HELSINGIN YLIOPISTO
HELSINGFORS UNIVERSITET
UNIVERSITY OF HELSINKI

Self Evaluation Report 1 for stage one

Faculty of Veterinary Medicine, University of Helsinki

KNOWLEDGE, SKILLS AND PROFESSIONAL CONDUCT

Photo: *Wilma Hurskainen*
September 2009, Helsinki

HELSINGIN YLIOPISTO
HELSINGFORS UNIVERSITET
UNIVERSITY OF HELSINKI

Table of Contents

Introduction

The last evaluation visit by EAEVE was carried out at the Faculty of Veterinary Medicine, University of Helsinki, in February 1999. Since then, the Faculty has faced major changes and underwent several evaluations, both at the national and international level. Research at the Faculty has been evaluated to be of high quality, and a multidisciplinary national Centre of Excellence in Microbial Food Safety Research, funded by the Academy of Finland, has further strengthened it. This Centre of Excellence unites the research groups of five professors coming from two departments within the Faculty (Department of Basic Veterinary Medicine and Department of Food and Environmental Hygiene). The Faculty has been able to acquire professorships and lectureships in some previously critical fields, although caps in staffing still remain. Shared professorships with the Finnish Food Safety Authority (Evira) and with the Faculty of Medicine further reinforce co-operation – in both research and teaching with these quarters. In addition to professorships, other shared expert positions also exist with Evira. Three professorships by external funds have been a valuable extra resource. The role of graduate schools at the University of Helsinki and at the Academy of Finland has grown in the Faculty's scientific postgraduate education. In 2007, the state of national specialist veterinary training was discussed in a comprehensive seminar to which experts of several important stakeholders were invited.

International evaluations of education at the University of Helsinki have taken place at six year intervals, the latest of which was completed in 2008. A national working group, nominated by the Ministry of Education, assessed veterinary education for development purposes in 2002. Two departments of the Faculty have strived for the status of Unit of Excellence in Teaching within the University of Helsinki, and the Faculty as a whole once at the national level. Even though only one of these attempts was successful (the Department of Food and Environmental Hygiene was awarded the status of Unit of Excellence at the University of Helsinki in 2004), frequent self-evaluation has been necessary for the applications, and each process has offered a valuable opportunity to obtain external feedback for development. Additionally, several teachers of the Faculty have been awarded at the University level for their merits in teaching (the Magister Bonus, the Eino Kaila Distinguished Teacher Award, and Educational Technology Award) and for developing the field in a wider sense (e.g. Veterinarian of the Year awarded by the Finnish Veterinary Association).

The move to the new, modern facilities at the Viikki Campus has been a noteworthy improvement. The internal organisation of the Faculty has also changed to some extent. The curriculum has been developed according to both the Bologna Process and the Faculty's own needs. At present, the University Reform is causing rapid and extensive changes affecting the administration and organisation of the whole university. The universities will operate independently of the State Budget and direct State steering, but the core duties – research and teaching – will remain unchanged.

Main international and national evaluations performed during the past decade

- Evaluation of the Quality of Education and the Degree Programmes of the University of Helsinki 2001-2002.
- Evaluation of Research at the University of Helsinki 2005.
- Audit of the Quality Assurance Systems of the University of Helsinki 2007 (by the Finnish Higher Education Evaluation Council, using an international expert group).
- Evaluation of Education at the University of Helsinki 2007-2008 (Theme: Management of education).

New regulations relating to teaching

- New EU Directive (2005/36/EC).
- The three-year strategic plans of the University, implemented through three-year policy programmes (Programme for the Development of Teaching and Studies most important from the point of education).
- Regulations associated with the Bologna Process.

Major changes in Finnish universities

- New salary system, including personal work performance assessments introduced in 2006.
- Universities Act Reform (ongoing). Universities will begin their activities under the new law on 1 January 2010.

Main organisational changes

- Division of the Department of Clinical Veterinary Sciences into two departments 2007: Department of Equine and Small Animal Medicine and Department of Production Animal Medicine.
- Veterinary Teaching Hospital became an independent unit within the Faculty 2007.
- Decision on the abolition of departments of the Faculty made in 2009; plans are currently underway being made for reorganisation (divisions will to a certain extent replace the former departments).

New buildings or major equipment

- Move to the Viikki Campus brought the administration, departments and the Veterinary Teaching Hospital to an appropriate environment suitable for their needs and activities.
  - Administration of the Faculty, Department of Basic Veterinary Sciences and Department of Food and Environmental Hygiene 2004
  - Department of Clinical Veterinary Sciences and Veterinary Teaching Hospital 2006
- Departments and the Hospital also received considerable financial support for the acquisition of new devices.

Main changes to the study programme

- Development of the curriculum: from small separate courses towards larger modules (gradual development since 2000, main steps: first year's Healthy Animal Concept 2002, fourth year's Clinical Modules 2006, teaching of production animal medicine separated from that of small animals and horses 2006).
- Move to the two-tier degree system associated with the Bologna Process 2005, contents of the Bachelor's and Licentiate's degree in accordance to the University's guidelines (e.g. move from study weeks to ECTS, greater emphasis on generic skills and science).

Important decisions made by the management of the Faculty or by the authorities responsible for it

- Annual student intake increased to 70 (previously 50-55) 2008.

Major problems encountered by the Faculty

- Several problems have already been resolved along with the move to the new facilities and the development of the curriculum. On the other hand, this has required a lot of extra work and flexibility from the staff and students. The Faculty finds that the ability to adapt to constantly changing national and international demands must nowadays be considered as a part of routine practice.
- The curriculum as a whole must be reviewed and revised (and resources allocated accordingly).
- The increase in annual student admissions is a challenge to both teaching and the premises.
- The decrease in the number of farms, production animals and slaughter houses, together with the increase in student admissions, poses a challenge to offering all students adequate hands-on experience.
- In postgraduate studies, the major problem concerns national specialist training. The number of graduating specialists, compared to the large number of students in specialisation studies, is small. A working group nominated by the Ministry of Education has investigated this problem in detail and published its report in June 2009.
- Increasing the level of internationalisation is one of the key areas for development, both at the undergraduate and postgraduate levels.
- The University Reform will cause organisational changes in the administration and management of the Faculty. The goal is to organise teaching, research and administration so that the structures support quality enhancement and the target-oriented use of resources. This includes the rearrangement of several major processes within the Faculty, including the transition from departments to divisions. It is important to preserve a genuine tripartite representation in the new organization also. The Reform is progressing rapidly and at certain points demands plenty of attention from the leadership of the Faculty. Uncertainties about the future should be taken as an opportunity to strengthen the Faculty's core functions. However, ensuring that the Faculty's budget is sufficient and establishing supplementary financing is very important.

Chapter 1: Objectives

1.1 Facts

Overall objectives of the Faculty

The Faculty of Veterinary Medicine at the University of Helsinki is solely responsible for education in veterinary medicine in Finland. The Faculty provides high-quality undergraduate education in veterinary medicine, offers further professional and scientific post-graduate education as well as continuing education, and develops the practice of veterinary medicine and related services so as to ensure the health and well-being of both animals and humans. According to the principles of the University of Helsinki, the high-quality research conducted at the Faculty forms the foundation of its teaching. The Faculty aims to provide graduating students with the theoretical and practical skills to be able to work independently as practitioners with all common animal species, to promote animal health, and to safeguard the quality of food of animal origin. The Faculty's mission is to concentrate not only on the treatment of diseases (very important), but also on preventive veterinary medicine. It focuses extensively on the whole chain of food production, "from farm to table", as well as on the high-standard treatment of individual animals. Environmental hygiene is an integral part of the national veterinary public health concept.

Most importantly, the curriculum aims to fulfill the EU requirements for veterinary training (EU Directive 2005/36/EC). This directive outlines the principles of veterinary education. Education is based on scientific grounds as well as proven experience and provides students with adequate learning opportunities, thus prepairing the foundation for life-long learning. The education provides a solid base for various careers, not only as a practitioner, but also e.g. as an official.

Strategic decisions, including reviews of the objectives of the Faculty, are made by the Faculty Council, which is led by the dean. Because the overall objectives have been broadly set, the need to revise them is infrequent. The achievement of the Faculty's general objectives is assessed (at least from a certain point of view) in every international evaluation of education and research. A list of the international and national evaluations of the Faculty during the past decade appears in the Introduction. Additionally, the Faculty drafts a target programme for each three-year planning period to implement the University's Strategic Plan and its policy programmes. The target programme defines the Faculty's concrete objectives that require monitoring and sets out a general plan for their implementation. The target programme also takes into account the performance agreement between the University and the Ministry of Education. Faculties are responsible for monitoring their activities using key performance indicators (e.g. data on completed degrees), specified in the target programmes. The dean plays a key role in this operations management process.

1.2 Comments

Assessment of the achievement of the objectives

The overall objectives of the Faculty, together with the objectives set by EU Directive 2005/36/EC, the University of Helsinki and the Bologna Process, are realised in everyday working and teaching. Because national expectations and requirements control the emphasis on some fields, not all objectives are met at the same level. The level of teaching in some areas, such as in food and environmental hygiene, has been considered very high in all evaluations. Another strength is clinical training, which provides all students with supervised hands-on experience. The high-quality Veterinary Teaching Hospital is a prerequisite for effective clinical training. The curriculum reform has further strengthened teaching on production animals and their preventive medicine. However, there is content overload in the curriculum, and at several points the students find it difficult to apply a deep approach to learning. The achievement of the teaching and learning objectives is discussed in more detail in other chapters of this report.

In 2005, the Faculty was among the first veterinary schools in Europe adopting the two-tier degree system associated with the Bologna Declaration. Special attention was given to making the general skills of an academic professional more visible in the curriculum. The Department of Basic Sciences has played an important role in this process. The period of transition is still ongoing, but thus far no major problems have occurred. Rather, we feel that the curriculum has become more structured: the Bachelor's degree provides a versatile foundation for the more "working life oriented" Licentiate's degree.

The Faculty conducts high-quality research in several fields, and scientific postgraduate studies have been developed according to the general policy of the University. In general, scientific postgraduate education has met these objectives well, and the new University policies regarding the supervisory relationships have all been put into practice. Nevertheless, problems do arise with the student flow in the professional postgraduate studies (specialisation). The number of graduating specialists, compared to the large number of students in specialisation studies, is small due to the shortage of supervisors and training places.

The continuing education offered by the Faculty has become more systematic. The recently established Diplomas offer a good way to show one's proficiency in certain fields (see Chapter 11).

Main strengths and weaknesses of the Faculty

Reports from external evaluations have provided support in recognising strengths and areas to be developed.

Main strengths of the Faculty

The Faculty holds a realistic view of the present situation and clear strategies for future development. This was confirmed in the Evaluation of the management of Education (2007-2008). The evaluation panel was very impressed with the quality of the Faculty leadership: the strong shared vision and strategies suit the staff and students, and therefore stand a good chance of being implemented. The panel was also impressed by the relationship between teaching and research, and especially by the enthusiasm exhibited by teachers and researchers as well as by the ease with which students are included in research projects. The Licentiate's thesis offers students an excellent introduction to research.

Relations between students and teachers are open and friendly. Admitted students are talented and motivated, and the Faculty has made a special effort to support them throughout their studies. Students are actively involved in the development of teaching also. Teacher-student interactions in various situations are frequent, the teachers are professional and committed to their duties, and there is a positive attitude toward development throughout the Faculty.

Teaching standards are high, with varied teaching methods and learning experiences. The thematic approach to teaching, which includes the "healthy animal" concept in basic veterinary medicine, followed by microbiology, pathology and meat inspection as a bridge to the "clinically ill animal" concept in clinical veterinary medicine and the "from farm to table" concept in food and environmental hygiene, forms a continuous thread running throughout the curriculum. The established student feedback system, also strength of the Faculty, provides versatile information for its continuous development. It is important to collect feedback not only at the course level, but in various ways.

Research on teaching and learning at the Faculty has given an additional view to the development of teaching, learning and quality enhancement. Additionally, individual teachers have analysed and reported on their teaching in international journals. A list of international publications related to the Faculty's teaching and learning appears in Appendix 1.

Areas to be developed/main weaknesses of the Faculty

The multifaceted requirements and generally recognised explosion of knowledge have resulted in content overload in the curriculum. The "omnicompetent" graduating veterinarian, meeting high standards in all fields of veterinary medicine, is becoming more and more difficult to educate within the six years. As stated in the Report on the Evaluation of Education 2007-2008, a full Faculty-wide review of the curriculum is needed, including content and teaching arrangements (e.g. reordering of the presence of disciplines, reassessing the extent of teaching for each discipline, and reassessing the balance between basic and clinical disciplines and increasing their integration). Learning outcomes are being defined and will serve as one tool to decrease overload. The Academic Planning Committee has already taken the initiative in these processes. A Faculty-wide workshop was arranged in May 2009 to define what knowledge and skills are required of today's graduating Finnish veterinarian. The need for tracking at some level seems inevitable, but thus far no consensus has been reached regarding when students must choose the track. Regardless the track, however, graduates aim to be qualified and licensed for all veterinarian duties.

The evaluation panel (2008) also recommended a full review of the functions of the departments within the Faculty, which will inevitably take place in conjunction with the University Reform.

Internationalisation is also a challenge for the Faculty, even though teachers' research-based networks are broad and function well. At present, internationalisation is one of the key areas of development at the University of Helsinki, and increased international mobility is also one of the objectives of the Bologna Process. The present curriculum offers improved opportunities for students to participate exchange programmes, but the coherent class system of students in our curriculum and the fact that there is no detailed harmonisation between study programmes in veterinary faculties remain obstacles that need further attention. Thus far, the number of foreign students studying at the Faculty has always been greater than that of Finnish students going abroad. Internalisation is also a major challenge in doctoral and specialisation training.

1.2 Suggestions

Factors found to limit further development of the Faculty:

- Reassessing the extent of teaching duties per teacher between different disciplines and the balance between basic and clinical disciplines and increasing their integration is challenging; an "outside view" is needed. Teachers performing multiple duties, such as teaching, research, clinical work and administration, experience overwhelmingly high workloads.
- Exactly when undergraduate students must choose their specialisation track from three different track lines is still under debate. No official decision on tracks has been made, although they have been preliminarily discussed in working groups.

The six-year veterinary curriculum is demanding in several ways, for both the students and teachers. The multifaceted requirements and generally recognised explosion of knowledge in all fields of veterinary science pose major challenges.

- The increase in annual student admissions poses a challenge to both teaching and the premises. In particular, it affects small group teaching and extramural training.
- Periodical overloading of teachers and students.
- Limited number of exchange partners in English-speaking countries for undergraduate students; no harmonization of courses between countries.
- Financial resources for international specialisation, such as European specialisation programmes (Diplomates), are insufficient and depend on external funds. International specialisation degrees are not included in the Faculty's agreement with the Ministry of Education or University of Helsinki.

- Establishing a shared view of the extent of teaching for each discipline and of the balance between basic and clinical disciplines; increasing their integration.
- Accepting the fact that an omnipotent graduate is impossible to achieve; defining the core content of the undergraduate studies and developing teaching practices that allow more active student participation.
- Advanced awareness and taking into consideration the expectations of society and the development trends within it.
- Acquiring a shared view of tracking, taking into consideration both international trends and the national requirements of new graduates.
- Preserving the importance of one's eligibility to practice as a certified veterinarian in different fields of veterinary medicine.
- Active sharing of information with students on international exchange opportunities, trying to encourage and to support participation as well as finding attractive exchange partners.
- Making good use of Nordic NOVA courses (The Nordic Forestry, Veterinary and Agricultural University Network).

Chapter 2. Organisation

2.1 Facts

Details of the Faculty

Name of the Faculty: Faculty of Veterinary Medicine

Address:
P.O. Box 66 (Visiting address: Agnes Sjöbergin katu 2), FIN-00014 University of Helsinki

Telephone: +358 9 191 57158 (Secretary)

Fax:+358 9 191 57161 Website: http://www.vetmed.helsinki.fi/

E-Mail: Eltdk-hallinto@helsinki.fi

Title and name of head of the Faculty:
Dean Antti Sukura, DVM, PhD
Faculty of Veterinary Medicine

Address of the University, which the Faculty is part of:
P.O. Box 33 (Visiting address: Yliopistonkatu 4), FIN-00014 University of Helsinki

Details of the competent authority overseeing the Faculty

The Faculty of Veterinary Medicine is a part of the University of Helsinki. The University carries out its basic duties within the framework of its autonomy as a part of the central government (major change in legislation at 2010). Finnish universities have an autonomous status. They are in charge of their own administration, under the lead of their representatives. The government takes care of university funding, and studies are generally speaking free of charge. However, the University's operations are closely linked to the Ministry of Education, the Government and Parliament. The main co-operation party is the Ministry of Education, under whose administrative branch the University falls. The University's activities are also influenced and funded by other Ministries and agencies subordinated to them. Nowadays the European Union also affects the University in various direct and indirect ways as concerns, for example, statutes and resources.

The objectives of university operations are guided by the Universities Act, the development plan for education and research adopted by the Government and by the Government resolution on the structural development of the public research system. The objectives are stated in a performance agreement made between the Ministry of Education and the University of Helsinki for a three-year period. However, agreements on resources are made for each individual year, and resources are separately allocated to basic funding and project funding. The achievement of objectives and the implementation of the agreement are assessed annually in conjunction with performance target negotiations. The Ministry of Education gives the University oral feedback on the negotiations, as well as a statement on the final accounts required by the Budget Decree.
With the new Universities Act entering into effect from January 1 onwards, the order of the negotiations will change.
The University supplies the requested information to the KOTA database by the deadline given and prepares for any changes to its monitoring and reporting systems required by the development of the database.

The University of Helsinki has a tripartite organisational structure consisting of (1) the University level, (2) faculties and independent institutes and (3) departments and other units in faculties. The operating units of each organisational level have bodies and directors responsible for decision-making, as required in legislation and internal regulations, as well as an administrative organisation to enable decision-making.

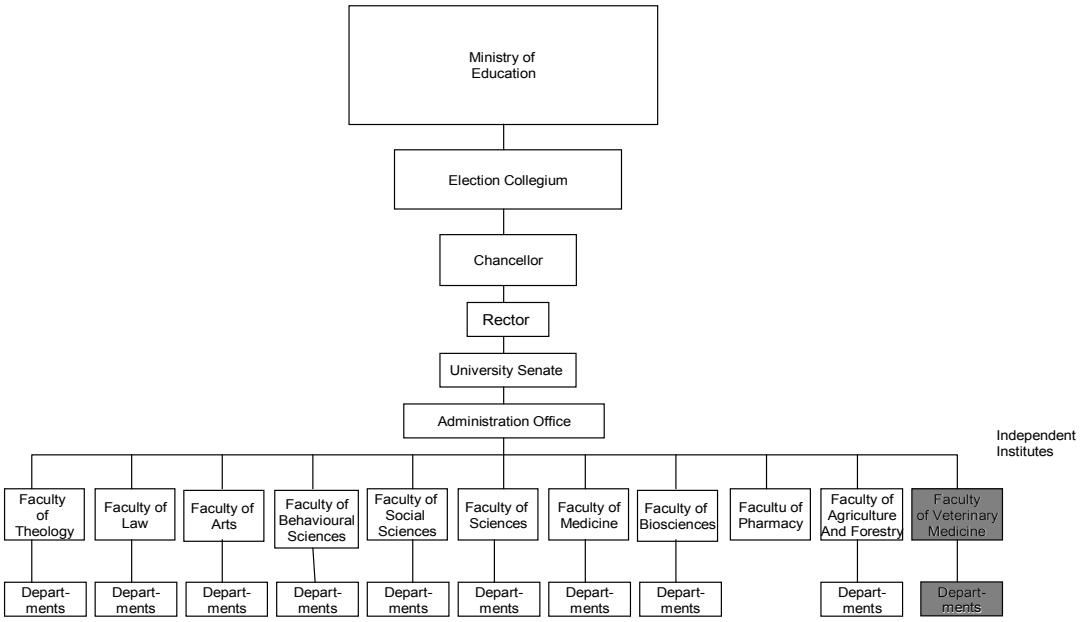


Figure 1: Diagram showing the administrative structures of the Faculty in relation to the university and ministerial structure (2009).

The Faculty of Veterinary Medicine is the one of the eleven faculties of the University of Helsinki. It is tasked with conducting veterinary research, offering basic, postgraduate and continuing education, as well as implementing expert services and handling other social interaction in Finland. The Faculty's special fields of research include animal health and welfare, host response and host microbe interaction, as well as food safety and hygiene and human health. The Faculty is home to the Centre of Excellence in Microbial Food Safety Research funded by the Academy of Finland. As of 1 January 2007, the Faculty comprises four departments. The work performed by the teaching, research and support staff corresponds to approximately 300 person years. The Faculty has 24 professors, two of whom are employed part-time. The Faculty and the University of Helsinki agree on a target programme for three years at a time and conduct annual negotiations on the budget-funded resources needed to achieve the objectives and to carry out operations. The resources are granted to the Faculty by the Rector's decision. The achievement of objectives and the use of appropriations are reviewed in annual meetings held between the Rector and Dean. The Faculty also applies for other, supplementary funding. Its main financiers, apart from the Ministry of Education, are the Academy of Finland and the Finnish Funding Agency for Technology and Innovation.

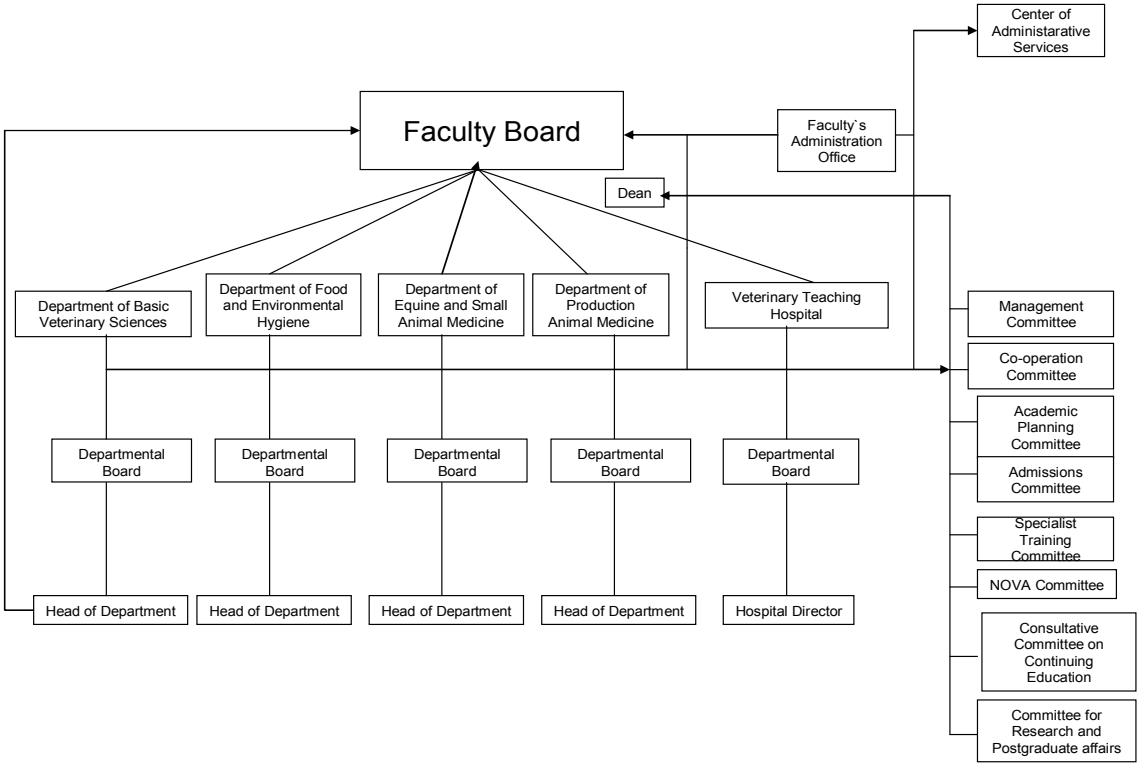


Figure 2: Diagram showing the internal administrative structure of the Faculty of Veterinary Medicine, 2007-2009

The rules concerning the appointment of the elected officials of the Faculty

The Faculty Council elects the Dean and one or more Vice-Deans among the Faculty's appointed professors. The Faculty Council is convened by the most senior professorial member before the beginning of its term to elect the Dean and Vice-Deans. The candidate who gets over half of the votes cast is elected as Dean. If no one is elected in the first round, a new vote is arranged among the two candidates with the most votes, and the one who gets the most votes in the second round is elected as Dean. In the case of a tie, the decision is made by the drawing of lots.

A Vice-Dean can be put in charge of instruction, research or other duties related to Faculty operations. The distribution of tasks between the Dean and Vice-Deans is determined by the Dean.

The Dean leads and supervises the Faculty's operations. The Dean has overall responsibility for the Faculty's human resources management and its implementation in line with the Faculty's and the University's human resources policies. The Dean also bears ultimate responsibility for ensuring that review discussions between supervisors and employees are conducted annually in the Faculty. The Dean handles and resolves matters pertaining to the Faculty, unless otherwise provided in acts, decrees or regulations.

The Faculty Council appoints the head and deputy head of department based on the departmental steering group's proposal. The steering group is convened by the most senior professorial member before the beginning of its term to prepare a proposal on the head of department. The election procedure is the same as that used to elect the Dean. The head and deputy head of department must be tenured professors or full-time adjunct professors in the department. If the person elected as head of department is not a member of the steering group, he/she will be made one.

The responsibilities, constitution and function of the main administrative bodies

Ten members and an equal number of deputy members are appointed to the Faculty Council in an election held at the University. The Faculty Council is chaired by the Dean, while the Vice-Dean acts as the Council's vice-chairman. The Faculty Council includes representatives of the professors, representatives of other teachers, researchers and staff, as well as student representatives. It is the Faculty's ultimate decision-making body and convenes once a month, except in July, 11 times a year.

The duties of the Faculty Council are defined in the Universities Act and Universities Decree and in the administrative regulations of the University. It is responsible for developing teaching and research, as well as for making decisions on degree requirements, admission criteria for new students, the principles for the allocation of appropriations, personnel plans, the establishment and termination of professorships, the disciplines of professorships, as well as the appointment of personnel other than professors.

The Faculty can have one or more departments, which consist of certain fields of teaching and research. In the Faculty of Veterinary Medicine there are four departments and the Veterinary Teaching Hospital. The Department of Clinical Veterinary Sciences was split into two departments on 1 January 2007: the Department of Equine and Small Animal Medicine and the Department of Production Animal Medicine, which is mainly located in the Saari unit in Mäntsälä. By a Senate decision, the Veterinary Teaching Hospital was made into a separate unit subject to the Faculty Council in March 2007. The Hospital consists of the Equine Hospital, the Small Animal Hospital and the Production Animal Hospital and its ambulatory operations.

Each department has a departmental steering group and its own academic affairs and personnel administration. The departments' financial administration and some of their HR administration is handled by University-level service centres at individual campuses.

The departmental steering group is the highest decision-making body in the department. Departments are run by a head of department. The departmental steering group is responsible for assessing and developing teaching and research activities in the department and its disciplines, making proposals to the Faculty Council for plans concerning operations, finances and staff, deciding on the principles of use of unallocated appropriations and other resources assigned to the department, as well as presenting the Faculty Council with proposals for posts and positions within the department.

In elections held at the university, six members and six deputy members are appointed to the departmental steering group in the same way as to the Faculty Council. The steering group is chaired by the head of department.

Several committees are also operating in the Faculty. The function of these committees is to process and prepare issues in their own specific field for the Faculty Board. The committees are formed in such a way that the chairperson is either the dean or vice-dean depending on how responsibilities are shared between them. Members of the committees are personnel working within that specific field. Undergraduate students also have their representatives in committees, except in the Specialist Training Committee and in the Committee for Research and Postgraduate Affairs. Secretaries of the committees are the superiors or planning officers from the Faculty's administration office.

Management Committee: One week before the Faculty Board meeting, all proposals are submitted to and discussed in the management committee. Otherwise the management committee is assembled when needed.

Co-operation Committee: Assembled at the same time as the management committee. The goal is to enhance co-operation between the employer and staff, as well as co-operation between staff members. Prior to decision-making, the employer and the pertinent committee discuss any plans with a direct or indirect impact on the personnel's position.

The Academic Planning Committee is in charge of developing the degree programme for veterinary medicine and for preparing the curriculum.

The Admissions Committee is in charge of developing student admission for the degree programme of veterinary medicine and for preparing the admission criteria.

The Specialist Training Committee is in charge of the content, arrangements and development of specialisation studies. The Committee includes a specialist from each field of specialisation.

The Consultative Committee on Continuing Education interacts with parties that arrange continuing education and in co-operation with them agrees on the objectives of continuing education, plans the development of credit registration and disseminates information about education.

The Committee for Research and Postgraduate affairs handles the applications and research plans of doctoral student candidates and recommends the approval of preliminary examiners for doctoral students' study and research plans and doctoral dissertations. The committee is also in charge of the guidelines on scientific postgraduate studies and of doctoral studies in veterinary medicine. The Committee prepares the plan for implementing the Faculty's research policy and contributes to the development and improvement of research conditions in the Faculty.

Local NOVA Committee/Team: NOVA is a network for co-operation between Nordic forestry, veterinary and agricultural universities/faculties. NOVA's task is to initiate, administer and promote co-operation between member institutions in MSc and PhD education. NOVA offers a number of grant schemes for planning and running courses and for other inter-Nordic educational projects. In NOVA, three members are from Finland: the Faculty of Agriculture and Forestry and the Faculty of Veterinary Medicine (HU-V), University of Helsinki and the Faculty of Forest Science, University of Joensuu. A local NOVA team promotes the NOVA network's goals at the Faculty level.

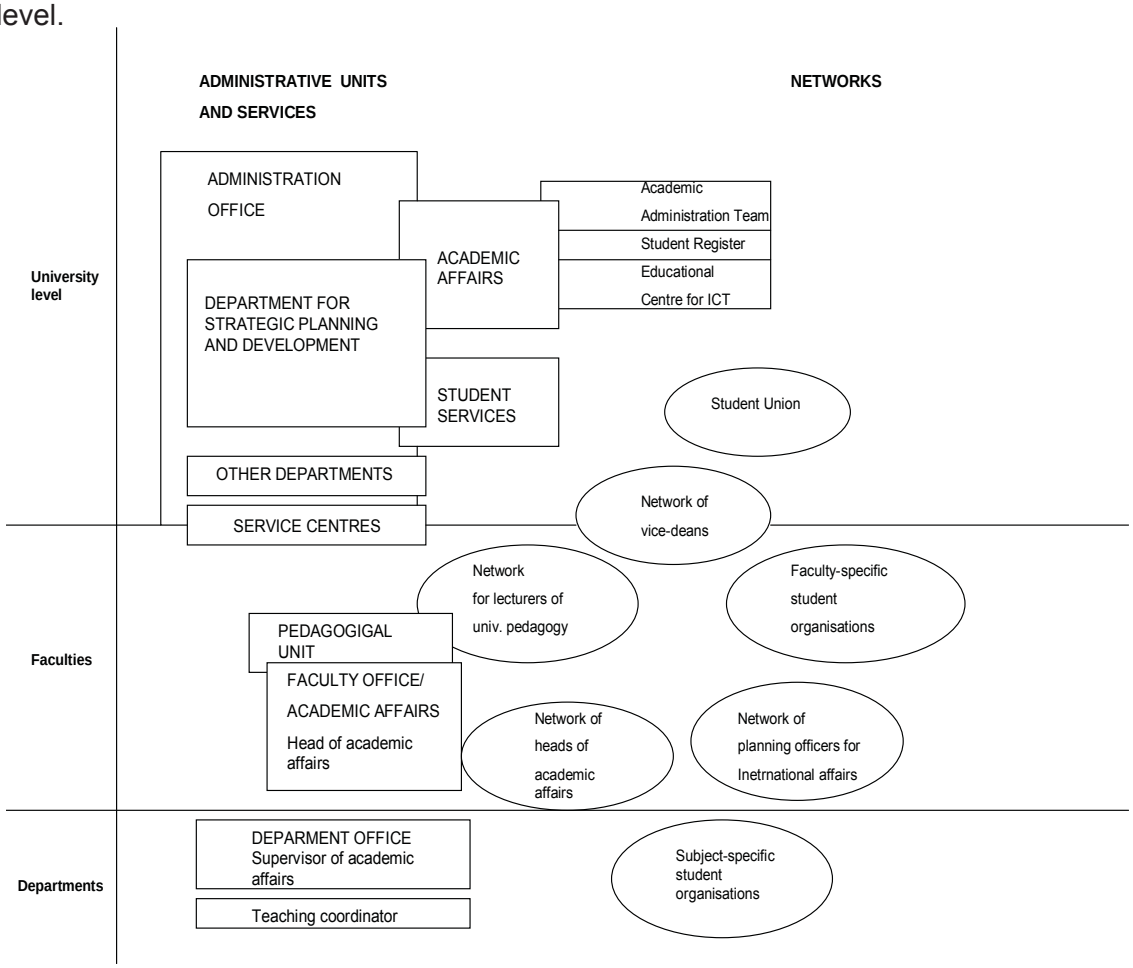


Figure 3: Diagram showing the administrative units, services and networks of management in teaching and academic affairs.

The involvement of the veterinary profession and the general public in the running of the Faculty

In the Consultative Committee on Continuing Education there are representatives from the Ministry of Agriculture and Forestry, the Finnish Food Safety Authority, the Finnish Veterinary Association, the Ruralia Institute, the Palmenia Centre for Continuing Education and Pharma Industry Finland.

In the Committee for Research and Postgraduate affairs there are a representative from the Finnish Food Safety Authority (EVIRA) and an expert representative from the Viikki Science Library.

In the Academic Planning Committee there is a representative from the Viikki Science Library.

2.2 Comments

On 12 November 2008, in preparation for the new Universities Act, the Senate of the University of Helsinki set down policies on the University's structure and management system. In compliance with these, the Faculty Council of the Faculty of Veterinary Medicine has decided to close down its four departments on 1 January 2010 and replace them with divisions that are not administrative units, but educational and research organisations.

The goal of the reform is to do away with overlaps in administration, to increase co-operation across departmental boundaries and to reduce the administrative work performed by teaching and research personnel. The proposed model promotes inter-departmental co-operation by centralising preparatory work. In the future, Faculty-level decisions will be prepared by Faculty committees and administrative staff instead of by the former departments.

Chapter 3: Finances

3.1 Facts

3.1.1 General information

The current funding model does not provide the Faculty with sufficient resources to cover normal operating expenses. The Faculty's core funding is calculated using the University's funding model in which balancing funding, based on the previous year's net funding, accounts for 70% and performance-based funding for 30%. When assessing performance, the number of Master's degrees carries a weight of 50%, the number of licentiate and doctoral degrees 15% and research 35%. However, performance is compared to that of other faculties, so in order to get additional funding a faculty must raise its performance proportionally more than others. Research is assessed every six years. Veterinary medicine receives more funding for its undergraduate degrees than many other disciplines. The weighting coefficients of different disciplines range from 1 to 3.5, with veterinary medicine having the highest possible coefficient: 3.5. In addition, the Ministry of Education subsidises the Veterinary Teaching Hospital by €2.15 million a year based on the special societal mission carried out by the Hospital.

The Faculty has its own asset allocation model, which it uses to further distribute core funding to the different departments. Of the amount remaining after the deduction of facilities expenses, earmarked items and project funding, 80% is distributed in proportion to payroll budgets and 20% based on performance. Performance is assessed using the three-year averages of doctoral degrees completed in each department (weight of 50%), veterinary surgeons studying for a specialist's degree (15%), B1 category publications (20%) and the impact factor of publications (15%).

Several models are available for the funding of large equipment purchases. The Veterinary Teaching Hospital aims to finance its equipment purchases with income from paid services. Devices may also be obtained as joint campus acquisitions, such as the soon-to-be-acquired flow cytometer (core facility type). Moreover, the Dean may discuss funding with the Rector. The University's Technical Department deals with financial expenses related to real estate, construction and some of the furniture and equipment. It also provides the required facilities' maintenance. The costs incurred from real estate and facilities, as well as their maintenance, are recovered from faculties in the form of fixed leases (when the facilities are in the faculty's possession) or based on actual use.

3.1.2 Information on extra income

The Rector collected 5% of paid services income and research funding as overhead income in 2006–2007. In 2008 the Rector's share of research funding rose to 7%. The additional 2% is used to provide financial administration services for research projects. The share of paid services remained at 5%. The Department's share of overhead has been 8-10%, estimating the total overhead charged from external funding to be 15%. Exceptions to this include teaching activities, as well as grants under €10,000, from which the Rector has not taken any share. The cost accounting for research funding is moving from additional expense accounting to overall cost accounting as concerns the main funders. This will provide a more comprehensive and reliable picture of the expenses arising from research activities. The Rector does not plan to collect a higher overhead share from research funding.

3.1.3 Overview income (revenue) and expenditure

Table 3.1: Income / Revenue

State (government)			Income generated by the Faculty		
Year	To university administered outside the Faculty	Direct to Faculty	Income from services provided	Research	**Total (Faculty)**
2008	489 600	12 324 000	5 550 452	3 364 356	**21 728 408**
2007	235 200	11 988 700	3 990 719	2 676 691	**18 891 310**
2006	114 200	11 546 100	3 490 533	2 467 042	**17 617 875**

Table 3.2: Expenditure

Teaching support				
Year	Salaries	Facilities	Other	**Total (Faculty)**
2008	6 828 699	2 578 613	1 085 027	**10 492 339**
2007	6 167 179	2 561 394	1 003 745	**9 732 318**
2006	6 770 104	2 654 153	1 336 633	**10 760 890**
Research support				
Year	Salaries	Facilities	Other	**Total (Faculty)**
2008	2 415 819		1 693 672	**4 109 490**
2007	1 816 260		1 094 402	**2 910 662**
2006	1 578 211		971 346	**2 549 557**
Clinical support (Animal hospital)				
Year	Salaries	Facilities	Other	**Total (Faculty)**
2008	4 216 844	1 404 427	2 417 130	**8 038 401**
2007	3 536 379	1 470 785	1 530 012	**6 537 176**
2006	1 724 476	1 390 226	1 414 717	**4 529 419**

The rather big changes in salary expenses are partly due to staff being transferred to different units and into different personnel groups. The Veterinary Teaching Hospital was a part of the Department of Clinical Veterinary Sciences until the beginning of 2007, when the department was divided into two: the Department of Equine and Small Animal Medicine and the Department of Production Animal Medicine. In conjunction with this, the Veterinary Teaching Hospital was made into a separate unit subject to the Faculty. The Hospital employs professors and clinical instructors, as well as veterinary surgeons. The latter are mainly involved in clinical patient work, during which they also instruct students of veterinary medicine. In 2006 and 2007, veterinary surgeons were considered to belong to the teaching staff. At the beginning of 2008 they were largely transferred to other staff. Animal keepers are the biggest single personnel group at the Veterinary Teaching Hospital. If head nurses, x-ray nurses and other corresponding employees are included in calculations; their work amounted to 57.22 person years in 2008.

The new salary system adopted in Finnish universities is the main reason for salary expenses increasing in recent years. The previous system consisted of basic pay and seniority increments. In the new salary system, the basic pay depends on the complexity of duties and is supplemented by an individual pay component determined on the basis of an individual performance assessment. The individual pay component is at the most 48% of the job-specific pay component. Universities use two different salary systems, one for teaching and research staff and one for other staff. The original plan was to adopt both systems on 1 October 2009, but they were, in fact, implemented ahead of time, at the beginning of 2008.

3.2. Comments

Rental costs increased when the Faculty moved to the modern facilities it now occupies. This, together with an increasing number of staff members, has caused a severe financial deficit.

The number of new students increased in 2008. Faculty received some resources from the Ministry of Education to keep up with growing student numbers, but still needs more.

Keeping pace with the rapidly developing field of multidisciplinary veterinary medicine is demanding specialists in multiple fields. Thus far, the Faculty has been unable to keep pace with increasing demands for specialists due both to the lack of funding and the lack of available Finnish-speaking specialists.

3.3 Suggestions

The allocation of funds between the different faculties and units at the University of Helsinki has been based on a mathematical model. The model has not been especially successful for the Faculty, however. Consequently, much effort has focused on new budgeting and goal negotiations procedures, which are to be implemented in autumn 2009.

The high quality of undergraduate students' basic education allows for the increased use of English as a language of instructions. In future, more calls for open positions will also aim abroad in order to obtain the best available specialists among the staff.

Chapter 4: Curriculum

4.1 Facts

The Faculty of Veterinary Medicine is the only Finnish unit that provides undergraduate education in veterinary medicine. Undergraduate training comprises six years of full-time theoretical and practical study in a university setting. A challenge and strength for the Faculty is that it has a focused degree programmes and a single curriculum which is implemented by all the departments. The Faculty follows the Bologna Declaration by offering a Bachelor's degree prior to completing the six years of undergraduate veterinary education, leading to the granting of the professional title of Licentiate of Veterinary Medicine. The goal of the national curriculum is to educate "omnipotential" veterinarians, having basic knowledge in all fields of veterinary science as stated in the Directive, and particularly in clinical instruction and food hygiene. The graduating veterinarians are expected to be able to perform all their duties after graduation. The importance of the acquisition of generic competencies, such as skills in written and oral communication, interaction, problem-solving, scientific thinking and professional attitudes, has been realized, and these competencies play a visible role during the education.

The Faculty has a fair amount of freedom regarding the curriculum model and its contents, providing that the EU Directive, objectives set by the University of Helsinki and those set by the Bologna Process are also taken into consideration. The management of undergraduate education is the responsibility of the Faculty dean and the vice-dean in charge of undergraduate education. They are also responsible for the implementation of measures and the distribution of workloads as specified in the University's Strategic Plan and its Programme for the Development of Teaching and Studies. Strategic decisions on education are made by the Faculty Council, which is led by the dean.

The Faculty's Academic Planning Committee prepares the degree as a whole, the degree structure and the degree objectives. The Committee is chaired by the vice-dean in charge of undergraduate education, and its secretary is the head of academic affairs. The Committee includes representatives of all the departments, the students, and, as a consulting member, a representative of the Viikki Science Library. The Faculty's senior lecturer in university pedagogy is also a member. The role of the Committee has been strengthened in recent years. The committee is responsible for the development of the degree programme and for preparatory work associated with curriculum design. The Committee also prepares standing orders on degrees for the Faculty Council's decisions. When necessary, the Academic Planning Committee establishes working groups comprising best experts in each issue.

Where possible, the Faculty has centralised the duties associated with academic administration to the Faculty Office. The student affair officials of the Faculty Office dealing with undergraduate education include the head of academic affairs, an academic affairs secretary, an international affairs officer and a planning officer in charge of e-learning. The student affairs officials of the Faculty Office are responsible for the preparation, presentation and implementation of duties related to the academic administration of undergraduate education. Such duties include the coordination of curriculum design (course and examination schedules and degree requirements), the editing of the study guide, application guides and other similar documents, and the administrative services related to international teacher and student exchange programmes. The Faculty's senior lecturer in university pedagogy works in close co-operation with the staff dealing with academic administration. The lecturer is responsible for the development of teaching and learning and related research. The lecturer participates in the Faculty's major projects for the development of teaching and supervises the work of the planning officer, who was employed in 2007 with project funds allocated for the development of teaching (the W5W2 project, which focuses on learning outcomes).

The head of each department is responsible for the management of education at that department, while the head of each discipline is responsible for the management of education in that discipline. In addition, a coordinator or "responsible teacher" is assigned to each study unit (= course, strand, module, thesis). The departmental curriculum (the degree requirements and the teaching

programme) is discussed each year in the departmental steering group. The departments are responsible for the provision of teaching and the registration of completed studies. The department secretaries register completed studies and aid in practical arrangements for teaching. All departments are represented on the Faculty's Academic Planning Committee. The contents of study units, teaching duties, the assessment of learning, detailed schedules and other matters related to the provision and development of teaching are discussed in departmental teacher meetings, where student feedback on individual study units is also discussed.

Objectives set by the University of Helsinki

The University of Helsinki is the most comprehensive institution of higher education and of intellectual stimulation in Finland. It generates innovative scholarly thinking and new knowledge through research of an international standard and research-based education and co-operation. It also relays research information to Finnish society for the well-being of the nation. The University will continue to maintain a high profile in research and researcher education.
(from the Strategic plan of the University of Helsinki 2007-2009)

The University implements its three-year strategy through various policy programmes presenting the concrete measures to be taken, objectives, responsibilities and resources. From the point of view of education, the most important of the University's policy programmes is the Programme for the Development of Teaching and Studies. According to the teaching philosophy of the University of Helsinki, teaching and studies are always based on research. The objective of studies is a student-oriented, thorough education that provides a solid basis for lifelong learning. At the core of the University's teaching philosophy are the promotion of learning based on understanding, high-quality expertise and the ability to apply knowledge to problem solving. The objective of degrees and other studies completed at the University is always profound, research-based competence and expertise in one's field (Figure 4). The curriculum is planned, and the teaching is organised to enable students to meet the challenges presented by changes taking place in society and in the labour market.

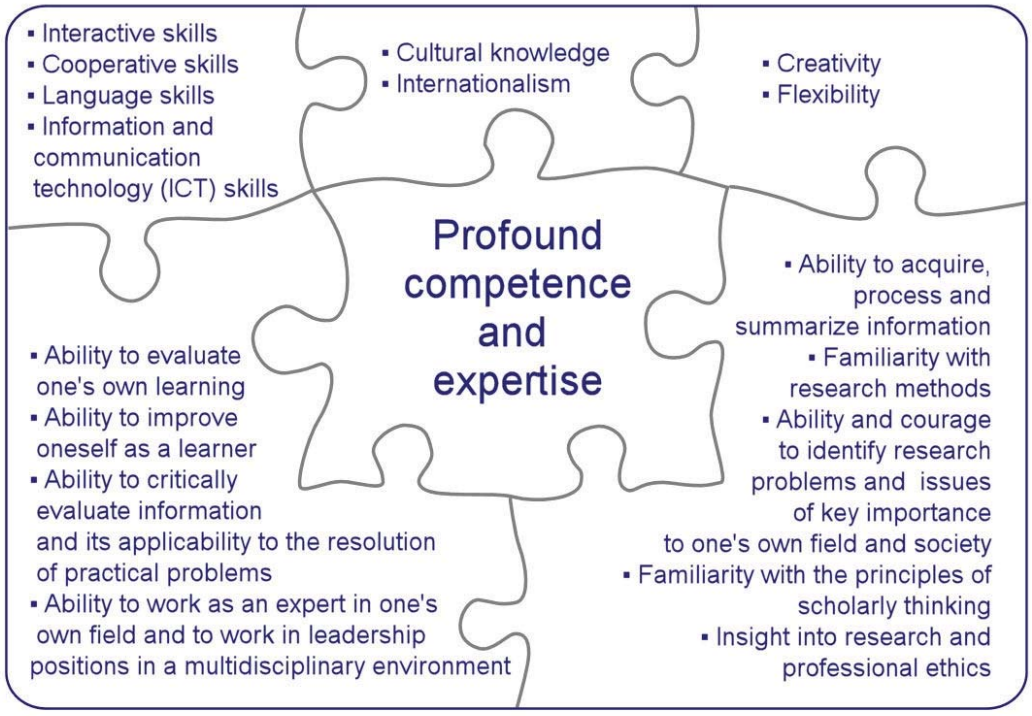


Figure 4: Objective of degrees completed at the University of Helsinki.

Objectives set by the Bologna Process at the University of Helsinki

The objective of the Bologna Process is to harmonise the structures of European university degrees, increase the transparency of degrees, improve their quality and promote international mobility. The main concepts related to the Reform of the degree structure at the University of Helsinki have included the implementation of a two-tier degree structure, the adoption of a national credit allocation and accumulation system similar to the European Credit Transfer System (ECTS; 1 ECTS = 27 hours of student work), the performance of an academic curriculum core analysis and the creation of a quality assurance scheme. At the Faculty, the Bologna Process was considered as a positive challenge to improve the curriculum.

The Bachelor's degree provides a versatile foundation for studies towards the higher academic degree, which focuses on deepening the skills and knowledge in the student's field. The Bachelor's degree comprises most of the studies offering the general professional skills and knowledge needed in the Licentiate's degree, as well as learning skills.

The Master's (in veterinary medicine Licentiate's) degree awarded by the University is of high quality and provides the student with skills and knowledge in the fields expected of an international academic professional. Profound understanding and mastery of one's own field lie at the core of the degree. Learning skills and skills related to producing new information provide a solid basis for expertise. A quality degree also provides the general skills of an academic individual, such as co-operation, communication and ICT skills, and openness to international relations based on language skills and familiarity with different cultures.

The achievement of the objectives of the Bologna Process at the University of Helsinki will be assessed in 2010.

4.1.1 Power of subjects and types of training

4.1.1.1 Power of subjects

Most of the curriculum consists of "core" subjects compulsory for every student. The extent of "electives" in the Bachelor's degree is 7 ECTS (of which ≤ 6 ECTS may be studies outside the Faculty) and in the Licentiate degree 6 or 11 ECTS based on the type of the student's Licentiate thesis (20 or 25 ECTS). The Licentiate's thesis and elective courses together comprise 31 ECTS. The purpose of the elective courses is to support the student in gaining wide and/or deepened expertise. The head of academic affairs is responsible for accepting electives taken outside the Faculty.

Table 4.3 (in section 4.1.2) shows the elective courses arranged at the Faculty during the academic year 2008-2009. Several of the elective courses are also available to a limited number of postgraduate students or veterinarians outside the Faculty. The courses "from farm to table" are arranged according to a predetermined four year cycle, one (or two) course(s) arranged each year. The number of elective courses arranged at the Faculty is increasing year by year.

4.1.1.2 Types of training

The following definitions are used when classifying different types of theoretical training in the current report: 1) supervised theoretical training, 2) self-directed learning and 3) supervised practical training. The time allocated for examinations as well as for theses and electives are recorded separately in Table 4.1; in Table 4.2, the column "Other" includes examinations.

Supervised theoretical training

Lectures convey mainly theoretical knowledge, but also complement textbooks and provide up-to-date information. The lecturer can also show the students a perspective of expertise acquired through research and scholarship, and teach students how to use concepts and principles as

well as how to think. Lectures are given to an entire or occasionally to a partial annual intake of students. An increasing number of lectures include active student participation and lectures are used for more than just for distributing information. Students may e.g. be given tasks and cases to solve during the lecture. In general, lectures are not obligatory.

Seminars (tutorials, group work) include supervised teaching sessions directed towards a smaller group of students during which they work on their own or as a team on part of the theory. Information is illustrated and knowledge extended by the presentation of audio-visual material, exercises, discussions, and, if possible, case work. (Preparation for seminars is included in self-directed learning.)

Self-directed learning

Self-directed learning refers to sessions of individual students making use of defined teaching material provided by the Faculty (and other supportive material if they wish). In our curriculum, time for self-directed learning is included in the ECTS of each course (1 ECTS = 27 hours of student work). It is related not only to theoretical training, but also to preparation and deepening in practical matters. Thus, the number of hours for self-directed learning in Table 4.2 includes study work allocated to the student after curriculum contact hours (reading textbooks, preparing for examinations, etc.) and is higher than the number of hours that students work at the Faculty.

Supervised practical training

Laboratory and desk-based work includes teaching sessions where students themselves actively perform laboratory experiments and use microscopes for the examination of histological or pathological specimens. It also includes work on documents and idea-formulation without the handling of animals, organs, objects or products (e.g. essay work, clinical case studies, handling of herd-health monitoring programmes, risk-assessment computer-aided exercises).

Non-clinical practical work includes teaching sessions where students themselves work on normal animals, on objects, products, carcasses, etc. (e.g. animal husbandry, ante- mortem and post-mortem inspection, food hygiene), and perform dissection or necropsy. Excursions (e.g. to farms, slaughterhouses, processing plants) and extramural training are included in non-clinical practical work.

Clinical work refers to strictly hands-on procedures by students and includes work on animals in a clinical environment, on organs and on clinical subjects such as individual patients and herds, thus making use of relevant diagnostic data. Surgery or propaedeutical hands-on work on the organ systems of cadavers to practice clinical techniques is also classified as clinical work.

4.1.2 Undergraduate curriculum followed by all students

Overall structure of the curriculum

Since 1 August 2005, the undergraduate veterinary curriculum has consisted of two cycles. Undergraduate studies in veterinary medicine lead to the Bachelor of Veterinary Medicine degree (180 ECTS), which takes three years to complete, and to the Licentiate of Veterinary Medicine degree (180 ECTS), which takes another three years to complete. The overall structure of these degree programmes appears in Tables 4.1.1. and 4.1.2. The curriculum consists of courses and larger modules supported by strands that extend over more than one study-year and integrate into two or more disciplines.

Table 4.1.1. Contents of the Bachelor of Veterinary Medicine degree. 1 ECTS = 27 hours of student's work. Each year = 60 ECTS.

Year	Studies	Personal study plan[a]	L[b]	ICT[c]	E[d]	Res[e]
I	Study guidance 2 ECTS Anatomy, physiology and biochemistry (integrated, "Healthy Animal") 50 ECTS Electives* (2 ECTS)	0.5 ECTS	2.5 ECTS	3 ECTS		
II	Animal hygiene (incl. genetics) 13.5 ECTS Farm practice 6 ECTS Parasitology 5 ECTS Microbiology and immunology 11.5 ECTS Pathology 8.5 ECTS Meat inspection technique 1.5 ECTS Electives* (2 ECTS)	0.5 ECTS	6.5 ECTS		1 ECTS	4 ECTS
III	Epidemiology 10 ECTS Pathology (continued) 8.5 ECTS Meat inspection 6 ECTS Meat inspection practice 6 ECTS Veterinarian as an officer 2 ECTS Pharmacology and toxicology 7 ECTS Introduction to clinical work 7.5 ECTS Electives* (3 ECTS)	1 ECTS	1 ECTS	2 ECTS	2 ECTS	4 ECTS

a = Bachelor's portfolio (2 ECTS)
b = Language studies (Finnish, Swedish and English) and communication (written & oral) skills (10 ECTS)
c = Information and Communication Technology studies (5 ECTS)
d = Veterinary ethics and animal welfare (3 ECTS)
e = Introduction to scientific work (2 ECTS), Bachelor's thesis (6 ECTS)
* Students must earn 7 ECTS of electives during Bachelor's studies

Table 4.1.2. Content of the Licentiate of Veterinary Medicine degree. 1 ECTS = 27 hours of student work. Each year = 60 ECTS.

Year	Studies	Personal study plan[a]	(L)[b]	(ICT)[c]	(Et)[d]	Res[e]
IV	Internal medicine (companion animals, horse) 13.5 ECTS Anesthesiology, intensive care 3 ECTS Surgery (companion animals, horse) 9 ECTS Reproduction 12 ECTS Herd health, production animal medicine and surgery 11.5 ECTS Electives** (2 ECTS) Clinical practice 4 ECTS	+	+	+	+	5 ECTS
V	Clinical training (rotations) 52 ECTS Veterinary health services and municipal administration (2 days) Clinical practice 4 ECTS	+	+	+	+	4 ECTS
VI	Food hygiene and food inspection 18.5 ECTS Environmental hygiene and toxicology 9.5 ECTS Health protection practice 3 ECTS Veterinary health service and municipal administration 5 ECTS Practice Management 3 ECTS Electives** (4-9 ECTS)	1 ECTS	+	+	+	+ 11-16 ECTS

a Licentiate's portfolio (1 ECTS)
b Applied language and communication skills studies
c Applied Information and Communication Technology skills
d Applied veterinary ethics and animal welfare
e Licentiate's thesis 20 ECTS (literature review) or 25 ECTS (research project)
+ Included in teaching, but no separate ECTS allocated
** Depending on the type of the student's Licentiate's thesis, he/she must earn 6 or 11 ECTS of electives during the Licentiate's phase

4.1.2. Curriculum hours

Table 4.1.3: General table of curriculum hours taken by all students

Year	Hours of training								
	Theoretical training		Self-directed learning	Supervised practical training			Exams	Allocated for electives and thesis	Total
	Lectures	Seminars		Laboratory and desk-based	Non-clinical practical work	Clinical work			
First	362	36	848	102	183		35	54	1620
Second	463	18	703	84	183		34	135	1620
Third	255	59	656	181	286	9	12	162	1620
Fourth	497	95	510	8	24	281	16	189	1620
Fifth	45	Incl. in clinical work	25 + Incl. in clinical work	12	14	1404	12	108	1620
Sixth	252	22	533	141	118		14	540	1620
Total	*1874*	*230*	*3275*	*528*	*808*	*1694*	*124*	*1188*	***9720***

Table 4.2: Curriculum hours in EU-listed subjects taken by each student

Table 4.2.1: Basic subjects

Subject	Hours of training							
	Theoretical training		Self-directed learning	Supervised practical training			Other (exams)	Total
	Lectures	Seminars		Laboratory and desk-based	Non-clinical practical work	Clinical work		
BASIC SUBJECTS								
Physics	Included in the entrance examination							
Chemistry								
Animal biology								
Plant biology	Integrated in other subjects within the curriculum							
Biomathematics								

Table 4.2.2: Basic sciences

Subject	Hours of training							
	Theoretical training		Self-directed learning	Supervised practical training			Other (exams)	Total
	Lectures	Seminars		Laboratory and desk-based	Non-clinical practical work	Clinical work		
BASIC SCIENCES								
a,b,c) Integrated Healthy animal concept* - Anatomy (incl. histology and embryology) (28 ECTS) - Physiology (11 ECTS) - Biochemistry, cellular and molecular biology (11 ECTS)	318	36	700	78	183		35	1350
d) Genetics (incl. molecular genetics)	38		41				2	81
e) Pharmacology (including pharmacy)	52		72	48	8		6	186
f) Toxicology: clinical, food and environmental	29		49	4			2	84
g) Microbiology (incl. virology, bacteriology and mycology)	73		107	44			6	230
h) Immunology	30		43	6			2	81

i) Epidemiology (incl. scientific and technical information and documentation methods)	62	16	118	74				270
j) Professional ethics (integrated e.g. in animal production, meat inspection, pharmacology and introduction to clinical work)	2 + integra-ted	6	73					81
Total	*604*	*58*	*1203*	*254*	*191*	*0*	*53*	***2363***

* The “Healthy Animal” concept includes the following courses: Cells and tissues 3 ECTS, Cell metabolism 6.5 ECTS, Cell and molecular biology 3.5 ECTS, Developmental biology 2 ECTS, Histology 2 ECTS, Osteology 3 ECTS, Muscles, tendons and joints 5 ECTS, Neurobiology 3 ECTS, Blood, circulation and respiration 6 ECTS, Digestion 4 ECTS, Endocrinology, reproduction and homeostasis 6 ECTS, Applied veterinary anatomy and comparative anatomy and physiology 6 ECTS.

Table 4.2.3: Clinical sciences

Subject	Hours of training							
	Theoretical training		Self-directed learning	Supervised practical training			Other (exams)	Total
	Lectures	Seminars		Laboratory and desk-based	Non-clinical practical work	Clinical work		
CLINICAL SCIENCES								
a) Obstetrics	20	2	20					42
b) Pathology (incl. pathological anatomy)	86	12	221	22	102		16	459
c) Parasitology	40		87	6			2	135
d) Clinical medicine, surgery and anaesthetics (small animals + horses)	236	72	128		3	1036	10	1485
e) Clinical medicine and surgery in production animals (including poultry, etc.)	89		119			14	8	230
f) Field veterinary medicine (ambulatory clinics)*			45			182		227
Optional part of clinical rotation, Clinical practice						280		280
g) Preventive medicine (herd health)	33	8	35	8		12		96
h) Diagnostic imaging (incl. radiology)	24 + integrated		16		3	126	6	175

i) Reproduction and reproductive disorders	118	17	129	10	12	12	8	306
j) Veterinary state medicine and public health	32	2	60	42			2	138
k) Veterinary legislation and forensic medicine	17		17					34
l) Therapeutics (clinical pharmacology)	Integrated in other clinical courses		25				2	27
m) Propaedeutics (incl. laboratory diagnostic methods)	52		52	6	23	12	4	149
Total	*747*	*113*	*954*	*94*	*143*	*1674*	*58*	***3783***

*) Includes clinical surgery, obstetrics and reproduction in production animals

Table 4.2.4: Animal production

Subject	**Hours of training**							
	Theoretical training		Self-directed learning	Supervised practical training			Other (exams)	Total
	Lectures	Seminars		Laboratory and desk-based	Non-clinical practical work	Clinical work		
ANIMAL PRODUCTION								
					162 (extramural)			162
Animal production	10		21		3			34
Animal nutrition	41	15	81	5	4		2	148
Agronomy	3		4		1			8
Rural economics	3		4		1			8
Animal husbandry	10		22		2		2	36
Veterinary hygiene	5		11		2			18
Animal ethology and protection	10		21		2			33
Total	*82*	*15*	*164*	*5*	*177*	*0*	*4*	***447***

Table 4.2.5: Food hygiene/Public health

Subject	Hours of training							
	Theoretical training		Self-directed learning	Supervised practical training			Other (exams)	Total
	Lectures	Seminars		Laboratory and desk-based	Non-clinical practical work	Clinical work		
FOOD HYGIENE / PUBLIC HEALTH								
a) Inspection and control of animal foodstuffs or foodstuffs of animal origin and the respective foodstuff production unit	66	42	118	27	86		4	343
b) Food hygiene and technology	85		150	94	20		10	359
c) Food science including legislation	56		70	13			2	141
d) Practical work (incl. practical work in places where the slaughtering and processing of foodstuffs takes place)					160 (extramural)			160
Total	*207*	*42*	*338*	*134*	*266*		*16*	***1003***

Table 4.2.6: Professional knowledge

Subject	Hours of training							
	Theoretical training		Self-directed learning	Supervised practical training			Other (exams)	Total
	Lectures	Seminars		Laboratory and desk-based	Non-clinical animal work	Clinical work		
PROFESSIONAL KNOWLEDGE								
Practice management	30	4	47					81
Veterinary certification and report writing	3 + integrated		9			Included		12
Career planning and opportunities (e.g. in Licentiate's portfolio)	3 + integrated		5					8
Total	*36*	*4*	*61*			*Included*		***101***

Summary of Tables 4.2.1 – 4.2.6

Subject	Hours of training							
	Theoretical training		Self-directed learning	Supervised practical training			Other (exams)	Total
	Lectures	Seminars		Laboratory and desk-based	Non-clinical practical work	Clinical work		
Basic sciences	604	58	1203	254	191	0	53	2363
Clinical sciences	747	113	954	94	143	1674	58	3783
Animal production	82	15	164	5	177	0	4	447
Food hygiene/public health	207	42	338	134	266	0	16	1003
Professional knowledge	36	4	61	0	0	Included	0	101
Total	*1676*	*232*	*2720*	*487*	*777*	*1674*	*131*	***7697***

Table 4.3, Curriculum hours in EU-listed subjects offered and to be taken as electives is inapplicable in our curriculum in the suggested form, as students may choose electives freely within the given ECTS requirements. Rather, a modified table is included:

Table 4.3. Elective courses arranged at the Faculty during the academic year 2008-2009. (1 ECTS = 27 hours of student work):

Course and extent	Methods	Number of students (if limited), language (if not Finnish)	Subject group
BACHELOR'S DEGREE			
Student tutoring 2 ECTS	Participating training, acting as a tutor, report		Professional knowledge
Treatment of neonatal foals 2 ECTS	Lectures, videos, discussion, practical training, learning diary		Clinical sciences
Care and trimming of cloven- hooves in cattle 2 ECTS	Lectures, practical training, assignment		Clinical sciences
Artificial insemination 3 ECTS	Lectures, practical training, examination	20 students	Clinical sciences
Practical training 1-2 ECTS	Practice at university or e.g. at a clinic or on a race-track as a veterinary assistant. Reports.		Professional knowledge/Clinical sciences
Scientific conference 1-2 ECTS	Participation and report on learning		Professional knowledge
Practical communication 1-2 ECTS	Presenting veterinary studies at schools or in fairs		Professional knowledge
Extended Bachelor's portfolio 1 ECTS	Extended summary of portfolio		Professional knowledge
BACHELOR'S AND LICENTIATE'S DEGREES			
Applied veterinary parasitology 2 ECTS	Lectures, discussions, laboratory work, assignment	12 students	Basic/clinical sciences
The ABCs of Animal Experiments 6 ECTS	Lectures, group work, practicals, examination	English	Professional knowledge
Bee genomics, genetics and breeding 3 ECTS	Assignments, lectures, practical exercises and group work	English	(NOVA course)
Research in food and environmental hygiene: from aims to reporting 3 ECTS	Lectures, seminars, excursions, practical training, independent work including reading scientific papers, making a poster		Food hygiene/Public health
Molecular biology in typing significant microbes in food hygiene 3 ECTS	Lectures, written assignment		Food hygiene/Public health
Industrial hygiene and risk control in food processing 2 ECTS	Lectures, excursion, report		Food hygiene/Public health

Publication 3 ECTS	Published paper in the Finnish Veterinary Journal (or in a peer-reviewed international journal)		Professional knowledge
Book essay 1-2 ECTS	Essay on a book based on the student's choice		Professional knowledge
Food hygiene in the fish production chain 3 ECTS	Lectures, excursion, assignment, voluntary practical training	Practical training 15 students	Food hygiene/Public health
*Be*ef cattle "from farm to table" 2 ECTS	Lectures, assignment		Animal production, Clinical sciences & Food hygiene/Public health
Game and reindeer "from wild to table" 2 ECTS	Lectures; active participation		Animal production, Clinical sciences & Food hygiene/Public health
Research methods study group 1 ECTS	Participation in research seminars including presentation	English and Finnish	Professional knowledge
Macroscopic anatomy of wild animals and exotic domestic animals 2 ECTS	Lectures, presentations, practical training		Basic sciences
Web-based sources of information (Vivo-course) 2 ECTS	E-learning, assignment		Professional knowledge/ Viikki Science Library
LICENTIATE'S DEGREE			
Basic course in veterinary acupuncture 2 ECTS	Lectures, practical training	45 students	Clinical sciences
Equine anaesthesia 3 ECTS	Assignments, e-learning, self-directed learning	15 students	Basic/clinical sciences
Evidence-based veterinary medicine: What is it and do we have it? 3 ECTS	Lectures, e-learning, self-directed learning, assignment	15 students	Basic/clinical sciences
Small animal soft tissue surgery 3 ECTS	Assignments, lectures, practical training	20 students	Clinical sciences
Course for stud farm veterinarians 3 ECTS	Lectures, practical training	15 students	Clinical sciences
Reproduction and health care of pigs 3 ECTS	Lectures, discussions, group work, excursions, assignment	20 students	Clinical sciences, Animal production
Mare course 3 ECTS	Assignment, lectures, practical training	8 students	Clinical sciences
Udder health 3 ECTS	Lectures, e-learning, practical training, assignment	15 students	Clinical sciences
Basics of zoo animal medicine 2 ECTS	Lectures, practical training, multiple choice examination	20 students	Clinical sciences
Practical course in Swedish for veterinarians 2 ECTS	Discussions, group work, role play		Professional knowledge
Leadership in veterinary public health 2 ECTS	Lectures, assignment	15 students	Food hygiene/Public health

Table 4.4: Curriculum hours in subjects not listed in Table 4.2 to be taken by each student, including thesis work

Subject	**Hours of training**								
	Theoretical training				Supervised practical training			Other	Total
	Lectures	Supervised group work	Self-directed learning	Exams	Laboratory and desk-based	Non-clinical practical work	Clinical work		
Bachelor's thesis								162	162
Licentiate's thesis								540 or 675	540 or 675
Environmental hygiene*)	54		81	4	30	6			175
Language studies Swedish + English	92	4	93						189
Bachelor's portfolio	6		42		6				54
Orientating studies	5		34					15	54
ICT-studies	2		104	7	22				135
Scientific thinking	8		46						54
Total	*167*	*4*	*567*	*11*	*56*	*6*		*717 or 852*	***1528 or 1663***

*) Water and room air hygiene: household water, recreational water, room air; Environmental hygiene and virology: waste water, waste management, environmental effects of food manufacturing and agriculture, environmental law, law of public health

4.1.3 Further information on the curriculum

Highlights and any unusual or innovative aspects of the teaching programme

The Faculty actively promotes research-based teaching and learning. In addition to teachers, researchers at the Department of Basic Veterinary Sciences actively supervise students' Bachelor's theses. Students are encouraged to write their Licentiate's thesis in research groups of the Faculty. Many students are involved in research projects, sometimes leading to a contribution to internationally published papers. An innovative aspect of the teaching programme is the Summer School run by the Department of Environmental and Food Hygiene. This annual summer school admits a number of students by application. Students participate in various research projects of that department and work intensively in collaboration under systematic supervision, each aiming to complete a high-quality Licentiate's thesis within the summer. A report on the Summer School has recently been published in an international journal (see Appendix 1).

Development of the curriculum is also increasingly research-based. Several research projects are being performed in collaboration and under the supervision of the University's Centre for Research and Development of Higher Education. The Faculty's senior lecturer in university pedagogy is an important link in this co-operation.

The small annual intake of students has promoted the development of a coherent class system in which support from other students is evident. Students find the school-like predetermined timetable one factor that enhances the progress of their studies and helps them to concentrate on learning instead of individual course planning. The planning of the curriculum is supported by an established student feedback system.

Extensive clinical hands-on training in small groups is not self-evident and is one reason why the Faculty attracts international exchange students.

The strong "from farm to table" concept is one of the strengths of the current teaching programme.

Environmental hygiene is a valuable adjunct to the national public health concept and broadens the students' understanding of environmental health and food safety control.

At present, the strength of the curriculum is the strong base it provides for a variety of careers immediately after graduation. Orientation is possible to a limited extent by selecting elective courses and the subjects of theses according the students' own preferences. There is a close connection with working life throughout the studies, and students develop competence for certain profession-related work during studies. Most students take advantage of these opportunities and work during holidays as an inseminator, meat inspection assistant or substitute for a veterinarian in slaughterhouses or in practice.

Obligatory parts of the programme and measurement of attendance

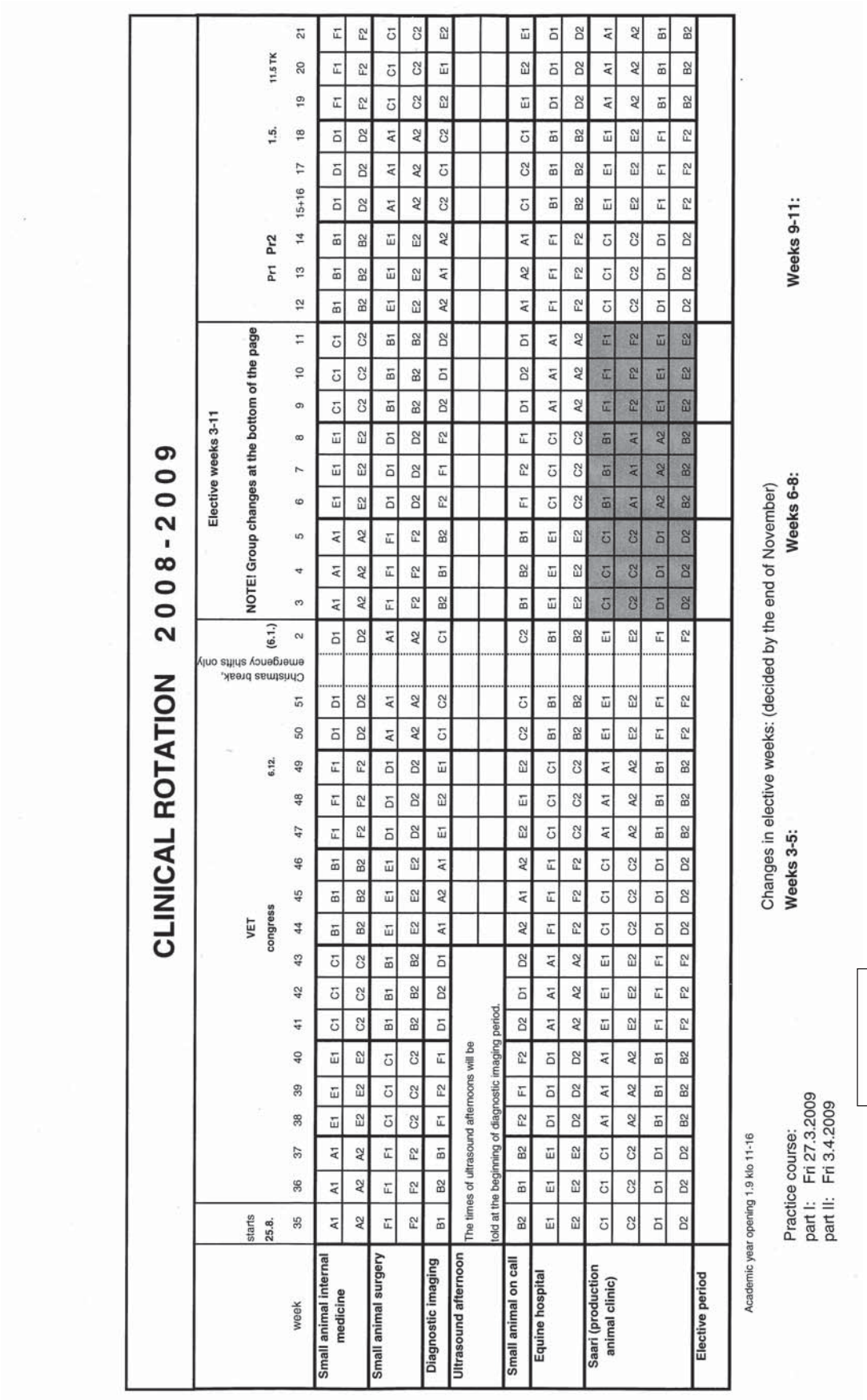
For most aspects of the programme, student attendance is obligatory. Students must pass all obligatory courses, and the case log used at the clinics confirms that students have performed all required measures. In general, lectures are voluntary (with a few exceptions), but all practical exercises are obligatory (80-100% attendance is required based on the type of exercises). An attendance list is commonly used in large groups, but is unnecessary in small groups. In some courses, student attendance and participation is measured based on the student's activity in the learning management system. Varying methods are in use for replacing absences.

Specific information on practical clinical training

Clinical training is provided at the Veterinary Teaching Hospital through obligatory clinical rotations in different areas during the nearly lecture-free fifth year (See table 4.5.). It provides the students

a lot of clinical exposure with plenty of “hands-on” work supported by a heavy caseload. Clinical rotations are a structured part of the training provided to all undergraduate students. The total number of weeks of such rotations is 36. Attendance is full-time. The group size in each clinical rotation unit is usually 8-12 students, and these students are further divided into two smaller groups, each consisting of 4-6 students.

Table 4.5: Clinical rotation at the Veterinary Teaching Hospital
(Same table as a larger picture is Appendix 3).



CLINICAL ROTATION 2008-2009

week	starts 25.8.	35	36	37	38	39	40	41	42	43	VET congress 44	45	46	47	48	49	6.12. 50	51	Christmas break, emergency shifts only (6.1.) 2	NOTE! Group changes at the bottom of the page 3	4	5	6	7	8	9	10	11	Pr1 12	13	Pr2 14	15+16	17	18	1.5. 19	20	11.5 TK 21
Small animal internal medicine		A1	A1	A1	E1	E1	E1	C1	C1	C1	B1	B1	B1	F1	F1	F1	D1	D1	D1		A1	A1	A1	E1	E1	E1	C1	C1	C1	B1	B1	B1	D1	D1	D1	F1	F1	F1
		A2	A2	A2	E2	E2	E2	C2	C2	C2	B2	B2	B2	F2	F2	F2	D2	D2	D2		A2	A2	A2	E2	E2	E2	C2	C2	C2	B2	B2	B2	D2	D2	D2	F2	F2	F2
Small animal surgery		F1	F1	F1	C1	C1	C1	B1	B1	B1	E1	E1	E1	D1	D1	D1	A1	A1			F1	F1	F1	D1	D1	D1	B1	B1	B1	E1	E1	E1	A1	A1	A1	C1	C1	C1
		F2	F2	F2	C2	C2	C2	B2	B2	B2	E2	E2	E2	D2	D2	D2	A2	A2			F2	F2	F2	D2	D2	D2	B2	B2	B2	E2	E2	E2	A2	A2	A2	C2	C2	C2
Diagnostic imaging		B1	B2	B1	F1	F2	F1	D1	D2	D1	A1	A2	A1	E1	E2	E1	C1	C2			B2	B1	B2	F2	F1	F2	D2	D1	D2	A2	A1	A2	C2	C1	C2	E2	E1	E2
Ultrasound afternoon	The times of ultrasound afternoons will be told at the beginning of diagnostic imaging period.																																				
Small animal on call		B2	B1	B2	F2	F1	F2	D2	D1	D2	A2	A1	A2	E2	E1	E2	C2	C1		C2	B1	B2	B1	F1	F2	F1	D1	D2	D1	A1	A2	A1	C1	C2	C1	E1	E2	E1
Equine hospital		E1	E1	E1	D1	D1	D1	A1	A1	A1	F1	F1	F1	C1	C1	C1	B1	B1		B1	E1	E1	E1	C1	C1	C1	A1	A1	A1	F1	F1	F1	B1	B1	B1	D1	D1	D1
		E2	E2	E2	D2	D2	D2	A2	A2	A2	F2	F2	F2	C2	C2	C2	B2	B2		B2	E2	E2	E2	C2	C2	C2	A2	A2	A2	F2	F2	F2	B2	B2	B2	D2	D2	D2
Saari (production animal clinic)		C1	C1	C1	A1	A1	A1	E1	E1	E1	C1	C1	C1	A1	A1	A1	E1	E1		E1	C1	C1	C1	B1	B1	B1	F1	F1	F1	C1	C1	C1	E1	E1	E1	A1	A1	A1
		C2	C2	C2	A2	A2	A2	E2	E2	E2	C2	C2	C2	A2	A2	A2	E2	E2		E2	C2	C2	C2	A1	A1	A1	F2	F2	F2	C2	C2	C2	E2	E2	E2	A2	A2	A2
		D1	D1	D1	B1	B1	B1	F1	F1	F1	D1	D1	D1	B1	B1	B1	F1	F1		F1	D1	D1	D1	A2	A2	A2	E1	E1	E1	D1	D1	D1	F1	F1	F1	B1	B1	B1
		D2	D2	D2	B2	B2	B2	F2	F2	F2	D2	D2	D2	B2	B2	B2	F2	F2		F2	D2	D2	D2	B2	B2	B2	E2	E2	E2	D2	D2	D2	F2	F2	F2	B2	B2	B2
Elective period																																						

Academic year opening 1.9 klo 11-16

Changes in elective weeks: (decided by the end of November)
Weeks 3-5: **Weeks 6-8:** **Weeks 9-11:**

Practice course:
part I: Fri 27.3.2009
part II: Fri 3.4.2009

A1-F2 = groups of students

Additionally, students perform their clinical practice (6 weeks, 8 ECTS) between terms, mostly during the summer. Until now three weeks of this service have taken place between the fourth and fifth year, and the latter three weeks after the fifth year. From the beginning of the academic year 2009-2010, the total length of this practice will be four weeks, all of which will be performed after the fifth year. The number of students at the hospital is lower between terms, which also affect the nature of the students' work. The purpose of this service is to further improve the students' clinical skills and to give them self-confidence for independent work. At least half of this service will take place in the unit of the student's choice.

The activities and case responsibilities in which students participate in the clinics

Clinical exercises in which students are involved prior to the commencement of clinical rotations include those in the Introduction to Clinical Work (at the end of the third year) and those integrated into the clinical modules during the fourth year, (e.g. propaedeutics in cattle and pigs).

During their clinical rotations, students participate in all the work of the clinic under the supervision of veterinary teachers and other staff. They work in the Small Animal Hospital, the Equine Hospital and the Production Animal Hospital (including the Ambulatory Clinic). Small Animal Hospital services include Policlinics, Small Animal Internal Medicine, Small Animal Surgery and Diagnostic Imaging. Students learn to handle animals, communicate with clients, assess the clinical condition of the patient on the phone and apply their theoretical knowledge in practical work. The activities and responsibilities of the students vary between the hospitals and services. In all services, students are responsible for taking a thorough medical history and performing a physical examination of all patients. Based on that, they will create a problem list, differential diagnosis and diagnostic plan which they will present to an attending clinician and with whom they will discuss the case. The guidelines for the practical work are given in each unit separately, and a detailed Operations Manual for Students is updated annually.

At the Small Animal Hospital, students discuss information about the patients the day before or latest in the same morning. In the Internal Medicine Service, the students read the referral letters and patient files the day before and present their cases in the morning discussions. The case presentation includes signalment, a problem list, differential diagnosis and diagnostic plan, all of which are discussed together with all attending clinicians.

Students are involved with all diagnostic tests performed on their patients. They are responsible for taking the laboratory samples from their patients with the help of technicians and/or clinicians. Students are also responsible for taking their patients to diagnostic imaging services and for helping with other diagnostic procedures their patients need. They will perform basic surgical procedures with the clinicians and help surgeons with more advanced surgical procedures.

Students are responsible for recording the patient's history and physical examination findings in the patient files. In surgery services, the students are responsible for describing the surgical procedures as well. They will also write the discharge statement. The clinician confirms that all the information is correct and finalises the patient files.

Students assigned to Small Animal Internal Medicine and Policlinics attend morning rounds where new hospitalised patients from the Emergency Service and new internal medicine cases are presented. The internal medicine cases will be discussed in more detail concerning their outcome with all the students of the rotation group under the guidance of the clinical teacher in charge of the afternoon rounds from 3-4 pm. The afternoon round also includes a structured interactive case discussion covering preplanned topics of small animal internal medicine that have been prepared by a clinical teacher. During the third week of the internal medicine rotation, each student presents an oral case report which is then submitted to an attending clinician as a written report. Both oral and written reports are evaluated (grade 0-5).

In the Small Animal Surgery Service, there are no morning rounds, but teaching rounds are held each afternoon for the students in policlinics. For the students working in the operating rooms, a

short summary of each patient is discussed at the end of the day.

In Diagnostic Imaging, students practice taking and evaluating radiographs. They also follow ultrasound examinations and write ultrasound reports which will be finalised by the attending veterinarian working in Diagnostic Imaging. A one-hour demonstration of clinical cases takes place every week.

In the Equine Hospital, students are divided into internal medicine and surgery. In the morning rounds, each student will present information on his/her hospitalised patients. The students will take the patient's medical history, perform a physical examination and write a problem-oriented summary (in SOAP form = Subjective, Objective, Assessment, Plan) for each patient, but unlike in the Small Animal Hospital, students in the Equine Hospital are not responsible for writing patient files or discharge statements. In the afternoon, all patients staying in the hospital overnight are shortly discussed with the emergency clinician. Teaching rounds are held once weekly on Wednesday afternoons.

At the Production Animal Hospital, appointments for farm calls are booked each morning between 8 and 9:30 am so except for regular health checks, the students cannot prepare for their cases beforehand. The students perform physical examination each day for any hospitalised patients, and present them in the teaching rounds held twice weekly.

Student involvement in the emergency and hospitalisation activities of the clinics

Students participate in on-duty work during their fourth and fifth years. The Emergency Service of the Small Animal Hospital is a part of the structured clinical rotation.

In the Emergency Service of the Small Animal Hospital, students take the patient's medical history, perform a physical examination and then present the patient to the clinician as they do during normal working hours. The problem list, differential diagnosis and diagnostic plan are then discussed with the clinician. Diagnostic procedures are performed by the students with the help of a clinician, and the students, together with clinician treat the patients accordingly. The students are responsible for recording the medical history and physical examination findings in the patient files and on discharge statements.

In the Emergency Service of the Equine and Production Animal Hospital, students treat the patients together with clinicians. The students perform a physical examination for each patient and assist the clinician with diagnostic and treatment procedures.

Students perform a physical examination for each patient, note this in the patient's files and report the findings to the attending clinician each morning. Students will present their patients during the morning rounds. They are involved with each procedure their patients will undergo while hospitalised.

Each student works in the Intensive Care Unit of the Small Animal Hospital for four to five days while assigned to Small Animal Internal Medicine. There they will be involved in all procedures performed on their patients. They are also responsible for the patient's files and discharge statement, as in all other services at the Small Animal Hospital.

At the Production Animal Hospital, students perform night checks of the patients and administer the necessary medications. They also participate in the activities of the ambulatory clinic.

Student participation in the activities of the mobile (ambulatory) clinic

The hours spent in the ambulatory clinic appear in Table 4.2.

Students participate in all activities performed in the ambulatory clinic, under adequate supervision by the teacher. A group of two to four students follows the teacher to the farms. Students greatly

appreciate the opportunity to use their hands and to be allowed to do a lot themselves. Students perform a complete physical examination and propose a diagnosis. The group of students and the teacher discuss the diagnosis, further testing and treatment. The students take further samples and administer the medications according to the teacher's orders. In surgical and delivery cases, the students (1-2 students per operation) perform the operation or procedure under the supervision of the teacher, who stands by and provides instructions. Students also take care of the instruments and medicines. On herd health (preventive medicine) visits to the farms, the students must draft a management plan.

The clinical skills of the students are monitored and assessed using a case log and learning diary, which is further discussed in teacher tutor groups. The travel time to farms is effectively used for discussions between the students and the teacher. These discussions offer a unique opportunity to handle even difficult situations and matters in a confidential atmosphere.

4.1.4 Obligatory extramural work

A fairly limited amount of obligatory extramural work (10 weeks in total, 15ECTS) is included in the curriculum. There is a four-week farm practice during the second year (two weeks in a cowshed and two weeks in a pig house), which students perform after the course on animal hygiene. During the farm practice, students usually stay on the farm, participate in all activities related to animal care and complete a detailed report which is assessed by a teacher. For several students, this is their first close contact with farm animals.

The four weeks' practical training in meat inspection during the third year takes place primarily in slaughterhouses around the country under the guidance of meat inspection veterinarians (at least two weeks in slaughterhouses for cattle and/or pigs; "red meat", a maximum of two weeks in slaughterhouses for poultry or reindeer). One or two weeks can be performed in provincial governments under the guidance of corresponding provincial veterinarians responsible for the inspection and control of foodstuff production units. Students must also write a report on this practice. During the sixth year, students have a two-week practice in control tasks in veterinary public health, which is carried out in towns or other municipal control units under the guidance of the official veterinarian. During this practice, students write a learning diary.

Additionally, during the fifth (clinical) year, students have an opportunity for extramural training in veterinary practices or with a municipal veterinarian for a maximum of three weeks.

Table 4.6: Obligatory extramural work that students must perform as part of their course

Nature of work	Hours	% of total study time (9.600 h)	Year in which carried out	Assessment
Farm practice	162	1.70%	2nd	Report
Slaughterhouse ± Provincial government	160	1.70%	3rd	Report
Health protection practice	80	0.80%	6th	Learning diary

4.1.5 Specific information on the practical training in food hygiene/public health

The general features of the extramural four-week practice in meat inspection are described in 4.1.4. Thus, all students acquire experience in “red meat” inspection. Other possible species include reindeer, sheep, horse, poultry (broiler and/or chicken, turkey) and occasionally farmed game also. Training at a slaughterhouse usually consists of a hands-on approach to meat inspection (guided by the local meat inspection veterinarian and assistants) as well as writing a report. After the second study year, students may work during their holidays as a meat inspection assistant on the factory line, and the experience acquired by this practice can be taken into account in their meat inspection practice (three weeks as a meat inspection assistant corresponds to one week of meat inspection practice). However, every student must practice at least one week in “red meat” inspection. Practice periods abroad can also be accepted.

In principle, two students work in the slaughterhouse or provincial government at a time. The nearest “red meat” slaughterhouses are located in Forssa, Mellilä and Vammala, approximately 100 kilometres from Helsinki; the farthest away is in Kemi (700 kilometers). The northernmost reindeer slaughterhouse is located in Karigasniemi, 1100 kilometers from Helsinki.

The whole food production chain is covered from “farm to table” during the studies. All red meat slaughterhouses are adjoined by a meat cutting plant, and students acquire experience at meat cutting facilities. Students also perform meat processing exercises in the foodstuff processing units of the Department of Food Technology, Faculty of Agriculture and Forestry (see section 7.1.4). Students have excursions to different types of food production plants, and during their two-week health protection practice, students participate in inspections at different food production and processing plants, grocery stores, restaurants, and catering companies in municipalities with the local authorities.

4.1.6 Ratios

General indicators (established range for denominators)

R6 = theoretical training / supervised practical training = 2104 / 3030 = 1 / 1.44 (0.51 – 0.36)

R7 = clinical work / (laboratory and desk-based work + non-clinical practical work)
= 1694 / 1336 = 1/ 0.79 (1.88 – 2.21)

R8 = self-directed learning / all teaching load = 3275 / 5134 = 1/ 1.57 (0.51 – 7.87)

Special indicators of training in food hygiene/public health (guidelines still open)

R9 = total no. of curriculum-hours in food hygiene/public health / total no. of hours in vet. curriculum
= 1400 / 9720 = 1 / 6.94

R10 = total no. of curriculum-hours in food hygiene/public health / of hours obligatory extramural work in veterinary inspection = 1400 / 240 = 1 / 0.17

4.2 Comments

The undergraduate curriculum is two-tier according to the principles of the Bologna Process. In addition to routine administrative reviewing and updating, the curriculum is under continuous development. Special attention in curriculum development has been paid to collaborative working.

In general, the curriculum prepares the graduate well for the various parts of the veterinary profession in Finland. However, national expectations in regard to veterinarians’ clinical skills and the national public health concept are high. The studies on general skills, implemented in association with the curriculum reform related to the Bologna Process, have further extended the

curriculum, but have been deemed necessary and useful. However, there is content overload in the curriculum (too much content within a given time) and thus the need for a core content analysis. This aspect is also discussed in other sections. The workload between study years is unequal even though the total number of ECTS allocated to each year is the same. In the students' opinion, the number of ECTS allocated to the courses does not always correspond to the workload of the course and must be monitored more closely. The ongoing project on defining the learning outcomes, and consequently, defining more concretely way what the student needs to know and be able to do to pass a course (and to receive a good grade) may in part also affect the perceived workload.

Students value lectures and participate in them actively, even though many of them are not obligatory. The number of lectures is high, however and more time is needed for self-directed learning. The development of teaching is a continuous process, and in-house pedagogical training at the University is well suited for this.

There is an obvious need to shift parts of the obligatory studies to the elective courses, but this must be done in a co-ordinated manner, bearing in mind the competencies that all new graduates are expected to have. The number of electives tends to be increasing, and the advanced and more systematic supply of them may serve as a transition phase for future tracking. The students greatky value the elective courses related to clinical practice, but the limited number of participants in the hands-on courses has caused some complaints. Students feel that their clinical experience is largely limited to dogs, cats, cattle and pigs; students desire training on more rare and exotic species.

The case material and advanced equipment in the Small Animal and Equine Hospital are not always considered to prepare the student for practical work in a less sophisticated environment. The practical training in Saari unit, however to some extent responds to this need. The wind-up of the agricultural section has lead to a great decline in farm and farm animal numbers in Southern Finland. A shortage of patients may at some point start compromising practical education in farm animal medicine.

The decrease in the number of farms and slaughterhouses, along with the increased annual intake of students, will create a need for rearrangements in extramural training.
From the students' point of view, having to cover the costs of the extramural practice (travel costs, accommodation) themselves occasionally causes financial problems.

4.3 Suggestions

Although some ratios (R6, R7) are not within the recommended limits, there are two things to be considered before interpretation of these ratios. Firstly, the ratios are designed to compare the most prevailing veterinary curriculum of 300-330 ECTS (5-5.5 years). In Finland the duration of basic veterinary education is longer (360 ECTS, 6 years) and therefore the comparison to a shorter curriculum should preferably be done using hours instead of ratios. Doing this, the hours of supervised practical training (R6) and clinical work (R7) better meet the requirements. Secondly, the Licentiate of Veterinary Medicine degree also gives the qualification to be an official veterinarian (EC 854/2004). The qualification requires a large number of theoretical knowledge as well as at least 200 hours of practical training under the supervision of veterinarians in slaughterhouses, cutting plants, inspection posts for fresh meat and on holdings. Thus, it can be concluded that the number of these hours should not be decreased in the future changes of curriculum.

Chapter 5: Teaching, quality and evaluation

5.1 Facts

As stated in the Introduction, several external evaluations of the Finnish veterinary education have taken place in past decade. Additionally, the quality assurance system of the University of Helsinki was evaluated in 2007. The Faculty's Operations Manual includes a section on Education. This is updated annually and is available on the Faculty's web-page. Research on teaching and learning at the Faculty is underway.

At the centre of the University's teaching philosophy are the promotion of thorough learning based on understanding, high-quality expertise and the ability to apply knowledge to problem solving. The purpose of teaching and supervision is to support learning and professional growth and to encourage lifelong learning and self-development. The instruction in veterinary medicine covers the methods of acquiring, documenting and analysing scientific and technical data. Practical training familiarises students with subjects studied in theoretical courses and provides them insight into how scientific knowledge is acquired. Students' generic problem-solving skills are developed in many ways throughout their studies.

Clinical instruction takes place in small groups and ensures hands-on experience and feedback for all. Students develop their clinical skills through their full involvement in case management under suitable supervision. The fifth (clinical) year is practically free from scheduled lectures. The instruction provided includes basic clinical training across common domestic species. To further confirm hands-on experiences, students have a case-log diary that allows monitoring of their accumulating experience. For production animals, practical work includes farm case-based training.

Those responsible for theoretical clinical teaching are also involved in the practical side, handled in the institution's clinics. Students' interest in clinical research is stimulated by introducing clinical projects to them as early as in the second year, and later by offering them an opportunity to write their Licentiate thesis as part of the Department's clinical research projects.

In veterinary food hygiene/public health, practical training familiarises students with food hygiene and control at various stages in the food chain. Students develop day-1 -competencies in the interpretation of food chain information, ante-mortem inspection and post-mortem inspection, and are trained to be able to work as official veterinarians. Environmental hygiene is an essential part of the national veterinary public health concept. Extramural instruction in veterinary public health and food hygiene training is supervised and takes place in groups small enough to ensure that all students are able to acquire hands-on experience.

5.1.1 The teaching programme

Co-ordination of teaching

The strength of – and also a challenge to the Faculty is that it has a single degree programme and a single curriculum implemented by all the departments. The clear structure of the undergraduate studies, based on defined learning objectives, supports cumulative learning and student progress. The adequate co-ordination of teaching includes the transparent distribution of responsibilities. At the University of Helsinki, the Faculty is responsible for the quality of the degrees it awards, each department is responsible for the quality of teaching and courses in its field, and each teacher is responsible for his or her teaching and assessment of student learning. Each student is responsible for his or her learning and progress in studies. To be successful, all these quarters should share a common view. Another prerequisite for management as a whole is that student feedback be collected not only from individual courses but also at the study year and degree level.

The Faculty's Academic Planning committee plays a key role in the co-ordination of teaching. The role of the Academic Planning Committee in the development of teaching in the Faculty appears in Figure 5.

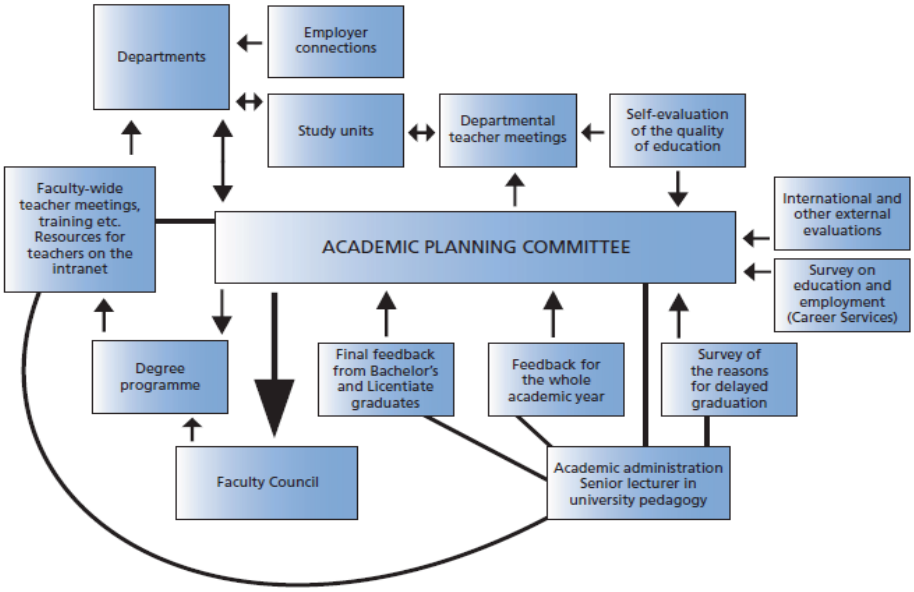


Figure 5: The role of the Academic Planning Committee

Curriculum design consists of several stages, numerous associates and various activities that take place at different, but predetermined times, as shown in Figure 6. At present, the departmental curriculum is discussed each year in the departmental steering group. During the last two years, there has been a preceding interactive "curriculum workshop" at each department, joined by the department head, teachers responsible for the courses and modules, the head of academic affairs, the planning officer for academic affairs, and/or the senior lecturer in university pedagogy. This approach has increased discussion between subjects and further strengthened the co-ordination of teaching. At the same time, it ensures that the wider Faculty view is taken into account in the departmental curricula, which are part of the whole curriculum.

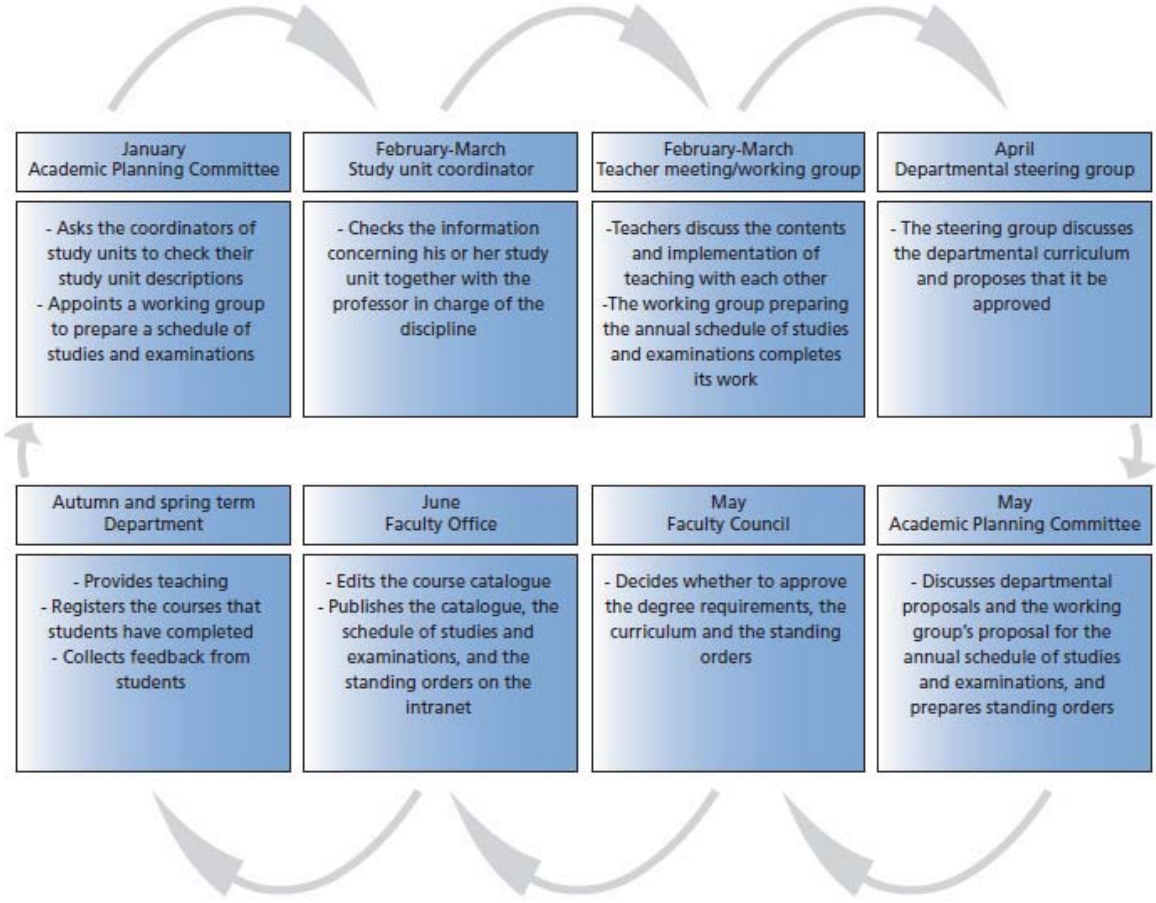


Figure 6: Curriculum design as an administrative process

Each course has a responsible teacher who co-ordinates it as a whole and who also serves as the contact person for visiting teachers coming institutions or services outside the Faculty or as Docents of the University. The same system is valid for extramural practice and for elective courses. Elective courses organised by two departments together (e.g. those related to the concept “from farm to table”) are a good example of functional co-ordination and collaboration. In conjunction with the degree reform, the Faculty established a successful practice in which the senior lecturer in university pedagogy and the head of academic affairs invite e.g. all the teachers of a study year to a “roundtable discussion”.

Departmental teachers’ meetings have been important forums for forward planning and discussion on student feedback. Teachers’ meetings at the faculty level have served to inform and to discuss matters shared by all departments, such as the ongoing process of formulating learning outcomes at the course, programme and degree level.

Since the beginning of 2009, every department has appointed one teacher who spends half of his or her workload on student counselling, quality assurance and the development of teaching. This practice has been in use for several years in one department and has been found successful. Together with the senior lecturer in university pedagogy, these committed teachers form a network that helps to strengthen the co-operation of teaching between departments and thus enhances the quality of teaching and learning.

The pedagogical approach of the institution

The pedagogical approach of the Faculty is in line with that of Helsinki University. Teaching is research-based, based on constructive alignment and student-centred. Constructive alignment refers to teaching where the objectives are appropriate and clear to the students, and the teaching methods and assessment encourage students to engage in learning activities in order to gain the desired understanding and skills. The principle of student-centredness means that the student is an active and responsible participant in the academic community. The collective creation of knowledge, supported by teaching methods that rely on seeking, producing and evaluating information in collaboration, is closely connected to student-centredness and is more and more widely used in teaching. The epidemiology module is a good example of this.

The way knowledge is organised in the whole curriculum is also important. We have actively strived to increase the pedagogical level of the curriculum by eliminating small overlapping courses and forming larger modules instead. This gives the students a better opportunity to discern the whole and concentrate on one subject at a time. We also try to encourage students to become actively involved in studying throughout the course and not just before the examination. The use of alternative assessment methods also serves as a means to set the focus on studying and learning instead of only on passing an examination.

According to the teaching philosophy of the University, teaching and studies are based on research. Teaching is based on appropriate methods that draw on the research and the development of university-level teaching and learning. It is also important to conduct research on teaching and learning at the Faculty. This is one of the responsibilities of the senior lecturer in university pedagogy. The results have been useful for improving everyday teaching and studying as well as for quality enhancement at the Faculty level. Additionally, individual teachers have analysed and reported their teaching in international journals. A list of publications related to the Faculty’s teaching and learning appears in Appendix 1.

Lecturing is still the most common teaching method. However, an increasing number of lectures includes active student participation, and lectures are used for for more than just distributing information. The concretisation of theory is important to students’ learning and thus, most lectures are illustrated by the use of real-life examples and cases. Research has shown that students consider lectures valuable for their learning and participate in them actively. Problem-based learning is seldom used in its pure form, but elements of it can be found in various teaching situations. Case-based teaching is an essential element throughout the studies. The same is

true for blended learning (combining computer-assisted learning with traditional methods). In several courses, the students practice skills to seek out, critically assess and analyse knowledge acquired using ICT. Small group teaching and learning are used to train e.g. microscopy, laboratory work, project work, formulating research plans and evaluating scientific papers. Practical exercises, especially those with hands-on experiences, are greatly valued (necropsies, examining microbiological samples, practicing surgical procedures on cadavers, clinical work).

E-learning environments are often used to support teaching and studying. In nearly every course, some learning management system (BSCW, WebCT, Blackboard, Moodle) is used - not necessarily in an interactive way, but to offer a valuable tool for the distribution of course details and materials. Most lectures (in PowerPoint form) are also displayed there. Access to the learning management system remains throughout the programme, which makes it comfortable and easy for the students to go back and review out the details taught earlier. Additionally, students may ask questions and give anonymous feedback during the course using the learning management system.

Use of course notes and standard veterinary textbooks

The students are encouraged to use veterinary textbooks, even though most of them are in English. Students greatly value textbooks written in Finnish, and some teachers of the Faculty have actively contributed to writing them (e.g. animal hygiene, anesthesiology, food and environmental hygiene). Students prefer having handouts of the teachers' PowerPoint presentations in good time before the lectures, but teachers try to leave room for the students to write their own notes. Course notes are essential in most disciplines in supplementing the textbooks, as the national context may differ considerably from that of the textbooks. In general, the aim is for the course notes to support and help one's reading of the textbooks. Based on student feedback, however, there is not always enough time to make full use of the textbooks.

In some courses (such as epidemiology and pathology), pieces of work produced by groups of students in collaboration are shared with the whole course using the learning management system. Students' theses, especially those based on a broad literature review, also offer updated material for teaching and learning purposes and have been found to be especially useful in elective courses in pharmacology.

Established or contractual arrangements that support undergraduate teaching between the Faculty and outside bodies

There are plenty of established and contractual arrangements that support undergraduate teaching at the Faculty, and those ones mentioned here provide learning experiences for all students. The Finnish Food Safety Authority (Evira) supports teaching in many ways; pathology (demonstrations), epidemiology and veterinary health service and municipal administration are good examples of this co-operation. Provincial veterinarians, representatives of the Finnish Veterinary Association, certain practitioners as well as veterinarians completing their postgraduate professional studies at the Faculty are regular members in teaching. All practical exercises related to equine reproduction (both at the undergraduate and postgraduate level) are performed at the Ypäjä Equine Centre of the MTT Agrifood Research Finland. In addition to extramural studies, essential parts of the obligatory studies include visits e.g. to different types of farms, to a dairy (Valio), to a couple of slaughterhouses (Mellilä and Forssa), to a drug processing plant, to a medical supplies processing plant (where students practice in plastering), to Finnair catering, to a water purification plant, to a fish farm and to a refuse dump (Ämmässuo).

Outside bodies, such as factories/processing plants, are also valuable in offering projects for students' thesis work. The contractual arrangements between the Veterinary Teaching Hospital and nearby rural districts are essential to obtaining clinical case material for students.

The NOVA University Network has traditionally been a platform for efficient Nordic co-operation at the postgraduate level, but has recently expanded to include undergraduate courses also.

Each term begins with a two-week period that offers an opportunity to organise undergraduate students' elective courses in any of the member countries. Students can apply for a Nordplus Scholarship grant for living expenses and travel costs.

Students get free access to the electronic Veterinary Information Network (VIN) during their studies. They find this support service useful for studies as well as for future clinical work.

There is a close connection with working life throughout the studies. An elective course in artificial insemination arranged for first- and second-year students offers an opportunity for a summer job as an inseminator to a limited number of students. After the second year's studies students may work as a meat inspection assistant, and after the third year of studies they may substitute for a meat inspection veterinarian. After the fifth year, students have the opportunity to obtain a temporary license (valid for three years) to serve as a substitute for a veterinarian in clinical practice.

The general learning objectives underlying the veterinary curriculum and how this is ensured

The learning objectives of the undergraduate curriculum were established by the Faculty's Academic Planning Committee and accepted by the Faculty Council in 2005. The requirements of the EU Directive, the University of Helsinki and the Bologna Process as well as the Faculty's own mission have been taken into account when preparing the list of objectives. The official list of objectives for the undergraduate curriculum (i.e. objectives of the degree of the Licentiate of Veterinary Medicine) is available in the study guide and includes:

- comprehensive basic knowledge of the disciplines that form the basis of the work of a veterinarian,
- the ability to make scientifically and ethically justified decisions independently and critically,
- the ability to communicate and co-operate in a variety of ways,
- the ability to perform the professional duties of a veterinarian and practice veterinary medicine independently,
- the ability to follow developments in the field and to continue learning,
- the ability to pursue further academic and professional training.

The degree of the Licentiate of Veterinary Medicine offers the information and skills necessary to become a legal veterinarian under Finnish law and to practice as a certified veterinarian in the different fields of veterinary medicine as described in EU regulations.

These objectives of the curriculum are in agreement and are supported by the learning objectives of courses and other learning opportunities within the curriculum. The curriculum also includes studies on the general skills of an academic individual, such as co-operation, communication (including language skills) and information technology and literacy skills. The Bachelor's degree provides a versatile foundation for studies towards the higher academic degree, which focuses on deepening one's skills and knowledge. The Licentiate's degree provides the student with skills and knowledge in the fields expected of an international academic professional. The Licentiate's thesis, in which students are expected to produce new information and to communicate it in public both orally and literally, shows the student's ability to fulfill most of the general objectives of the curriculum.

Day-1-skills : evidence of learning

Based on the learning objectives and content of the courses, strands, modules, clinical training and student theses, all day-1-skills are embedded in the curriculum. Thus, passing all obligatory studies ensures that the student has acquired the required knowledge and skills. All competencies listed in the day-1-skills are important, and at least basic training, providing a good readiness for further development, is given in all of them to all students. There are a few skills, however, such

as 2.1.6 (“be willing to use one’s professional capabilities…”) and 2.1.8 (“understand the need and professional obligation…”), which are more difficult to control than those written in a more concrete learning outcome pattern.

The most important studies where general professional skills and attributes are assessed include the ICT studies (a “driving license” in the beginning of studies and integrated studies later during the Bachelor’s stage), information literacy skills integrated in several courses, language studies, a personal study plan (portfolio type), veterinary ethics and animal welfare, introduction to scientific work, introduction to clinical work, the veterinarian as an officer, practice management, veterinary health service and municipal veterinary administration as well as epidemiology, pathology, clinical training and the extramural studies. In addition to examinations, there are several different types of oral and written assignments (such as presentations, reports on extramural practice, summaries of learning diaries or portfolio) which students have to satisfactorily complete to pass the course or strand.

Students acquire underpinning knowledge and understanding throughout their studies. The Bachelor’s phase is very important in regard to the sciences on which the activities of veterinary surgeons are based, and studies in the Licentiate’s phase further increase this knowledge, understanding and ability to put these in to practice. Matters related to research are included specifically in the introduction to scientific work, microbiology, epidemiology, pharmacology, clinical training (presentations, journal club), food hygiene and food inspection and environmental hygiene and toxicology. Additionally, teachers present research results in lectures. Students’ skills in scientific work are confirmed in their Bachelor’s and Licentiate’s theses. Evaluating evidence is a key issue e.g. in veterinary epidemiology, veterinary pharmacology and toxicology, clinical training and environmental hygiene.

Even though the structure and functions of healthy animals and their husbandry become most evident in the healthy animal concept and in animal hygiene, subjects such as pathology and clinical training offer further insight into this matter. Understanding the nature and treatment of common diseases and disorders, as well as the principles of disease prevention and the promotion of health and welfare, require studies not only in clinical sciences, but also those in microbiology, immunology and epidemiology. Legislation relating to the welfare of animals and medicines is part of the studies in ethics and animal welfare, animal hygiene, microbiology, pharmacology and toxicology, meat inspection, epidemiology, veterinary health service and municipal administration as well as clinical studies. Students learn veterinary public health issues (including zoonoses) e.g. in microbiology, pathology, epidemiology, meat inspection, clinical training and in food and environmental hygiene.

Practical competencies are acquired mainly in animal hygiene and farm practice, meat inspection and meat inspection practice, epidemiology, pathology, pharmacology and toxicology, introduction to clinical work, clinical modules and clinical training, food hygiene and food inspection, environmental hygiene and toxicology and related practice. Tasks related to samples and standard laboratory tests are also practiced in microbiology and immunology. At the clinic, the case log ensures the learning of skills found to be necessary for every student to be able to perform by him/herself and those they must have at least seen. Working in small groups provides the opportunity for continuous feedback, and clinical performance is assessed according to predetermined criteria. Practical competencies required nationally exceed those listed as day-1-skills at several points, especially in clinical skills and food and environmental hygiene.

5.1.2 The teaching environment

The Faculty realises the importance of the didactical and pedagogical development of the teaching staff, and each year several teachers participate in courses arranged by the University. This aspect is also generally raised in the annual personal review meetings between superior and employee and in personal work performance assessments associated with the new salary system introduced in 2006.

Available staff development facilities

The organisation of pedagogical in-house training is provided both in a centralised and decentralised (on the campuses and in the faculties) manner. The University finances the pedagogical training provided in the form of a centralised service by the Centre for Research and Development of Higher Education, located in the Faculty of Behavioural Sciences. Departments are responsible for providing teachers with training in university-level teaching and learning during working hours.

The University provides funding for lectureships in university pedagogy (a total of 15 posts) in all its faculties. The Faculty has had one of these posts since 2001. The main duties included in the posts are pedagogical research and development. In addition, the Faculty's senior lecturer in university pedagogy provides counselling and support for teachers in their daily work. Together with the Centre for Research and Development of Higher Education, the four senior lecturers in university pedagogy at the Viikki campus arrange a basic course in university pedagogy (10 ECTS) once a year. Several teachers at the Faculty have participated in the advanced course (additional 25 ECTS) and individual teachers up to 60 ECTS.

The Educational Centre for ICT provides the University's teaching staff with services, support and training related to the use of educational technology. The Centre's experts offer consultation on the use of ICT in teaching, the development of learning environments and materials, and web-based teaching. The Centre follows up and enhances the pedagogic use of the newest technological innovations. The Faculty's e-learning planner supports teachers in all matters related to the use of ICT in teaching (e.g. in the use of the learning management systems and in collecting course feedback electronically).

The senior lecturers in university pedagogy and e-learning planners together organise a meeting place for teachers at the campus level (Viklo café) four times a year (two hours at a time). Other types of co-operation (e.g. in the form of seminars, ICT workshops, etc. also take also place on a regular basis.

Available systems for rewarding teaching excellence

The veterinary students annually award the prize "Teacher of the Year", which is highly respected by the teachers. In addition, several teachers of the Faculty have been awarded prizes at the university level (the Magister Bonus, the Eino Kaila Distinguished Teacher Award, the Educational Technology Award). The teaching excellence of individual teachers is taken in account in the personal work performance assessments associated with the new salary system. Additionally, the University of Helsinki selects its Centres of Excellence in Teaching at one to three year intervals, and the Department of Food and Environmental Hygiene was selected as one of these centres in 2004.

5.1.3 The examination system

Central examination policy for the Faculty as a whole

There is no central examination policy for the Faculty as a whole, other than the regulations provided by university legislation (e.g. Regulations concerning examinations, the grading of completed studies and the board of examination appeals at the University of Helsinki, 1999). Students have the right to perform all examinations in Swedish if they wish. In general, the student must earn 60% of the maximum points to pass an examination. Grades 0-5 are generally used, except for practical skills-oriented courses, where pass/fail grading is used. The pass rate is usually over 80%. The Licentiate's thesis is graded on an eight-step Latin-language scale(ranging from improbatur to laudatur).

There are no special periods during the year for examinations. Usually the examination is in close connection with the specific course, at the end of it or at the end of some specific part of it.

In several courses there are assignments during the course that can e.g. substitute for part of the examination or give points for it. The purpose of this is to encourage the students to work during the whole course and not only before the examination. In large modules, the final grade consists of a number of grades, which diminishes the student's pressure in one single examination.
The number of examinations has markedly decreased during the last couple of years. Alterative ways of assessment, such as learning diaries, are also used in some courses and in all strands. In a few courses, the student may select between a traditional written examination and some other, predetermined type of assessment, such as problem-based case reports (in clinical pharmacology) or a learning diary (in clinical chemistry).

Several forms of examinations are used. A written examination, consisting of short, essay-type questions, is the most common examination type used. Multiple choice questions are also used. Oral examinations are an essential part of first-year practical training in anatomy. An oral group examination has been tested as part of production animal training with encouraging results. This also tests the students' ability to work as a team. Project-based group presentations, followed by experts in the field, have become a permanent procedure in epidemiology. An unlimited number of materials can be taken to the final examination of animal reproduction, which is based on problem solving. This examination has been evaluated in detail in a dissertation written under the supervision of both the Faculty of Veterinary Medicine and the Faculty of Behavioural Sciences. A good example of a practical clinical examination is the dissection examination in pathology, where students need to show their hands-on skills and be able to answer oral questions presented by the examiner. Students' skills in clinical examination are tested in the equine and small animal clinic when the students start their clinical year during which their performance is continuously assessed (case log and clinical assessment form).

No external examiners are used. Evaluation methods used in each course are introduced in the study guide and are further delineated in the course description (commonly published in the learning management system used during the course). The examination results rarely rely on the judgements of single examiners. In general, more than one teacher poses questions in each examination, and each teacher is also responsible for the assessment of his or her questions. The results of assessments are published using the students' number, not name. Failed results are expressed in public only as a total number.

Examination dates are fixed in the course schedule. Results from examinations must be available within one month. All examinations, including retakes, are scheduled at the Faculty level for the entire academic year. There are at least two retake possibilities for each examination during every academic year. The number of retakes is unlimited.

In general, students do not have to pass the examination within a certain time. There are certain points in the studies where student cannot progress unless certain examinations are passed, (e.g. a student cannot enter the course of food and environmental hygiene unless he or she has passed the courses in microbiology and immunology, pathology and meat hygiene). All first year courses must be passed before entering the third year. Most of the students have completed some previous studies at the university level in other faculties, and these are taken into account when reasonable. Thus, students have the opportunity to follow a genuine personal study plan provided that it is accepted by the head of academic affairs and the senior lecturer in university pedagogy. The ETAPPI system, described later in this section (5.1.5), offers checkpoints which allow the monitoring student progress, thus offering support as well as the opportunity to demand a personal study plan to be accepted before studies can be continued.

5.1.4 Evaluation of teaching and learning

The Academic Planning Committee assumes overall responsibility for the quality of the degrees. Since 2007, the Faculty has had its own Operations Manual, which is available on the Faculty's webpage. The Committee annually updates the part regarding Education.

The basis for assessing the quality of teaching and learning is the Faculty's established student

feedback system (Appendix 2). In 2006, the Academic Planning Committee appointed a working group, chaired by the senior lecturer in university pedagogy, to create a student feedback system and later, to monitor its functioning and to develop it. The planning officer for academic affairs was the secretary. The working group had a representative of each department (an experienced teacher) and one student representative. Most of the feedback is collected electronically and the e-learning planner is an essential part of the group.

Student feedback is being collected not only after individual courses, but also at the end of each academic year and after the competition of the degrees. In this way we provide the students an opportunity to evaluate the courses and education over a longer timeframe, rather than be limited to immediate impressions. Additionally, this type of approach offer students an opportunity to evaluate the courses of the entire academic year in relation to each other, which provides important information for curriculum planning. We do not systematically collect feedback on individual teachers, but teachers may do it themselves when they find it useful. Based on national regulations, feedback on an individual teacher cannot be seen by other teachers without his or her permission. We find that our present system allows us to identify problem points and points of excellence without identifying the individual teachers.

The feedback collected from individual courses and modules is centred on learning, teaching, alignment of the course and its workload. On the contrary, the feedback from larger entities, such as the study year or a degree as a whole, focuses on the functioning and workload of the curriculum. The Department of Production Animal Medicine has recently introduced a new way of collecting feedback in the beginning of the sixth year, when most of the students have spent the summer as a substitute for a veterinarian.

One measure included in the student feedback system is the Experiences of Teaching and Learning Questionnaire (ETLQ; OPPI-kysely in Finnish). It belongs to a research project co-ordinated by the Centre for Research and Development of Higher Education, which aims to provide information about teaching and studies in different disciplines. The OPPI-questionnaire is also part of the Bachelor's portfolio, and the senior lecturer in university pedagogy is responsible for it. At present, all first- and third-year veterinary students respond to it and receive personal feedback on their approaches to learning and guidance for enhancing their learning skills. A study psychologist participates in the feedback sessions when necessary.

Each step in the feedback system has a person responsible for it, and feedback is handled collaboratively: the course feedback in departmental teachers' meetings and feedback from larger teaching units is delivered to the disciplines concerned and is discussed in the Academic Planning Committee. One element of the feedback system is that we provide students "feedback on feedback", which is a summary of their comments and an estimate on how their feedback will be taken into consideration in the development of teaching. This may be given as an e-mail to the students, via learning management systems, using the University's intranet, in discussions with the students, or as in epidemiology, in a special feedback session where learning diaries are also returned.

The Career Services of the University collects feedback from recent graduates. Unfortunately, the response rate has been very low.

The Faculty's Operations Manual includes several indicators that are regularly monitored. In November 2008, the Faculty organised an internal audit of the quality assurance system (regarding Administration and Education). The University's Teaching Evaluation Matrix is completed in each of the Faculty's departments once a year. External evaluations of education are performed frequently, as described in the Introduction.

5.1.5 Student welfare

Measures taken to protect students from zoonoses (e.g. rabies) and physical hazards

Finnish Student Health Services (FSHS) provide preventive health care, medical care, mental health care, and oral health care for university students. As members of the student union, undergraduate students have access to FSHS. The service is available on weekdays during office hours. FSHS have a branch reception at the Viikki Campus. Students also have accident insurance, which is in force during all studies included in the curriculum.

Instruction on protection against zoonoses is included in teaching (e.g. in microbiology, pathology, epidemiology, clinical training and in food hygiene). In pathology dissections of cattle, the possibility of anthrax is the first thing to exclude.

Students are vaccinated against rabies three times during their studies: in the first and second study years, and one booster injection later by agreement. In connection with these rabies vaccinations, the students' vaccination status against tetanus can be checked. In case of exposure to anthrax, for example in post-mortem examinations, all involved will be subjected to appropriate medication.

Facilities (not related to the teaching programme) provided for students

International Mobility Services is responsible for the co-ordination of international student exchanges and for providing practical advice to exchange students and support services for the Nordplus Nordic Exchange Programme. International Mobility Services is also in charge of the overall co-ordination of the Erasmus exchange programme at the University. The planning officer for international affairs helps the students at the Faculty in exchange matters.

Nyyti – Student Support Centre is the students' own association for promoting mental well-being. Students can send mail through the website, and trained volunteers answer them. Nyyti offers confidential support for all kinds of difficult situations in the students' lives .

The University Sports Services offers a variety of sports facilities to the students. The closest gym and sports arena is located only a few hundred metres from the Faculty and offers sports activities from early in the morning until late in the evening.

The Veterinary student society (Eläinlääketieteen Kandidaattiyhdistys, EKY) is a registered association to which almost all veterinary students at Helsinki University belong. EKY aims to improve and to maintain student welfare, and to study circumstances and collaboration with the Faculty, the University and the Finnish Veterinary Association. The board of EKY and the dean meet once a month for discussion. The inspector and curator selected by EKY are additional links between the Faculty and students. EKY also frequently organizes a wide variety of educational and social events for its members. In addition, EKY and its subordinate clubs make an effort to encourage hobbies among veterinary students.

Guidance offered by the Faculty and University of Helsinki for students with problems

The quarters responsible for student guidance are described in the study guide, on the University's intranet (Alma) and in the Operations Manual of the Faculty. Students are informed of these facilities in the orientation period at the beginning of their studies. The Faculty takes student welfare very seriously, is well aware of the most common problems that may arise, and does its best to help students early with their problems. There is close co-operation between the Faculty and FSHS, which has e.g. contributed to the evaluation and subsequent reassessment of the gradually increased workload of students during clinical practice. Reasons for delaying studies have been clarified at three to four year intervals, and personal support is continuously offered to those in need.

The student affairs officials at the Faculty are responsible for student guidance and advice, the provision of information to new students, the protection of students' legal rights, the registration of

completed studies (general studies and the recognition of studies completed elsewhere), retakes of Faculty examinations and communications on academic affairs. The student affairs officials help students in all practical matters at both the departmental and faculty levels and know whom to contact if further actions are needed.

In connection with the implementation of the two-tier degree system in 2005, the University of Helsinki introduced a system of checkpoints (the ETAPPI system in Finnish) to support the smooth progress of studies and, consequently, the faster completion of degrees. In this system of checkpoints, study progress is monitored by assessing the accumulation of credits. The Faculty has determined the minimum number of credits required at each of five checkpoints. Each checkpoint has a nominated teacher for student counselling. Study progress is supported through the personal study plan and, when necessary, intensive supervision and tutoring by specified persons at the Faculty. The University co-ordinates the system and provides the faculty-specific screening of students and the relevant reports. Personal study plans were already in use before implementation of the ETAPPI system for students whose studies have been delayed (≥ 10 years).
The e-learning planner supports students in matters related to ICT and is responsible for teaching basic ICT skills.

Teachers at the Faculty are easily approachable and provide student guidance in their own field. Since 2009, each department has allocated half of the working hours of one of its teachers to student guidance, supervision, the development of teaching and curriculum planning. Providing all departments with such “counsellors” has been a strategic goal of the Faculty since the Evaluation of Education in 2001.

The Faculty senior lecturer in university pedagogy co-operates with the academic administration staff supervising students facing problems in their studies for any reason or whose graduation has been delayed. Moreover, the lecturer supervises the writing of personal study plans. She also co-operates closely with the University’s study psychologists of the University. One of the study psychologists holds reception hours at the Viikki Campus one day each week during terms.

The Student Affairs and Student Financial Aid Services of the University provide general information and advice to students, attend the University’s duties as a public authority in matters relating to student financial aid, co-ordinate the study progress monitoring system (ETAPPI) and offer special services to disabled students and international degree students. Student Affairs and Student Financial Aid Services have an office at the Viikki Campus also.

Guidance offered by the Faculty and University of Helsinki for future career development or job selection

In general, students are fairly well aware of the wide range of career opportunities already when they enter the Faculty. A variety of veterinary careers is introduced early on in the beginning of the studies and is discussed throughout. Some students mention the good employment situation and multiple career choices as reasons for choosing the veterinary field. Most of the students join the Finnish Veterinary Association already during their first year of study. This membership gives them direct access to professional information throughout their studies.

The courses “Veterinarian as an Officer” and “Practice Management” are included in the obligatory studies. Information on scientific and professional postgraduate studies is included in the Licentiate’s portfolio strain.

Career Services provide expert support services to the faculties for the development of professional orientation studies, provides services for employers that promote graduate employment as well as surveys on graduate employment, co-ordinate traineeships and offer general services in support of employment prospects. The Career Services of the University follow up on the employment and career progress of University graduates through questionnaires directed at recent graduates and subsequent follow-up surveys. Data on the employment of recent graduates have been collected since 2004, and reports on the results are published annually.

5.2 Comments

- Departmental responsibility in teaching has been valuable for the development of studies according to the needs of society.
- The veterinary curriculum is demanding, and at several points students report that content overload prevents them from using a deep approach to learning. Due to the explosion of knowledge in all fields, it is no longer possible to cover subjects thoroughly. Identifying the essential core content and defining the learning outcomes accordingly as well as getting rid of unnecessary overlapping in teaching is extremely important.
- In recent years, special attention has focused on learning as well as on the counselling and support of students. The effect of these efforts on the progress of the students' studies will likely be evident within a couple of years.
- In certain fields, the high turnover of teachers impedes the long-term development of teaching.
- According to the students, the level of individual courses varies a lot. In general, students have been very satisfied with courses that have been developed e.g. as part of the teacher's pedagogical studies. Common features of these courses include the use of assignments and project work where students work either independently or in collaboration and thus have more freedom to use their own ways of learning, unlike in traditional courses consisting of lectures and written examination.
- The multitude of e-learning management systems stems from the University's changing preferences and results in confusion for the students and extra work for the teachers.
- From the students' point of view, problems occasionally arise in printing the teachers' materials from the learning management system in good time before the lecture. Without the material, students find it difficult to benefit fully from the lecture.
- There is a need to use the learning management systems in a more interactive way to support learning.
- Students are not always aware of who handles their feedback and how it is used for the development of teaching and studies. They also feel that the number and quality of responses they get from teachers regarding their feedback varies greatly between courses. Summaries of feedback from more than one year would be beneficial for showing the trend of development.
- Based on national recommendations, there is a need to define more clearly the persons responsible for handling student feedback and ways of storing the data.
- The increase in student intake will inevitably affect small-group teaching and may also limit the development of alternative methods of assessment.
- Discussion on the national day-1-skills has begun. The requirement to become a legal veterinarian under Finnish law, and to practice as a certified veterinarian in the different fields of veterinary medicine as described in EU regulations immediately after graduation, is demanding.
- Even though FSHS functions reasonably well, the queues for certain services are long. The functions of FSHS may be centralised, and the branch reception in Viikki could be closed. This would be detrimental for students.

5.3 Suggestions

- The panel of the recent Evaluation of Education at the University of Helsinki (2007-2008) concluded that "the Faculty leadership must devise ways to review and revise the curriculum as a whole, addressing such problems as overload, updating and possible places to cut down face-to-face teaching."

Chapter 6. Facilities and equipment

6.1 Facts

The Faculty of Veterinary Medicine moved from its former premises to the University's Viikki campus in 2004 and 2006. In addition to Viikki, the Faculty also operates on the Saari estate in Mäntsälä, some 60 kilometres from Helsinki.

6.1.1 Premises in general

In Viikki, the Faculty's operations are located in the EE building (net area: 5,690 m2, gross area: 9,480 m2), the Clinicum building (net area: 6,010 m2, gross area: 10,010 m2) and what is known as the former student building. The Saari estate in Mäntsälä offers a total of 2,753 m2 for use.

The EE building was opened in 2004 and now houses the Department of Basic Veterinary Sciences, the Department of Food and Environmental Hygiene and the Faculty office.

The Veterinary Teaching Hospital in Helsinki is located in the Clinicum building, which was completed in 2006. The Hospital facilities cover 7,646 square metres. Clinicum also houses the Department of Equine and Small Animal Medicine. The building has clinical facilities for small animals and horses, offices for researchers and teachers, one lecture hall, meeting rooms and a laboratory.

The buildings on the Saari estate are of all ages. Saari is home to the Department of Production Animal Medicine, as well as the Production Animal Hospital, which is a part of the Veterinary Teaching Hospital.

The Department of Production Animal Medicine has office facilities on the second floor of the Saari estate main building. In 2003, the Department got access to a learning centre and an office building. The clinic houses offices, a laboratory, locker rooms and social facilities for the staff, storage spaces for pharmaceuticals and supplies, a garage, a demonstration hall for instruction purposes, a joint procedure and operating room, as well as facilities for animals. The Veterinary Teaching Hospital's facilities in Mäntsälä cover 1,489 square metres.
A detailed description of the facilities is provided in tables 6.1. – 6.5.

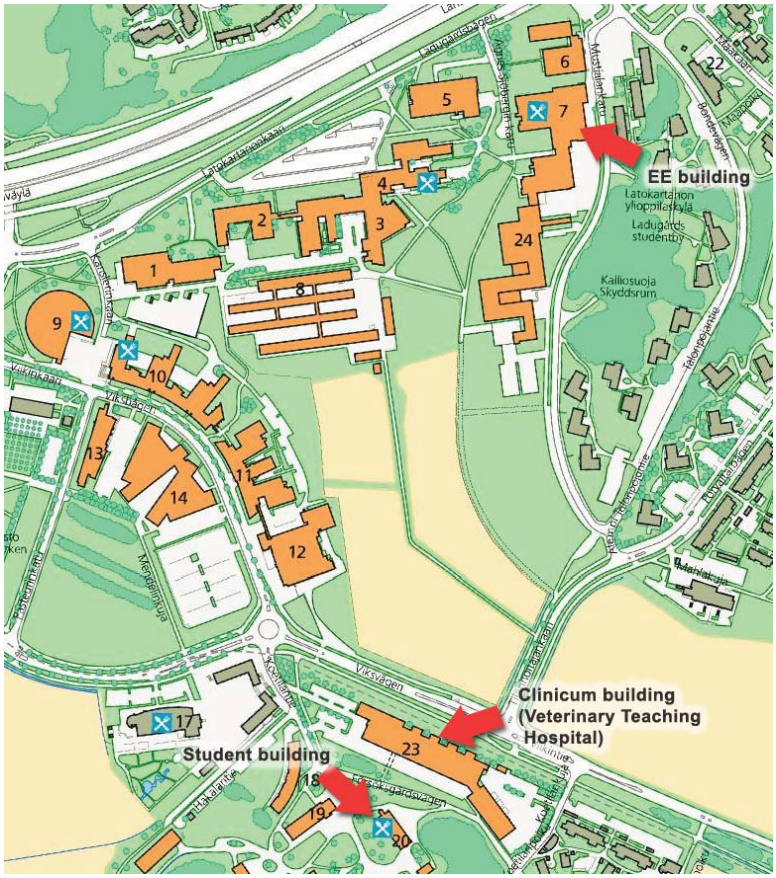


Figure 7: Faculty of Veterinary Medicine in the Viikki Campus

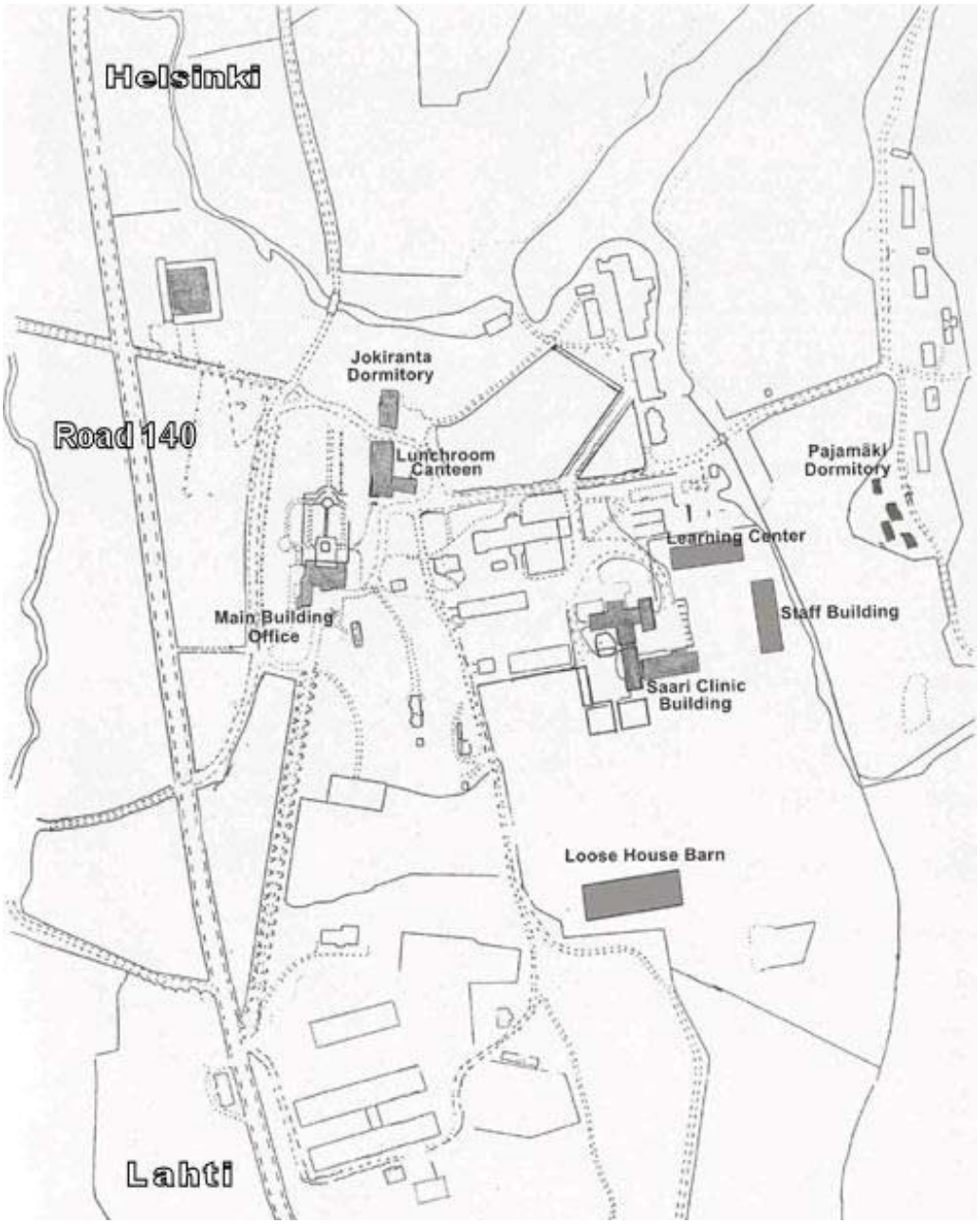


Figure 8: Map of Saari Unit: The Department of Equine and Small Animal Medicine

6.1.2 Premises used for clinics and hospitalisation

Table 6.1: Places available for hospitalisation and animals to be accommodated

	Species	**No. of places**
Regular hospitalisation	cattle	15
	horses	23
	small ruminants	7
	pigs	4
	dogs	57
	cats	29
	exotics	9
Isolation facilities	farm animals and horses • horses • small or medium-size ruminants	 3 1
	small animals	5

6.1.3 Premises for animals

The Faculty does not keep farm animals for teaching purposes, except one dairy cow and one horse in the Production Animal Hospital. When needed, teachers or students bring their own animals to be used in basic instruction. The Department of Production Animal Medicine can use the dairy herd of approximately 35 lactating cattle, owned by the Keuda Vocational College in Saari, for teaching purposes (see 7.1.3.).

6.1.4 Premises used for theoretical, practical and supervised teaching

Table 6.2: Premises for clinical work and student training

Small animals	no. of consulting rooms	21 (Viikki 19, Saari 2)
	no. of surgical suites	6 + one room for endoscopies and one for dental services.
Equine and food animals	no. of examination areas	4 equine examination areas
	no. of surgical suites	2 equine surgical suites +one large hall for cattle examination and surgery in Saari (with 3 examination stalls and a phantom for sperm collection from stallions)
Other		Hall for practical lectures and demonstrations for students

Table 6.3: Premises for lecturing

Hall	**Places**
Paatsama	70
Walter	66
Lecture Hall in the Learning Centre of the Saari Unit	50
B239 Computer class	26
Seminar room 2	18
Seminar room 10	24
Seminar rooms 11 & 12	60
Lecture hall of building E	56
Lecture hall of building D	70
Lecture hall of building C no. 1	77
Lecture hall of building C no. 2	56
Lecture hall of building B no. 1	88
Lecture hall of building B no. 2	140

Smaller lecturing rooms are also used for group work.

Some of the facilities are shared with other faculties and actors at the University of Helsinki. The Faculty does not pay rent for such facilities, but is invoiced by the hour according to the actual use of facilities (e.g., the Paatsama hall).

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

Room	Places
Alitalo seminar room	24
Oksanen seminar room	12
Westermarck seminar room	12
Sandholm seminar room	18
YES-discussion room 1	10
YES-discussion room 2	12
YES-discussion room 3	16
YES-discussion room 4	16
B239 Computer class	26
Seminar room 2	18
Seminar room 10	24
Seminar rooms 11 & 12	60
Coursehall 1	30
Coursehall 2	30
Seminar room of the Nutrition Science	30
Saari group work room	10
Saari computer class	10

NB: Rooms marked in purple in Tables 6.3 and 6.4 are used as premises for both lecture and group work.

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

Laboratory	Places
Lab. 1 (Food and Environmental Hygiene)	36
Lab. 2 (Food and Environmental Hygiene)	36
Saari: Sperm laboratory (room 108)	6
Saari: Clinical laboratory (107)	6
B437	35
B438	35
B442	32
B446	32
Dissection hall	42
Necropsy hall	25

Each facility has a building manager, who belongs to the Faculty's staff and acts as the contact person to the University's Technical Department in matters concerning the condition of facilities, change and repair needs and security. Written rescue plans, listing the risks related to occupational and fire safety, have been drafted for the facilities. The University of Helsinki has appointed

security managers and supervisors for its facilities. Different units also have individuals in charge of hazardous waste management. They are not part of the security organisation. The civil defence shelters on the Viikki campus are currently being expanded.

The laboratories are equipped with appropriate fume cupboards, and the facilities have eye-wash fountains and emergency showers, as well as fire extinguishing equipment. Protective clothing and footwear must be used in facilities where microbes or infectious materials are handled.

The buildings used for clinical work have a security organisation that functions alongside its normal work. The facilities are equipped with fire and intrusion alarms and first-aid supplies (including first aid bandages and emergency eye wash). The laboratories have modern safety equipment and cleansing facilities. Students also have access to locker rooms and shower facilities. The Clinicum building is patrolled by a night guard.

6.1.5 Diagnostic laboratories and clinical support services

Diagnostic laboratories

The Central Laboratory of the Department of Equine and Small Animal Medicine offers analytical services for the Veterinary Teaching Hospital sections and researchers in the faculty and for other partners. The laboratory is equipped with modern clinical chemistry and haematology analysers.

The laboratory receives approximately 13 000 referrals annually from the Veterinary Teaching Hospital sections in Helsinki. The number of distinct analyses performed is around 43 000. Some 2000 to 3000 requests are further remitted to specialised laboratories in Finland, in Europe or in the United States.

The Department of Production Animal Medicine has a laboratory of its own where students can practice clinical diagnostic work. The laboratory annually examines about 3000 clinical samples from patients from the ambulatory practice and from the hospital, as well as samples for research purposes. Samples mainly comprise milk samples for bacteriology and blood samples for haematology and blood chemistry, but also include sperm and other samples. Students participate in the diagnostic work and under supervision, examine samples from their own patients and participate in interpreting the results. The laboratory also provides services for research.

The Section of Pathology and Parasitology in the Department of Basic Veterinary Science provides diagnostic services for its own disciplines. Services in Pathology include necropsy as well biopsy and cytology service. Samples originate mainly from the Veterinary Teaching Hospital, but samples from private veterinarians and animal owners are also analysed. On average (2008-2006) 372 necropsies, 440 biopsy and 72 cytology samples are studied annually. Under the supervision of teachers, undergraduate students participate in diagnostic necropsy work, but the responsibility of the report rests with the teacher. Diagnostic in Parasitology small-scale activity and consists is mainly of referral sample analysis either from the Central Laboratory of the Department of Equine and Small Animal Medicine or from extramural veterinary clinics, as well as small number of feacal or ectoparasite samples from individual animal owners.

Central clinical support services

The Hospital's digital imaging unit features digital x-ray equipment, consisting of one equine and two small-animal x-ray devices, ultrasonic equipment, a computer tomograph (CT) and MRI equipment. For now, the CT and MRI devices are only used for small animals. Moreover, the small-animal dental clinic has x-ray equipment, and the small-animal internal medicine ward has two cardiac ultrasound devices and a C-arm.

The Small Animal Internal Medicine Unit is equipped with video based endoscopic equipment

for minimal invasive examination and treatment of respiratory, gastrointestinal, and urinary tract diseases with flexible and rigid endoscopy. The endoscopic service also includes diagnostic laparoscopy and endoscopic retrograde cholangiopancreatography. Endoscopic images are stored in the individual patient files.

The Production Animal Hospital has an old x-ray device for small animals and a new mobile ultrasound device for big animals. Small animals and horses are mainly anaesthetised using inhaled anaesthetic agents. The Small Animal Hospital has its own anaesthesia staff, one veterinary surgeon and four animal keepers.

Some 32 000 diagnostic tests are also performed annually by the University Veterinary Hospital personnel and students on-site or on emergency duty from 5000 referrals. Blood gas and electrolyte analysis as well as basic haematology and dry chemistry tests are available in the clinics. At the end of 2009, the Faculty's clinical diagnostic microbiological laboratory will begin operating.

6.1.6 Slaughterhouse facilities

The following description relates to the practical training in veterinary inspection carried out in the third year of studies. In the second year of studies, students attend a course in meat inspection technique, during which they are normally taken to visit a slaughterhouse. These visits were previously made to the HK slaughterhouse in Forssa or Mellilä, but in 2009 the destination is the Paimio slaughterhouse. The samples needed for laboratory exercises in the third-year meat inspection course (skin, liver etc.) have been purchased from the HK slaughterhouse in Forssa. It has also provided abnormal organs for use as teaching material free of charge (e.g., livers rejected in meat inspection).

In the third year of studies, students spend four weeks doing practical training in veterinary inspection, at least two of them in a red-meat slaughterhouse (pig/cattle), at the most two in a reindeer or poultry slaughterhouse and at the most two accompanying a provincial veterinary officer who carries out inspections in institutions. In the ideal case, students would carry out the whole four-week training in a single location, but due to the limited number of training places, this is not always possible.

Level and type of activity: about 40 visits annually, usually using staff members' own private vehicles research samples, teaching material (mostly gravid and non-gravid uteri and other urogenital organs).

6.1.7 Foodstuff processing unit

The faculty has its own processing unit for teaching and research purposes. In addition, the EE building houses foodstuff processing units of the Department of Food Technology, Faculty of Agriculture and Forestry where veterinary students perform meat processing exercises.

In Helsinki and in nearby cities, there is a number of food processing plants to which excursions are made as part of studies in food and environmental hygiene.

6.1.8 Waste management

Hazardous waste (needles, pharmaceuticals, chemicals etc.) is delivered to the University's joint hazardous waste collection spot, from where the University's centralised service takes it to a hazardous waste treatment plant for disposal.

Carcasses and other biological material are delivered for disposal to Honkajoki Oy, a company that treats animal waste and handles the nationwide collection and treatment of production animals that have perished on farms. Honkajoki Oy's plant has been authorised for the treatment of high-risk animal waste.

6.1.9 Future changes

The Faculty operates in new, modern facilities on the Viikki campus. Financial realities made certain cuts necessary during the construction of the new premises. One of these was the Equine Hospital's indoor riding arena. The Veterinary Teaching Hospital has drawn up a plan for the arena's construction in conjunction with the Hospital. Construction may become topical in the next five years.

The offices and animal spaces of the Saari estate are also in need of expansion. Preliminary surveys and plans related to these will be made in 2009.

6.2 Comments

The facilities have so far been sufficient and appropriate for the instruction of meat inspection. However, food hygiene (meat inspection) has not yet been taught to a big class of 70 students, and suspicions are that the seminar rooms cannot cater for a crowd of this size. Hopefully the Faculty can find big enough facilities for all instruction also in the future.

The facilities in the new Clinicum building are modern, sufficiently spacious and very well suited to teaching. The premises and equipment for diagnostic imaging are also very suitable for undergraduate and graduate teaching. Hopefully an examination table for horses in CT can be bought in the near future.

The teaching facilities of the Department of Basic Veterinary Sciences are generally speaking good in terms of technology, but may become too small for the growing number of students. Consequently, the number of teaching groups has to be increased, which means more teaching hours for already overloaded instructors.

Practical anatomical dissections were carried out for 70 students for the first time in the 2008-2009 academic year. Tuition was given to half of the class at that time, and the facilities were adequate. The dissection facility is also used for the technical surgery course. For necropsies, the class is divided into four groups, and fortunately the facilities are large enough. A more critical matter is the availability of dead animals; carrion for teaching is donated mainly by clients of the Veterinary Teaching Hospital. The learning centre in the EE-building features four group work rooms for 10-12 students each. The learning centre is also open to students outside official working hours. Students have access to computers in both the learning centre, when in computer room is not in use for ordinary teaching, and the entrance hall of the learning centre. Teaching equipment has been updated 2004 when the Faculty moved to its new premises, but no investments have been made since then.

Minor problems have been detected in the technology and material selections of the Clinicum building. The University's Technical Department is closely involved in the repair and maintenance of the facilities. The biggest problems are those related to the floor materials (acrylic concrete) of the Equine Hospital and the padded floors and walls of the induction/recovery rooms in the Equine Hospital's operating theatre.

Equipment is maintained as needed or according to a maintenance agreement. Small devices are sent for maintenance by the equipment maintenance staff. All diagnostic imaging devices come with a service agreement, which covers regular maintenance.

The premises of the Production Animal Hospital were built in 2006 (on a very small budget) and are no longer up-to-date. Already from the beginning, the premises were too small even for the present number of students (18-20 at a time in Saari). The whole clinic building need to be renovated and expanded. The equipment in the Production Animal Hospital (e.g. equipment for ultrasonography or phantoms for sperm collection from stallions) is partly up-to-date Other equipment is very modest and old (e.g. an endoscope is lacking, and a transferable X-ray

machine would be necessary for field practice as would equipment for inhalation anaesthesia in the small animal practice.

Owing to the increase in its research activities and the numbers of teachers and students, the Faculty may need to rent additional office space in the EE building.

The computer classroom at the moment is too small for the efficient practical teaching of larger classes.

6.3 Suggestions

In the Saari Clinic building, the hall where practice exercises and demonstrations for students take place is crowded, and the clinic building lacks changing rooms for the students. Facilities for the animals are not optimal, as ruminants, swine and horses are kept in the same stable. The barn for dairy cows needs renovation, and the isolation room is totally inadequate. Boxes for large animals (mainly equine) are too few. Staff facilities at the clinic are also very modest and more space is needed. The Department of Production Animal Medicine has recently taken the initiative to begin planning renovation of the premises in Saari.

The need for more computer-based teaching and practicals must be developed at the campus level in co-operation with other faculties at the Viikki campus.

In future, increasing the number of researchers and staff will also require more office and laboratory space. This need must be met at the campus level. Extending the EE-building towards Mustialankatu is one of the solutions which must be considered at some point in the near future.

Chapter 7. Animals and teaching material of animal origin

7.1 Facts

7.1.1 Anatomy

Table 7.1: Material used in practical anatomical training per student

Dog	2008	2007
live animals	0.11	0.13
cadavers	0.55	0.8
specimen	0.05 (skeletons)	0.05 (skeletons)
disconnected cadaver parts	fore limbs hind limbs brains	fore limbs hind limbs brains
computer assisted teaching	VIELO	VIELO

Ruminant	2008	2007
live animals	0.20	0.22
cadavers	0.08	0.08
specimen	0.03 (skeletons)	0.02 (skeletons)
disconnected cadaver parts	fore limbs hind limbs bovine GI tract caprine GI tract nongravid uteri gravid uteri	fore limbs hind limbs bovine GI tract caprine GI tract nongravid uteri gravid uteri
computer assisted teaching		

Equine	2008	2007
live animals	0.03	0.04
cadavers	0.03	0.03
specimen	0.02 (skeletons)	0.02 (skeletons)
disconnected cadaver parts	fore limbs hind limbs GI tract brains	fore limbs hind limbs GI tract brains
computer assisted teaching		VIELO: horse groin

Other	2008	2007
live animals		
cadavers	cat 0.8 pig 0.02 fish 0.16 chicken 0.21 rabbit 0.02	cat 0.55 pig 0.02 fish 0.18 chicken 0.24 rabbit 0.02
specimen	0.03 (skeletons)	0.04 (skeletons)
disconnected cadaver parts	cat fore limbs cat hind limbs porcine GI tract porcine genitals	cat fore limbs cat hind limbs porcine GI tract porcine genitals
computer assisted teaching		

Live animals: 1 horse at the teaching hospital, 5-6 cows at the experimental farm in Viikki. Students bring their own dogs for live anatomy and physiology exercises.

Apart from brains, all dead material is unfixed and comes from the teaching hospital, facilitated by the Division of Pathology. The customs of teaching hospital provide for the possibility to donate euthanised animals for teaching purposes. The staff of the Division of Pathology allocates material for pathology, surgery training and anatomy teaching purposes. The material is frozen and thawed before the anatomy dissection course. Horse legs are usually removed from the cadaver after autopsy and are frozen for anatomy teaching. Occasionally, whole animals are frozen. In this case, when adult cattle are stored, formalin is administered to the rumen prior to freezing.

The 2008 figures correspond to study year 2008-2009. For study year 2007-2008, the amount of material per student was roughly the same as in 2008-2009.

Students of the microbiology make one analysis from the clinical sample of the animal origin. The sample may consist of several parts (one to five per pair of students).

7.1.2 Pathology

Table 7.2: Number of necropsies over the past three years

	2008	2007	2006	
Food-producing animals				
Cattle	77	77	57	70
Small ruminants	4	4	7	5
Pigs	5	30	11	15
Other farm animals				
Equine	62	62	30	51
Poultry				
Rabbits				
Euthanised animals used only for pathology training	190	160	223	191
Companion animals/exotic				
Dogs	162	190	132	161
Cats	58	69	41	56
Other	8	18	12	13

During the academic year, undergraduates visit weekly the Department of Pathology, Finnish Food Safety Authority Evira, which is located next door to the pathology unit of the Faculty. At Evira, they collect all material of teaching value from the material they handle during the week. There, students observe demonstrations of typical pathoanatomical lesions seen in their cases. The material includes farm and companion animals, as well as a good number of pigs, poultry, fur animals, and farmed fish. The material also includes some cattle and small ruminants. For pathology necropsies, students are divided into four groups and each individual student performs a necropsy (either alone or in groups of 3-4 student) of 21 animals during their pathology rotation and must participate minimum of seven Evira teaching sessions. The material in Table 7.2 includes only annual diagnostic samples. In addition to this, an annual average of 191 euthanised animals donated for teaching purposes are used for undergraduate teaching (2008: 190, 2007:160, 2006: 223). This material includes mainly dogs and cats, but also horses and a few cattle, rabbits and pet birds; however no statistics are kept on the animal species level. During the teaching year, students conduct the necropsies under the supervision of the pathologists.

Althought rabbit farming is very minimal in Finland, rabbits are occasionally the subject of necropsies as companion animals and are included mainly in the table of euthanised teaching material obtained from the teaching hospital.

7.1.3 Animal production

The Department of Production Animal Medicine can use the dairy herd of approximately 35 lactating cattle owned by the Keuda Vocational College in Saari, for teaching purposes. These cattle are used for practicing the clinical examination of cattle as well as for practice exercises in bovine gynaecology. For practice exercises in horse reproduction, horses owned by Agrifood Research Finland, Ypäjä, are used. The ambulatory clinic of the Production Animal Hospital receives about 2200 farm visits annually. There are also five to six cows on the experimental farm in Viikki.

7.1.4 Food hygiene/public health

The four weeks' practical training in meat inspection during the third year takes place primarily in slaughterhouses around the country under the guidance of meat inspection veterinarians The samples needed for laboratory exercises in the third-year meat inspection course (skin, liver etc.) have been purchased from the HK slaughterhouse in Forssa as mentioned in chapter 6.1.6.. It has also provided abnormal organs for use as teaching material free of charge (e.g., livers rejected in meat inspection).

All students complete a four-week training period at a slaughterhouse to learn how to do ante-mortem and post-mortem inspection in practice. Before slaughterhouse training, students carry out laboratory tests required in meat inspection with real samples collected at the slaughterhouse.

All students learn to make several meat products (cooked sausages, salami, canned meat products and liver pâté) in order to understand the technology and preparation of different meat products. The safety and quality of different types of food products of animal origin, including fish products, are tested in laboratory exercises at the Department of Food and Environmental Hygiene.

In Finland, veterinary officials have a large responsibility for public health, including the food safety and quality of all kinds of food products at the local level in cities as well as at the national level. In addition, official veterinarians are also responsible for environmental hygiene such as water hygiene. Consequently, food and environmental hygiene training must provide students with a solid background and knowledge in food and environmental hygiene to fulfill the demands of society.

7.1.5 Consultations and patient-flow services

Consultation

The Veterinary Teaching Hospital offers services 52 weeks per year. All weekdays except for holidays are available for consultation. Consultation hours are held mainly from 08:00 to 16:00 on weekdays, and on Fridays until 14:00.

In the Small Animal, Equine and Production Animal Hospital, during the semester students participate in the daily work during working hours, when two or three students are on duty. During the holiday season, students work in smaller groups, but some students are always present.

Patient flow

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

Species	**Number of cases**						**Average**
	2008		**2007**		**2006**		
	a	**b**	**a**	**b**	**a**	**b**	
Food production animals	**27**	**254**	**26**	**213**	**25**	**225**	**257 (256.66)**
• Bovine	9	220	13	175	13	192	
• Ovine, caprine	18	34	13	38	12	29	
• Porcine						4	
• Other farm animals	2*	6*		2*			
Poultry				1		2	
Rabbits	205**		215**		170**		
Equine	2258	na.	2185	na.	1958	na.	2134 (2133.66)
Companion animals/exotics	**14342**	**2775**	**13138**	**2531**	**13147**	**2906**	**16 280 (16279.66)**
• Canine	10693	2321	8533***	2160	8424***	2236	
• Feline	3119	454	2291***	371	2422***	670	
• Other	530		549		826		

* Alpaca, mini swine
** Pet cottontails at the Small Animal Hospital
*** Information inaccurate due to the previous software used for patient recording

7.1.6 Vehicles for animal transport

The Equine Hospital's customers transport their horses to the Hospital for treatment. The Production Animal Hospital has an animal trailer for horse and cow transports, and the Faculty has a lorry for the transport of carcasses.

7.1.7 On-call emergency service

All of the Veterinary Teaching Hospital units are on call 24 hours a day, making it possible to treat all production animals and pets. At weekends, the Small Animal Hospital provides backup duty personnel in surgery and internal medicine. The Equine Hospital always has a backup person on call in surgery. The on-call arrangements at the Production Animal Hospital are described under 7.1.8.

7.1.8 On farm teaching and outside patient care

Ambulatory (mobile) clinic

Emergency services are open day and night all year round (362 days). One veterinarian and two to three students are always on duty; duties are shared between the students so that during semesters, each student completes with approximately two rounds of night duty and one weekend. In the clinical practice (during holidays), students have more duties.

The Production Animal Hospital has six cars: two five-seat cars (Skoda) and two minibuses, which can seat up to eight students. One car (a five-seat Toyota Land Cruiser) is also used for duty service, and one car is used mainly for animal transport with the trailer.

The Production Animal Hospital also features an ambulatory (mobile) clinic, which has contracts with the surrounding municipalities of Mäntsälä, Pukkila, Orimattila, Myrskylä, and Artjärvi. The practice area reaches approximately 60 km to the east, 20 km to the west and 40 km to the south and north. Based on the contracts the Production Animal Hospital is responsible for providing legal veterinary services, which include basic health care for all animal species and 24-h emergency service all year round. The hospital is responsible for all animal health care in Mäntsälä day and night; in other regions, emergency services for small animals are limited to the daytime during weekends. The majority of patients in the practice are farm animals. At the moment, approximately 190 farms are located on the practice area, most of which are dairy farms. The total number of dairy cattle in the practice area is about 2300 cows. Of the other farms, 15 keep horses, 15 have beef cattle, 7 have pigs and 2 have sheep.

The number of dairy farms has in recent decades dramatically decreased in the area, while at the same time the mean herd size has increased. The number of pig herds has decreased even more. In addition to the practice area, large farms outside the area are visited either on a regular basis (swine herds and dairy herds) or ad hoc, for example, to consult with farmers on disease problems. The number of farm visits per year is about 2200, including approximately 200 herd health visits.

During working hours from Monday to Friday, three to four veterinarians handle routine calls and herd health visits, always together with students (4-5 students/teacher). Practical exercises in reproduction (obstetrics, gynaecology, andrology) take place during the clinical rotation, and one group of students is exempt from practice during those days. One veterinarian works weekday nights, and during the weekends, duties are shared mostly between two vets. About 34% of visits occur during onduty time, (i.e. from 4 pm to 8 am and at weekends.

Once in a week, staff from the Helsinki Equine Hospital either perform emergency services or pay visits during office hours to the stables or to the production animal farm nearby. A seven-seat Land Rover is available for farm visits and emergency services. Emergency services can be provided 24h, but normally operate on-duty hours (4pm to 8am and weekends). Patient number is not recorded separately from in-house patients.

Table 7.4: Number of cases seen by the Ambulatory (mobile) Clinics in the past three years

Species	**Number of (patients) farm visits*** 2008**	**2007**	**2006**	**Average**
Food production animals	**2209**	**1774****	**1873****	**2209**
• Cattle • Small ruminants • Pigs • Other farm animals**	1527 32 102	* * *	* * *	
Poultry (no. of flocks)				
Rabbits (no. of production units)				
Equine	478****	*	*	
Other	68	*	*	

* Due to the previous software used for patient recording, these data are unavailable.
** Due to the previous software used for patient recording, these numbers may be too low.
*** The exact number of patients seen during the visits is unavailable. On average, 2-20 (up to 50) cattle and 5-15 swine (up to 50) are examined or treated per a single visit. During on-duty hours, the numbers are lower, and 1-2 animals per visit are treated.
**** Visits from the Production Animal Hospital

7.1.9 Other information

Referral patients account for 10–20% of all patients at the Small Animal Hospital. At the Equine and Production Animal Hospitals their share is under 10%. The Veterinary Teaching Hospital aims to raise the share of referral patients. Small animal cadavers are obtained as donations from owners.

The Small Animal Hospital is divided into surgery, internal medicine and on-call units, each of which has its own staff. Some of the staff members are on the Hospital's payroll and others on the Department of Equine and Small Animal Medicine's payroll. The services of the Small Animal Hospital include cardiology; digestive, respiratory and urethral diseases; haematological diseases; endocrinological disorders; infectious diseases; oncology and blood service. The surgical unit offers services in orthopaedics, soft tissue surgery, neurology, anaesthesia, ophthalmology, oral and dental diseases and physiotherapy. The on-call unit provides service in general veterinary medicine 24 hours a day. The emergency unit serves the entire Small Animal Hospital. The Small Animal Hospital employs veterinary surgeons, with a European or American Specialist degree, in soft tissue surgery, neurology and oral and dental diseases (2 days/week). There is also a resident programme in neurology, ophthalmology, small animal surgery and veterinary pathology funded from external sources.

The Small Animal Hospital is the only veterinary hospital offering a full range of services in all of Finland. Competition is mainly found in a small number of special fields.

The Diagnostic Imaging unit serves both the Small Animal Hospital and the Equine Hospital. The unit has one veterinary surgeon with a European Specialist degree. The unit is Finland's only one offering one-stop service in the field. Among others, the Diagnostic Imaging unit consults with outside veterinary surgeons and animal breed associations.

This unit has the licence to train a resident for specialisation for the European College of Veterinary Diagnostic Imaging Diplomate = Dip ECVDI. At the moment, one resident is taking the theoretical examination for this degree.

The Equine Hospital is divided into internal medicine and surgery units. Its services include treadmill testing, soft tissue and orthopaedic surgery, endoscopy, intensive care and intensive care for foals. There is a blood bank for horses. Equine surgery employs one veterinary surgeon with a European Specialist degree. One veterinary surgeon with a Specialist degree in internal medicine and another with a Specialist degree in surgery will join the Hospital in summer 2009. A private equine hospital, with nearly the same service range, is located around 60 kilometres from the Hospital.

In addition to the basic health care of the animals, the Production Animal Hospital offers expert services which include herd health visits and expert consultation in animal health problems. The hospital in Saari takes farm animals for surgery and for the intensive treatment of different diseases and reproductive disorders. Most patients are cattle, but small ruminants and horses are also included. Experts from the Department of Production Animal Medicine participate in herd visits and in the treatment of hospitalised patients. They have expertise in the internal and surgical diseases of farm animals, and in all animal species in reproduction. The academic staff at the Production Animal Hospital and Department of Production Animal Medicine provides advisory services to private practitioners and animal owners by phone and via e-mail. There is no private veterinary practice in Finland with such expertise and services as those provided by the Production Animal Hospital. This is also the only clinic in Finland which can offer hospital-level treatment for farm animal species. The patients come to the hospital from an area of about a 100-km radius, tough sometimes from even further.

Computerised patient records are maintained with special software (Provet) adapted separately for companion animals and farm animals. Students enter patient records into the system after the daily rounds and also during farm visits. Data can be used for research purposes. The data

system includes all clinical work, patient records, diagnostic imaging reports and x-ray pictures, pathology statements and laboratory diagnoses. System and all patient records are accessible throughout the Faculty premises.

For training in reproduction, organs from different species are purchased from the slaughterhouses. Stillborn calves are acquired for obstetrics from farms near the Production Animal Hospital.

In May 2009, a veterinarian (intern in equine medicine) will launch an ambulatory horse practice in the surroundings of the hospitals of Saari and Helsinki. This veterinarian will handle of calls for horses in the practice area of Saari, and also will work part-time in Helsinki. The purpose of this (thus far temporary) experiment is to improve teaching in equine ambulatory practice and to recruit more patients to the Equine Hospital in Helsinki.

Several factors affect the number of farm visits of the Production Animal Hospital: the practice area, prices, the structure of herds and national developments as regards herd health management. The number of herds will likely continue to decrease in the practice area of the ambulatory clinic; expansion of the area is expected in order to maintain the present amount of clinical material available for teaching. The Production Animal Hospital operates based on contracts, and has not actively advertised its services. The number of herd health visits could increase, which would be necessary for more efficient teaching, but more staff would thus be necessary. The number of hospitalised patients reflects the number of animals in the area, but could also be affected by price policy if desired. The fees for the clinical services of the hospital are decided by the Board of the University Animal Hospital; these services have been expanded in recent years to be comparable with those of the municipal veterinarians. Daily prices at the hospital have thus far been reasonable, in order to ensure that enough farm animal patients are available for teaching purposes.

Expanding the practice area of the ambulatory clinic is an opportunity which should be examined. There may be an opportunity for this in 2009 as one municipal veterinarian is retiring in the neighborhood of Saari. More acute cases for teaching would be necessary to teach the present number of students (> 70). However, it may be unrealistic to expect that more than the present four groups of students per day could ever be taken into practice in Saari. The daily practice expanding the number of and herd health visits would require more teachers.

7.1.10 Ratios

Table 7.5: Animals available for clinical training (in the clinics of the Faculty or seen through the Ambulatory Clinic) as a ratio to the number of students in last full year of clinical training

R 11:	no. of students graduating annually / no. of food-producing animals seen at the Faculty*	=	49 / 257	= 1 / 5.2	Denominator 5.2
R 12:	no. of students graduating annually / no. of individual food-animal consultations outside the Faculty**	=	49 / 2209	= 1 / 45.1	Denominator 45.1
R 13:	no. of students graduating annually / no. of herd health***	=	49 / ~175	= 1 / 3.6	Denominator 3.6
R 14:	no. of students graduating annually / no. of equine cases*	=	49 / 2134	= 1 / 43.6	Denominator 43.6
R 15:	no. of students graduating annually / no. of poultry/rabbit cases* (poultry: none)	=	49 / -	= 1 / -	Denominator -
R 16:	no. of students graduating annually / no. of companion animals*	=	49 / 16280	= 1 / 332.2	Denominator 332.2
R 17:	no. of students graduating annually / Poultry (flocks)/rabbits (production units)** (poultry: none)	=	49 / -	= 1 / -	Denominator -

***** Table 7.3.
****** Table 7.4 and information from the chapter 7.1.8.2.
*** chapters 7.1.8.2. & 7.8.1.

Table 7.6: Animals available for necropsy

R 18:	no. of students graduating annually / no. necropsies food producing animals + equines	= 49 / 141 (90+51)	= 1 / 2.9	Denominator 2.9
R 19:	no. of students graduating annually / no. poultry/rabbits*	= 49 / -	= 1 / -	Denominator -
R 20:	no. of students graduating annually / no. of necropsies companion animals	= 49 / 230	= 1 / 4.7	Denominator 4.7

*Cases of poultry pathology are demonstrated for students at Evira, but the rabbit industry in Finland is almost non-existent.

7.2 Comments

- The service offering and patient numbers of the Small Animal and Equine Hospitals are expected to remain stable in the future. There is no need or intention to make radical changes to the service range in the coming years. There are signs of budding competition in on-call operations, but this is not considered to be a threat because of the municipal on-call veterinary surgeon system. The Production Animal Hospital aims to slightly expand its present operating area to secure the patient base.
- Food Animal Hospital would need more practice area to maintain the sufficient number of farms and patients for teaching, but this has proven difficult.
- The Dipl. ECVP residency training programme on external funding 2009 has begun in the Division of Pathology. This may increase the Division's capacity to perform diagnostic services for extramural clinics as well as for research groups.

Chapter 8: Library and learning resources

8.1 Facts

The University of Helsinki Libraries is a network organisation that comprises of four campus libraries, faculty libraries and the Undergraduate library. This network will be reorganised, and from the beginning of 2010, will form a single unit. The campus and faculty libraries are responsible for providing library and information services within the fields represented by the faculties on the campus. On the Viikki campus, the following libraries formed the Viikki Science Library in 1999: the Agricultural Library, the Library of Forestry, the Science Library, the Biocentre Library, the Veterinary Medicine Library and department libraries.

The Viikki Science Library is owned by the four faculties (Agriculture and Forestry, Biosciences, Pharmacy, Veterinary Medicine) and research institutes (Neuroscience, Biocentre) located on the Viikki campus. Each faculty has one member on the Library Board, and the rest of the members are from the library staff, research institutes and students. At the moment, two of the student members are veterinary students. The Viikki Science Library focuses on the following subject areas:

- Agriculture,
- Biosciences and biotechnology,
- Ecology, systematics and environmental sciences,
- Economics and social sciences,
- Food science,
- Forestry,
- Home economics and consumer research,
- Pharmacy,
- Veterinary Medicine.

The Library has three advisory boards with members representing teachers, researchers and students, so that the primary customers are able to contribute to the development of the library.

The Viikki Science Library is involved in the co-operation with the NOVA libraries (NOVA = the Nordic Forestry, Veterinary and Agricultural University Network), serves as the national deposit library of FAO publications as well as the information centre of FAO, and is involved in the European Association for Health Information and Libraries. The primary target groups of the Viikki Science Library are the students and staff of the four faculties mentioned above.

The Viikki Science Library provides staff and students access to the National Electronic Library, FinELib, and through that, access to ca. 20 000 e-journals, 131 databases and almost 300 000 e-books. In addition, the Viikki Science Library subscribes to 342 e-journals that are not included in the FinELib collection. The number of printed journals is 2300, and there is an extensive book collection. Through the Nelli-portal (National Electronic Library), staff and students also enjoy access to the electronic material also from home.

The staff of the Faculty is annually asked to name titles that they wish to see in the library. The Viikki Science Library also receives a list of all textbooks mentioned in the Faculty's study guide and acquires at least two copies, usually four or five, of each. The Library staff also checks whether electronic versions of textbooks are available. All the books and journals are catalogued and indexed in the electronic catalogue of the Helsinki University Libraries, Helka.

The Viikki Science Library is responsible for the electronic publishing of degree and doctoral thesis.

The Viikki Science Library has 40 full-time employees, and the full-time equivalent of the part-time employees is four. Each subject area has its own subject librarian (subject specialist) nominated by the Library Board. The subject specialist in veterinary medicine is the link between the Faculty and the Viikki Science Library. She also ensures that the financial input from the Faculty is spent on benefit of veterinary medicine, oversees over the collection of veterinary titles in the library, is responsible for the description of the collection, and teaches information literacy. The subject librarian is a consultant member of the Faculty's Academic Planning Committee.

On weekdays during the term, the library is open from 8 am to 8 pm, on Saturdays from 10 am to 4 pm, and is closed on Sundays. During vacations, the opening hours are Monday from 9 am to 6 pm, and Tuesday to Friday from 9 am to 4 pm; on Saturdays and Sundays, the library is closed. The Information desk of the library is open from 10 am to 4 pm on weekdays. During 2008, there were 250 338 visits (entrances) to the Viikki Science Library.

The total number of study places in the Viikki Science Library is 381. The self-study room is available 24 hours each day once the student has signed for a key. In addition, the veterinary students have five group-study rooms in the learning centre of the EE building.

The Faculty of Veterinary Medicine has two small reference libraries: one in the Clinicum building and the other in connection with the learning centre in the EE building. The students have 24-h access to the reference library in the Clinicum, and in the learning centre the library is open from 8 am to 6 pm. Also, the books in these reference libraries are catalogued in the Catalogue of Helsinki University Libraries, Helka.

In connection with the learning centre in the EE building there is a computer class for veterinary students with 31 computers, and each of the four group-study rooms has one computer. The students have access to this class 24 hours per day. The class is also used for teaching during undergraduate and doctoral courses. Another 18 computers are available in the hallway of the EE building. The Clinicum has a corner with 11 computers, and each of the group-study rooms has one computer. The students that work in the animal hospital can also use their own computers. In addition, there are two computer classes in the Viikki Science Library.

The Viikki Science Library is responsible for the teaching of information literacy. The ICT driving licence (3 ECTS) is included in the obligatory Bachelor's studies. The studies on information literacy are partially integrated into the veterinary curriculum. The first-year students learn to use one reference database (PubMed) in their problem-based projects. For the second-year students, information literacy is part of the Bachelor's thesis project. This includes a lecture on literature searching and personal training on the student's own topic. Before attending the clinical studies, there is a course on Evidence-Based Medicine, which includes a literature search of databases used in the clinical sciences (CAB and Medline). For students who are beginning their Licentiate's thesis, the Viikki Science Library arranges courses on RefWorks and advanced literature searches that focus on their own topics. All information literacy is taught by the library subject specialist in veterinary medicine with teachers of the Faculty assisting in the subject matters. The teaching of information literacy is similar in all four faculties of the campus, but each has its own subject specialist.

8.2 Comments

In general, the Library works well and co-operation between the Library and the Departments works smoothly. The library has a subject specialist dedicated to veterinary medicine.

All the textbooks used in the Faculty are available in the Viikki Science Library,and other books are purchased by request of the staff of the Faculty. All e-journals are available online 24 hours every day, as are the reading room in the library building and the learning centre. The Nelli portal, which also allows access to electronic material also from home, is greatly valued.

The Faculty has a computer class with 31 computers, which have sufficed when the student intake was 55 students. Now that the intake is 70, it is impossible to place all 70 students in the computer class, and even for half of the annual intake (35 students), there are not enough computers for all. There are computer classes available in the other faculties on campus. Students use the computers of the Faculty a lot also outside contact hours, and their number needs to be increased. This is especially situation in the Clinicum.

From the students' point of view, integrating information literacy into subject studies and the thesis projects is a positive experience.

Chapter 9. Student admission and enrolment

9.1 Undergraduate courses

9.1.1 Undergraduate student numbers

The education programme is six years (BVM + LVM) long and in 2008 the average duration of studies was 6.3 years (median). LVM equals to international DVM.

Table 9.1: Undergraduate student composition in 2008

Total number of undergraduate students	**408**
Total number of male students	34
Total number of female students	374
Foreign students (from EU countries or non-EU countries)	0

9.1.2 Student admission

In line with the strategy of the University of Helsinki, the Faculty aims to pick out the best and most motivated applicants. It co-operates with Finnish faculties of medicine in the field of students admissions. The co-operation is co-ordinated by the national admissions committee for medical disciplines. The continuous assessment and development of the nationwide entrance examination is handled by the national committee for the development of the medical entrance examination, while the practical arrangements for the entrance exam are the responsibility of the national committee for the medical entrance examination. The Faculty is represented in all of these committees, and it is actively involved in drawing up exam questions focusing on biology, chemistry and text-based problems.

What co-operation in the field of admissions means in practice is that all faculties give the same exam at the same time. The exam contains questions that integrate physics, chemistry and biology, as well as text-based problems. The questions are based on the entrance exam literature and on a handout distributed in the exam. All faculties use the same exam literature, which is developed through national co-operation. Common nationwide policies concerning, for example, the admissions criteria and practical exam arrangements, are also agreed annually.

The latest national development project for medical student admissions was carried out in 2007. It led to the decision to further unify student admissions, for example, by harmonising the admissions criteria in medical fields.

According to the Faculty's admissions criteria, every applicant must participate in the entrance examination.

Applicants must be eligible for university education, which means holding, as a minimum, vocational qualifications awarded after three years of education. In practice, however, over 90% of the applicants have completed a Finnish matriculation examination or hold an international (IB, RP or EB) diploma. Applicants with a Finnish or international diploma are awarded initial points in student admission. Half of the new students are selected on the basis of the sum total of initial scores and points earned in the entrance examination, while the other half is selected solely on the basis of points earned in the entrance examination.

A successfully completed entrance examination and a matriculation examination as the basic education ensure that all new students have very similar basic skills in physics, chemistry and biology. Of the annually accepted students, only around 30% have completed their matriculation examination in the year of application. Many of those selected have studied natural sciences at

the university for a year or two before being accepted. Furthermore, among new students, the share of those with a prior university degree has increased in recent years.

The Faculty's Admissions Committee develops the admission of students to the degree programme in veterinary medicine and prepares admissions criteria. The chair of this committee is the vice-dean in charge of undergraduate education, and its secretary is the head of academic affairs. The Committee members include representatives of all the Faculty departments and the students, as well as the Senior Lecturer in University Pedagogy. The admissions committee annually discusses the number of new students. The admissions criteria are confirmed once a year by the Faculty Council.

The number of new students is carefully defined for each year. Since 2008, the Faculty has admitted 70 new students per year (previously 55).

The University also discusses the number of new students with the funding party, that is, the Ministry of Education, and the University Rector discusses the matter with the Faculty. To date, the number of new students has been confirmed annually, but the goal is to adopt long-term planning to better link the number of new students to the University's operations management process. The University Senate (future Board) determines the number of new students within the University based on the proposals of faculties. The Faculty deals with the number of new students in the Faculty Council and presents its proposal to the University Board for approval.

There are no other ways to apply or be admitted to the Faculty. Since most of the instruction is offered in Finnish, the Faculty emphasises the importance of all applicants participating in either the Finnish- or Swedish-language entrance examination. Because of this, the Faculty has no international undergraduate students (Table 9.1).

In 2008, after long planning, the Faculty raised the number of annually accepted students to 70. The University of Helsinki and the Faculty discussed the raise with the Ministry of Education, which granted the Faculty some additional funding for expenses arising from the increase in the number of students. Plans are to use the additional funding to hire more teachers. The need to take in more students came from the current shortage of veterinary surgeons in Finland and from the Ministry of Education's estimates of the future demand for vets.

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

Year	**Number applying for admission**	**Number admitted**	
		Standard intake	Other entry mode
2008*	635	72	--
2007	550	58	--
2006	473	56	--
2005	538	52	--
2004	535	52	--
Average	*546*	*58*	--

*year prior to evaluation

9.1.3 Student flow

Table 9.3.1: Student flow and total number of undergraduate veterinary students (Academic year 2008-2009)

Number of students present after admitted year 1		Number of additionally admitted students
1st year	69	--
2nd year	57	--
3rd year	55	--
4th year	52	--
5th year	53	--
6th year	52	--
> 6th year	~ 40-70*	--
number of undergraduate veterinary students	*378 - 408*	--

**The content of this chapter varies depending on the time of year.

Table 9.3.2: Student flow – Follow up of the 56 students who began their studies in 2002, how many were in 2008 (six years later) in their:

1st year	0
2nd year	0
3rd year	1
4th year	0
5th year	1
6th year	10
How many had graduated	33
How many had dropped out	2
Six years' tuition programme completed, not yet graduated	9

Table 9.4: Number of students graduating annually over the past five years:

Year	Number graduating
2008*	53
2007	41
2006	52
2005	48
2004	50
average	*49*

*year prior to visitation

Table 9.5: Average duration of studies (distribution of students in years)*

Year	Average duration of studies (median)
2000	6.3
2001	5.8
2002	6.3
2003	6.6
2004	6.6
2005	5.9
2006	6.4
2007	6.3
2008	6.3

Order of completion of studies

The degree programme for a Licentiate in Veterinary Medicine proceeds according to a pre-defined programme. Studies are completed in the order described in the course catalogue. Students may, however, modify the order by preparing a personal study plan, approved by the head of academic affairs and the lecturer specialised in university pedagogy. The order of completion in individual disciplines and modules is described in conjunction with the course descriptions.

Under Finnish legislation, a faculty may not demand students to interrupt their studies. Once granted, a study right is practically eternal.

However, the goal in Finland is to restrict study times by an Act that took effect on 1 August 2005. What it means in practice is that students are expected to complete the basic degree in veterinary medicine within the target time frame (six years in total) plus two years. If the student does not complete the degree in this period and does not present a feasible study plan, the Faculty may decide not to extend the student's study time.

The University of Helsinki's checkpoint system ("Etappi") sets restrictions on student registration. If a student does not have enough credits at checkpoints determined by the Faculty, the student is required to make a study plan. Before the student can register for the following academic year and continue studies, he/she must get the study plan approved.

9.2 Comments

Only around 30% of the students accepted annually have taken their matriculation examination in the year of application, and an increasing number of applicants have completed university studies – even university degrees – prior to their selection. The heterogeneity of students sets a challenge to teaching.

The gender ratio of students is skewed (see Table 9.1). Men and women do equally well in the entrance examination. The problem, however, is the low number of male applicants (less than 10%), which means that only a few male students begin studies in the Faculty annually. The Faculty has looked into the reasons for so few men applying to the Faculty of Veterinary Medicine. The study was based on a survey carried out among matriculation examination candidates, and its results prompted the Faculty to enhance its communication about studies and the versatility of the veterinary profession.

The Faculty aims to increase the share of male applicants mainly through communication. Finnish legislation does not allow men to be treated preferentially in the application process, for example, by awarding them additional points in the entrance examination.

Providing instruction to a growing number of students following the increase in student intake presents a challenge in the long term. Moreover, the Faculty's facilities are designed for a maximum of 70 new students annually. The current resources in terms of staff and facilities (including the additional funding from the Ministry of Education) make an increase in the number of students improbable in the near future.

Students of veterinary medicine are highly motivated and only a few go over to another discipline or interrupt their studies for good. However, there are delays in studies (see Table 9.3). Every three to four years, the Faculty carries out a survey among students whose studies are delayed, the aim being to determine the reasons for delays and to offer personal guidance to support the completion of studies. The survey is a part of the Faculty's comprehensive student feedback system. The resulting information is used to improve, for example, the guidelines for and supervision of theses. Work carried out during study time has also been found to delay studies. Consequently, the Faculty has proposed to the Ministry of Agriculture and Forestry that the temporary right to practise the profession, granted to students after the fifth year of studies, be shortened.

The Faculty offers various types of study guidance and counselling from the beginning of studies onwards. The objective is to prevent any delays in studies. The Faculty gets information about the progress of studies, for example, from the University's checkpoint system (Etappi).

Academic guidance and counselling – and especially the personal guidance given to students whose studies are delayed – require a great deal of resources. The growing need for guidance and counselling due to the increase in the number of students will also pose a challenge.

9.3 Suggestions

Although the number of dropouts is low, the Faculty must allocate resources to academic guidance and counselling to ensure that students complete their degree in the normative time frame.

Chapter 10. Academic and support staff

10.1 Facts

Table 10.1. Personnel in the establishment provided for veterinary training

	Budgeted posts (FTE)		**Non-budgeted posts (FTE)**		**Total (FTE)**	
1. Academic staff	VS	NVS	VS	NVS	VS	NVS
Teaching staff (total FTE)*	46.82	26.20	1.47	1.47	48.28	27.67
Research staff (total FTE)	6.04	4.08	9.62	34.07	15.65	38.16
Others (please specify)1)	13.41	1.18	24.18	4.58	37.59	5.76
Total FTE	66.26	31.46	35.27	40.13	**Total (FTE)**	173.11
Total FTE (VS + NVS)					101.52	71.59
FTE providing last year teaching						**173.11**
2. Support staff						
a) responsible for the care and						
treatment of animals		27.30		29.92		57.22
b) responsible for the preparation						
of practical and clinical teaching						
c) responsible for administration.						
general services. maintenance. etc.		23.20		3.35		26.55
d) engaged in research work		39.34		3.75		43.09
e) others (please specify)2)		4.45		6.18		10.63
Total support staff					**Total (FTE)**	**137.49**
Total FTE 1-2					**Total (FTE)**	**310.60**

* The figures for teaching staff include the full contribution of assistants. They teach on average 20%, but measured in person-years this figure may range from 10% to 25% for individual employees. The title of assistant will be gradually replaced with the title of doctoral student, in compliance with the University of Helsinki's four-tiered hierarchy of teaching and research posts. In the case of doctoral students, the Faculty can agree on the amount of teaching with individual students.

1) The figures include veterinary surgeons at the Veterinary Teaching Hospital, all of the Faculty's residents and interns, as well as the lecturer specialised in university pedagogy, veterinary surgeons studying for the specialist's degree, adjunct teachers and the W5W2 planning officer.

2) The figures include technical assistants, instrument supervisors, IT employees, trainees and cleaning staff.

d) This includes technical support staff responsible for management of dissection and necropsy hall teaching and research activities

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

Department name	Academic teaching staff										Support staff		
	Full prof		Associate prof		Assistant prof.		Assistant		Other 1)		Technical	Anim.c.	Admin
	VS	NVS	VS	NVS	VS	NVS	VS	NVS	VS	NVS	b+d+e	a	c
9000									1.84	0.27			10.45
9001	2.00	4.50	5.32	5.23	1.64	9.11	2.21	12.99	1.33	4.17	17.20		4.40
9002	5.00		9.53	3.46	0.14	0.60	1.92	1.20	3.26		6.52		2.70
9003	4.42		3.73	1.92	1.58	6.71	7.29	10.72	2.06	3.41	19.22		2.70
9004			0.06	0.06					28.59	1.46	5.48	57.22	3.90
9005	5.83	0.17	4.87	0.75	2.59	1.99	2.89	2.34	1.69	2.27	5.31		2.40
	17.25	4.67	23.51	11.42	5.94	18.41	14.31	27.25	38.77	11.58	53.72	57.22	26.55
Total FTE													**310.60**

Departments:

- 9000 = Faculty of Veterinary Medicine
- 9001 = Department of Basic Veterinary Sciences
- 9002 = Department of Equine and Small Animal Medicine
- 9003 = Department of Food and Environmental Hygiene
- 9004 = Veterinary Teaching Hospital
- 9005 = Department of Production Animal Medicine.

Ratios: From the above data

Table 10.3: Ratios students/staff

R 1:	no. total academic FTE in veterinary training 3) / no. undergraduate veterinary students 2)	=	173 / 408	= 1 / 2.36	Denominator 2.36
R 2:	no. of total FTE at Faculty 3) / no. undergraduate veterinary students 2)	=	311 / 408	= 1 / 1.31	Denominator 1.31
R 3:	no. total VS FTE in veterinary training 3) / no. undergraduate veterinary students 2)	=	102 / 408	= 1 / 4	Denominator 4
R 4:	no. total VS FTE in veterinary training 3) / no. students graduating annually	=	102 / 50	= 2.04 / 1	Denominator 1
R 5:	no. total FTE academic staff in veterinary training 3) / no. total FTE support staff in veterinary training 3)	=	173 / 139	= 1.24 / 1	Denominator 1

■ Staff allocation in the Faculty and departments is based on a personnel policy that is updated once or twice a year, or more frequently if required. The personnel policies of the departments and the Faculty Office are jointly harmonised and compiled into a Faculty-wide personnel policy, which is approved by the Faculty Council.

■ The recruitment and permanence of staff educated in veterinary medicine pose some problems. Vacancies requiring special professional skills attract only a few or no applications. There are few suitable applicants in Finland. The authorisation of veterinary surgeons with a degree completed outside of the European Union has thus far been a complicated matter in Finland. However, a new agreement with national officials is expected to change the legislation in such a way that the Faculty can recruit veterinarians from outside the European Union for teaching and research positions in which one must participate and/or perform clinical work in their duties.

■ The Decree on Qualification Requirements and Duties of Staff in Institutions of Higher Education now sets higher qualification requirements on academic staff. Formerly, a Licentiate in veterinary medicine was sometimes sufficient when applying for the Faculty's teaching posts. These days applicants are expected to hold a doctoral degree or to show sufficient familiarity with the field (e.g., a Finnish or international Specialist degree). The level of education has increased clearly in support duties.

■ The Veterinary Teaching Hospital hires additional staff on financial bases. If calculations show that additional staff will increase revenue to the extent that the new staff's payroll expenses can be covered, new employees can be hired. The Veterinary Teaching Hospital also acquires some personnel services from companies run by veterinary surgeons. These include, for example, the Small Animal Hospital's special fields and on-call services.

■ Section 18 of the Public Servants Act determines the conditions under which public servants can accept or hold a secondary job. They must get permission from the employer if they attend to the secondary job during University working hours. In other cases, they must submit notification of outside employment. When considering the granting of an outside employment permit, the employer must take into consideration that a secondary job may not lead to the public servant being disqualified from performing his/her duties. Moreover, outside employment may not endanger the impartiality of a public servant or otherwise interfere with the proper performance of his or her duties, nor compete with and clearly hurt the employer's operations. Based on these grounds, the employer may also prohibit outside employment for which a notification has been submitted. Corresponding regulations are included in the Employment Contracts Act.

■ a) The head of a discipline/coordinating unit gives orders for the subordinates' official journeys, while official journeys made by a head of discipline are ordered by the head of department and those made by the head of department are ordered by the Dean. They also assume responsibility for the costs incurred from such travel. Owing to the scarcity of funding from the national budget, trips are primarily made with external research funding or with a travel grant. The Chancellor's travel grant is meant for academic foreign travel of the University of Helsinki's researchers, teachers and postgraduate students. Support is given especially to young researchers travelling to conferences, but also for trips made by more senior researchers. Priority is given to applicants who will be giving an oral or poster presentation.

■ b) Unpaid leave of absence can be granted on application. Persons returning from administrative duties to teaching and/or research duties can apply for a sabbatical, which means approximately six months of paid leave of absence, for example, after leaving the Dean's post.

Chapter 11. Continuing education

Veterinary surgeons can update their skills and acquire additional competence through specialisation education but also through continuing education. The Act on practising as a veterinary surgeon lays down regulations on the obligation of veterinary surgeons to maintain and develop their professional skills and knowledge about rules and regulations related to the profession. The Faculty of Veterinary Medicine contributes to the continuing education of veterinary surgeons. The Faculty is committed to the goal of lifelong learning of veterinary surgeons and has taken responsibility for the implementation of continuing education. The new Universities Act, which is now before Parliament, requires universities to assume bigger responsibility for the implementation of continuing education in the future.

The Faculty of Veterinary Medicine has a consultative committee on continuing education appointed by the Dean. Continuing education falls under the responsibility of one of the Vice-Deans. The consultative committee brings together the main parties organising continuing education for veterinary surgeons, as its members include representatives of the Ministry of Agriculture and Forestry, the Finnish Food Safety Authority, the Finnish Veterinary Association, Fennovet (an organiser of continuing education in veterinary sciences), as well as Palmenia and the Ruralia Institute, both of them centres of continuing education under the University of Helsinki. Co-operation in the field of continuing education is well established with most of the parties. In addition, the Faculty co-operates with a number of specialist organisations, such as small animal practices, for the purpose of continuing education. The Faculty is also involved in planning the annual veterinary meeting. This training event, arranged by the Finnish Veterinary Association, is attended by the majority of veterinary surgeons. Many of the lecturers at the annual meeting are members of the Faculty's teaching and research staff.

The Faculty of Veterinary Medicine offers a selection of courses as a part of optional basic studies, which veterinary surgeons who already hold a degree can also apply for. In addition to providing valuable education, these courses enable undergraduate students to come into natural contact with practising veterinary surgeons. Another of the Faculty's significant inputs is the support it gives to its own professionals participating as lecturers or experts in continuing education arranged by other parties. The annual food hygienist and veterinary inspector exams arranged by the Faculty are well established educational events.

The Faculty has also developed assessment practices to further support continuing education and lifelong learning. On application, the Faculty's departments can grant veterinary surgeons a diploma for demonstrably completed continuing education. Such diplomas include the continuing education diploma for production animal veterinary surgeons granted by the Department of Production Animal Medicine and the diploma for environmental healthcare management granted by the Department of Food and Environmental Hygiene. A similar diploma is being planned for emergency veterinarians, who could use the diploma as a part of the specialisation programme in infectious animal diseases. The acceptance of continuing education diplomas as a part of specialisation education is hoped to lower the threshold for applying for specialisation options.

11.1 Comments

Since veterinary surgeons are legally obliged to attend continuing education, they do so actively. Continuing education is considered to be of high quality, which makes it popular and has convinced practising veterinarians that it is worthwhile paying for additional training. Some of the Faculty's courses get more applications than they can accommodate since the courses are primarily offered to undergraduate students. There is a great need among veterinary graduates for education that requires the use of the Faculty's animals, laboratory facilities or other equipment.

11.3. Suggestions

The Faculty aims to actively search for specialisation and continuing education partners among its present co-operation partners but also elsewhere, such as in other universities.

One of the goals, in addition to building up resources, is to enable the Faculty to more widely and effectively recognise veterinary surgeons' other continuing education and work experience, as well as international studies and degrees, as a part of their professional specialisation or other continuing education. The Ministry of Education will also require the creation of new alternatives, such as apprenticeship education. However, the adoption of new types of operations calls for appropriate resourcing.

Chapter 12. Postgraduate education

12.1 Facts

12.1.1 Clinical specialisation training (interns and residents)

Table 12.1. Data on national track specialisation.

	Number of specialists on staff	Number of trainees overall in the specialization program 31.12.2008	Success rate: Completed degrees in 2007 and 2008
Small animal medicine	11	68	2007: 1 2008: 3
Equine medicine	6	21	2007: 1 2008: 0
Production animals	6	44	2007: 3 2008: 3
Infectious diseases	1	35	2007: 1 2008: 1
Food and environmental hygiene	2	25	2007: 3 2008: 1

In addition to the national specialisation training, several postgraduate students are completing their international Diploma studies (Table 12.2.).

Table 12.2. Information on diplomats among staff, interns and residents.

Diplomate title offered	Number of Diplomates on staff (31 Dec 2008)	Number of interns		Number of residents	
		2008	2007	2008	2007
Small animal (valid for all SA residencies)		4	4		
Equine (valid for all equine residencies)		3	2		
ECVS - SA	1			1	1
ECVS - Equine	1			0	0
ECVN	1			1	0
ECVDI	2			1***	1
ECVO **	0			1***	1
EVDC **	0			1	0
ECEIM **	0			1***	0
ECVPT	1			1	0
ECVPH-PM	1			0	0
ECVP	1*			1*	1
Production Animal Medicine (ECAR 2, ECBHM 3, ECPHM 1, of which one is a double Diplomate ECAR+ECPHM)	6			1 (ECAR)	1 (ECAR)

* same person
** alternate track
*** board eligible: in addition to those mentioned above, one person who has completed residency abroad is ECVS board eligible

Of Finland's 1,700 working-age veterinary surgeons, some 270 have completed a Specialist degree in the Faculty of Veterinary Medicine. The Faculty offers professional postgraduate degrees (Specialist degrees) in six fields: food production hygiene, equine diseases, small animal diseases, infectious animal diseases, production animal healthcare and medical treatment, as well as environmental healthcare. The four-year Specialist degree has a scope of 240 credits.

Professional postgraduate education is the responsibility of one of the Vice-Deans. The Faculty has a specialisation committee, appointed by the Dean, with at least one representative from each field of specialisation. The committee makes proposals on standing regulations for specialisation studies to the Faculty Council and monitors the implementation and enhancement of specialisation studies. Moreover, each field of specialisation makes detailed decisions on the credits and requirements related to studies in their own field.

The Specialist degree consists of a general part and supervised specialisation education. To be eligible for the supervised part, veterinary surgeons must complete the one-year general part, which consists of work related to the field of specialisation in training places approved by the specialisation committee.

The specialisation period lasts approximately three years. Once students are accepted into the supervised training programme, they draw up a personal study plan for their specialisation in co-operation with their main supervisor, appointed by the Faculty. In addition to duties typical of the field, the supervised period includes, for example, courses, written assignments or examinations (depending on the field of specialisation) and the preparation of a publication. The studies also include a field-specific specialisation examination. Supervised specialisation consists of a basic and advanced part. Their duration varies depending on the field.

The basic part accounts for approximately two years of specialisation. During this period the student works in a job related to the field of specialisation in accordance with the personal study plan. Depending on their field of specialisation, students can work, for example, at an equine or small animal clinic approved by the Faculty. The advanced part of supervised specialisation lasts for approximately one year, during which time students further deepen their expertise in the field. The period mainly consists of work in a specialisation post at the Faculty of Veterinary Medicine for 3–12 months depending on the field. Work at the Faculty can be replaced with work at an international university or in a university-level clinic approved for this purpose.

Finnish specialisation education is considered to be broad-based general specialisation compared to European specialisation programmes (Diplomates), which focus on specific fields in more depth. Some European programmes can be either recognised in full or included in a Finnish specialisation degree. The Faculty can also award a degree certificate for specialist in veterinary medicine based on certain completed European Diplomates, as long as the student registers at the Faculty and prepares a portfolio. On application, the Finnish Food Safety Authority can also authorise a person with an international specialisation degree to practice as a specialist in veterinary medicine in Finland. Those with a Nordic specialisation degree in particular have sought such authorisation. The right to practise as a specialist in veterinary medicine is granted on a case-by-case basis after an evaluation of the equivalence of degrees and the completed courses. In some cases, the Finnish Food Safety Authority determines a period of adaptation or additional training to ensure that the international degree corresponds to a Finnish specialisation degree in terms of content and duration.

12.1.2. Comments

The weakness of specialisation studies is the relatively low number of completed degrees compared to the fairly high number of students attending education. The Faculty currently has some 220 postgraduate students working towards a Specialist degree. In 2007–2009, the Faculty's annual goal was to achieve nine Specialist degrees in veterinary medicine. Eight students completed their Specialist degree in 2007 and nine students in 2008. Over the next ten years, the goal will be to gradually double the target number of degrees with the help of various measures.

The main factor affecting the number of completed degrees is the lack of supervisors for specialisation studies. The supervisors have too many students to attend to, and the allocation of time has been problematic: supervisory tasks are carried out in addition to teaching and research duties. It is impossible to offer as profound guidance outside the Faculty (patient rounds and discussions) as within it. According to a survey, however, students mostly find the supervision to be of good and high quality.

At 16%, the degree of specialisation among employed veterinary surgeons is quite low, as well: the number of Specialists in veterinary medicine must be raised. The goal is for their number to double in the next ten years. Owing to scarce resources, including the limited number of supervisors, the target will prove to be very challenging.

Diplomate degrees are not included in the official goals of the Faculty, which limits the possibility to actively generate financial support for residency positions of European specialisation. However, Diplomates are favoured in appointments to such offices.

12.1.2. Suggestions

The Faculty has been developing its professional postgraduate education under the orders of a working group appointed by the Ministry of Education. According to a report on specialisation education, published in June 2009, the content and scope of training were considered to be mostly good. Supervisory work was also described as being of high quality. Additional resources used, for example, to hire a joint coordinator for specialisation training was deemed extremely important. The report also highlighted the need to increase the number of supervisors to ensure that supervisory duties do not put an excessive load on individual faculty employees. National and international educational co-operation must also be increased. One of the key problems is the lack of specialisation posts in the advanced stage of education. Co-operation with training places outside the Faculty must be enhanced to ensure better availability of outside courses and training posts.

Research Education Programmes

Facts

In its strategic plan and research policy programme, the University of Helsinki defines research – especially basic research – as the cornerstone and strength of its operations. Research, postgraduate education and research-based undergraduate education are at the focus of attention in the Faculty of Veterinary Medicine, which has set up a target programme for their development.

The Faculty offers two doctoral degrees: Doctor of Veterinary Medicine and Doctor of Philosophy. Doctoral degrees mainly involve research carried out in one of the Faculty's research groups. The Faculty currently has around 90 doctoral students.

The goal of doctoral studies in the Faculty of Veterinary Medicine is for the students to:

- acquire a deep insight into their field of research and its social significance, learn how to independently and critically apply scientific research methods in their own field of research and to create new scientific information,
- familiarise themselves with developments, basic issues and research methods in their field,
- acquire the ability to follow developments in the general theory of science and other disciplines related to their field of research.

Costs and organisation of researcher training

The University's core funding covers the salaries for posts and expenses for facilities, but even

some of the undergraduate education is partly paid with overhead income from external funding. Researchers' salaries are paid either with external funding acquired by the head of the research group or by doctoral programmes financed by the Ministry of Education, which have approximately 1,600 funded postgraduate positions nationwide.

The Faculty is involved in the Graduate School in Animal Welfare (seven positions) and in the Graduate School in Applied Bioscience: Bioengineering, Food & Nutrition, Environment (ABS) (varying number of positions). The Faculty has also signed a co-operation agreement with the Viikki Graduate School in Biosciences (VGSB). The faculty has participated in covering the costs of a follow up study on the performance in work life of ABS graduate school alumni. In addition to participating in national graduate schools, the Faculty has its own doctoral programme which has received annual funding for doctoral positions through the University of Helsinki's internal application procedure. In 2007 and 2009, for example, the programme was awarded two four-year doctoral positions. The positions awarded to the Faculty are advertised publicly and the best students are selected on the basis of a competitive internal application arranged by graduate schools. The research plans of graduate school applicants are assessed using evaluation criteria and methods determined in advance.

Much of the external funding is taken up by salary expenses. It is worth noting, however, that research in the field of veterinary medicine is expensive. The equipment required by researchers is paid with core funding, but all other research expenses are covered by external funding acquired by the research groups.

Principles of and guidelines on postgraduate education issued by the University of Helsinki and the Faculty of Veterinary Medicine

In its postgraduate education, the Faculty adheres to the policies defined by the Ministry of Education and the Rector of the University of Helsinki (Decision of the University Senate 8 June 2006).

The University's policy on postgraduate degrees states that the doctoral degree is the primary postgraduate degree. The scope of doctoral degrees must be designed so that they can be completed in four years of full-time study. Doctoral studies can also be carried out on a part-time basis. While the overall scope of the doctoral degree and the dissertation workload are not expressed in ECTS credits, doctoral studies included in the degree are measured in credits. Doctoral studies must support dissertation work and offer skills and knowledge needed in research duties and other demanding expert assignments.

The University policy emphasises that the selection of postgraduate students must be based on pre-determined selection criteria and on a systematic admission procedure. Faculties must also ensure that doctoral students receive sufficient high-quality supervision and support in their field of research.

Postgraduate supervision plays a key role in initiating and promoting postgraduate studies. Each postgraduate student must have at least one appointed supervisor. In line with the Faculty's recommendations, postgraduate students can have a maximum of three supervisors. Special attention is paid to supervision at the early phase of studies, as well as to the regularity of supervision throughout the studies. Postgraduate students must be supported in their integration with the academic community.

The Faculty of Veterinary Medicine and the Viikki Campus arrange doctoral education every term. As a part of the scientific development track, undergraduate students are also informed about postgraduate study options.

Everyone accepted for doctoral education must prepare a personal study plan. In the Faculty of Veterinary Medicine, postgraduate applicants must draw up both a research and a study plan, which are updated with the supervisor throughout the postgraduate education.

The progress of research and studies is systematically monitored in faculties. The University sends a questionnaire on degree progress to all students who have been registered in doctoral programmes for seven years or more. Students adhere to the Faculty's principles of study monitoring. Students picked for monitoring by the Faculty of Veterinary Medicine are required to update their research and study plans with their supervisor if they want to complete their degree.

In addition to the University of Helsinki's common postgraduate policies, the Faculty of Veterinary Medicine uses its own postgraduate guidelines as a key document guiding studies and activities. The guidelines describe the postgraduate study process from the application stage to the completion of the dissertation. The Faculty has also drawn up criteria for the assessment of dissertations and defined the rights and responsibilities of postgraduate students and supervisors.

Administrative Organization of Researcher training at the Faculty

The implementation of the strategic and administrative processes in postgraduate education falls under the Vice-Dean's field of responsibilities. The Faculty has a committee for research and postgraduate affairs that prepares related decisions and handles the applications of postgraduate candidates. Decisions on the acceptance of postgraduate students are made by the Faculty Council. The Faculty also employs a part-time postgraduate coordinator, whose duties include, for example, surveying the postgraduate study offering and informing postgraduate students of study options.

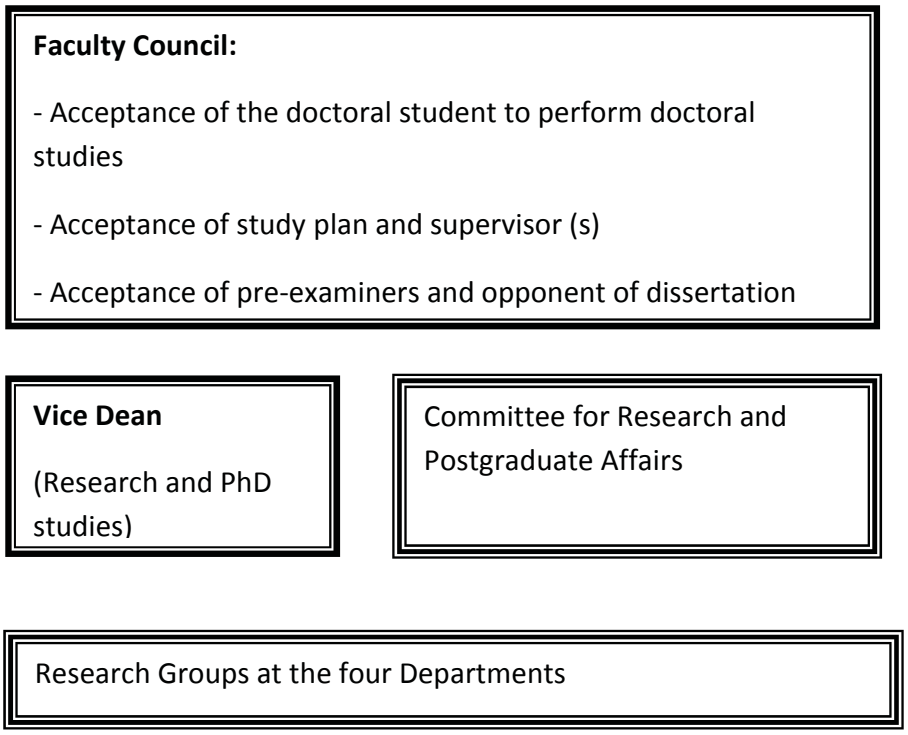


Figure 9. Research Administration at the Faculty

Procedure for Acceptance as a Doctoral Student

Postgraduate candidates for the Faculty of Veterinary Medicine prepare a research and study plan jointly with the director of studies and supervisor(s) in line with the Faculty's guidelines. The plans are evaluated by the committee for research and postgraduate affairs. If the evaluation is favourable, the committee makes a proposal for granting a postgraduate study right and approving

the research and study plan to the Faculty Council. If accepted for postgraduate education, the student is assigned a director of studies and supervisors by the Faculty Council. Students must annually notify the student register of their attendance status.

The theoretical part of the doctoral degree in veterinary medicine consists of 40 credits of theoretical and methodology studies. Studies in the Doctor of Philosophy degree have a scope of 60 credits. Doctoral studies are divided into general studies and field-specific studies. The scope of general studies is 10 credits in both the Doctor of Veterinary Medicine and the Doctor of Philosophy degrees. General studies can include, for example, theory of science and research ethics, statistical methods, biostatistics and basic epidemiology, academic writing and reporting, as well as studies in university pedagogy.

Field-specific studies may include, for example, discipline- or project-specific training in methodology, scientific courses in the field of research, seminars, international conferences and meetings, as well as personal supervision.

In addition to studies, the doctoral degree includes dissertation work, which is based on the student's own research and the reporting of research results. Dissertation work usually consists of four or five articles, which have appeared in international, peer-assessed scientific publications, and of a summary written on the basis of the results. As for co-authored publications included in the dissertation, the doctoral candidate must be the first author in at least two of them. If a publication is used in several dissertations, each of the authors must have clearly defined roles in the preparation of the publication.

During the pre-examination of the dissertation manuscript, the Faculty Council appoints at least two pre-examiners on the proposal of the director of studies, if favoured by the committee for research and postgraduate affairs. The proposal must also indicate the expertise of the proposed pre-examiners in the dissertation's field of research. Special criteria have been defined for the grading of dissertations. The pre-examination statement recommends granting or denying permission to defend the dissertation.

The defence takes place at a public examination. The Faculty Council assigns one or two opponents based on the proposal of the director of studies. The opponents must be qualified professors or adjunct professors or have corresponding academic qualifications. Similar to the pre-examiners, the opponents prepare a written statement on the dissertation and propose a grade for it. Only dissertations of exceptional quality receive the grade "approved with distinction".

In their written statements, the pre-examiners and opponents assess, among other things, the formulation of the research question, the material and methods, the research results, the discussion and conclusions, the familiarity with the research field and the language and presentation.
The Faculty Council grades the dissertation on the basis of the written statements and issues the doctoral degree certificate.

Table 12.3. Number of research students in different programmes

Type of degree	Total no. of	Fulltime	Part time	Duration
Phd (Vet.Med.)	76	appr. 70%	appr. 30%	4 – 10 years*
PhD (Sci)	26	100 %		4 – 10 years

* Depending if full time or working simultaneously in teaching, clinical work etc.

Comments

Postgraduate research

- Most of our registered doctoral students with a veterinary medical education (numbers) are needed to make more extensive efforts to motivate our undergraduate students on the potential to select researcher careers as an interesting opportunity. We need more post-doctoral students with a veterinary medical background, because they have the broadest knowledge on the relevant research fields in veterinary science. They will have good opportunities to pursue researcher careers at the faculty because competent, enthusiastic researchers able to develop the field and to assume responsibility in the future are lacking.
- The Ministry of Education as well as the Academy of Finland have a common science policy which emphasises research and strongly supports researcher careers which will select the best students for future research.
- As agreed with the Ministry of Education, the Faculty's degree target in 2007–2009 was an annual 11 doctoral degrees. In the early 2000s, the average number of annual degrees was nine. The following table shows the number of doctoral degrees completed in the past three years.
-

Table 12.4: Number of doctoral theses (PhD) in 2006-2008

Year	2006	2007	2008
No. of	11 (of these, 9 were in veterinary medical education)	6 (of these, 4 were in veterinary medical education)	16 (of these, 11 were in veterinary medical education)

Suggestions

A common targeted doctoral programme covering and combining different research activities in the whole faculty under one umbrella could benefit researcher careers and research in general.

Chapter 13. Research

One of the major aims of the faculty is to educate veterinary students able to apply the latest scientific knowledge to improve their professional skills, as well as to learn to read and critically analyse the content of lectures, textbooks and scientific articles. Faculty's aim is also for students to have the enthusiasm to discover new and updated knowledge and to improve their skills as professional veterinarians after graduation (life-long learning).

1. Most of our teachers are actively working both as teachers and as researchers in their research projects, so they are able to apply the latest research knowledge in teaching and to educate students to think and critically evaluate all knowledge and data.
2. Philosophy and matter-of-fact scientific thinking is an approach we want students to use throughout the entire curriculum when they analyse all kinds of professional knowledge. These targets are supported by organising the course "Basic Knowledge of Science and Science Philosophy" for second-year students (2 credits). This course offers lectures on the history of science and basic knowledge on scientific thinking, philosophy and on methods for searching the scientific literature.
3. The aim is that, in their later studies of different subjects in veterinary medicine, each teacher would include in their lectures the most important scientific issues in that field (the integration principle).
4. All veterinary students will have personal experiences in research as a part of the curriculum.
A. Firstly, during their bachelor of Veterinary Medicine studies, students will write a candidate thesis (search scientific articles, review the data and write a short thesis). The extension of this study is six credits.
B. Further, all students participate in a small research project in one of the four departments (or outside the faculty in some research institute): they make a study plan, collect samples, analyse them and write a report under the supervision of a teacher or researcher with a doctoral degree (licentiate thesis). The extent of this is 20-25 credits.
C. Another option to complete the licenciate thesis is to participate in the Summer school organised by the Department of Food and Environmental Hygiene each summer period from June through August. In this summer School, the students work full-time in research groups and carry out small research projects on different topics. Their supervisors are usually post-doctoral fellows working on the project. At the end of the summer, they write their results as licentiate theses. Almost all licentiate theses are published in electronic form by the Viikki Science Library (D-Viikki).
5. At the end of the curriculum (in the sixth year), students attend lectures on carrier possibilities after graduation, including being a PhD student at the faculty.

13.1. Comments

- Students are informed of the opportunities to participate in small research projects. Working on a research project may introduce a student to the research environment and she or he may later be involved in a research project toward a PhD exam and continue on to a researcher career.
- Policy of the University of Helsinkistrongly leads toward a science-oriented university.

13.2.Suggestions

More information is needed on making the pursuit of a research career more attractive to students of Veterinary Medicine.

The lack of continuous biostatistical consulting in the Faculty's research at undergraduate and postgraduate levels is a constant problem affecting the quality of research.

Appendix 1: References

(Publications on teaching and learning at the Faculty)

Haarala-Muhonen, A., Ruohoniemi, M., Katajavuori, N. & Lindblom-Ylänne, S. Comparison of students' perceptions of their teaching-learning environments in three professional academic disciplines – a valuable tool for quality enhancement. (Learning Environments Research, submitted)

Hewson, C., Baranyiová, E., Broom, D., Cockram, M., Galindo, F., Hanlon, A., Hänninen, L. et al. (2005) Approaches to teaching animal welfare at 13 veterinary schools worldwide. Journal of Veterinary Medical Education 32(4), 422-437.

Kipar, A., Aleksandersen, M., Benazzi, C., Hodge, T., Sukura, A., Wyers, M. & Education Committee of the ECVP/ESVP (2007a) The ECVP/ESVP summer school in veterinary pathology: high-standard, structured training for young veterinary pathologists. Journal of Veterinary Medical Education 34(4), 485-491.

Kipar, A., Aleksandersen, M., Benazzi, C., Hodge, T., Sukura, A. & Wyers, M. (2007b) Providing high-quality research training for veterinary pathologists in Europe. Veterinary Record, 160(9), 285-286.

Korkeala, H., Lindström, M., & Fredriksson-Ahomaa, M. (2003) Food hygiene research and education in veterinary schools: the presence and future. Archiv für Lebensmittelhygiene, Fleisch-, Fisch- und Milchhygiene 54(5-6), 146-152.

Korkeala, H. & Lindström, M. (2009) Introducing scientific training into the veterinary curriculum of the University of Helsinki. Journal of Veterinary Medical Education 36(1), 83-88.

Koskinen, H.I. Yliopistotentin murros. SOLO-taksonomia eläinlääketieteellisen lisääntymistieteen oppimistulosten arvioinnissa. (The change of the examination. SOLO taxonomy in the evaluation of student outcomes in veterinary reproduction science.) Academic dissertation, University of Helsinki 2005 (Summary in English)

Lundén, J., Björkroth, J. & Korkeala, H. (2007) Meat inspection education in Finnish veterinary curriculum. Journal of Veterinary Medical Education 34(2), 205-211.

Maijala, R. & Korkeala, H. (2008) Reviewing the undergraduate veterinary curriculum in Finland for control tasks in veterinary public health. Journal of Veterinary Medical Education 35(2), 241-254.

Mikkonen, J., Heikkilä, A.-M., Ruohoniemi, M. & Lindblom-Ylänne, S. (2009) "I study because I'm interested"; University students' explanations for their disciplinary choices. Scandinavian Journal of Educational Research 53(3), 229-244.

Mikkonen, J., Ruohoniemi, M. & Lindblom-Ylänne, S. The role of individual interest during the first years of university studies. (Learning and Instruction, submitted)

Ruohoniemi, M. & Haga, C. (2006) Miksi vain harvat miehet pyrkivät opiskelemaan eläinlääkäriksi? Eläinlääketieteelliseen tiedekuntaan hakeneiden ja miespuolisten abiturienttien näkemyksiä. Why so few men apply to study veterinary medicine? Opinions of applicants to the faculty and final-year male high-school students. Suomen Eläinlääkärilehti 112(4), 171-177. (Summary in English)

Ruohoniemi, M. & Levander, L. (2005) Portfolio kliinisen eläinlääketieteen erikoistumiskoulutuksen apuvälineenä. Professional development portfolio as a tool for veterinarians specializing in small animal diseases, equine diseases and production medicine. Suomen Eläinlääkärilehti 111(9), 428-433. (Summary in English)

Ruohoniemi, M. & Lindblom-Ylänne, S. (2009) Students' experiences concerning course workload and factors enhancing and impeding their learning – a useful resource for quality enhancement in teaching and curriculum planning. International Journal of Academic Development 14(1), 69-81.

Ruohoniemi, M. & Parpala, A. (2009) Relationships between students' approaches to learning, perceptions of the teaching-learning environment, and study achievement – A preliminary study of third-year veterinary students. Paper presented at the 13th Biennial Conference of EARLI (European Association for Research on Learning and Instruction), Amsterdam 25.-29.8.2009

Appendix 2: Feedback system of the Faculty

Feedback system for the degree programme leading to the degree of Licentiate of Veterinary Medicine (new degree system) – Striving towards continuous development of activities
(continues on next page)

Year of studies	Courses	Course/block feedback			Feedback for larger teaching units (compulsory, with one's name)
		Who is responsible for collecting feedback?	How often?	Opportunity to provide feedback continuously (also anonymously)	
I	Orientation to University Studies The Healthy Animal (THA) study module	Study Affairs in the Faculty Office Supervisors of the THA components	Annually Every course of the module	Student tutors Course Management System	Whole-year feedback (focus on learning)/ Senior Lecturer in University Pedagogy
II	Animal Hygiene, Ethology and Animal Protection Animal Clinical Nutrition Farm Practice Animal Genetics Veterinary Microbiology and Immunology Veterinary Parasitology Veterinary Pathology Meat Inspection Techniques	Lecturer responsible for each course	Annually for each course	Course Management System; by email or in person directly to the (responsible) teacher	Whole-year feedback/ Study Affairs in the Faculty Office
III	Epidemiology and Statistics Veterinary Pathology Meat Inspection Veterinary Practice Veterinarian as an Officer Pharmacology and Toxicology Introduction to Clinical Work	Lecturer responsible for each course	Annually for each course		BVM feedback (strands, language and communication studies, optional studies, Bachelor's thesis, academic administration feedback and Bachelor-level studies as a whole)/Study Affairs in the Faculty Office
IV	Internal Medicine Anaesthesiology and Intensive Care Surgery Animal Reproduction Healthcare of Production Animals (includes teaching on Diagnostic Imaging and Clinical Pharmacology)	Lecturer responsible for each course	Annually for each course		Whole-year feedback/ Study Affairs in the Faculty Office
V	Health Service System, Municipal Administration and Veterinary Services Clinical Practice	Lecturer responsible for the course Unit Supervisors Tutoring group supervisors (Saari)	Annually Every term	By email or in person	

VI	Food Hygiene and Food Supervision Environmental Hygiene and Toxicology Traineeship in Food and Environmental Hygiene Health Service System, Municipal Administration and Veterinary Services Practice Management, Veterinarian as an Entrepreneur	Teacher responsible for each course	Annually Annually Annually Every three years	Course Management System; by email or in person directly to the (responsible) lecturer	LVM feedback (optional studies, Licentiate thesis feedback, academic administration feedback and Licentiate studies as a whole)/Study Affairs in the Faculty Office
		Course/block feedback			Feedback for extensive modules
Feedback focus		Learning, teaching, functionality and workload of individual courses			The curriculum and its functionality, workload of studies, supervision
Means of collection		Mainly electronically, after the course			Electronically, as part of portfolio studies, whole-year studies at the end of May, BVM and LVM degree feedback before the awarding of the diploma
Where discussed		Departmental teachers' meetings (recorded in the proceedings) + an annual situation report in conjunction with a self-evaluation of the quality of teaching (completing the matrix)			Academic Planning Committee; Head of Committee and/or Senior Lecturer in University Pedagogy reports on the whole Faculty to the Dean at the beginning of the autumn term
"Feedback on feedback" to students		Through e-mail, the Course Management System or the Alma intranet; in feedback sessions			The Alma intranet
Other		Teachers still have the option to collect feedback at times they consider appropriate, but the feedback must be given as "feedback on feedback" and communally discussed at the subject (or higher) level or together with the Senior Lecturer in University Pedagogy.			
Graduating students, delayed students (7th year +), practicing veterinarians					Delayed student feedback collected every 3-4 years/Study Affairs in the Faculty Office, Senior Lecturer in University Pedagogy Summary of feedback discussed at the meetings of the Academic Planning Committee Feedback on studies and work experience collected by Career Services, discussed in the meetings of the Academic Planning Committee
The entire degree programme		International and other external evaluations/Academic Planning Committee - Drawing conclusions: Deans, Faculty Council, Academic Planning Committee - Concrete measures: Academic Planning Committee			

CLINICAL ROTATION 2008-2009

week	starts 25.8.	35	VET congress													6.12.			Christmas break, emergency shifts only	(6.1.)	Elective weeks 3-11 NOTE! Group changes at the bottom of the page										Pr1	Pr2				1.5.		11.5 TK		
			36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51		2	3	4	5	6	7	8	9	10	11	12	13	14	15+16	17	18	19	20	21
Small animal internal medicine	A1	A1	A1	E1	E1	E1	C1	C1	C1	B1	B1	B1	F1	F1	F1	D1	D1		D1	A1	A1	A1	E1	E1	E1	C1	C1	C1	B1	B1	B1	D1	D1	D1	F1	F1	F1
	A2	A2	A2	E2	E2	E2	C2	C2	C2	B2	B2	B2	F2	F2	F2	D2	D2		D2	A2	A2	A2	E2	E2	E2	C2	C2	C2	B2	B2	B2	D2	D2	D2	F2	F2	F2
Small animal surgery	F1	F1	F1	C1	C1	C1	B1	B1	B1	E1	E1	E1	D1	D1	D1	A1	A1		A1	F1	F1	F1	D1	D1	D1	B1	B1	B1	E1	E1	E1	A1	A1	A1	C1	C1	C1
	F2	F2	F2	C2	C2	C2	B2	B2	B2	E2	E2	E2	D2	D2	D2	A2	A2		A2	F2	F2	F2	D2	D2	D2	B2	B2	B2	E2	E2	E2	A2	A2	A2	C2	C2	C2
Diagnostic imaging	B1	B2	B1	F1	F2	F1	D1	D2	D1	A1	A2	A1	E1	E2	E1	C1	C2		C1	B2	B1	B2	F2	F1	F2	D2	D1	D2	A2	A1	A2	C2	C1	C2	E2	E1	E2
Ultrasound afternoon	The times of ultrasound afternoons will be																																				
	told at the beginning of diagnostic imaging period.																																				
Small animal on call	B2	B1	B2	F2	F1	F2	D2	D1	D2	A2	A1	A2	E2	E1	E2	C2	C1		C2	B1	B2	B1	F1	F2	F1	D1	D2	D1	A1	A2	A1	C1	C2	C1	E1	E2	E1
Equine hospital	E1	E1	E1	D1	D1	D1	A1	A1	A1	F1	F1	F1	C1	C1	C1	B1	B1		B1	E1	E1	E1	C1	C1	C1	A1	A1	A1	F1	F1	F1	B1	B1	B1	D1	D1	D1
	E2	E2	E2	D2	D2	D2	A2	A2	A2	F2	F2	F2	C2	C2	C2	B2	B2		B2	E2	E2	E2	C2	C2	C2	A2	A2	A2	F2	F2	F2	B2	B2	B2	D2	D2	D2
Saari (production animal clinic)	C1	C1	C1	A1	A1	A1	E1	E1	E1	C1	C1	C1	A1	A1	A1	E1	E1		E1	C1	C1	C1	B1	B1	B1	F1	F1	F1	C1	C1	C1	E1	E1	E1	A1	A1	A1
	C2	C2	C2	A2	A2	A2	E2	E2	E2	C2	C2	C2	A2	A2	A2	E2	E2		E2	C2	C2	C2	A1	A1	A1	F2	F2	F2	C2	C2	C2	E2	E2	E2	A2	A2	A2
	D1	D1	D1	B1	B1	B1	F1	F1	F1	D1	D1	D1	B1	B1	B1	F1	F1		F1	D1	D1	D1	A2	A2	A2	E1	E1	E1	D1	D1	D1	F1	F1	F1	B1	B1	B1
	D2	D2	D2	B2	B2	B2	F2	F2	F2	D2	D2	D2	B2	B2	B2	F2	F2		F2	D2	D2	D2	B2	B2	B2	E2	E2	E2	D2	D2	D2	F2	F2	F2	B2	B2	B2
Elective period																																					

Academic year opening 1.9 klo 11-16

Practice course:
part I: Fri 27.3.2009
part II: Fri 3.4.2009

Changes in elective weeks: (decided by the end of November)

Weeks 3-5:

Weeks 6-8:

Weeks 9-11:

A1-F2 = groups of students

EAEVE Evaluation

Autumn 2009

Faculty of Veterinary Medicine,
University of Helsinki, Finland
www.vetmed.helsinki.fi/english