinergic synapse, adrenergic synaps, neurotransmission in the central nervous system, anaesthetics, elimination (biotransformation and excretion), kinetic data and allopathy, homeopathy and evidence based medicine.
Subjects included in this course: Pharmacology, Toxicology

General Pathology
Gain knowledge and insight in the general aspects of pathological processes, including the consequences of these processes on cells, tissues, organs, the whole animal and the animals' population. Coming up for discussion are cell pathology, tumour biology and circulation disorders.
Subject included in this course: Pathology

General Microbiology/General Immunology 1 & 2
Gain insight in the essential characteristics of infectious agents and of the structure and function of the immune system. Coming up for discussion are structure, physiology and growth of infectious agents, hygienic principles, functional morphology of the immune system, mechanism of normal defence (GM/GI 1), pathogenesis of infectious diseases, diagnostics, epidemiology, prevention and intervention, abnormal immune response and actuality of infectious diseases and immunology (GM/GI 2).
Subjects included in this course: Microbiology, Immunology, Epidemiology, Parasitology

Pathophysiology
Gain insight in the deregulation of physiologic processes that lead to symptoms of disease and in the connection of several pathophysiologic mechanisms. Coming up for discussion are acetonaemia, hyperlipaemia and fatty liver syndrome, abnormal calcium metabolism, diabetes mellitus and hypoglycaemia, insufficiency of the adrenal gland and hyperadrenocorticism, abnormal liver function resulting in hepatho-encephalopathy, vomiting, regurgitation and stenosis, diarrhoea, pale mucous membranes, abnormal blood clotting, shock, oedema, ascites and hydrothorax, icterus and cholestases, dyspnoea, exercise intolerance, weight loss, insufficient uterine contractions, polyuria and polydipsia and ophthalmic problems.
Subjects included in this course: Physiology, Pathology

Breeding
Gain insight in the general principles of breeding and racial knowledge in a species transgressing way. More specific subjects are discussed in the track specific part of the course. Coming up for discussion are hereditary disorders and congenital defects in relation to specific breeds, methods of breeding and its applicability (for optimization of health and production).
Subjects included in this course: Genetics, Professional ethics

Management & Profession Orientation
In the core general aspect of management are discussed from the basic principles of psychology and philosophy. Attention is also emphatically paid to the professional orientation. In the study paths branch-specific cases on the field of management (information, marketing and business administration) are discussed. Coming up for discussion are basic principles of management for veterinarians in order to function effectively within an organisation, organizing group work, professional ethics and insight in (future) professional field.
Subject included in this course: Professional ethics, Management

Third year of the study

Diagnostics-Clinical
Gain knowledge and skills in clinical examination of particular species that are important for all veterinarians, aimed towards the first care of patients. Coming up for discussion are: anamnesis (including social skills), initial examination (individual animal or a group of animals), evaluation of findings, additional investigation and evaluation of findings after additional investigation (including linking the results to other animals, the surroundings or parts of the production chain).
Subjects included in this course: Internal Medicine, Surgery, Reproduction of all three species-oriented clinical departments

Diagnostics-Additional
Gain knowledge and insight in veterinary diagnostic imaging and gain knowledge and skills in laboratory work. Coming up for discussion are x-ray (including interpretation within the scope of first care of patients), ultra-sound, CT, MRI and scintigrafie, laboratory skills, interpretation of the results (including reliability of the results and reference values), ranging of the result and oral and written reporting of the results.
Subjects included in this course: Radiology, Biochemistry, Microbiology, Clinical Pathology

Veterinary Environmental Science
Gain global insight in environmental hygiene and environmental toxicology and the consequences of veterinary acting on the environment. Explicit action is paid to the attitude of the (future) veterinary surgeons. Coming up for discussion are xenobiotics and pharmacotherapeutica, micro organisms and biologic toxins, cycles of inorganic compounds, the effects of pollution on the environment and on animal and public health and legal aspects.
Subjects included in this course: Toxicology, Microbiology, Professional ethics, Veterinary Public Health

Medicine 1
Gain knowledge and insight in diseases and the problem-directed approach of the patient, including clinical, pathological and microbiological aspects. The core focuses on diseases where the first care of patients is most important. More specific subjects are discussed in the study paths. Medicine 1 focuses on digestive system and liver. Coming up for discussion are epidemiology, aetiology and pathogeneses, symptoms, diagnostics, differential diagnosis, therapy (including prevention) and prognosis.
Subjects included in this course: Epidemiology, Pathology, Clinical medicine and surgery, Clinical lectures, Preventive medicine, Therapeutics

Medicine 2
Gain knowledge and insight in diseases and the problem-directed approach of the patient, including clinical, pathological and microbiological aspects. The core focuses on diseases where the first care of patients is most important. More specific subjects are discussed in the study paths. Medicine 2 focuses on respiration, circulation and eye. Coming up for discussion are epidemiology, aetiology and pathogeneses, symptoms, diagnostics, differential diagnosis, therapy (including prevention) and prognosis.
Subjects included in this course: Epidemiology, Pathology, Clinical medicine and surgery, Clinical lectures, Preventive medicine, Therapeutics

Animal Nutrition
Gain knowledge and insight in the general species transgressing principles of animal nutrition in a conceptual way. In the study path specific paths rations are judged in relation to animal health, production and performance. Coming up for discussion are energy, proteins, carbohydrates and fats, minerals, vitamins, pregnancy, lactation and youth grow.
Subjects included in this course: Animal nutrition

Adaptation 2
Gain further knowledge and insight in the general principles of (physiologic and behavioural) control systems and adaptation processes that animals use to adapt to variations in their habitat. Gain knowledge and insight in effects of early experiences on physiologic and behavioural methods of adaptation. Coming up for discussion are prenatal and postnatal stressors, coping styles, play behaviour, domestication, consequences of insufficient adaptation on health, welfare, immunology, reproduction and production, stereotypes and anticipation behaviour.
Subjects included in this course: Physiology, Animal ethology and protection

Medicine 3
Gain knowledge and insight in diseases and the problem-directed approach of the patient, including clinical, pathological and microbiological aspects. The core focuses on diseases where the first care of patients is most important. More specific subjects are discussed in the study paths. Medicine 3 focuses on urinary system, blood and blood producing organs, metabolism and endocrine organs and reproductive system. Coming up for discussion are epidemiology, aetiology and pathogeneses, symptoms, diagnostics, differential diagnosis, therapy (including prevention) and prognosis.
Subjects included in this course: Epidemiology, Pathology, Clinical medicine and surgery, Clinical lectures, Preventive medicine, Therapeutics

Medicine 4
Gain knowledge and insight in diseases and the problem-directed approach of the patient, including clinical, pathological and microbiological aspects. The core focuses on diseases where the first care of patients is most important. More specific subjects are discussed in the study paths. Medicine 4 focuses on nervous system, locomotion system, skin, ear and udder and systemic diseases. Coming up for discussion are epidemiology, aetiology and pathogeneses, symptoms, diagnostics, differential diagnosis, therapy (including prevention) and prognosis.
Subjects included in this course: Epidemiology, Pathology, Clinical medicine and surgery, Clinical lectures, Preventive medicine, Therapeutics

Pharmacotherapy
Gain knowledge and insight in the pharmacotherapeutical principles and how to apply those principles in an animal transgressing manner. More specific subjects are discussed the study paths. Coming up for discussion are inflammation and anaesthetics, heart, kidney, lung and digestive system, antibiotics, antimycotics, antiparasitics and antiprotozoica, medical interactions and toxicology.
Subjects included in this course are: Pharmacology, Toxicology, Preventive medicine

Fourth year of the Study

Introduction into Veterinary Public Health
Gain insight in general aspects of veterinary public health, hygiene and foodstuffs of animal origin and their possible consequences for the veterinary public health. Other subject that come up for discussion are microbiology of foodstuffs of animal origin, quality control, inspection and control of animal husbandry and slaughtering and processing of foodstuffs, food hygiene and technology and legal aspects of public health.
Subjects included in this course: Animal production, Animal husbandry, Inspection and control of animal foodstuffs and foodstuffs of animal origin, Food hygiene and technology, Practical work in Food hygiene

General Obstetrics
Gain knowledge and insight in prevalence, diagnosis, complications and therapy of disorders that can appear during pregnancy, parturition and puerperial period. In the core the content of the subject is structured in an animal transgressing manner. Much attention is given to the obstetrics of ruminants, including the Caesarean. The more specific obstetric topics (herd health program on fertility and fertility disorders) are discussed in the study paths.
Subjects included in this course: Obstetrics, Reproduction and reproductive disorders

Introduction Management of Husbandry/Economics
Gain knowledge and insight in the principles of preventive veterinary medicine and the economic aspects of the veterinary health care and animal keeping. Learn how to apply relevant statistic/epidemiological principles. Also coming up for discussion are the economic basic principles of the ins and outs of animal keeping and rough indication of the relation with the macro-economic level (national and international agricultural politics and economics.
Subjects included in this course: Epidemiology, Agronomy, Rural economics, Animal husbandry

Clinical lessons
Gain further knowledge and insight in and practice with clinical reason. Mobilise, deepen and learn how to apply knowledge and skills acquired in the first 4 years of the program. Also in the domain of diagnostics, making decisions, intervention, consequences for public health, environment and animal wellness, prognosis and prevention. Coming up for discussion are anamneses, initial examination and

additional investigation, preventive and/or therapeutic intervention based on the results of these examination/investigation with consideration of epidemiologic, zootechnical, economical, legal, social, and public health aspects. Also learn to communicate in a professional manner with owners, colleagues and other proper authorities. Learn to show a critical an analytical attitude to the scientific knowledge on which veterinary medicine activities are based, by the principles of Evidence Based Medicine.
Subjects included in this course: Basic subjects, Basic sciences, Clinical sciences, Animal production and Food hygiene

General Surgery
Gain knowledge about general surgical principles, including first care of emergency patients. Coming up for discussion are clinical problem solving, wound treatment, antimicrobic prophylaxis, asepsis, sutures, postoperative care and pain control, bandage theory, first aid and injection skills.
Subject included in this course: Clinical medicine and surgery

Anaesthesiology
Gain knowledge and insight in aspects of anaesthesiology with relation to the first care of patients in emergencies, in an animal transgressing manner. More specific subjects are discussed in the study paths. Coming up for discussion are general anaesthetics, local an regional anaesthetics, sedation and premedication, induction, maintenance and recovery and general principles and pharmaca with relation to inhalation anaesthetics.
Subjects included in this course: Pharmacology, Clinical medicine and surgery

Veterinary Medicine & Society
Integration of the social responsibilities of the veterinary surgeon and legal consequences. Coming up for discussion are the ethical, legal and juridical aspects of veterinary medicine that veterinarians can use for critical reflection on his own professional actions, the responsibility of the veterinarian towards the animal, the owner and towards the society.
Subjects included in this course: Professional ethics, Veterinary legislation and forensic medicine.

Food Quality Management
Gain insight in the different areas of food quality management and exercise with the total management approach. Integration of both technological and managerial aspects from a systems perspective. Coming up for discussion are quality management along the whole food chain, health and food safety, other aspects of the food product (such as animal welfare, environmental impact, business performance, flexibility and product convenience).
Subjects included in this course: Food hygiene and technology

Overview Year 5-6

Year 5: Courses	ECTS	Weeks
Research Internship	**17.14**	**12**
Uniform Clinical Rotations	**42.85**	**30**
Veterinary public health	2.86	2
Pharmacy and Practice management	4.29	3
Ruminants	7.14	5
Pigs	4.29	3
Poultry	2.86	2
Pathologic and Microbiologic diagnostics	4.29	3
Companion animals	10	7
Horses	7.14	5

Year 6: Track (Clinical) Rotations	ECTS	Weeks
Clinical Rotations - Track Companion Animals	**60**	**42**
Introduction	8.57	6
Theory	7.14	5
Manual skills/handvaardigheden	1.43	1
Pathology - Birds / Rodents / Exotic animals	2.14	1.5
Polyclinic - Birds / Rodents / Exotic animals	2.86	2
Polyclinic	7.86	5.5
Anesthesiology	1.43	1
Surgery	7.14	5
Diagnostic imaging	1.43	1
Internal medicine / care and ward unit	4.29	3
Intensive care unit	4.29	3
Pathology and Clinical pathological conference (KPC)	1.43	1
Externship	8.57	6
Electives	10	7

Rotations - Track Veterinary Publc Health	60	42
Veterinary Public Health (VPH) = identical to FA	14.29	10
Core clerkship / course VPH	17.14	12
Internship Food and Consumer Product Safety Authority (VWA)	8.57	6
Deepening program VPH	5.71	4
Electives	14.29	10
Internal medicine	7.14	5
Reproduction	2.86	2
Surgery	7.14	5
Ambulatory clinic	2.86	2
Electives	1.43	1
Part 3	8.57	6
Externship	8.57	6

Rotations - Track Veterinary Publc Health	60	42
Part 4	22.86	16
Surgery	7.14	5
Reproduction	2.86	2
Ambulatory clinic	2.86	2
Internal medicine	7.14	5
I&I, Animal nutrition and Pharmaco-therapy	1.43	1
Electives	1.43	1

Clinical Rotations - Track Farm Animals	60	42
Veterinary Public Health	14.29	10
Orientation into the specific profession	2.14	1.5
Quality and quality control	2.14	1.5
Hygiene	2.86	2
Epidemiology	2.86	2
Product knowledge	1.43	1
Accomodation & welfare	1.43	1
Professional conduct	1.43	1
Economy	1.43	1
Farm animals	31.43	22
Ruminants	14.29	10
Pigs	11.43	8
Poultry	5.71	4
Electives	14.29	10

Rotations - Track Veterinary Publc Health	60	42
Veterinary Public Health (VPH) = identical to FA	14.29	10
Core clerkship / course VPH	17.14	12
Internship Food and Consumer Product Safety Authority (VWA)	8.57	6
Deepening program VPH	5.71	4
Electives	14.29	10

Rotations - Track Management and Policy	60	42
Veterinary Public Health (VPH) = identical to FA	14.29	10
Individual program	31.43	22
Electives	14.29	10

A description of the clinical rotations can be found in Chapters 4, 9 and 11.

Elective courses preparatory phase

Courses	Year	ECTS	Weeks	Lectures	Small group learning	Group assignment	Practical	Self-study	Assessment
History of Veterinary Medicine	2,3	1.43	1	3	3	3		19	
Pain	2	1.43	1	2	3	3		20	
Prenatal and postnatal care of sheep and lamb	2,3	1.43	1	4				36	
Comparative ethology	2	1.43	1	6	3	2		20	
Specific aspects of senses: ear, eye, nose	2	1.43	1	1	3	3		21	
Biocommunication	2,3	1.43	1	3	2	3		21	
Cellular Developmental Biology	3	1.43	1	5		2	2	19	
Evolution	2,3	1.43	1	5		2	1	23	
Goat Business Management	3	1.43	1	4				36	
Modern Reproduction Technology	3,4	1.43	1	9	2	1	2	15	
Pathophysiology of the immune system	3	1.43	1	2	2	3		22	
Laboratory animal science	3,4	2.86	2	25	4	3	2	24	3
Comparative aspects of blood	3,4	1.43	1	2		3		26	
Comparative aspects of the circulation system	3,4	1.43	1	5	2	2	1	19	
Veterinary Toxicology	3	2.86	2	22		5		38	
Veterinary Environmentology and Toxicology	3	2.86	2			8		48	
Fish	3,4	2.86	2	8	6	5	1	36	
Clinical Pathophysiology	3	1.43	1	1		2	1	26	1
Fear	3	1.43	1	5	2	2		21	2
Use of antibiotics within the scope of Good Veterinary Practice	4	2.86	2	10	6	5		38	
Tropical Animal Health	4	2.86	2	10	3	5	2	36	
Developments with relation to Diagnostics of Infectious Diseases and Vaccinology									
Paediatrics	4	2.86	2	8	4	4	1	42	2
Sports physiology	4	1.43	1	2	2	3	1	18	
Veterinary aspects of wildlife	4	1.43	1	8	3	1	2	14	
Philosophy of science and Veterinary Medicine	4	2.86	2	8	6	5	1	36	
Zoonoses	4	2.86	2	23	1	4	2	31	
Joint problems	4	2.86	2	8	8	3		42	2
Didactic skills in Veterinary Medicine	4	1.43	1	1	5	2		21	

Description of electives

History of Veterinary Medicine
Obtain further knowledge and insight in the historical development of veterinary science and the socio-economic background in which the veterinary profession is and has been practiced. Attention will be paid to the following subjects: historical and social context of veterinary medicine in the Netherlands since 1821, development of veterinary practice, status and image of the profession, feminisation and history of protection of animals.

Pain
Obtain knowledge and insight in various aspects of pain and pain experience. Attention will be paid to the following subjects: morphologic, physiologic, ethologic and psychological aspects of pain, meaning of pain in animals for people, affecting pain and anaesthetics.

Prenatal and Postnatal care of Sheep and Lamb
Obtain knowledge on accommodation, care and nutrition for sheep, late in gestation and after birth, and for the newborn lamb. Obtain obstetrical skills (including repositions). Diseases and abnormalities during gestation, birth and puerperium will also be addressed.

Comparative Ethology
Obtain further knowledge and insight in behavioural studies of domestic animals. Attention will be paid to the following subjects: communication and choice of partner, self-awareness of animals and its relation to welfare, assessing behaviour (how to interpret conflict behaviour) and the consequences of domestication on behaviour.

Specific aspects of senses: ear, eye, nose
Obtain further insight in structure and function of specific organs of sense in the various domestic animal species, with emphasis on the comparative aspects, and its connection to animal behaviour. Attention will be paid to the following subjects: morphology, physiology, use and meaning of the organs of sense, senses in relation to behaviour, way of life and functioning and the effects of failure of these organs of sense.

Bio-communication
Obtain insight in bio-communication; the way signals are sent out, received and processed in nature.

Cellular Developmental Biology
Obtain insight in molecular processes related to the development from fertilized oocytes into mature organisms and in how disturbing these processes can result in certain abnormalities. Attention will be paid to the following subjects: cell growth, cell differentiation, apoptosis, morpho-genes and their functioning and stem cells and their applications.

Evolution
Obtain insight in the domain of the evolution and in the biological background of a number of current, or veterinary relevant topics like evolution of domestic animals and the influence of humans on the environment. Attention will be paid to the following subjects: palaeontology, natural selection, phylogeny, molecular evolution on the level of proteins, DNA and genome, evolution of vertebrates and the domestication and development of domestic animals.

Goat Business Management
Obtain and increase knowledge on accommodation, care and nutrition for goats late in gestation and after birth, and on care for and raising of goat lambs. Obtain obstetrical skills. Diseases and abnormalities during gestation, birth and puerperium will also be addressed.

Modern Reproductive Technology
Obtain knowledge and insight in modern reproductive technologies related to artificial insemination, super ovulation, oocyte harvesting, in vitro oocyte maturation, in vitro fertilization and embryo transfer in cattle swine and horses, as well as techniques such as cloning and transgenesis. Apart from the above mentioned attention will be paid to the following subjects: oestrus synchronisation, sperm sexing and stem cell research.

Patho-physiology of the Immune system
Obtain knowledge and insight in possible disturbances in the regulation mechanisms of the specific and non-specific immune response and factors that play a role in this. Attention will be paid to the following subjects: autoimmunity, immunodeficiency and hypersensitivity. These subjects will be addressed based on human and veterinary relevant diseases.

Laboratory Animal Science
Obtain theoretical knowledge, practical skills and insight in the various aspects of Laboratory animal science, with the objective to execute animal experiments in a safe and sound manner. Attention will be paid to the following subjects: biology and zoo-technical aspects of the most frequently used experimental animal species, control of health, anaesthesiology, alternatives, ethical and social aspects and the design of animal experiment.

Comparative aspects of Blood
Obtain further insight in biochemical and veterinary relevant aspects of blood and storage conditions and quality criteria for blood collected for transfusion. Attention will be paid to the following subjects: blood (animal species specific differences and blood groups), blood transfusions and the veterinary blood bank.

Comparative aspects of the Circulation system
Obtain insight in veterinary relevant aspects of the circulation system of various species. Attention will be paid to the following subjects: allometry, structure and function of hearts in amphibian, fish, snake and birds, ECG and ultrasound, regulation of the cardio-vascular system.

Veterinary Toxicology
Obtain basic knowledge of veterinary toxicology. Obtain insight in theoretical and clinical aspects of intoxications in companion animals and farm animals. Attention will be paid to the following subjects: basic principles of toxicology, symptoms of intoxication, various toxins (mycotoxins, insecticides and plant and food related toxins) and veterinary toxicology in practice.

Veterinary Environmental Health and Toxicology
Obtain further knowledge and insight in veterinary environmental health and veterinary toxicology. Attention will be paid to the following subjects: veterinary environmental health and toxicology problems and their causes, factors, mechanisms and consequences for humans, animals and environment.

Fish
Obtain basic knowledge of requirements for nutrition, accommodation and care of fish. Obtain some insight in medicine of aquarium fish and edible fish (aquaculture). Obtain insight in the tasks of a veterinarian in the veterinary management and health care in tropical fish and edible fish, quality control and hygiene. Attention will be paid to the following subjects: accommodation, water quality, care and nutrition, general principles of clinical and post mortal examination, principles of prevention, therapy and residue issues and risks of fish for humans (zoonoses, food poisoning, decay).

Clinical Patho-physiology
Integration of available patho-physiologic knowledge into medical cases in dogs, cats, ruminants, pigs and poultry. Theoretical approach of patho-physiologic mechanisms cross species as well as species specific.

Fear
Obtain knowledge about the differences between fear and anxiety. Attention will be paid to the following subjects: functionality and dysfunctionality of fear/anxiety, development of fear, short term and long term consequences of fear on welfare and functioning of the animal, processes to break the habit of fear and pharmacological and behavioural therapy used to combat fear/anxiety.

Use of Antibiotics in the scope of Good Veterinary Practice
Obtain further knowledge of the use of antibiotics, emphasizing differences and similarities between the drugs. Attention will be paid to the following subjects: mechanisms of action and spectra, formulations, methods of application and pharmacokinetics, resistance and sensitivity, legal aspects, synergism and antagonism, effectiveness and toxicity.

Tropical Animal Health
Obtain knowledge on the aspects of tropical veterinary medicine and the most important tropical infectious diseases. Attention will be paid to the following subjects: animal production, human animal bond, animal diseases, population veterinary medicine and veterinary public health.

Developments in relation to diagnostics of Infectious Diseases and Vaccinology
Obtain further knowledge in diagnostics of infectious diseases through modern technologies and the prevention of infectious diseases with modern vaccines.

Paediatrics
Obtain insight in the scientific background of processes that play a role in perinatal and neonatal adaptation of domestic animals. Attention will be paid to the following subjects: vitality before, during and after birth, acidosis and thermo stability, dysmaturity, pathology of the newborn, therapeutic interference, immunity and infection and mother and newborn bond, growth and nutrition and the care of orphans.

Sports Physiology
Obtain further knowledge and insight in exercise physiology of species used for sports (horses, dogs, humans and pigeons) and the relevance and applicability of it to the future veterinary practice. Attention will be paid to the following subjects: effects of exercise and training to the metabolism of animals used for sports purposes.

Veterinary aspects of Wildlife
Obtain insight in problems related to management of wild animal populations in the Netherlands. Attention will be paid to the following subjects: practical, legal, ethical, epidemiologic aspects, management of large ruminants in wildlife areas and how to cope with public and media.

Philosophy of Science and Veterinary Medicine
Obtain a more critical and analytical attitude towards the scientific knowledge on which biomedical sciences and veterinary medicine are based. Obtain historical awareness and a sense of social background of the modern way of thinking about health and disease.

Zoonoses
Obtain further knowledge on zoonoses of importance to first-line veterinary medicine. Attention will be paid to the following subjects: occupational zoonoses and prevention thereof, zoonoses and domestic animals, zoonoses and foodstuffs of animal origin, zoonoses in exotic animals and epidemiology of imported zoonoses.

Joint related problems
Obtain insight in the origin, diagnosis, prognosis and treatment of Joint related problems in domestic animals. Attention will be paid to the following subjects: arthritis, osteo-chondrosis and osteo-arthrosis, diagnostic imaging and arthroscopy and theoretical backgrounds of the causal factors such as inflammation and biomechanics.

Didactic skills in Veterinary Medicine
Obtain insight in how adults learn and obtain a first experience with teaching. Attention will be paid to the following subjects: didactic principles of learning theories, various educational methods and evaluation of education.

Relevant parts of:

Blueprint Veterinary Bachelor Curriculum

2007

Contents

Introduction

Question: **Why do we actually have a new curriculum?**
Answer: Within the context of Europe (the Bologna declaration) it has been agreed that the entire European Union will be moving to a Bachelor-Master structure, so as to ensure that the studies offered in the various member states are easier to compare, and to facilitate student mobility, making it easier for students to complete part of their studies in another country, for example (see also p. 3).

Question: **Are there also any benefits to the introduction of a new curriculum?**
Answer: Yes, to summarize, the introduction of this new curriculum will extend the potential content of a student's studies and will increase the opportunities for international mobility. In addition, the introduction of a single universal Bachelor curriculum will postpone the moment at which the students have to choose their track, thereby affording students a better understanding of the various alternatives for their subsequent occupation or profession at the time when they need to make that decision, namely, once they have completed their Bachelor curriculum. There is another advantage in that the selection for the purposes of the various Veterinary Master programs will make students more motivated to ensure that they have a good portfolio and list of marks. Although this was not the primary concern in Bologna, the introduction of a Bachelor-Master structure will also be beneficial for lecturers in our case. We will be able to fine-tune our current program and the further incorporation of "healthy-diseased" as envisaged could also have a rather inspiring effect not only for students but also for their lecturers. Moreover, the abolition of the tracks in the first three academic years will also yield a great deal of logistical and organizational benefits.

Question: **What will the Veterinary Bachelor-Master curriculum look like?**
Answer: A number of underlying principles and prerequisites have been clear from the outset and they had been formulated and explained in the first version of the blueprint (8 November 2004). The second version, which we presented to the faculty on 28th of February 2005, set out the provisional contents of the first academic year of the Bachelor curriculum, the subjects envisaged for the various block courses in the second and third academic years, plus an overall indication of ideas for the content of longitudinal (line) courses. Following this, the BCBD afforded everyone in our faculty who is involved in education the opportunity to present comments, and work was then carried out using all of this information to produce the third version of the provisional blueprint for the introduction of the Veterinary Bachelor and Master curriculum. The third version was presented to the faculty on 1 July 2005, following which everyone was again afforded the opportunity to submit comments and suggestions. Incorporating them has produced a final blueprint which now lies before you.

We trust that the involvement displayed by so many will ensure that the development and introduction of the Bachelor-Master structure is tackled enthusiastically and successfully in our faculty in spite of the extra effort this will entail.

The Blueprint Committee for the Veterinary Bachelor curriculum (BCBD)

Reasons to introduce the Bachelor-Master Structure
into the Veterinary Curriculum

In 1999 the EU ministers of education met in Bologna and agreed that a Bachelor-Master structure would be introduced into all higher education studies in Europe (in the Netherlands, higher vocational and university education) within 10 years. This will involve a separate Bachelor and Master's phase.

Virtually all of the programs of study offered at the University of Utrecht have been provided with a Bachelor-Master structure since September 2001. Only the Medical and Veterinary curricula have not yet been "converted". However, a Bachelor-Master structure also needs to be introduced into these programs of study by 2009.

The Educational Board is seeking to ensure that the Veterinary curriculum is also improved further along with this educational upgrade, which has been imposed from above. The advantages and disadvantages of and the required principles underlying a Veterinary Bachelor-Master curriculum are set out in the report entitled Transparantie en keuzes produced by the Faculty Strategy Committee.[1] Acting on the recommendation of the Educational Board, the dean has established a Blueprint Committee for the Veterinary Bachelor curriculum to take the initial step towards developing a qualitatively superior, innovative Veterinary curriculum with a Bachelor-Master structure.

The above explanation has been taken from Projectplan ontwikkeling bachelor-mastercurriculum Dierengeneeskunde, Instelling "Blauwdruk Commissie Bachelor Diergeneeskunde", which was approved by the Educational Board on 1 September 2004.

1 Here is a summary of the report, Transparantie en keuzes: The Bachelor-Master structure offers multiple advantages. Assuming that there will be uniform Bachelor and Master phases, in which the components specific to various tracks can be incorporated, this means that students will only need to make a decision at a later stage, consequently, at a time when they have a clearer idea of the alternatives available for subsequent professional practice. In addition, the transition from Bachelor to Master represents an excellent moment of choice and will facilitate international interaction. Apart from this, the implementation of a Bachelor-Master structure also offers logistical benefits compared with the current structure of the curriculum, which has a core component along with sections that are specific to the various tracks. There is a more pragmatic argument in that maintaining a separate status – as the faculty currently has together with a number of medical faculties – will not be tolerated by the government in the future. A timely introduction is required, so as to ensure that we do not lag behind at the European level. The Faculty Strategy Committee acknowledges that the time of its introduction, which follows so relatively soon on the heels of that of Curriculum 2001, is not the most fortunate. However, it is also of the opinion that the current track curriculum represents an excellent basis for the introduction of a Bachelor-Master structure.

Terms of reference[2] of the Blueprint Committee for the Veterinary Bachelor Curriculum (BCBD)

A. To develop and prepare a blueprint for a three-year curriculum for a Veterinary Bachelor curriculum (which will come into effect in September 2007);[3]
B. To formulate the general principles underling the Veterinary Master Curriculum.

Membership of the BCBD

Dr. H.M.G. van Beers, Department of Farm Animal Health (until April 2005)
Dr. B.P.M. Cornelissen, Department of Equine Sciences
Dr. H.F. Egberink, Department of Infectious Diseases and Immunology
Prof. Dr. M.E. Everts, Department of Pathobiology
Prof. Dr. E. Gruys, Department of Pathobiology
Prof. Dr. F. van Knapen, Division of Public Health and Food Safety
Dr. H.S. Kooistra, Department of Clinical Sciences of Companion Animals
Dr. L.A.M.G. van Leengoed, Department of Farm Animal Health (as of April 2005)
W.G.G.M. van der Maazen, Education and Student Affairs, official secretary
Prof. Dr. F. Ohl, Department of Animal, Science and Society
Prof. Dr. A.G.M. Tielens, Department of Biochemistry and Cell Biology, chairperson

Blueprint

1. Purpose of the Veterinary Bachelor curriculum

This curriculum constitutes the "ideal" preparatory training for the Master curriculum.[4]

2. Target group

Students who have passed their pre-university education 'profile' Nature and Health (or similar preparatory training).

3. Educational philosophy[5]

- The primary aims of the Bachelor curriculum as set out in the Utrecht University's guidelines[6] are as follows:
  - academic training;[7]
  - inter and multi-disciplinary study;
  - preparation for the Master curriculum .

These primary aims are fully supported for the purposes of the Veterinary Bachelor curriculum.

2 This is taken from the Projectplan ontwikkeling bachelor-mastercurriculum Dierengeneeskunde, Instelling "Blauwdruk Commissie Bachelor Diergeneeskunde", which was approved by the Educational Board on 1 September 2004.

3 While it is true that a Bachelor curriculum can be structured in such a way that it offers various alternatives later on, in the first instance we have designed a single uniform three-year curriculum, which represents the "perfect" preparation for each of the Master programs which will follow it as part of the Veterinary Master Curriculum. When designing the Veterinary Bachelor Curriculum now, we did not consider the possibility that students from other faculties or universities, who do not have sufficient prior knowledge, would attend our Bachelor's courses. We would like to suggest that it may be advisable to develop a special block for those students (probably to be largely oriented towards biomedical sciences), which would offer them a bird's eye view of the domain of veterinary medicine (with the emphasis on veterinary science). This would solve a number of difficulties in one fell swoop, both those of a logistical nature and in relation to the prior education of the students involved.

4 However, the Bachelor curriculum is also eminently suitable as a preparatory program for other biomedical Master curricula.

5 This is taken from the Projectplan ontwikkeling bachelor-mastercurriculum Dierengeneeskunde, Instelling "Blauwdruk Commissie Bachelor Diergeneeskunde", which was approved by the Educational Board on 1 September 2004.

6 Richtlijn uitvoering bachelor-master [Guidelines for the Introduction of the Bachelor-Master Structure], Utrecht University, 21 June 2001.

7 The Utrecht University's guidelines define academic training as the development of competencies (knowledge, skills and attitude) in relation to:

a academic reasoning, action and communication;
b use of relevant scientific tools;
c communication (for academic purposes or otherwise) in one's own and at least one other language;
d the application of specific knowledge of one discipline in a broader academic, scientific, philosophical, social and cultural context.

- This leads to the following underlying principles:
  - further academic development;
  - a thematic approach;
  - the incorporation of "healthy-diseased" from the start of the curriculum;
  - the further integration of education and research;
  - block-based courses coupled with longitudinal courses.

- Activational forms of tuition will be employed and education will be structured on a small scale as far as possible.

4. Other underlying principles[8]

- The Bachelor curriculum will be introduced in annual stages and the new first academic year will commence in September 2007.
- A coherent, uniform[9] educational program will be drawn up for the three-year Veterinary Bachelor curriculum, which will focus on the acquisition of a biological and pathobiological knowledge and understanding that transcends animal species.
- The content of the core curriculum set out in Curriculum 2001 will serve as the basis for determining that of the Veterinary Bachelor Curriculum .
- The core curriculum for the current first to fourth academic years spans a period of three academic years, whereas the educational program that is specific to a track covers a single year. Consequently, the Bachelor curriculum which is envisaged "fits" into a curriculum spanning three years, while the tuition specific to a track, which is being relocated to the Master curriculum, will be exactly enough to change the current function directed phase of two years into a Master curriculum of three years.
- In view of the fact that the forms of tuition will not be changing in essence, the BCBD is assuming that after the introduction of the new curriculum, the requisite of people and resources will roughly coincide with the current situation.
- On the other hand, the development of the program will naturally require extra effort, for which purpose the faculty's managing director has made a budget available, which had been earmarked for this purpose.
- In principle, the relative contribution of the various disciplines towards Curriculum 2001 is the underlying premise of the Bachelor curriculum.
- Apart from the different tracks, the general principles[10] underlying the 1995 and 2001 curricula will also apply in respect of the Veterinary Bachelor curriculum.
- The proportion of contact tuition will therefore remain at 30% to 40% and the emphasis will continue to be focused on interactive training in small groups.
- The Bachelor curriculum will be made up of block-based courses with two blocks usually running parallel over a period of 10 weeks (four periods a year) and line course running alongside (it will run parallel to block-based tuition).
- Block-based courses deal with subjects and the interdisciplinary incorporation of "healthy and diseased" is achieved in each block.
- Longitudinal courses provide an introduction to the subjects of academic skills, professional conduct, clinical examination and reasoning, and problem-solving, amongst other things.
- In addition, attention will also be devoted to the choice of a Master curriculum within the context of the general tuition.
- The program will also offer "scope for profiling", as part of which a Bachelor's student will be at liberty to make choices from the university's overall educational catalogue.
- In principle, tuition will be provided in Dutch along with an extensive range of English language literature.

5. Outcomes

A final report entitled Eindtermen Curriculum Diergeneeskunde [Programme Outcomes of the Veterinary Curriculum] was to be available at the end of 2005. These outcomes for the veterinary curriculum will serve as a guide when determining the content of the Bachelor and Master curricula.

8 This has largely been taken from the Projectplan ontwikkeling bachelor-mastercurriculum Dierengeneeskunde, Instelling "Blauwdruk Commissie Bachelor Diergeneeskunde", which was approved by the Educational Board on 1 September 2004

9 In other words, it will not contain any tracks, as is currently the case.

10 The key concepts are problem-solving skills, scientific and academic training, social and communicative skills, basic competence in relation to one or two animal species, and an awareness of the need for lifelong learning. Source: Studiegids Dierengeneeskunde [Veterinary Medicine Study Guide] 2004-2005.

6. Overall schedule

The overall schedule for the development and commencement of the Veterinary Bachelor curriculum will be as follows:

- the establishment of the Blueprint Committee for the Veterinary Bachelor curriculum– 3 September 2004;
- that committee's proposal in the form of a blueprint for the Veterinary Bachelor Curriculum – December 2005;
- the appointment of block and line educational committees for all components of the first academic year of the Veterinary Bachelor curriculum – the end of 2005;
- the appointment of block and line educational committees for all components of the second academic year of the Veterinary Bachelor curriculum – the spring of 2006;
- proposals for the content of the various components to be submitted by the block and line educational committees for Year 1 – the summer of 2006;
- proposals for the content of the various components to be submitted by the block and line educational committees for Year 2 and the establishment of block and line educational committees for Year 3 – the autumn of 2006;
- proposals for the content of the various components to be submitted by the block and line educational committees for Year 3 – the summer of 2007;
- commencement of the first academic year of the Veterinary Bachelor curriculum– September 2007.

7. Diagrammatic overview of the three-year Master's program

The aim of the Veterinary Master curriculum is to prepare students for the professional practice of veterinary medicine (covering all facets of it) at the academic level or its further pursuit as a science.

The three-year Veterinary Master curriculum will train veterinarians with a general level of competence which is differentiated in accordance with the following tracks:

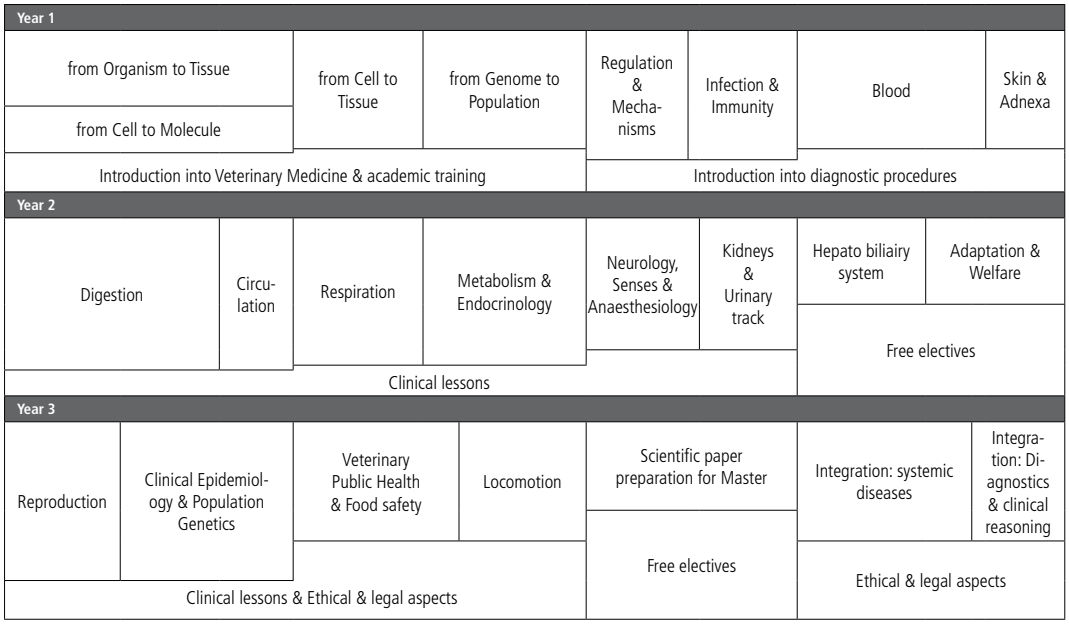
- companion animals:
- horses;
- farm animals and veterinary public health.

Within each of these three Master curricula it will be possible to focus primarily on clinical practice, research or management and policy. Profiling will also be possible as part of each Master curricula.

Year	Content of Master curriculum
1.	· uniform internships · student research project · theory relevant to track specific components · differentiated internships
2.	
3.	

8. Diagrammatic overview of Bachelor curriculum

Breakdown of block and line courses



9. Content of the Veterinary Bachelor curriculum

Introduction

In the first academic year of the Bachelor curriculum a start will be made on establishing a general basis: the "building plan". This "building plan" will be dealt with at the molecular, cellular, tissue and organism levels and will devote attention to the population level. This will be done in such a way that it will be possible to continue to build on this in all of the subjects that are subsequently dealt with in blocks. Although it will not yet be possible to incorporate "healthy-diseased" fully within the treatment of the "building plan", attention will be devoted to "diseased" as required along with the "building plan" of a "healthy" animal, and an explanation will be provided of the relevance of the pertinent knowledge and understanding within the framework of veterinary medicine.

In the final part of the first academic year and in Years 2 and 3 of the Bachelor curriculum tuition will be provided in thematic courses and "healthy and diseased" will be incorporated into each block in an interdisciplinary manner. This means that in so far as is applicable and relevant, attention will be devoted to the following in each block.

- healthy - diseased
- animal welfare and remaining healthy
- cross animal species understanding
- evidence based veterinary medicine
- problem-oriented clinical reasoning

· embryology	· foodstuffs of animal origin
· evolutionary aspects	· public health
· population ↔individual	· environmental health
· mammals ↔birds	· ethics
	· legislation
· structure and function	· epidemiological aspects
· pathology	· economic aspects
· patho-physiology	
· medicine	
· infection and immunity	
· diagnostics	
· additional diagnostics	
· therapy	
· prevention	
· pharmacology	
· toxicology	

Where possible, attention will be devoted to the following as part of block-based and longitudinal courses:

- the development of academic, social and communicative skills;
- professional conduct;
- the incorporation of research in the education;
- the optimum use of ICT for the purposes of tuition.

The content of all of the block and line courses has been described with the aid of a limited number of key concepts in this blueprint. These key concepts are merely designed to present a number of subjects to be dealt with and cannot be directly extrapolated into numbers of lectures or tutorials, for example. The content that is ultimately decided on by the block and line education committees will be of such a nature, that in principle it will coincide with that of the entire core curriculum set out in Curriculum 2001 but then structured differently, namely, thematically with more attention being devoted to the incorporation of "healthy-diseased".

Line course 1 Total: 7 ECTS

A total of 7 ECTS are available for the line (longitudinal) course in the first 20 weeks of Year 1. This amounts to approximately 49 sections of a day, hence two sections of a day per week during the first 10 weeks. In this respect every Wednesday, for example, a subject or component will be dealt with, following which the students will work on it themselves either on their own or as part of a team. However, they will also spend a whole day doing this on a few occasions, during which they will be able to plan various matters concerning "animal handling". During the second period of 10 weeks somewhat more than two sections of a day per week will be available for the line course.

With the aid of a project (on tumors, for example) knowledge will be acquired along with a number of skills (academic and otherwise). The students will work as part of a team on the final products for this project-based tuition: posters, articles, presentations and information leaflets. Instructions for producing a portfolio, and searching and using literature will constitute part of this project-based tuition.

- Introduction to:

· the history of veterinary medicine	· evidence based veterinary medicine
· the field of practice[1]13	· communication between veterinarian and animal
· statistics	· animal handling
· philosophy of science	· professional conduct
· ethics	
· laboratory animal science	
· ethology	
· foodstuffs of animal origin	

- Project

Line course 3: Clinical lessons Total: 7.5 ECTS

General principles underlying Line course 3 and 4

Underlying principles

Clinical reasoning will be practiced during this longitudinal course . The students will play the role of a veterinarian and a problem will serve as their starting point. If possible, the case history that is chosen will supplement the blocks which are running concurrently. When solving this problem they will require the knowledge, understanding and skills, which they have largely acquired during the previous section of their training. The focus will be on the ability to make reasoned decisions (decision-making skills) and to substantiate conclusions and recommendations. The basic principles of clinical epidemiology will be dealt with.

The above-mentioned process will be practiced in a number of ways, such as the following:

- in the form of clinical demonstrations, which involve a veterinarian demonstrating the clinical reasoning process based on a case study while interacting with a large group of students in the course of a session lasting 45 minutes;
- by means of interactive discussions in workgroups, as part of which the students will be expected to utilize the entire clinical reasoning process entirely on their own based on a clinical case study, which is prepared by a team of no more than 12 students during timetabled self-study sessions;
- in practicals, which involve small groups practicing the clinical reasoning process based on "real" patients under the supervision of a veterinarian;
- in pathology workgroups, which involve practicing clinical reasoning based on material acquired from a post-mortem or a pathological specimen.

This line course will focus on drawing up an initial plan of action addressing very common clinical questions and other problems in relation to which an aspiring veterinarian will bear professional responsibility (for example, the duty to report various conditions) later on in practice (covering all facets). The lecturer will use the most likely diagnosis as his starting point for the purposes of discussing and resolving the problem.

13 (Horses, companion and farm animals, public veterinary health, management, policy and research.)

Overview of FVM's Thematic Research Programs

Biology of reproductive cells (BRC)

Program coordinator: Prof. dr. B. Colenbrander

Mission Statement

This program will examine mechanisms involved in gamete development, fertilization and embryogenesis, and how their disruption can lead to sub-fertility in domestic animal species. The ultimate aims are:

1 to develop treatments for sub-fertility
2 to improve techniques for germ cell preservation and assisted reproduction
3 to develop and refine programs for genetic improvement and improved reproductive performance
4 to define the determinants of cellular pluripotency and develop techniques for manipulating cell differentiation

Aims of the program

This program aims to further our understanding of molecular and physiological mechanisms critical to reproduction in domestic animals by examining fundamental aspects of gamete development, fertilization and embryogenesis. This will include studies of how individual genetic and physiological variation and the interaction between animals and their environment affect reproductive performance at the individual and population levels. This will help us identify causes of, and design intervention strategies and treatments for sub-fertility. Better understanding of reproductive pathways at the molecular level will also facilitate development of improved techniques for gamete preservation and assisted reproduction, and of novel contraceptives. The "Biology of Reproductive Cells" program will also develop methods for isolating and manipulating embryonic stem cells to study the phenomenon of cellular pluripotency and to investigate how cells can be made to differentiate into cells/tissues of biomedical interest.

While the primary aim is to apply this research to large domestic animals, it is anticipated that much of the information generated, and the experimental models employed, will be invaluable when investigating problems arising in human medicine as a result, for example, of the later average age of reproduction and the increased use of IVF.

Tissue Repair (TR)

Program coordinator: Prof. dr. Jan Rothuizen

Mission Statement

The Program Tissue Repair investigates the pathophysiology of tissue dysfunction and potential mechanisms for repair. Central themes for all lines within the program are 1) interactions between stroma and functional cells (role of molecular signals, tissue hormones and growth factors) and 2) role and regulation of stem cells (tissue specific progenitor cells and embryonic stem cells). The strategic goal is to develop new methods for stimulating regeneration by delivery of essential cells and/or signals and preventive strategies for degenerative diseases.

Focus

The research program Tissue Repair focuses on

- interactions between stroma and functional cells by studying the role of molecular signals and signal transduction, as well as tissue hormones and growth factors in tissue regeneration and the pathophysiology of impaired regeneration and oncogenesis
- regulation of growth and differentiation of stem cells (tissue specific progenitor cells and embryonic stem cells).
- development and application of new therapeutic interventions based on stimulation of regeneration by using appropriate signaling molecules and/or stem cells and/or supportive structures
- development of regimes to prevent degenerative diseases

Strategic Infection Biology (SIB)

Program coordinator: Prof. dr. Jos van Putten

Mission Statement

The program is designed to discover principles of infection and associated pathobiology at the cellular, organ, host, and population level with the goal to develop novel infection intervention and prevention strategies.

Program outline

Aim of the program

Infectious diseases are a continuous threat to human, animal, and economic health. Control of the (re-) emergence and persistence of infectious agents requires detailed knowledge of all aspects of the entire infection chain, i.e. genome plasticity and virulence potential of infectious agents, cellular infection mechanisms, innate and adaptive host defense, and infection dynamics. The overall aim of this research program is to unravel principles of infection at the individual and community level to facilitate targeted development of novel infection intervention and prevention strategies. The program may also open new avenues to exploit infectious agent derivatives to human and animal health benefit.

Research focus

Principles of infection and intervention and prevention are investigated using infectious agents that have with zoonotic potential and/or are of major (future) veterinary, public health or economic relevance.

Risk Assessment of Toxic and Immunomodulatory Agents (RATIA)

Program coordinator: Prof. dr. Martin van den Berg

Mission Statement

The program is designed to improve the scientific basis for assessment of risk to humans, animals and ecosystems from exposure to potentially harmful agents in the environment, in occupational settings, through vaccination, and through the food chain.

Program outline

Aims

The program Risk Assessment of Toxic and Immunomodulatory Agents (RATIA) aims at the development and further improvement of the scientific basis for assessment of risks (to human, animal and ecosystem health) of exposure to environmental agents.

Research focus

Specifically, the RATIA program focuses on:

- veterinary public health issues related to food safety, and allergies to domestic, laboratory and farm animals
- human and environmental health issues such as risks of exposure to biological, physical and chemical agents, and vaccines
- occupational health issues such as risks to health of workers in concentrated animal feeding operations (CAFOs) and the animal feed industry, and veterinarians
- ecosystem health issues such as endocrine disruption effects of various contaminants on animal wildlife

Emotion and Cognition (E&C)

Program coordinator: Prof. dr. B. Spruijt

Mission Statement

The scientific and societal concern assumes that animals perceive their own emotional state. We aim at investigating the relation between the emotional state and adaptive capacity of animals kept by man and to translate the results to veterinary practice of monitoring and optimizing welfare of husbandry and pet animals.

Program outline

Aim of the program

The program is designed to: firstly elucidate limbic receptor systems (set points) pivotal for the induction of emotional states and, subsequently, understand their role in changes in emotional states such as anxiety, pain or pleasure. Secondly how do breeding and management procedures especially those related to pre and postnatal periods affect the adaptive capacity of emotional states of husbandry and pet animals due to altered set points. Thirdly, can we, by understanding the biology of emotions, limit risk factors potentially affecting animal welfare and can we counteract the consequences of unavoidable stress or anxiety. .

Program focus

This program has its focus on the essential physiological mechanisms underlying pain sensitivity, anxiety, and pleasure. These states have been chosen because they reflect the animal's success or failure in adaptation and are important for animal welfare. The general approach is to address the critical role of early life external risk factors such as hypoxia, maternal deprivation, and other stressors during pre- and post-natal periods or crucial life events in adulthood on biological set points and their consequences for these emotional states.

The following students have successfully fulfilled the Excellent track / Honours Program program within one of the departments of the Faculty of Veterinary Medicine:

1994	Student	Subject / Title	Department(s)
1.	**ms. Evita Busschers**	Analysis and quantification of the flexio test in the horse	Equine Sciences
2.	**ms. Manon Klaarenbeek**	The role of Oxytocin in parturition of the dog	Clinical Sciences of Companion Animals / Farm Animal Health
3.	**ms. Joke Poffers**	The usefullness of urate oxydase (Uricozyme-R) and allopurinol respectively for the treatment of hyperuricaemia in birds of prey in relation to hyperuricaemia and visceral gout induced by urate oxidase and allopurinol	Clinical Sciences of Companion Animals / Faculty of Veterinary Medicine Minneapolis
4.	**ms. Irene A. Schaafsma**	Na/K- ATPase in skeletal muscles of cats and dogs with hyperthyreoidy	Clinical Sciences of Companion Animals / Pathobiology, Div. Anatomy/Physiology
1995			
5.	**ms. Simone Breukelman**	Monitoring the deregulation of the pregnancy in IVP-fetuses	Farm Animal Health
6.	**mr. Jan-Joop Harkema**	Development of gamete recovery and follicular transfer (GRAFT) for bovine oocystes of defined origin	Farm Animal Health
7.	**ms. Caroline Huetink**	Cryptosporidiosis in dairy cattle: an ecopathological study	Farm Animal Health / Infectious Diseases and Immunology, div.Parasitology
8.	**ms. Wikke Kuller**	The temporary weaning of piglets	Farm Animal Health, div. Pigs Sciences
9.	**mr. Dennis van Klingeren**	A comparative research of the echography of the lower limb of the horse in relation to magnetic resonance imaging	Clinical Sciences of Companion Animals, div. Diagnostic Imaging
1996			
10.	**ms. Annemarie Olsman**	Equine nutrition and hepatic metabolism. A perfect match?	Equine Sciences, div. Nutrition
11.	**ms. Marjorie Holl**	The effects of vitamin D3 and growth hormone supplementation on skeletal development in growing dogs	Clinical Sciences of Companion Animals
12.	**ms. Frederique Bavelaar**	The relationship between diet, plasma cholesterol and sclerosis in parrots	Equine Sciences, div. Nutrition / Pathobiology, div.Pathology
13.	**ms. Jobke van Dijk**	Perinatal asphyxia in the pig	Farm Animal Health
14.	**mr. Erik van Geloof**	A study on the persistence ans re-excretion of infectious bronchitis vaccine virus in layers	Farm Animal Health
15.	**mr. Mark de Groot**	Metabolic characteristics of ruminants as related to feed intake composition and reproductive performance	Farm Animal Health
16.	**ms. Rineke de Jong**	Characterisation of the spontaneous contractility of the uterus of the post partum cow and the role of nitric oxide in its regulation	Farm Animal Health
17.	**mrs. Marisca Leeflang**	SPR as a tool for detection of Mycobacterium avium subsp. Paratuberculosis	IRAS, div. Veterinary Public Health
18.	**ms. Marianne van der Linden**	Prospective and retrospective aspects of equine colic: A retrospective review of 649 surgical and non-surgical cases. Identification of CYP450isoforms in horse and pony liver microsomes	Equine Sciences
19.	**ms. Hanneke Panhuijzen**	Macroscopic and microscopic aspects of the skin after intradermal injections	Clinical Sciences of Companion Animals
20.	**ms. Esther Plantinga**	Polyunsaturated Fatty Acids and feline chronic renal failure	Clinical Sciences of Companion Animals / Equine Sciences, div. Nutrition
21.	**ms. Yvonne van Zeeland**	Cellular background of iron storage in birds	Equine Sciences, div. Nutrition / Pathobiology, div.Pathology
1997			
22.	**ms. Marian Aalberts**	Functional changes in the bovine cervix during pregnancy and parturition	Farm Animal Health / Biochemistry & Cell biology
23.	**ms. Mieke Baan**	Spontaneous and Aglépristone-induced Parturition in the dog	Clinical Sciences of Companion Animals
24.	**mr. Niek Beijerink**	Dopamine agonistic versus serotonine antagonistic influences on the transition from anestrus to the follicular phase in the bitch	Clinical Sciences of Companion Animals
25.	**ms. Saskia van der Drift**	The effect of polyunsaturated fatty acid supplementation on the digestibility of nutrients and the availability of unsaturated fatty acids in ruminants	Farm Animal Health
26.	**ms. Susanne Eisenberg**	A study on fading chick syndrome in the ostrich (struthio camelus)	Pathology, div. Pathology

27.	**mr. Maarten Moleman**	Measurement of the toe angle and its effect on the longitudinal hoof balance in the forelimb of standing warmblood horses	Equine Sciences
28.	**ms. Sanneke de Boer**	Force plate analysis in lame dogs.	Clinical Sciences of Companion Animals
1998			
29.	**ms. Baukje Schotanus**	Na+, K+ -ATPase in skeletal muscle of dogs with Cushing's Disease	Clinical Sciences of Companion Animals / Pathobiology, div. Anatomy/Physiology
30.	**ms. Sonja van de Brink**	Inflammatory markers in dogs with different diseases	Equine Sciences, div. VFFT
31.	**ms. Patricia de Cocq**	"The horse onder pressure" The influcence of the saddle on the horse and its locomotion	Equine Sciences
32.	**ms. Ruth Bouwstra**	Role of the γδ T cells as regulatory T cells in bovine paratuberculosis immune responses	Farm Animal Health
33.	**ms. Ankie Giesen**	The in vivo and in vitro effects of wedges on patellar fixation	Equine Sciences
1999			
34.	**ms. Marieke Opsteegh**	Etiology of cerebral theileriosis	I&I, div. Parasitology & Tropical Veterinary Diseases
35.	**ms. Linda Franssen**	Comparison of Molecular and serological assays for the diagnosis of equine piroplasmosis	I&I, div. Parasitology & Tropical Veterinary Diseases
36.	**ms. Annemarie Kroekenstoel**	The development and prevention of uneven feet in Dutch Warmblood foals and the consequences of uneven feet in relation to the DIP and PIP joint	Equine Sciences
37.	**ms. Chantal Kurvers**	Quantificaton of the locomotion activity of Dutch Warmblood foals	Equine Sciences
38.	**mr. Pieter Feenstra**	Case-control study on outbreaks of lungworm disease in dairy herds in the Netherlands	I&I, div. Parasitology & Tropical Veterinary Diseases
39.	**mr. Hugo van Oostrom**	Adequately monitoring depth of Anaesthesia in search of Holy Grail	Equine Sciences, div. Anaesthesiology
40.	**ms. Hille Fieten**	Expression of Hepatocyte Growth Factor and its receptor c-MET in canine osteosarcoma	Clinical Sciences of Companion Animals
41.	**mr. Bas van Nimwegen**	The Nd: YAG surgical laser in canine urogenital surgery	Clinical Sciences of Companion Animals
42.	**ms. Laura Kwant**	Search for the genetic cause of aggression in the Golden Retriever	Clinical Sciences of Companion Animals
2000			
43.	**ms. Marie-José Uijttewaal**	Corpus Luteum functon and morphology in relation to nutrition in dairy cows	Farm Animal Health
44.	**mr. Wiebren Santema**	A qualitative proteomic analysis of tuberculins and its application to bovine paratuberculosis diagnostics	I&I, div. Immunology and Hybridoma Laboratory
45.	**ms. Andrea Kuijten**	Hyperadrenocorticism in ferrets	Clinical Sciences of Companion Animals
46.	**ms. Hanneke Mertens**	Polymorphisms in bovine Toll-like receptor 2 and susceptibility to paratuberculosis	I&I, div. Immunology and Hybridoma Laboratory
47.	**ms. Janny de Grauw**	The relation between synovia fluid marker of cartilage matrix metabolism and inflammation and clinical presentation of equine joint disease	Equine Sciences
48.	**ms. Annika Haagsman**	Hepatitis E virus in humans and animals	I&I, div. Immunology and Hybridoma Laboratory
2001			
49.	**ms. Cyrina van Beusekom**	Feline hepatic biotransformation: cats are not small dogs	Equine Sciences, div. VFFT
50.	**ms. Vasilina Fazilova**	The role of a high carbohydrate diet in the development of feline diabetes mellitus	Clinical Sciences of Companion Animals
51.	**ms. Rozan van Rossum**	pZP-immunocotraception in the African Elephant (Loxonta africana)	Equine Sciences / Farm Animal Health
52.	**ms. Vera Kars**	Abberant expression of hormone receptors in healthy adrenals and adrenocortical tumors in dogs	Clinical Sciences of Companion Animals
53.	**mr. Erwin van Spil**	Development of techniques to study the canine bone marrow in non-regenerative primary immuno-mediated haemolitic anaemia	Clinical Sciences of Companion Animals
54.	**mr. Siert-Jan Boersema**	Development of a HACCP-compatible programme in aid to quality risk management on dairy farms (with emphasis on the rearing of dairy replacement period)	Farm Animal Health
55.	**ms. Roselinde Goselink**	Oxidative stress and antioxidant defence in high yielding dairy cattle postpartum	Farm Animal Health
56.	**ms. Colette van Kan**	Ontogeny of fetal movements in the Guinea pig	Farm Animal Health

57.	**ms. Isabelle van Eijk**	Problem behavior in dogs: the effects of early life experiences and the ontogenic environment on the sensitivity for the development of behavior disorders/ problem behavior	Animals, Science and Society
58.	**ms. Annemarie Voorbij**	Pituitary dwarfism in German shepherd dogs	Clinical Sciences of Companion Animals
59.	**ms. Femke Loos**	Internal communication in veterinary practices	Animal, Science and Society

APPENDICES CHAPTER 11 / OUTCOMES ASSESSMENT, APPENDIX A

Within the Faculty of Veterinary Medicine the following faculty members have received Educational Awards:

Name	Department	Year	Remarks
Prof. Marjanne Everts and Rob Veeneklaas	Pathobiology: div. Anatomy/Physiology	2001	together they shared the senior award
Els Spoormakers-Broens	Farm animal Health	2001	junior award
Rob Hajer	Equine Sciences	2002	senior award
Ceriel Maas	Pathobiology: div. Anatomy/Physiology	2002	junior award
Thijs Lopes Cardozo	Biochemistry & Cell Biology	2003	senior award
Isabelle Neyens	Pathobiology: div. Pathology	2003	junior award
Herman Egberink	Infectious Diseases and Immunology	2004	senior award
Erik van Engelen	Pathobiology: div. Anatomy/Physiology	2004	junior award
Len Lipman	IRAS	2005	senior award
Sylvia Djajadiningrat and Jaap van Hellemond	Companion Animals Sciences and Biochemistry and Cell Biology	2005	both got a junior award
Liesbeth Dingboom	Pathobiology: div. Anatomy/Physiology	2006	senior award
Marianna Tryfonidou	Companion Animals Sciences	2006	junior award
Wim Kremer	Farm Animal Health	2007	senior award
Rolf Nijsse	Infectious Diseases and Immunology	2007	Junior award

Overview of awards and appointments

2002
Prof. Dr. A. Rijnberk received an honorary degree from the University of Bern, Switzerland.

Dr. C.F.M. Hendriksen received 2 international awards:
- the Doerenkamp-Zbinden Award (New Orleans, USA))
- the Felix-Wankel-Tierschutz-Forschungspreis (München University, Germany)

2003
M. Eysker, PhD, became honorary member of the World Association for the Advancement of Veterinary Parasitology (WAAVP).

Prof. Dr. J Fink-Gremmels received an honorary doctorate from the Trakia University in Bulgaria.

Prof. Dr. L.M.G. van Golde and Prof. Dr A.D.M.E. Osterhaus both received a high-ranking royal honour. On behalf of Queen Beatrix they were appointed Commander in the order of the Dutch Lion.

Mieke Baan (student) received the first prize in the Cell biology program of the Cornell Leadership Program.

2004
prof.dr. L.M.F. van Zutphen received a Royal Honour;
prof.dr. A.D.M.E. Osterhaus received the Reinier de Graaf medal and the Dr. Saal van Zwanenberg Organon Award.

A state-of-the-art description of veterinary curriculum development in the Netherlands can be found in: Van Beukelen P. (2004) "Curriculum development in the Netherlands: Introduction of tracks in the 2001 curriculum of Utrecht University". JVME 31(3), pp226-231.

2005

Education:
Dr. R. Hajer and Dr. M.A. van der Velden received a Royal Honour on basis of their outstanding career in education.

Clinical function-Research:
The World Organization for Animal Health [OIE] recognized the FVM in conjunction with the Animal Sciences Group of Wageningen UR as reference laboratory for Campylobacteriosis.

Research:
Prof. Dr. J.A.P. Heesterbeek obtained a VICI grant of € 1.250.000 from NWO, the Netherlands' Organization for Scientific Research. This highly competitive grant enables senior scientists to establish their own research group.

Dr. M.M.S.M. Wösten obtained a VIDI grant from NWO. This grant aims at researchers who have proven to be able to generate innovative ideas and successfully apply these into their research.

Prof. Dr.T. Roskams is appointed as a visiting professor at the F.C. Donders chair of Utrecht University for the period 2005-2006. Prof. Roskams is professor in Pathology at the Department of Medical Diagnostic Sciences of the Faculty of Medicine, Catholic University of Leuven, Belgium.

Prof. Dr. M. van den Berg, head of the division Toxicology of IRAS, received an honorary doctorate degree at the University of Umeå in Sweden

Prof. Dr. L.F.M. van Zutphen, retired professor Laboratory Animal Science received the Russell & Burch Award and the Charles River Laboratories' Excellence in Refinement Award.

2006
Dr. F. Stades received a Royal Honour on basis of his outstanding career.

The European College of Veterinary Pathologists (ECVP) recognized the Department of Pathobiology as training institute.

The World Health Organisation (WHO) recognized the FVM in conjunction with the Animal Sciences Group of Wageningen UR as WHO Collaborating Centre for Reference and Research on Campylobacter.

Research:
The "Knowledge Chain Infectious Diseases in Animals", a joint venture of FVM and Wageningen UR obtained funding for a research project on Avian Influenza. The total grant amounts to 15 million euro.

Dr. X. de Haan from the division of Virology and Dr. F. Reggiori received a High Potential Scholarship of 1 million euro.

Dr. U. Gehring and Dr H. Schmitt from the Institute for Risk Assessment Sciences obtained a VIDI grant of euro 208,000 from NWO. This grant aims at researchers who have proven to be able to generate innovative ideas and successfully apply these into their research.

Dr. R. de Groot from the division of Virology received a grant of euro 30,000 from the Mizutani Foundation for Glycoscience in recognition of his excellent research.
Dr. J. van der Harst from the Department Animal, Science and Society received the Hume Animal Welfare Research Fellowship of euro 175,000 from the British Universities Federation of Animal Welfare.

Prof. Dr. A. Bergwerff received the World Poultry Award for his research on "RnA Rapid Salmonella Detection Innovation".

Dr. B. Blaauboer from the Institute for Risk Assessment Sciences was invited by the Centre for Human Health Assessment, CIIT Centres for Health Research in the USA, to become "2006 AIHC Visiting Scholar".

Dr. E. Teske received the WSAVA Hill's Excellence in Veterinary Health Care Award during the yearly congress of the World Small Animals Veterinary Association.

Appointments 2002-2007
Prof. Dr. L. Hellebrekers was elected as Chairman of the Royal Veterinary Association of the Netherlands.

Dr. P. Koolmees was appointed as extra-ordinary professor "Veterinary medicine in historical and social context" in the Faculty of Arts and the Humanities.

Prof. Dr. H. Vaarkamp was appointed as Chairman of the Council on Animal Affairs, an advisory platform to the Minister of Agriculture, Nature and Food Quality.

Dr. V.P.M.G. Rutten was appointed as extraordinary professor in the department Tropical Veterinary Diseases, Faculty of Veterinary Science, University of Pretoria, South Africa.

Dr. F. Jongejan was appointed as extraordinary professor in the department Tropical Veterinary Diseases, Faculty of Veterinary Science, University of Pretoria, South Africa.

Dr. J. Kirpensteijn was appointed as professor in the department of Companion Animals, of the University of Copenhagen, Denmark.

Dr. A.A. Bergwerff was appointed as professor in the department Veterinary Public Health and Food Safety, Faculty of Veterinary Medicine,University of Gent, Belgium.

Dr. M.H. Boevé was appointed as professor in Ophthalmology in the Clinic for Companion Animals and Horses of the Veterinary University Hannover, Germany.

Prof. Dr. M. van den Berg's honorary professorship at the University of Queensland, Australia was extended with a period of 3 years.

Colophon

Publication date September 15, 2007

Pubished by Utrecht University | Faculty of Veterinary Medicine | P.O. Box 80.163
3508 TD Utrecht | the Netherlands | secretariaat.bic@uu.nl

Editors Peter van Beukelen and Jean de Gooijer

Photographs Lisanne van der Voort and Joop Fama, Multimedia division

Design and lay-out Marije Brouwer, Multimedia division

Print Ridderprint Offsetdrukkerij BV, Ridderkerk, the Netherlands

UTRECHT UNIVERSITY
FACULTY OF VETERINARY MEDICINE

Postal address
P.O. Box 80.163 | 3508 TD Utrecht | The Netherlands

Visiting Address
Yalelaan 1 | 3584 CL Utrecht | The Netherlands

Tel.: +31.(0)30 253 5592
Fax: +31.(0)30 253 1815

e-mail: osz@vet.uu.nl

www.vet.uu.nl